Subsequent to the writing of this report, but before its publication and issuance, the State Water Resources Control Board issued a cease and desist order requiring California American Water to reduce its pumping from the Carmel River. This amplifies the need to take the actions recommended in this report.

WATER PROBLEMS IN MONTEREY COUNTY A LONG HISTORY OF INACTION

"The water came in a thirty-year cycle. There would be five or six wet and wonderful years when there might be nineteen to twenty-five inches of rain, and the land would shout with grass. Then would come six or seven pretty good years of twelve to sixteen inches of rain. And then the dry years would come…"

"And it never failed that during the dry years the people forgot about the rich years, and during the wet years they lost all memory of the dry years. It was always that way."

— John Steinbeck, *East of Eden*, 1952

PURPOSE OF THE INVESTIGATION

The 2009 Civil Grand Jury (Grand Jury) investigated water problems in Monterey County in order to inform the community about the status of available water resources in the county, proposed solutions to sustain the availability of water, and examples of the challenges confronting implementation of these solutions.

SUMMARY

Water is critical to the economic and physical health of Monterey County. Water has forever been in short supply. Drop-in-the-bucket solutions, alone, are not enough.

Monterey County interest groups, agencies, and the public have not cooperated in solving the long-standing water shortages. Cooperation is crucial to the success of the multiple, integrated projects required to fix the problems. A joint powers authority is the best way to foster cooperation and provide a fair way of sharing power.

Monterey County is faced with over-pumping of the Carmel River, seawater intrusion, water contamination, and severe water shortages. Old, leaky distribution systems further aggravate the problem. Conservation and use of recycled water are only partial solutions.

Desalination is a key to making more water available. The Monterey Regional Water Supply Program is the most cost-effective and environmentally responsible of the desalination proposals. Monterey County must also have additional infrastructure for storage, distribution, and treatment.

Most voters have refused to approve investing money in large-scale, new projects. Some people complain that there is too much talk and not enough action. This must change!

BACKGROUND FOR THE INVESTIGATION

A history of chronic water shortages in Monterey County includes over-pumping of the Carmel River, Pajaro Valley Groundwater Basin (Pajaro Basin), Salinas Valley Groundwater Basin (Salinas Basin), and Seaside Groundwater Basin (Seaside Basin), resulting in seawater intrusion and inadequate water supply. The full scope of water topics at the county and state level is complex. It was not possible to fully investigate water conditions in all parts of Monterey County. This report is current through September 2009.

INVESTIGATIVE METHODOLOGY

- Interviews with the management of
  - Monterey County Water Resources Agency (MCWRA)
  - Marina Coast Water District (MCWD)
  - Monterey Peninsula Water Management District (MPWMD)
  - Monterey Regional Water Pollution Control Agency (MRWPCA)
  - California American Water (CalAm)
  - Pajaro Valley Water Management Agency (PVWMA)
  - Monterey County Farm Bureau
  - Pajaro/Sunny Mesa Community Services District
- Interviews with a member of the Monterey County Board of Supervisors (BOS), a member of the California Assembly, and a representative from LandWatch
- Attended public meetings held by the California Public Utilities Commission (PUC) focused on the Draft Environmental Impact Report (DEIR) as it pertained to three plans: Coastal Water Project (CWP) Moss Landing proposal, CWP North Marina proposal, and the Monterey Regional Water Supply Program (Regional Project), and at which other proposals and comments were discussed
- Attended a special meeting of the MRWPCA and the Ad Hoc Water Committee held in Seaside on July 9, 2009
- Attended a public meeting on north Monterey County water issues and solutions held in Castroville on July 29, 2009
- Visited the site of the Sand City desalination plant

- Toured MRWPCA facility
- Reviewed the Memorandum of Understanding (MOU) between the MCWD and MRWPCA; the two MOUs between MRWPCA, MCWD, and MCWRA
- Reviewed the Hybrid Regional Plan developed by LandWatch
- Reviewed letters to the editor and editorials of local newspapers on the subject of water in Monterey County
- Reviewed MCWD publications including *Water for Monterey County: Project Update*, June 2009 and the *Monterey Regional Water Supply Project (Phase 1 Project)*
- Researched desalination plants in California and other parts of the world
- Reviewed Monterey County Health Department web pages
- Reviewed web sites pertaining to Monterey County water issues, including Regional Water Project, www.waterformontereycounty.org
- Reviewed previous 25 years of Monterey County Civil Grand Jury reports
- Researched water conservation in Monterey County
- Reviewed DEIR for California Coastal Water Projects
- Reviewed the Draft Cease and Desist Order, January 15, 2008, State Water Resources Control Board (SWRCB)
- Reviewed the ruling of Administrative Law Judge, issued July 21, 2009, delaying PUC decision until May 2010
- Reviewed testimony of witnesses at a PUC meetings
- Reviewed Water for Monterey County Coalition, "Draft Meeting Notes, Sixteenth Meeting," August 6, 2008

INFORMATION GATHERED FROM THE INVESTIGATION

Water Impact on Monterey County

Agriculture and Water

The Salinas Valley is the most productive agricultural region in the world. Monterey County's agriculture is a multi-billion dollar business, yielding 3.8 billion dollars in 2008, and with 42 crops that each produced a value of more than one million dollars. Although agriculture uses about 90% of the water in the Salinas Valley and 80% in north Monterey County, water usage has remained the same, while crop production has dramatically increased over the last 25 years. During droughts, for many crops, 30% less water means 30% less harvest. On August 7, 2009, due to drought conditions, the federal government declared Monterey County and other California counties agriculture disaster areas in order to provide low-cost loans to impacted farmers.

North Monterey County Issues

Portions of north Monterey County, such as Granite Ridge, are experiencing severe water shortages and serious water quality problems. Over 4,400 people in north Monterey County are affected by

Diagram courtesy of Marina Coast Water District

contamination near or exceeding the maximum allowable levels of pollutants. This estimate is most likely understated because some residents do not report contamination in their private wells, due to concern that disclosure to the Monterey County Health Department could reduce their property values.

Because of the natural granite formation in the Granite Ridge area, arsenic levels exceed federal standards. Arsenic can lead to cancer, circulatory, and neurological damage. About 1,550 people are living in the area affected. Arsenic removal is difficult and requires a complex and costly treatment system run by certified professionals. Nitrates also exceed federal standards in at least 22 of the water systems in north Monterey County and can cause a wide variety of serious health problems.

Water systems serving over 100 users are monitored by the state. Smaller systems must periodically be monitored by the county. The water quality of single-connection wells is largely unregulated. Because of this, county reports do not include people at risk from single-connection wells.

As a result of poor water quality and quantity, some residents have potable water trucked in at a cost to them of approximately $300/month, or they purchase bottled water. Some wells in north Monterey County are running dry. Homeowner insurance rates in north Monterey County have been increased due to the lack of an adequate and consistent water supply for fire suppression. The Health Department continues to urge support for a regional water system consolidation project to address water problems in the Granite Ridge area.

Not everyone in north Monterey County has water quality problems. There are water companies in north Monterey County that provide potable water to their customers. Each water company has a responsibility to provide a yearly Consumer Confidence Report to its customers stating the results of regular testing for harmful chemicals.

Storage

Due to the seasonal availability of water, storage is an essential part of a solution to a year-round water supply. San Antonio and Nacimiento Reservoirs are the two primary reservoirs for Monterey County. The dams on the Carmel River are nearing the end of their useful lives. Some small storage facilities exist today for current water distributors, but not on a regional scale with reliable water distribution. The MRWPCA has storage ponds for treated wastewater. These existing facilities are not by themselves sufficient to meet Monterey County's storage needs.

Seawater Intrusion

Seawater intrusion is the infiltration of salt water into fresh water aquifers. In Monterey County, seawater intrusion has been impacting domestic and agricultural water supplies for decades. Too much water has been pumped from the aquifers for agriculture and domestic use, causing seawater intrusion. The graphic on the previous page shows where seawater has intruded in the county.

Unaccounted for Water

Unaccounted for water (UAW) occurs in water systems at an average rate of 10% nationwide[1]. CalAm has a local water loss rate that has grown from 11.2% in 2003 to 13.3% in 2007. When responding to a CalAm proposal for a rate increase, an administrative law judge recommended:

[1] Sources of UAW include fire fighting flows, leaks, meter inaccuracies, and water thefts.

"…an 8.5% allowance for unaccounted for water, which would represent a significant shift in Cal-Am's operations and move Cal-Am much closer to the Monterey Peninsula Water Management District's goal of 7%. While we agree that Cal-Am's performance on unaccounted for water must improve significantly, moving from 11.59% to 8.5% is too sharp of a change. We find that 10% is the industry average, and we require that level as a significant improvement for the main Monterey system. The Bishop and Chular [sic] *Subsystems are currently at 10%, so we will reduce these two systems to 9%. For other subsystems, which vary from 16.16% to 21%, we will require that Cal-Am improve the system operations to cut in half the difference between the subsystem current unaccounted for water level and the industry average of 10%."*[2]

In summer 2009, CalAm started a program to reduce leaks. The plan includes replacing older pipes in CalAm's local system, installing an acoustic monitoring system that detects leaks and sends alerts, and hiring consultants to analyze the current distribution system.

Tourism and Water

Tourism in Monterey County in 2007 was a 2.1 billion dollar business. Hotels, restaurants, visitor-serving facilities, and special events need water. The hospitality industry has aggressively pursued water conservation: the Monterey Bay Aquarium has a small desalination plant; golf courses use recycled water; and hotels and restaurants conserve water, as well as promote water conservation. Even with these exemplary conservation levels, the Monterey Peninsula has inadequate supplies during a drought. Some proposals for hotels included small desalination plants, but were denied due to environmental concerns. Furthermore, a 1989 Monterey County ordinance requires that desalination plants be publicly owned.

History of Water in Monterey County

Monterey County's water crisis has been a frequent subject of inquiry and investigation by past civil grand juries. Within the last 20 years the MPWMD and its operations have been looked into by the 1989, 1990, 1991, 1992, 1998, 1999, 2002, and 2005 Civil Grand Juries. The activities and facilities of the MCWRA and its predecessor, the Monterey County Flood Control and Water Conservation District (MCFCWCD), were addressed by the 1990, 1991, 1994, 1998, and 1999 Civil Grand Juries. The problems of water shortages, lack of adequate storage capacity, seawater intrusion, and well water quality have been investigated over and over again, resulting in civil grand juries offering comments and suggestions relating to numerous water projects to a wide range of agencies and entities. Although there has been some genuine progress in analyzing and planning projects, all too often mere lip service has been paid to the findings and recommendations of past civil grand juries by the responding parties. The implementation of physical solutions to the problems remains conspicuously absent.

The 1991 Civil Grand Jury stated: *"Since the 1960s, there have been many studies on water in Monterey County, innumerable recommendations made, and millions of dollars spent, but not a single project has reached construction stage."*

[2] Quote from section 6.1.11 of May 7, 2009 published comment by Division of Ratepayers Advocates of the California Public Utilities Commission

As was noted in the 1992 Civil Grand Jury's report concerning MPWMD: *"Apparent lack of visible results during the 15-year life of the District have disenchanted the public, caused opposition to the District's collection of charges, and even raised demands for its abolishment…."*

More than a decade ago, the 1998 Civil Grand Jury put matters quite succinctly: *"Time is quickly running out for a solution to the water problem."* The water problems have not improved since then, so the time for action is long overdue.

Early History

The earliest known users of water in Monterey County were the Ohlone Indians.[3] The Ohlones planted and harvested only what they needed. They planted in desirable areas in such a manner that the same plants thrived from year to year in the same location. They did not control water, as would happen later; water was used for fishing, bathing, drinking, and ritual ceremonies. The Ohlone land management system worked for them and would be under-appreciated by Europeans.

The Spanish administration enforced strict water laws and set up a land classification system based on fresh water accessibility. The crux of Spanish policy was that water was for the common good. After the Mexican government took over in 1822, water policy remained unchanged and water continued to be strictly controlled.

Monterey's fresh water supply was seasonal. During the rainy season, water flowed in small creeks and brooks, the largest of which flowed into El Estero. In November 1792, Captain George Vancouver observed that the Presidio *"…does not appear to be much benefited by its vicinity to fresh water, since in the dry season it must be brought from a considerable distance…"*[4] Personnel garrisoned at the Presidio were assigned to import water until a network of open-air ditches to divert water could be constructed. As the population spiked, some of the finest agricultural land was granted to settlers. The American concept of Manifest Destiny would challenge and undermine the Spanish/Mexican values as the region transitioned into a society based on individual rights, including water ownership, and a cash-based economy. Water ownership and usage became an increasingly contentious issue as water shifted from communal to private control. Water was a commodity that would allow the region to expand economically and agriculturally.

Explosions in population and development have stretched Monterey County's water supply nearly to the breaking point. Today's water issues remain much the same as those that confronted the Spaniards but with the additional challenges of seawater intrusion and the introduction of pesticides and toxins into the water supply.

The population and demands on the water resources increased exponentially. The supply of water did not. The numerous water-governing agencies that were established in the twentieth century are described next.

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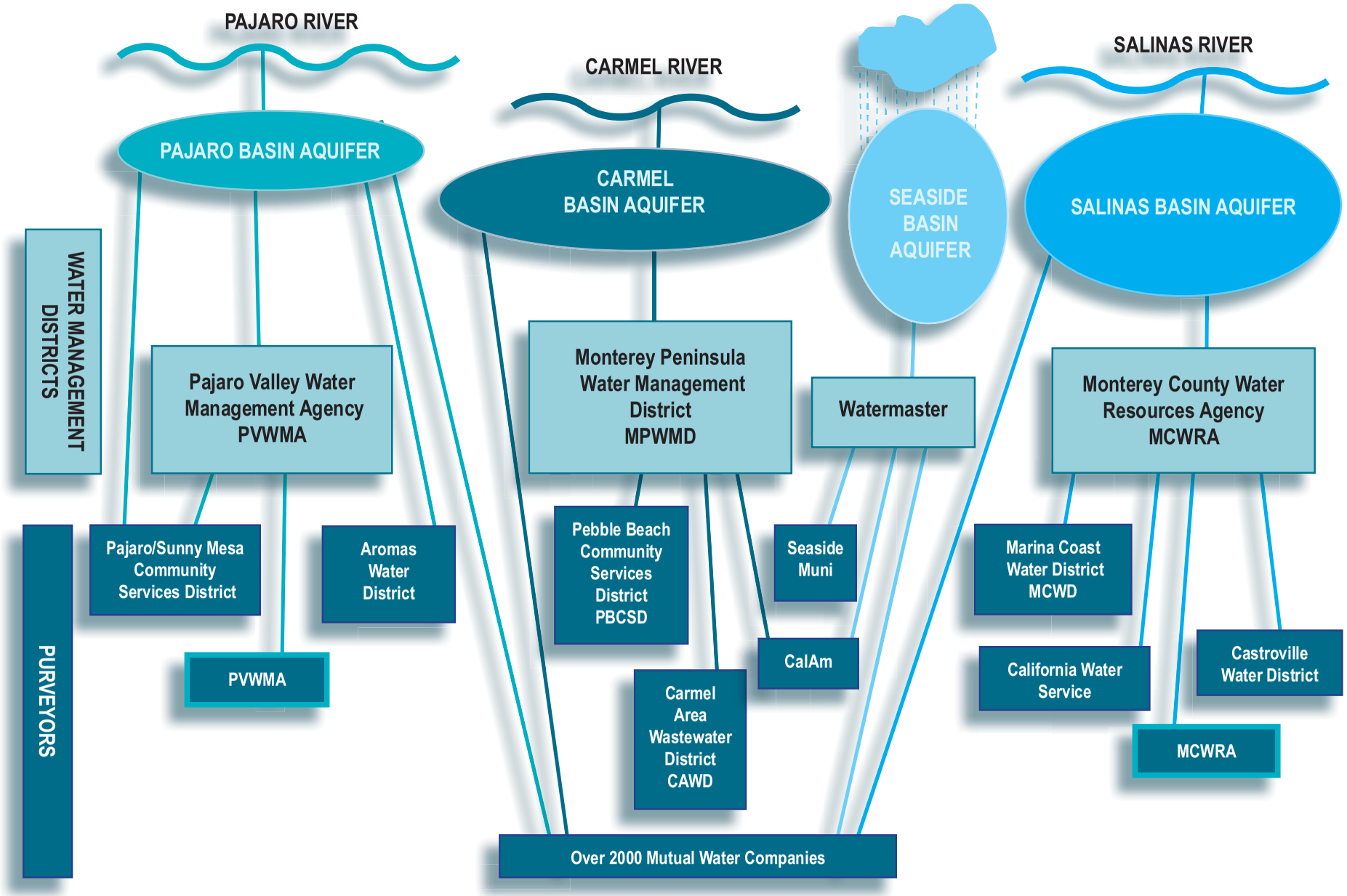
[3] See description of Ohlone Indians and early Spanish influence attached as Appendix A.
[4] Vancouver, George, *The Voyage of George Vancouver 1791-1795*

MONTEREY COUNTY WATER WORKS



Monterey County Water Works

Monterey County Water Resources Agency (MCWRA)

The original owner/operator of the Nacimiento and San Antonio Reservoirs, MCFCWCD, was created by the State Legislature in 1947 (Chapter 699 of the Statutes of 1947). MCFCWCD was replaced by MCWRA in 1991. MCWRA and its predecessor agency have been attempting to satisfy the water needs of the Salinas Valley since 1948.

Seawater intrusion was first documented in the 1930s. The Nacimiento Reservoir was completed in 1957 with a lake storage capacity of 377,900 acre feet (AF). The San Antonio Reservoir was completed in 1967 with a lake storage capacity of 335,000 AF. The principal purpose of the reservoirs was to provide for flood control as well as to recharge the groundwater basin of the Salinas Valley, reducing the impact of pumping from coastal areas. However, the growth in agricultural water use outstripped the recharge capability and seawater intrusion remains a problem.

Monterey Regional Water Pollution Control Agency (MRWPCA)

In the beginning, every community had its own sewage treatment plant. Most of the coastal communities were discharging into the bay — in some cases as little as 300 feet off shore. The Clean Water Act of 1972 effectively stopped that practice. Achieving cooperation among the communities was a challenge, because some were reluctant to participate. By the late 1980s all the coastal municipalities and agencies with sewage treatment responsibility were participants in MRWPCA.

Offering economies of scale and concentration of expertise, MRWPCA was created to operate one regional plant. The facility was funded by federal and state grants and is one of the largest sewage treatment installations in the world. MRWPCA not only treats sewage, but generates purified, treated recycled water that irrigates crops as a part of the MCWRA Castroville Seawater Intrusion Project (CSIP), discussed on page 72. The plant went on-line in 1989 to serve thirteen communities. A successful Joint Powers Authority (JPA) was created with eleven members: representatives from BOS, City of Salinas, Boronda County Sanitation District, Castroville Community Services District, City of Del Rey Oaks, City of Monterey, City of Pacific Grove, City of Sand City, City of Seaside, MCWD, Moss Landing County Sanitation District, and the U. S. Army as an ex-officio member. Each city appoints a member to the board, who is usually an elected official of that community.

JPAs, which include representation from affected areas, cross municipal boundaries to solve regional problems, taking advantage of economies of scale and efficiency. An added benefit of JPAs is enhanced funding opportunities. MRWPCA demonstrates the results that can be achieved when expertise, facilities, and expenses are pooled to solve a regional need in a cost-effective way. The consumer price index has risen faster than the infrequent MRWPCA rate increases. MRWPCA operates a world-class facility that serves as a model in its field.

In June 2000, MRWPCA entered into an ‘Agreement for Assistance in Implementing a Grease Source Control Program’ with the City of Pacific Grove to eliminate restaurant-related sewage spills that flowed into Monterey Bay. This pilot program was so successful that similar programs are now required throughout California.

The MRWPCA plant runs continuously. Current production is 22,000 acre feet per year (AFY), equivalent to 20 million gallons per day (MGD) with a maximum production of 33,000 AFY. However, production of recycled water is dependent upon the amount of influent received. Due to water conservation, inflows to the plant over the last decade have not increased, despite population growth.

Discharge is made through the MRWPCA's 2.5-mile long outfall pipe, built before Monterey Bay became a national marine sanctuary. The outfall pipe terminates in fingers, some of which are currently capped, and has a maximum capacity of 75 MGD.

Monterey Peninsula Water Management District (MPWMD)

MPWMD was formed by the State Legislature in 1978 (Chapter 527 of the Statutes of 1977) and ratified by the public at the same time that Proposition 13 passed. It is a local agency with regional responsibilities. Its primary goal was to establish a regional water-rationing plan. A secondary goal was to augment the water supply to eliminate the need for future water rationing.

California American Water (CalAm)

Monterey Peninsula water comes from two sources. Three-quarters of CalAm's water comes from wells along the Carmel River; one-fourth of the water is pumped from coastal wells drawing from the Seaside Basin. CalAm distributes 85% of the Monterey Peninsula's water; the other 15% is distributed through privately owned wells and small water purveyors. On the Monterey Peninsula, domestic use accounts for 95% of CalAm's delivered water.

The San Clemente Dam on the Carmel River was built in 1921 to serve the Carmel River watershed, surrounding communities, and the Hotel Del Monte. The dam originally diverted 55% of the Carmel River and held 1,425 AF. It now holds less than 125 AF because of silt buildup.[5]

San Clemente Dam

[5] www.scc.ca.gov/webmaster/ftp/pdf/sccbb/0809bb/0809Board03A_San_Clemente_Dam_Removal_Ex2.pdf

San Clemente Dam is accumulating new silt at a rate of 16.5 AFY according to an Environmental Impact Report prepared for the California Department of Water Resources in January 2008.[6] The dam has been deemed unsafe because of the potential for earthquake damage, causing mudflow down the Carmel River Valley. CalAm proposed two projects to make the dam safe: put more concrete in front of the dam at a cost of 50 million dollars, or divert the river at a cost of 80 million dollars. Consideration was not given to dredging the reservoir as it is prohibitively expensive to move two million cubic yards of sediment. CalAm originally offered 50 million dollars to the state and federal governments to fix the problem; however, nothing was done by the government agencies. CalAm is reconsidering its options.

The Los Padres Dam was built in 1949 to hold 3,000 AF for use by the sardine canning industry. Over the years this reservoir has become inundated with silt. Various sources estimated that the remaining capacity is under 1,200 AF.

The Carmel River's average unimpaired flow is approximately 70,000 AFY. The highest flow rate occurs from November to April. In 1983, the annual flow was measured at 321,000 AF. In 1977, the driest year, flow was recorded at 3,000 AF. Because of the lack of storage, high flows cannot be captured. Voters have been unwilling to pay for construction of new storage facilities, such as reservoirs.

Seaside Groundwater Basin Watermaster (Watermaster)

The Seaside Basin storage capacity is approximately 50,000 AF and, so far, has no seawater intrusion. Underlying the Seaside Basin is an impervious shelf that goes one mile out from the shore under the sea floor. The Seaside Groundwater Basin Watermaster (Watermaster) is charged with determining the water rights within the Seaside Basin, studying the basin's storage capacity, and monitoring for seawater intrusion. The Watermaster has a nine member board: MPWMD has two votes; CalAm has two votes; Seaside, Sand City, Monterey, Monterey County, and Del Rey Oaks have one vote each. Pumping must be reduced to match the yearly rainfall recharge rate of 3,000 AFY. The purveyors were pumping 5,600 AFY. The two largest purveyors, CalAm and Seaside Municipal Water System (Seaside Muni), must bear the reduction. Users of small, independent wells have a right to use the water with no reduction.

Marina Coast Water District (MCWD)

MCWD was formed in 1960 to provide water to residents within the then existing Marina Fire District boundaries. In 2001, the U. S. Army transferred its Fort Ord water and wastewater systems to MCWD. The Marina and Ord Community water systems were connected by August 2005. The primary source of Marina water is from wells located in the Salinas Basin. The groundwater from these wells is treated to ensure safe water quality.

Pajaro Valley Water Management Agency (PVWMA)

In 1984, the state established a special district of 110 square miles overseen by the PVWMA. The Pajaro River flows from Gilroy to Monterey Bay, and the Pajaro Basin geography includes parts of Monterey, San Benito, Santa Clara, and Santa Cruz counties. The goals of PVWMA are to supply groundwater for agricultural use and stop seawater intrusion.

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[6] www.sjd.water.ca.gov/publications/env_science/sanclemente/volume1.pdf

As a result of a settlement in a case challenging the propriety of its assessments under Proposition 218, PVWMA lost half of its funding. The water charge of $160/AF was reduced to $80/AF, and PVWMA was required to refund 13 million dollars. Because of the restrictions of Proposition 218, PVWMA cannot solve its funding issues by implementing a countywide tax. The coastal wells of the Pajaro Basin are experiencing seawater intrusion. Agriculture on the coast would benefit from a project that limited or eliminated seawater intrusion. However, inland farmers feel they would not benefit from such a project because their wells are not contaminated, and so they cannot be assessed and would be unlikely to approve a new tax.

Other Participants

Other participants in the system are the numerous purveyors. The major water suppliers in the Salinas Valley are MCWD, Castroville Water District, California Water Service, and MCWRA (a management district and a purveyor of enormous amounts of water to Salinas Valley agriculture). The main purveyors of the Seaside Basin are CalAm and Seaside Municipal Water System (Seaside Muni). The major purveyors serving the Monterey Peninsula are CalAm, Pebble Beach Community Services District (PBCSD), and Carmel Area Wastewater District (CAWD). The Pajaro Basin purveyors are: Pajaro/Sunny Mesa Community Services District, Aromas, and PVWMD. Further, there are over 2000 mutual (i.e., private) water companies that distribute water to households, commercial entities, and agriculture in Monterey County.

Proposed and Current Water Activities

Multiple projects and activities play a role in providing water to agriculture, tourism, businesses, and residents in a sustainable way. California's recurring drought emergencies require that we attack the problems in every way possible to manage water resources. Some projects are operational, others are underway, and others are still in a planning phase.

In 1995, the State Water Resources Control Board (SWRCB) became concerned with the over-pumping of the Carmel River, and issued Order 95-10 to CalAm to limit pumping of the Carmel River. By May 2008, the SWRCB was not satisfied with progress, and issued a draft cease-and-desist order to CalAm to accelerate the reduction of pumping.

California Coastal Water Projects

Three significant proposals have been developed and submitted to the PUC under the category of coastal water projects.[7] Of these, CalAm developed two, and another was developed by a coalition of local water agencies:

1. CalAm's Coastal Water Project (CWP) Moss Landing: 11,000 AFY desalination plant using the existing outfall pipe from the Moss Landing Power Plant
2. CalAm's CWP North Marina: 12,500 AFY desalination plant using new facilities, including slant wells at North Marina
3. Monterey Regional Water Supply Program (Regional Project): 10,000 AFY desalination plant with other components that would supply a total of 15,200 AFY

Desalination refers to any of several processes that remove excess salt and other minerals from water for human consumption or irrigation. Today, many successful desalination plants exist

[7] www.cwp-eir.com/docs.html

around the world, including several in California. Where other potable water sources are not available, desalinated water can increase the supply of water for residents, tourists, business, and agriculture. Most of the modern interest in desalination is focused on developing cost-effective ways of providing fresh water for domestic use in regions where the availability of fresh water is limited. Although desalinated water is expensive because of the additional processing and energy needed, more California coastal locations are investing in desalination projects to augment water supplies.

CWP Moss Landing

Responsible Agency: **CalAm**

Status: **Planning**

CalAm proposed an 11,000 AFY desalination plant adjacent to the existing Moss Landing Power Plant with open-water intakes. The discharged brine would be mixed with the cooling plant water and exit via the existing outfall pipeline, which extends 1,000 feet off shore. Two aboveground tanks will hold 1.5 million gallons each. The desalinated water would be stored in the Terminal Reservoir (steel storage tank), which would also be a receiving point for the Aquifer Storage and Recovery (ASR) water. ASR is discussed further on page 71.

CWP North Marina

Responsible Agency: **CalAm**

Status: **Planning**

CalAm's other proposal calls for a new 12,500 AFY desalination plant at North Marina on a 200-acre parcel adjacent to the MRWPCA's facility. The intake water would come from a series of slant wells extending beneath the beach at Reservation Road. Six wells would be drilled at a 20-degree angle off horizontal, providing a maximum intake flow of approximately 3,000 gallons per minute (GPM) per well. Brine would be discharged into the MRWPCA outfall pipe, which extends approximately 2.5 miles off shore. The Terminal Reservoir and ASR facilities are the same as those described in the CWP Moss Landing Plant project.

Monterey Regional Water Supply Program (Regional Project)

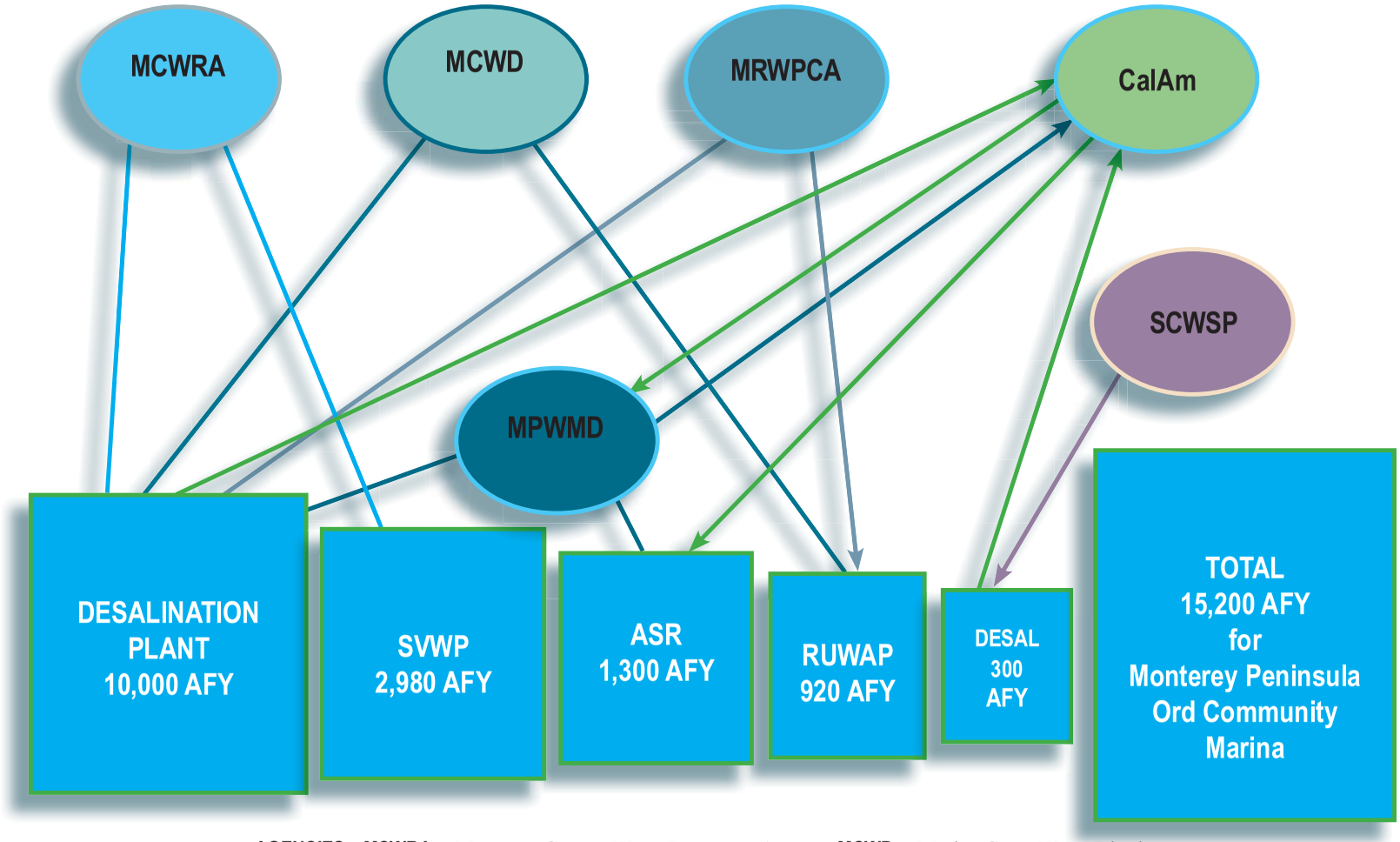
Responsible Agency: **MCWD, MCWRA, MRWPCA**

Status: **Planning**

A third proposal, called the Regional Project was developed by MCWD, working with MCWRA, MRWPCA, and a coalition of local cities and agencies. The Regional Project will be implemented in two phases. The initial phase includes a new, publicly owned, expandable desalination plant producing 10,000 AFY of potable water from seawater and brackish water. The Regional Project includes some components that have been approved and are already underway by local agencies:

- Regional Urban Wastewater Augmentation Project (RUWAP) — 920 AFY
- ASR — 1,300 AFY
- Salinas Valley Water Project (SVWP) — 2,980 AFY
- Sand City Water Supply Project — 300 AFY

THE REGIONAL PROJECT



AGENCIES: **MCWRA** = Monterey County Water Resources Agency; **MCWD** = Marina Coast Water District; **MPWMD** = Monterey Peninsula Water Management District; **MRWPCA** = Monterey Regional Water Pollution Control Agency; **CalAm** = California American Water

PROJECTS: **SVWP** = Salinas Valley Water Project; **ASR** = Aquifer Storage and Recovery; **RUWAP** = Regional Urban Wastewater Augmentation Project; **SCWSP** = Sand City Water Supply Project:

This total of 15,200 AFY[8] will meet the immediate needs of the Monterey Peninsula, the Ord Community, and Marina.

The second phase of the Regional Project would extend water delivery to Moss Landing, Castroville, and unincorporated areas of north Monterey County and could include:

- Local cisterns and percolation ponds supplying 200 AFY
- Additional wells in north Monterey County to tap high quality, low cost water from the Salinas Basin — 5,900 AFY
- Expansion of the Phase 1 SVWP — 2,000 AFY
- Expansion of the Phase 1 desalination facility — 4,400 AFY

Illustration courtesy of Marina Coast Water District

[8] Includes 10,000 AFY desalination plant

- Groundwater replenishment of the Seaside Basin with advanced treated (reverse osmosis) recycled water and Salinas industrial wastewater — up to 6,700 AFY
- Expansion of the Phase 1 RUWAP project — up to 3,000 AFY
- Expansion of the Castroville Seawater Intrusion Project (CSIP) — up to 9,000 AFY

Other aspects of the program are ongoing conservation, storm water reuse in the City of Pacific Grove, and drilling a new well to provide water to the Prunedale area. The final selection of Phase Two components and capacities will be determined after additional evaluation of cost-effectiveness, technical and implementation issues, and environmental impacts.

The Regional Project will use the existing 2.5-mile outfall pipeline jointly operated by MCWD and MRWPCA. Because this project will consume significant energy, there are a number of proposals to obtain renewable energy supplies:

- Monterey Regional Waste Management District's cogeneration system powered by land-fill gas, e.g. methane (existing)
- Nacimiento hydroelectric (existing)
- Biomass to energy power plant (proposed)
- Solar power (proposed)
- Wind turbines (proposed)

Commenting to the PUC on the relative economic merits of the three coastal water project proposals, an expert stated:

> *"...the Regional alternative appears to be preferable to the other alternatives in several important respects. ...1) the least-cost supply source to meet existing and expected regional water demand; 2) the most environmentally attractive new water supply; and 3) the most reliable new water supply."*[9]

The testimony characterized the Regional Project as the most cost-effective water source, because it takes advantage of economies of scale. It will be less costly to build a single desalination facility that is sized for regional demands rather than constructing multiple, smaller facilities.

> *"...the Regional alternative's annualized costs are one million, three hundred thousand dollars lower than the North Marina project and one million, nine hundred thousand dollars lower than the Moss Landing project... assuming the same production levels (10,500 AFY)."*[10]

When asked about the environmental aspects, further reference was made to the DEIR, which found both the CWP North Marina and the Regional Project superior to the CWP Moss Landing proposal. The Regional Project can be built more quickly than the North Marina plant, resulting in earlier reductions in CalAm's draw from the Carmel River and overdraft of the Seaside Basin and additional environmental benefits.

[9] Revised Direct Testimony to the PUC, August 20, 2009
[10] Ibid.

"The need to meet a regional demand for water makes a regional facility attractive because of the opportunity to optimize regional water supplies. The Regional alternative also presents the potential for reduced environmental impacts, more rapid completion, and reduced transaction costs."[11]

Regional Urban Wastewater Augmentation Project (RUWAP)

Responsible Agencies: **MRWPCA and MCWD**

Status: **Planning**

If implemented, RUWAP will be a joint project between MRWPCA and MCWD to provide additional infrastructure for distributing recycled water to golf courses and other appropriate uses, which will reduce demand for potable water in the areas served by those agencies.

Aquifer Storage and Recovery (ASR)

Responsible Agency: **MPWMD and CalAm**

Status: **Underway**

This system takes water from the Carmel River in high flow winter months, and injects it into the Seaside Basin for temporary storage until needed during dry months. ASR is a key component of the Regional Project and the two CalAm CWP proposals. ASR technology has been successfully proven for safe storage of water in the United States and Australia. The dual-purpose pumps can inject or recover water. The wells have been installed and tested. When the CalAm pipeline from the Carmel River is completed, the wells will pump up to 3,000 gallons per minute. The water will be treated at the CalAm facilities before entering the aquifer.

Salinas Valley Water Project (SVWP)

Responsible Agency: **MCWRA**

Status: **Underway**

The goal of this project is to stem seawater intrusion into the Salinas Basin, to restore a proper hydrological balance, and to provide flood protection. The SVWP consists of two physical components. Modification of the spillway at Nacimiento Dam to allow greater control of water release has been completed. Construction of the Salinas River Diversion Facility (SRDF) is near completion. The SRDF is a sturdy, inflatable rubber dam that will regulate river flows in the Salinas River channel, enhance percolation, and eventually supply river water to the Salinas Valley Reclamation Plant (SVRP) for blending with purified recycled water. Water will be delivered to agricultural users via CSIP (see below) pipes.

Sand City Desalination Plant

Responsible Agency: **MPWMD and CalAm**

Status: **Underway**

This plant may produce 300 AFY using the reverse osmosis desalination technique. It is scheduled to go online in October 2009, operated by CalAm. Sand City's current needs are 94 AFY. In the short-term, CalAm will use the excess capacity to offset its overdraft of the Carmel River.

[11] Ibid.

Eventually, as development and redevelopment occur in Sand City, the excess capacity will no longer be available to offset CalAm's overdraft.

Castroville Seawater Intrusion Project and Salinas Valley Reclamation Plant (CSIP/SVRP)

Responsible Agency: **MRWPCA and MCWRA**

Status: **Complete**

These two interrelated water recycling and distribution projects were both developed in 1998. They currently distribute a blend of recycled water and local groundwater to approximately 12,000 acres of agricultural land surrounding Castroville. The SVRP, a tertiary part of the regional treatment plant, has processed over 123,000 AF of water. The treated water is distributed through CSIP. Each water user in the CSIP system can regulate the flow of delivered water. The system also allows metering of the volume of water used at each site.

Irregated Salinas Valley crops

The Granite Ridge Water Supply Project

Responsible Agency: **MCWRA**

Status: **Planning**

The project would include construction of two wells in the vicinity of Manzanita Park to provide water to local residents. The July 2009 plans include a looped pipeline that would deliver potable water from the wells to adversely impacted neighborhoods along the following roads: San Miguel Canyon, Echo Valley, Tustin, Moro, Valle Pacifico, and Langley Canyon.

The anticipated project cost is 27 million dollars. Homeowners served by the project would be assessed for half the cost, or $800 yearly for about 27 years. Further progress is on hold until state or federal grant funding is received.

Pajaro Valley Water Treatment Facility

Responsible Agency: **PVWMA**

Status: **Complete**

A recycled water project was recently completed for 92 million dollars, funded by state grants. This facility provides 4,000 AFY of treated, recycled water for irrigation and groundwater replenishment to customers of the PVWMA. The current overdraft of the Pajaro Basin is 25,000 to 30,000 AFY. Agriculture uses about 80% of the water. The objective of this facility is to reduce the overdraft in order to help stem seawater intrusion.

Monterey Peninsula Groundwater Replenishment Project

Responsible Agency: **MRWPCA**

Status: **Planning**

The Monterey Peninsula Groundwater Replenishment Project is still in the concept phase. The objective of this project is to store excess water from MRWPCA's tertiary treatment plant by percolation into the Seaside Basin.

Conservation

Responsible Agency: **All residents of Monterey County**

Status: **Ongoing**

In the short term, water conservation on the Monterey Peninsula has contributed positively to the water supply. Monterey Peninsula residents use an average 70 gallons per person per day compared to the overall California rate of 192 gallons per person per day. In addition to low-flow faucets, shower heads, toilets, and energy-efficient appliances; drip irrigation, cisterns, and xeriscape landscaping also conserve water. Agriculture, a primary Monterey County industry, conserves by using drip irrigation.

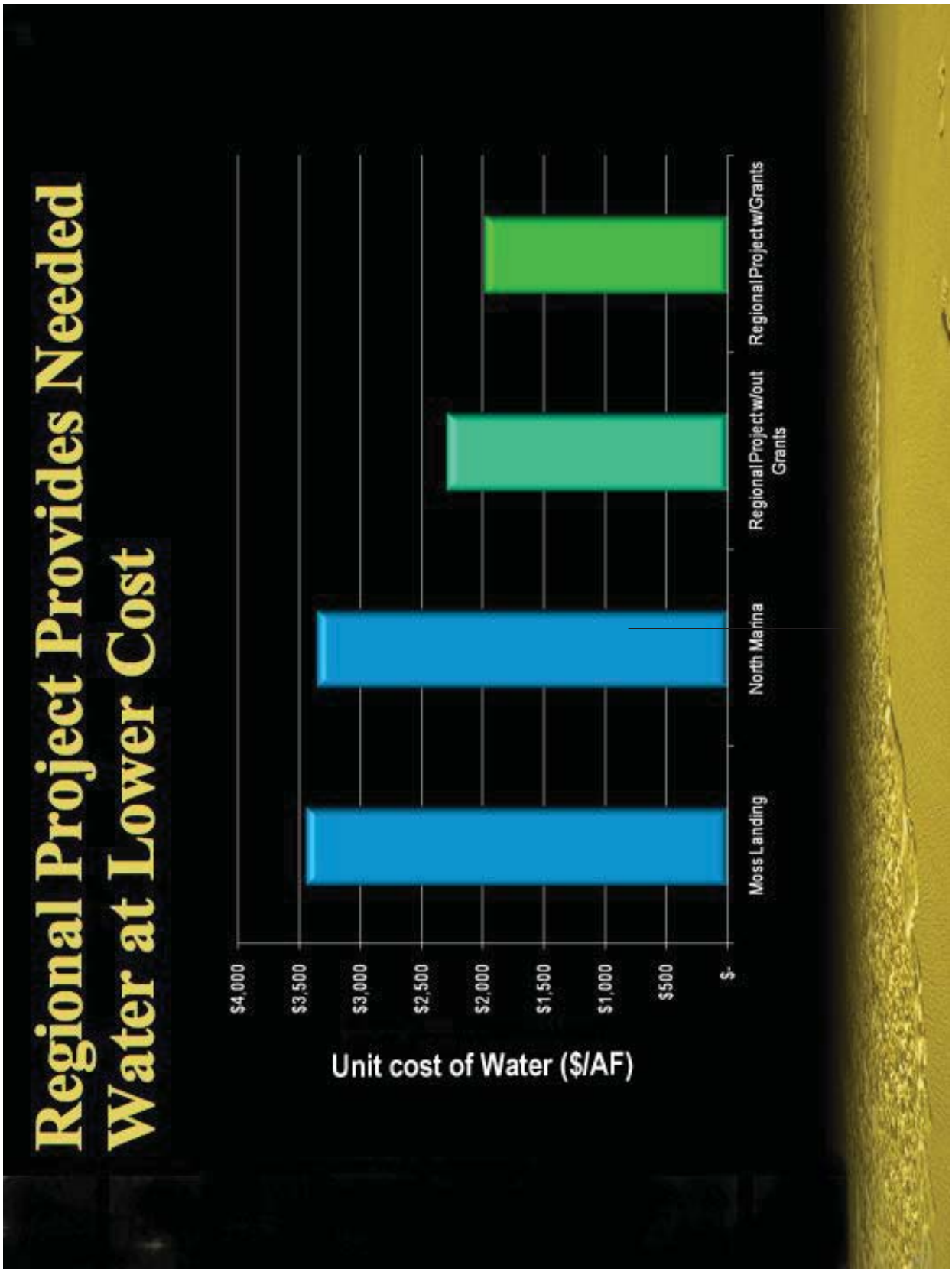


Chart courtesy of Marina Coast Water District

Costs and Consequences

Water Costs

New water projects will increase the cost of water. The public perception in some areas is that there is an unlimited supply of water. Satisfying Monterey County's demand for water will increase costs for those served by the projects. Competition for water is becoming critical and environmental degradation is serious. In the past, the public has refused to invest enough money to build adequate new facilities.

Profit to shareholders is not part of the customer costs for water from publicly owned facilities. The Regional Project will also benefit from lower operating costs because of its use of renewable energy.

Inaction Today Leads to Decades of Delay

Water projects take decades to complete, given the competing public and private interests and multiplicity of agencies and processes involved. The urgent need for a prompt decision was made evident through the following statements made by an administrative law judge and residents who attended public meetings:

- *"We are cognizant both of the need to move forward with all deliberate speed and to ensure that we have a complete record in order to resolve this complex proceeding* [of choosing the best water project proposal]."[12]
- *"We need to avoid the Groundhog Day*[13] *syndrome"* where solutions are proposed, evaluated, and decisions drag on for years, and *"nothing gets done."*[14]
- At the June PUC meeting another Pacific Grove resident pleaded not to have her grandchildren experience the 1977 drought cycle, when citizens reused bath water for multiple baths and then for priming toilet flushes.
- At the July 29 Water Summit meeting in Castroville attended by 120 north Monterey County water users, a 73 year-old resident who has followed water issues for years, stated *"I'm hearing the same thing 'It's happening' and 'we're taking care of it,' but nothing gets done."*

FINDINGS OF THE INVESTIGATION

F6.1. An effective solution can be provided only through implementation of multiple, integrated projects. Monterey County water users, purveyors, and regulatory agencies need to cooperate in water supply projects, in water recycling efforts, and in water conservation programs to create and preserve a sufficient supply of water.

F6.2. Joint Powers Authorities have demonstrated effectiveness in solving regional problems.

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[12] Comments by an administrative law judge and commissioner at July 24, 2009 San Francisco meeting
[13] 1993 movie "Groundhog Day," in which the protagonist is doomed to live the same day over and over
[14] By Pacific Grove resident at the June 2009 PUC public comment meeting in Monterey

F6.3. Additional infrastructure for distributing recycled water will free potable water for other uses.

F6.4. Monterey County's water supply, derived exclusively from local sources, is completely independent from the California state water delivery system. Having a sufficient supply of local water available year-round is critical to the long-term economic viability of Monterey County's agriculture, tourism, and industries, and the welfare of residents.

F6.5. There is currently not enough water storage to allow the capture of excess winter flow for use during dry periods.

F6.6. Seawater intrusion threatens domestic and agricultural water supplies.

F6.7. There are three significant desalination proposals under consideration by the California Public Utilities Commission. The Regional Project can achieve the most benefit, at the lowest cost, with the fewest environmental impacts.

F6.8. Over pumping of the Carmel River must eventually cease in order to comply with State Water Resources Control Board Order 95-10.

F6.9. Monterey County is faced with areas in which water contaminants exceed federal guidelines and areas plagued by severe water shortages.

F6.10. Citizens of Monterey County have expressed concerns that the water organizations continue to talk, analyze, and propose, but very little actually gets accomplished. *"There's been too much talk and not enough action."*[15]

F6.11. Current rates of leakage from CalAm's distribution systems exceed State averages and contribute to the water shortage problem.

RECOMMENDATIONS OF THE GRAND JURY

R6.1. Water agencies must do all that they can to expedite a decision by the California Public Utilities Commission for implementation of the Regional Project to address water supply, storage, and seawater intrusion problems. [Related Findings: F6.1, F6.5 – F6.8, and F6.10]

R6.2. Form a Joint Powers Authority composed of appropriate Monterey County entities to manage the Regional Project. [Related Findings: F6.1 and F6.2]

R6.3. Develop additional water storage capacity sufficient to provide a safe year-round supply of water for Monterey County. [Related Findings: F6.4, F6.5, and F6.8]

R6.4. Implement the Regional Urban Wastewater Augmentation Project to provide additional recycled water for use on golf courses and public landscaping. [Related Findings: F6.1 and F6.3]

[15] Expressed at the July 13 PUC meeting in Monterey for public comment on the coastal water proposals

R6.5. Develop a water distribution system for north Monterey County. Although north Monterey County is not part of the initial phase of the Regional Project, we urge coordination of regional solutions to provide a basic reliable infrastructure in the near future. [Related Findings: F6.1, F6.4, F6.6, F6.9, and F6.10]

R6.6. The approved project should be constructed as rapidly as possible once the California Public Utilities Commission has made its decision. [Related Findings: F6.1, F6.8, and F6.10]

R6.7. Monterey County water purveyors must inspect, maintain, and repair water pipeline distribution systems so that the rate of unaccounted water is brought down to or below the national average. [Related Finding: F6.11]

REQUIRED RESPONSES

Monterey County Board of Supervisors:
Findings: F6.1 – F6.10
Recommendations: R6.1 – R6.6

Marina Coast Water District:
Findings: F6.1 – F6.2, F6.4 – F6.8, and F6.10
Recommendations: R6.1 – R6.3, and R6.6

Monterey Peninsula Water Management District:
Findings: F6.1, F6.2, F6.4 – F6.8, F6.10, and F6.11
Recommendations: R6.1 – R6.4, R6.6, and R6.7

Monterey Regional Waste Management District:
Finding: F6.7

Monterey Regional Water Pollution Control Agency:
Findings: F6.1 – F6.7, and F6.10
Recommendations: R6.1 – R6.5, and R6.6

Pajaro Valley Water Management Agency:
Findings: F6.1, F6.2, F6.4 – F6.6, F6.9, and F6.10
Recommendations: R6.1 – R6.3, R6.5, and R6.6

City Council of Sand City:
Findings: F6.1, F6.2, F6.4 – F6.8, and F6.10
Recommendations: R6.1 – R6.3, and R6.6

Pajaro/Sunny Mesa Community Services District:
Findings: F6.1, F6.2, F6.4 – F6.10
Recommendations: R6.1 – R6.3, R6.5, and R6.6

City Council of Seaside
with regard to
Seaside Municipal Water System:
Findings: F6.1, F6.4 – F6.6, and F6.8
Recommendations: F6.1 and F6.3

Responses must comply with the following:

CALIFORNIA PENAL CODE SECTION 933.05

(a) For purposes of subdivision (b) of Section 933, as to each grand jury finding, the responding person or entity shall indicate one of the following:
   1) The respondent agrees with the finding.
   2) The respondent disagrees wholly or partially with the finding, in which case the response shall specify the portion of the finding that is disputed and shall include an explanation of the reasons therefor.

(b) For purposes of subdivision (b) of Section 933, as to each grand jury recommendation, the responding person or entity shall report one of the following actions:
   1) The recommendation has been implemented, with a summary regarding the implemented action.
   2) The recommendation has not yet been implemented, but will be implemented in the future, with a time frame for implementation.
   3) The recommendation requires further analysis, with an explanation and the scope and parameters of an analysis or study, and a time frame for the matter to be prepared for discussion by the officer or head of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable. This time frame shall not exceed six months from the date of publication of the grand jury report.
   4) The recommendation will not be implemented because it is not warranted or is not reasonable, with an explanation therefor.

REQUESTED RESPONSES

California American Water:

Findings: F6.1, F6.4 – F6.8, F6.10, and F6.11
Recommendations: R6.1, R6.3, R6.6, and R6.7

APPENDIX A: EARLY HISTORY

The Ohlone

According to Ohlone legend, water covered everything except the top of the highest mountain. Eagle wanted more land and varieties of life forms. He plucked a feather from his head and gave it to Hawk asking him to dive as deeply as he could into the water to find Earth. As Hawk dove, the feather grew in length until he found Earth. When he returned to the mountaintop, the weather changed and the water receded. For millennia prior to the arrival of Europeans in the New World, native peoples planted and harvested only what they needed and replaced what had been used. They planted in desirable areas in such a manner that the same plants thrived from year to year in the same location. They did not control water, as would happen later; water was used for fishing, bathing, drinking, and ritual ceremonies. The indigenous people were semi-nomadic; they maintained permanent villages where the elderly and others, who were unable to migrate, remained behind while those individuals able to migrate were ordered to do so during the hunting/gathering season. The Ohlone land management system worked for them and would be under-appreciated by Europeans.

The Spanish Era

The Spanish arrived by overland and established missions at locations approximately one day's journey by horseback along the route of the original El Camino Real (present day Highway 101). They established presidios at four locations along the coast with suitable harbors, one of which was Monterey. They settled in areas near rivers and streams with abundant plant life. These areas were already populated by indigenous peoples whom they could, hopefully, convert to Christianity and conscript into their labor force. Due to flood/drought cycles, some settlements had to move, as was the case of San Carlos Borromeo's relocation from the Monterey Presidio to some four miles south, where *"water flows the whole year through."* The Spanish understood the aridity of the land, and the distant Crown maintained firm control over land grants and water rights. Official policy acknowledged that fresh water resources were limited and had to be sufficient for multiple uses, the most important being human consumption; and, also that everyone needed access. The official watchword was *bien procomunal* (for the common good), i.e., no exclusivity, no monopolies. Land was classified accordingly: arable land with an assured water supply; arable land dependent on rainfall or moisture; and land suitable for grazing. The *ayuntamiento* (local government) executed the policies and was empowered to levy strict fines for waste or pollution. The padres acted as the Crown's trustees and were assigned to train the Indians as agriculturists and herdsmen in the process of 'civilizing' and converting them.

By the end of the 18th Century, two strikingly different life styles/economic systems emerged in the Monterey/Carmel region. As the provincial capital of Alta California, Monterey became an important regional government center. The population, overwhelmingly of Spanish descent, quickly adopted an urban life style — very few Indians lived in town. Initially, the settlement was centered near the Presidio and was responsible for the military defense of the entire region. Given its proximity to the bay, Monterey also became a port-of-call for ships from all over the world and the major trade center both for international commerce and local retail. Monterey's fresh water supply was seasonal, limited to water flowing in small creeks and brooks during the rainy season, the largest of which flowed into El Estero. Captain George Vancouver, who sailed

into Monterey Bay and visited the area in 1792, observed that the Presidio *"does not appear to be much benefited by its vicinity to fresh water, since in the dry season it must be brought from a considerable distance…"*[1] Personnel garrisoned at the Presidio were assigned to import water until a network of open-air ditches to divert flows could be constructed. Carmel, on the other hand, had Rio Carmelo, which Vancouver described as a *"small brook"* with a depth of flow that is *"about knee-deep."*[2] It is important to note that Vancouver's visit was in November, at the end of the dry season and the beginning of the wet season. The mission was under the trusteeship and protection of the padres, who were charged with religious activities and education. In addition, the mission was also the hub of the region's industrial base, responsible for tanning, weaving, manufacturing soap and tallow, raising livestock, and crop farming. These activities were conducted under the directorship of the padres, while the large Indian population, either in residence or living in nearby communities, supplied the labor force. The padres maintained firm control over the water supply.

The Mexican Era/Secularization

In March of 1822, news of Mexico's independence from Spain reached Alta California. The Mexican period, also known as Secularization, began and ushered in new laws and a different administration. Secularization was disastrous for the mission, due to the 'emancipation' of the Indians. The official rationale was that the new policy would allow them to become urbanized and, thus, 'civilized.' Indians who elected to remain at the mission were subject to severe punishment; some fled and tried to return to their traditional system, which no longer existed. Whatever their choice, the Indians' life styles were thrown into confusion and the mission fell into serious disrepair. Given the remoteness of the region and, depending on circumstances or whoever happened to be in power, many of the laws under the Mexican administration were either casually enforced with a wink and a nod or simply ignored. Water policies, however, were another story. They remained unchanged from the Spanish administration, were strictly enforced, and continued to exist for the common good.

Manifest Destiny, Encroachment, Irrigation Movement

Water policies notwithstanding, under the Mexican administration laws governing international commerce and immigration became considerably more flexible. The Mexicans' attitude toward free trade was far more liberal than it had been under the Spanish, and Monterey Bay was visited by ships bringing goods and visitors from all parts of the world. Hordes of immigrants/settlers, most of whom arrived over land from the United States, were welcomed as they brought increased tax revenues, expanded businesses, commerce, production, and even a livelier social life. Little did the Mexican administration realize the 'foreigners' were about to take control.

Monterey's population spiked and some of the finest agricultural land was granted to settlers. Immense land grants were subdivided into smaller parcels, not necessarily with access to water. Monterey's urban design appeared to the newcomers as 'organic' and uncontrolled by either the *commandante* at the presidio or the local *alcalde* (mayor). The only limitation was, apparently, not to interfere with another person's property. The American policy of Manifest Destiny challenged and undermined the Spanish/Mexican values as the region transitioned into a society based on individual rights, including water ownership, and a cash-based economy. Carmel maintained its

[1] Vancouver, George, The Voyage of George Vancouver 1791-1795.
[2] Ibid.

rural life style but, like Monterey, was subdivided into increasingly smaller parcels. Ownership and use of water would become increasingly contentious as the focus shifted away from water as a resource and for the common good to a commodity, which would allow the region to grow economically and agriculturally.

In the late 1800's, the federal government's Irrigation Movement policy became a major component of California's statewide water policy as the issue focused on transportation of water from water-rich regions in the north to water-poor regions in the south. In a sense, Monterey would become a microcosm of this policy with the County's determination to remain independent of the state system. At the time, the buzzwords for irrigation were 'reclamation' and 'homemaking.' 'Reclaimed' arid lands were intended to encourage settlement and make homesteads available for family farms. Family farms would not become particularly important in western agriculture due to the availability of large tracts of cheap land, which could be purchased by growers and, eventually, would result in agribusiness. Reclamation construction projects peaked from the Depression years until some thirty years after World War II, by which time many were becoming cost ineffective and/or unsustainable. By the mid-1990's, reclamation had been redefined to *"manage, develop, and protect water in an environmentally and economically sound manner in the interest of the American public."*[3]

Along Came the Railroad, Salinas, and the Twentieth Century

The Salinas Valley, 100 miles long, some ten miles wide, and consisting of approximately 1,000 square miles through which flowed the Salinas River, remained largely undeveloped and was home to free-roaming livestock herds and fields of wild mustard. The Americans deemed the Salinas Valley unsuitable for growing wheat. Eventually the question arose that if wild mustard grew so abundantly, why not crops? Incorporated in 1874, the new Salinas City had a hotel with meeting rooms used for conventions and elections. Salinas became the liveliest town in Monterey County. It was a stop along the recently constructed Southern Pacific Railroad's terminus at Soledad, and a number of small towns sprang up along the railroad route. South of Soledad the great expanse of Monterey County remained largely undeveloped, except for grazing livestock.

What Lies Ahead?

Explosions in growth, population, and development have stretched Monterey County's fragile environmental resources, especially water, nearly to the breaking point. Water issues remain much the same as those that confronted the Spaniards but with the additional challenges of seawater intrusion and the introduction of modern pesticides and toxins into the water system. Historians indicate that a factor in the eventual collapse of ancient civilizations that relied on distribution of water was lack of management skills and expertise to meet the environmental challenges. Is Monterey County following in their footsteps?

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[3] U.S. Department of the Interior, "The Bureau of Reclamation—A Very Brief History," www.usbr.gov/history/bohist.html. (Accessed August 31, 2009.)