LAKE CACHUMA - PROTECTING A VALUABLE RESOURCE

You Can't Drink Paper Water

SUMMARY

The 2015-16 Santa Barbara County Civil Grand Jury (Jury) investigated the operations of the Cachuma Project. Surface water supplies from Lake Cachuma, Jameson and Gibraltar reservoirs, and the State Water Project during "normal" rainfall years, comprise the largest percentage of water used by the citizens of the South Coast of Santa Barbara County. Historically, Lake Cachuma alone has provided up to 85% of the water needs for approximately 340,000 acres of agriculture and 250,000 residents. Unlike groundwater, State Project Water, recycled wastewater, or desalinated water, the water from Lake Cachuma is a shared local resource and its use must be managed efficiently, cooperatively, and without regard to local political pressure.

Under contractual agreement, Lake Cachuma's water supply has been allocated to south coast residents with the goal of the supply withstanding a six to seven-year drought cycle. The lake was last full to the point of spilling in March 2011 and after four years, the lake was virtually dry. This reality indicates that the contract is outdated. The maximum supply of water on paper is not the actual supply available, and the supplies from Lake Cachuma are over allocated.

The 1995 master contract[1] between the United States Bureau of Reclamation and the Santa Barbara County Water Agency for water service from the Cachuma Project is up for renewal in 2020. Now is the time for all member units of the Cachuma Project to work together to maximize efficiency in using the available supply of water. This report discusses, among other concerns, the issues that need to be considered during the contract renewal process. Annual safe yield (the amount of water that can be released every year) must be based on the water available at contract renewal and must take into account lower reservoir capacity due to siltation, demands for downstream water rights, and federal requirements to maintain fish habitat that did not exist when the master contract was first approved. This contract renewal must determine a new operating mode whereby water is distributed on a sliding scale based on the number of consecutive dry years, rather than the current practice of allowing each member unit to assume that a specific volume of water will be available to them every year. Finally, the contract should require more frequent reviews to address changing water needs.

This report also addresses the need for member units to manage their water portfolios and to work together to address how they will supply their water customers during potentially worse drought periods which may occur in the future.

[1] *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995*.

INTRODUCTION

Background

The Cachuma Project, consisting of Bradbury Dam, Tecolote Tunnel, and the South Coast Conduit, was conceived and built to be "the long term solution" for the South Coast's increasing water problems. Construction of the project was authorized in 1948 and completed in 1956. It was intended to address the water needs of the growing population and the expansion of agriculture occurring throughout the 1930s and 1940s. Many descriptions exist in the historical record of the dire situation and water needs of the South Coast as far back as 1769[2] when the arrival of "a small addition of a presidial garrison threw nature's water supply out of balance." In the early 1900s "…available water sources could not keep pace with demand…, …underground springs were being pumped faster than they could be replenished causing groundwater levels to drop…, water rationing and fines were implemented for overuse"[3]. These descriptions can be used to describe the continuing water crisis that the area faces today.

Lake Cachuma (Lake) was created by the Cachuma Project and was meant to be the most reliable source of water for the South Coast. The original design capacity was 205,000 acre feet (AF); enough, it was thought, to weather a six to seven-year drought cycle.

A new role was established for Lake Cachuma as a storage reservoir for water from the State Water Project with the completion of the State Water Project infrastructure in 1997. In years of severe drought the only water in the Lake may be water transported there via the State Water Project infrastructure.

Finally, since its formation, Lake Cachuma has become a very popular recreation destination. It provides camping, fishing, picnicking, hiking, and boating activities. The Cachuma recreation area, administered by the Santa Barbara County Parks Department, has approximately half a million visitors a year. The Lake has become a valuable environmental and recreational resource for the community. The Lake and park area have become home to a variety of fish, plants, wildlife, and birds, including bald eagles. To protect this man made natural, thriving habitat, 12,000 AF of water, referred to as the "dead pool", must be retained in the Lake at all times.

[2] *Santa Barbara Past and Present, An Illustrated History*, Walker A. Thompkins, 1975

[3] US Department of the Interior, Bureau of Reclamation, Cachuma Project History website http://www.usbr.gov/projects/Project

Photo of Lake Cachuma August 2013

Photo of Lake Cachuma January 2016

The Contract

The Santa Barbara County Water Agency (Agency) was created in 1945 for the purpose of entering into an initial contract with the Federal Government's Bureau of Reclamation (USBR) for developing the Cachuma Project. The Agency acts as an intermediary as it also entered into subcontracts with the City of Santa Barbara and the Goleta, Montecito, Summerland County, Carpinteria County, and the Santa Ynez River Water Conservation Districts. These six agencies are all designated as "member units" of the Cachuma Project. Subsequently, the Montecito and Summerland Water Districts merged into the Montecito Water District.

The initial 1949 contract explains why the Cachuma Project was needed: "the lands and inhabitants within the Agency and within each and all of said Districts are in critical need of additional water for municipal, domestic, and irrigation uses…"; "…the ground-water supplies are seriously depleted and in need of replenishment…"[4].

Also detailed in the 1949 contract were such things as the annual quantity of water that would be supplied, (32,000 AF), the costs in acre feet of municipal ($35/AF) and irrigation ($25/AF) water, the contractual commitment of water to each member unit (see Table 1), the procedure to determine available water in the case of water shortages, and the financial obligation of each member unit to pay certain fixed costs even if no water was received.

A new master contract, *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995*, (Contract) between the USBR and the Agency became effective in 1995 (the contract in effect today) will expire in 2020. As in the initial contract, the 1995 renewal specified financial obligations and water entitlements (see Table 1). However, the 1995 Contract also has some important changes. Due to siltation over the years, the Lake's storage capacity was reduced from 205,000 AF to 190,000 AF. To reflect the reduced storage capacity, the total amount of water available each year was reduced from 32,000 AF to 25,714 AF. Additional agreements in this contract, deal with operating issues such as the ability of member units to store water in the Lake, the accounting of lost water due to evaporation, and the allocation of entitlements.

The 1995 Contract specifically spells out the protection of historical downstream water right holders. This acknowledges the obligation to "make certain releases of water into the Santa Ynez River for downstream interests"[5]. At the time of the Contract renewal, water releases to maintain fish habitat, required in 2000 by orders of the California State Water Resources Control Board (SWRCB), and the National Marine Fisheries Services (NMFS) did not exist.

[4] *United States Department of the Interior, Bureau of Reclamation, Contract for the Furnishing of Water to Member Units of Santa Barbara County Water Agency, September 12, 1949*

[5] *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995.*

Table 1. Initial 1949 Contract and Current (2016) Entitlements per 1995 Contract

Agency	Entitlement %	AFY[a] 1949	Entitlement %[b] (post 1995 merger)	AFY[a] 1995
Goleta Water District	36.25 %	11,600	36.25%	9,312
City of Santa Barbara	32.19 %	10,300	32.19%	8,277
Carpinteria Valley WD	10.94 %	3,500	10.94%	2,813
Santa Ynez RWCD ID#1	10.31 %	3,300	10.31%	2,652
Montecito Water District	9.06 %	2,900	10.31%	2,651
Summerland Water District	1.25 %	400	---------	---------
Total	100 %	32,000	100 %	25,714

[a] AFY = acre feet per year = 326,000 gallons

[b] In 1995 the Summerland Water District merged with the Montecito Water District and all water entitlements and customers were transferred to Montecito Water District.

Governance

Many layers of government ranging from local water agencies to the Federal Government regulate water usage and enforce regulations along the South Coast. Special water districts are governed by locally elected board members and cities have their locally elected city councils. Each member unit subcontracts with the Agency and sends a representative to sit on the board of the Cachuma Operations and Maintenance Board (COMB). Some of these same local representatives sit on the Cachuma Conservation Release Board (CCRB). The next layer of government involved in water regulations is the California State Water Resources Control Board (SWRCB). And sitting at the uppermost governmental layer is the Federal Government represented by the United States Bureau of Reclamation (USBR) and the National Marine Fisheries Service.

The Jury learned this is a complex web of governmental agencies, each serving their own purpose and not always in accord with each other. For example, water agencies provide potable water to their residents and agriculture while the NMFS's priority is ensuring protection of fish in accordance with the Endangered Species Act. These two different priorities can often be in direct conflict.

Most recently, among the local water agencies, a controversy arose surrounding approval to move the barge at Lake Cachuma from its current location to another location about one mile away where a deeper pool of water exists and which would allow water to continue to be ultimately delivered to the South Coast communities. Without moving the barge, South Coast users would not have access to the remaining Lake water. This action required unanimous approval of all five member units and one agency was opposed to this idea because of fear that its water in Lake Cachuma would be "stolen" and used by other agencies. After many contentious discussions, all agencies ultimately agreed and voted to move the barge. This is just one example of the numerous issues over the years that have resulted in disagreement and conflict among member units dependent on water from Lake Cachuma.

Joint Powers Agencies

COMB

The special water districts of Goleta, Montecito, Carpinteria and Santa Ynez along with the City Council of Santa Barbara are responsible for securing sufficient and diverse water supplies for their constituents at the most affordable price. These five agencies formed COMB, a joint powers agency in

1957 as a government vehicle to operate, maintain and finance the Cachuma Project. For the year ending June 30, 2015[6] COMB had total operating revenues of approximately $6 million (M), $5.5 M which came from the operating assessments from the member agencies, i.e., money collected from paid water bills.

CCRB

The CCRB is another joint powers agency formed in 1973 by the four member units south of the Lake: Carpinteria, Goleta and Montecito Water Districts and the City of Santa Barbara. According to information the Jury learned from interviews, CCRB acts as an advocacy group to defend the water rights of the Cachuma Project at the State and Federal level. The success or failure of this advocacy can affect the amount of water available for humans, downstream water rights, and fish habitat protection. CCRB also participates in fish studies and applies for grant funding for such. Its website[7] states that it developed a Fish Management Plan Program in the Lower Santa Ynez River and was the primary implementing agency of the fisheries program.

Cost Estimates for Water Based on Source

The Jury conducted an informal survey to determine the costs local agencies pay for their various water supplies. Probably more important than the dollars spent per acre foot, the Jury learned that calculating how much money water actually costs is "complicated". There are fixed and variable costs. Fixed costs include the cost for construction, maintenance and labor. These costs must be paid regardless of how much water is generated from the source, even if no water from the source is produced or received. For example, a member unit may decide not to draw groundwater from one of their wells, yet the pumps and other infrastructure at the well must be maintained. Fixed costs per acre foot decrease as the amount of water produced increases. The variable costs such as those for electrical power and chemicals are directly related to the amount of water produced.

A rough estimate of the average, minimum and maximum cost for water used on the South Coast is summarized in Table 2. These values are generated from numbers received from all water purveyors and are not reflective of any one agency. Table 2 is presented to show the magnitude of costs from one source to the next. Bottom line: water from Lake Cachuma is by far the least expensive, closely followed by groundwater with the most expensive being the supplemental water purchases from the State Water Project.

Along with contracted water from the State Water Project, also called "Table A State Water", almost all agencies have purchased supplemental State Water on the open market. The cost for this water can be especially difficult to estimate because, as the Jury learned, this water in some cases is not purchased outright but is in fact "leased." Contracts for this type of supplemental State Water include the requirement that the purchasing agency must return the water within ten years and pay for the transportation costs incurred. These conditions could result in a doubling of the cost and agencies cannot determine the true cost until the time the "leased" water is returned.

[6] Cachuma Operations and Maintenance Board, Financial Statements, Bartlett, Pringle & Wolf, LLP, June 30, 2015 and 2014,

[7] http://www.ccrb-board.org

Table 2. Estimated Average and Range of Water Costs Based on Water Source

Water Source	Average per AF	Minimum per AF[a]	Maximum per AF[a]
Lake Cachuma	$300	$100	$500
Groundwater	$430	$120	$610
Table A State Water	$5,000	$2,100	$8,000
Reclaimed / Recycled Wastewater	$360	$160	$440
Supplemental State Water[b]	$1,800[b]	$750[b]	$3,400[b]
Desalinated	$1,400[c]	Not Available	Not Available

[a] Variations in minimum and maximum cost per AF are a function of the amount of water produced during the year and the constant value of the fixed costs.
[b] Cost for supplemental State Water could easily be doubled once the costs to return this "leased" water are factored in.
[c] Desalinated water is not yet in production. Cost is an estimate of operating costs only. No capital cost is included.

METHODOLOGY

The Jury conducted interviews with elected officials and staff involved with the Cachuma Project. In addition, the Jury studied pertinent contractual documents, water agencies' websites, annual reports, board meeting minutes, and board meeting agendas.

OBSERVATIONS

Status of Lake Cachuma Today

The water in Lake Cachuma today is over allocated. The Lake, once billed as the long term solution to the water problem on the South Coast and designed to withstand a six to seven-year drought, was virtually empty in 2015, only four years after the lake had spilled. As of March 2016, the Lake was at 14.9 percent capacity. Siltation in the Lake has resulted in continued loss of storage capacity. Demands on the water supply exist today that did not exist in 1995 when new water allotments were calculated. Just as importantly, the current drought is worse than the drought of 1947-52 called the "design drought", which was used to determine the original water allotments. All of these factors have resulted in a decrease in the volume of water that is, in reality, available to South Coast water users. Yet, the amount of water withdrawn each year has not been adjusted to account for this decrease. With negotiations to discuss renewal of the 1995 Contract set to begin in 2017, now is the time for member units to realistically address long term Lake water supply reliability.

Siltation

Siltation occurs when particles are washed into the reservoir and settle on the bottom. Recent fires such as the Zaca Fire contributed greatly to siltation in all Santa Ynez river reservoirs. Cachuma, Jameson, and Gibraltar reservoirs have all lost storage capacity due to siltation. Past attempts to remove silt were suspended due to environmental concerns. Furthermore, the Jury was told that cost calculations show future attempts would be prohibitively expensive. The Lake's original design capacity was 205,000 AF, allowing 32,000 AF of water to be withdrawn every year (see Table 1). By

1995, siltation reduced the Lake's capacity to 190,000 AF and the sustained annual yield was reduced to 25,714 AFY. The most recent sediment survey[8], done in 2013, determined that this trend in lost capacity is continuing and the Lake capacity was measured at 184,121 AF, an overall loss of over 11% of the original design capacity. New contract negotiations for annual water allotments need to take into account this loss of storage capacity and the additional losses that are predicted to occur due to continuing siltation.

Downstream Water Rights

From its inception, all parties and signatories to the Cachuma Project agreed "not to take, restrict, impair, or interfere with any or all of said presently established rights to water"[9] from the Santa Ynez River. All participants agreed that the "Cachuma Project shall continue to be operated to provide for the protection of prior downstream rights holders and public trust resources in accordance with Project Water Rights."[10] Project Water Rights are defined as permits and licenses issued for the Project pursuant to State law together with all orders of the State Water Resources Control Board (SWRCB). Cachuma Project water rights were issued by the SWRCB in 1973, 1988, 1989, and 1994.

The Jury learned that downstream users receive many recreational benefits from the mandated water releases from the Lake. However, more importantly, the City of Lompoc and its residents, located at the end of the Santa Ynez River, are solely dependent on groundwater for their potable water supply. The Santa Ynez River is the primary source of their groundwater recharge. By a vote of the people in 1991, Lompoc elected not to participate in the State Water Project, and therefore, receives no state water. New contract negotiations for annual water allotments to member units need to continue to account for the priority of water rights of Lompoc residents and other downstream users.

Endangered Species Act

In addition to water releases from the Lake for downstream water users, the Endangered Species Act and the 2000 Biological Opinion from NMFS require water be released from the Lake to protect the environment of the steelhead (rainbow) trout. Regardless of opinions about this endangered species' status, this release is a requirement of Federal Law. The NMFS 2000 Biological Opinion was enacted after the safe yields in the 1995 Contract were already determined. In 2015, 2,696 AF were released downstream to meet the Federal requirement. Table 3 shows the magnitude of the effect of this additional demand on the Lake's supplies. It is equivalent to the water allotted per year to each of the communities of Carpinteria, Santa Ynez and Montecito.

Furthermore, in March 2012 the SWRCB held a public hearing and anticipated issuing a new water rights order by the end of 2012. This new order has not yet been issued; however, all expectations are that it will require an increase in downstream releases. New contract negotiations for annual water allotments to member units need to take into account the water no longer available to them due to required water releases under the 2000 and future NMFS biological opinions.

[8] Results of 2013 Survey and Sedimentation Update on Lake Cachuma, February 17, 2014

[9] *United States Department of the Interior, Bureau of Reclamation, Contract for the Furnishing of Water to Member Units of Santa Barbara County Water Agency, September 12, 1949*

[10] Ibid

Table 3 Annual Entitlement[a] / Demands, AFY, on Lake Cachuma, 2015

Entitlements	AFY
Goleta Water District	9,312
City of Santa Barbara	8,277
Carpinteria Valley Water District	2,813
Santa Ynez RWCD ID #1	2,652
Montecito Water District	2,651
Required Reserve	
Dead Pool	12,000 AF
Actual Demands for 2015	
Downstream Water Rights	10,186 AFY
Fish Habitat Water Release, 2015	2,696 AFY
Evaporation[b]	7,105 AFY

[a] Entitlements are not the actual allotments of water for each member unit. Other demands in the table are actual volumes for, 2015.

[b] When the Lake is full the water lost to evaporation is estimated at 16,000 AFY. As the water level in the lake and the surface area go down so does the volume of water lost to evaporation.

The "New Normal" Drought

The current drought (2011 to 2015 with 51 inches of rain) is worse than the design drought of 1947 to 1952 with 59 inches of rain. The long anticipated El Niño storms are not materializing this year, which means that the South Coast is entering a fifth year of drought. Some experts are predicting this may be the "new normal". New contract negotiations for annual water allotments to member units must consider the "new" worst case scenario and take into account the possibility of more severe droughts, lasting for longer time periods.

Contract Period

The first contract between the Santa Barbara County Water Agency and the Bureau of Reclamation was in effect for 46 years. The contract was renewed in 1995 with an effective term of 25 years. New contract negotiations need to consider an effective term less than 25 years to address water demand changes that will allow for a timelier and nimbler management of this valuable resource. The Jury determined through its investigation that a periodic mandatory review and revision clause on the order of every five or six years must be included. Such clauses would require signatories to recalculate new safe yields periodically.

Operating Mode Modifications

The "contracting officer", defined as the Secretary of the US Department of the Interior or a duly authorized representative, has the ultimate say in determining the maximum supply of water available each water year to the Cachuma Project member units, which may not be their full entitlement. Member units submit a request for delivery of a quantity of water along with a monthly delivery schedule prior to the beginning of each water year. The contracting officer then either approves the

amount to be delivered and the delivery schedule or modifies the quantity if the request exceeds the quantity authorized by law. Section 9(a) of the master Contract states that "the contracting officer shall use the best efforts to operate the Project efficiently and in a manner that will allow there to be the maximum amount of Available Supply each Water Year."[11]

Table 4 summarizes the annual amount of water distributed to each member unit from the Lake over the past six years. It also shows the water remaining in storage as of September of each year. The Lake currently operates whereby each member unit begins the new water year with a clean slate and is entitled to their full annual allotment of water from the Lake along with any "carryover water" which is water not used during the previous water year. The carryover water explains why the water distributed in some years, shown as shaded areas in Table 4, is greater than the agency's annual allotment. By 2013, two years after the Lake spilled, the water in the lake was reduced by about 50% to 91,922 AF. In hindsight, alarm bells should have been ringing at this point. Reductions in water distributions did not occur until 2014 when Lake Cachuma was at only 33% and member units took approximately 20% less than their entitled amount. ***For the first time in the history of the Cachuma Project, no new annual water allotments are scheduled for 2016.***

Table 4. Water Actually Distributed, AFY, from Lake Cachuma per COMB[12]

Water Year	Montecito Water District	Santa Ynez ID No. 1	Carpinteria Valley Water District	City of Santa Barbara	Goleta Water District	Total from Lake Cachuma[a]	AF Water in Storage, Sept	% Entitlement Approved or % of Allotment Taken
2010	3,124	73	3,033	7,457	11,980	25,667	152,855	------
2011[b]	2,752	80	2,655	9,422	11,351	26,260	180,986	------
2012	3,610	80	3,447	9,613	11,991	28,741	142,970	------
2013	3,905	75	3,888	11,232	10,737	29,837	91,922	------
2014	1,171	34	2,610	8,720	6,634	19,169	61,107	80%
2015	473	25	889	3,472	4,529	9,388	32,989	45%
2016[c]	797	6	300	1,712	1,446	4,261	28,714	**0%**

[a] Total Allotment by contract = 25,714 AFY

[b] Cachuma spilled March 2011

[c] As of April 2016, all water is from the carryover account, 0% entitlement for 2016

Drawing down the Lake in the manner and as rapidly as was done over the last five years has resulted in an added expense of $8.6 M over three years (fiscal years 13/14, 14/15, and 15/16) for the four members units south of the Lake. This additional cost is for the Emergency Pumping Facility Project. This project was needed because the water level in the Lake was below the lowest gate of the water intake tower. The $8.6 M included the design, construction, project management, and operation of the barge and pipes needed to pump water from the remaining pools of water in the Lake over to the intake tower.

The Jury learned that because of their geographical location, there are some areas of Goleta, Santa Barbara, and Montecito that are completely reliant on surface water for their water needs. If no water deliveries are made from surface water sources or groundwater wells, these areas would have to be

[11] *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995*.

[12] Data was taken from COMB monthly reports, see COMB website, board minutes and agenda packets for each year, http://www.cachuma-board.org/meetingdocs/2015-meeting-archives.htm

served with alternative emergency water plans. The Jury was told that emergency plans are in place to serve customers in the case of a complete loss of surface water supplies. On a temporary basis water service would only be possible under extreme rationing and would only be available for health and safety use and no outdoor watering.

There is no contractual wording requiring a decrease in entitlements as the amount of water in the Lake decreases. The Jury was told repeatedly that this operational mode has contributed to the current angst and speed at which the water has been withdrawn from the Lake and that changes need to be made.

The Jury was informed of two water release alternatives that can be implemented to address what many see as a flaw in the efficient management of this valuable resource. One scenario calls for water withdrawals on a sliding scale, based on the time since the last Lake spill. Drawing the reservoir down as much as possible in "Year One" after a spill would provide more capacity to exist in the Lake so that the maximum amount of water could be captured the following year, assuming it is a rainy year. "Year Two" after a spill would begin mandatory reductions in withdrawals, assuming that year is the beginning of the next drought. Another alternative calls for mandatory reductions to member unit entitlements that would be triggered as the Lake capacity decreases.

The new contract for annual water allotments to member units must include changes to elements of the current operational mode, post spill year, which would maximize the amount of "Available Supply each Water Year"[13] and minimize extra costs incurred by the community such as those needed to install the emergency pumping facility or to purchase additional expensive supplemental State Water.

Water Management Planning

The Jury learned that each member unit makes decisions based on their own needs and water management plans. Urban Water Management Plans (UWMPs)[14] are required to be prepared every five years by urban water suppliers that provide over 3,000 AFY of water or serve over 3,000 customers. The UWMP supports long term resource planning, encourages the efficient use of available supplies, and ensures that adequate water supplies are available to meet existing and future water demands. In years of long term drought, having a plan to manage your water supply is even more important. Without such a plan, elected public officials lack the guidance to make responsible decisions based on a careful analysis of their agency's water portfolio and could succumb to pressure from constituents to make decisions for political reasons.

Santa Ynez Water Conservation District ID No. 1 is the only member unit exempt from the UWMP requirement. Of the remaining four member units, only Montecito Water District does not have an updated UWMP. Montecito Water District (MWD) must update its UWMP with a focus on developing supply and demand strategies they can rely on during prolonged drought periods.

Conservation Efforts

With dwindling surface water supplies, member units had two choices: (1) buy supplemental water on the open market or, (2) initiate conservation efforts to extend the limited amount of available water. In this instance, Santa Barbara County water agencies were initially united in their individual efforts to

[13] *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995.*

[14] California Department of Water Resources website, http://www.water.ca.gov/urbanwatermanagement/

promote conservation among their water users. Table 5 is a timeline summarizing conservation efforts and subsequent reversals of such efforts. By March 2014, when Lake Cachuma was below 50% capacity, and it was apparent the area was in the third year of below average rainfall, four of the five member units, Santa Barbara, Carpinteria, Montecito, and Goleta had declared a drought emergency. By June 2014, Santa Ynez declared a Stage 1 drought and by September 2014 Santa Barbara and Goleta were at Stage 2 drought.

Table 5. Timeline of Conservation Efforts and Lack Thereof

Date	Conservation Action	Member Unit
Feb 2014	Stage 1 Ordinance 92 & 93	Santa Barbara and Carpinteria MWD
Mar 2014	Stage 1	Goleta Water District
May 2014	Stage 2	City of Santa Barbara
June 2014	Stage 1	Santa Ynez Water Conservation District ID No. 1
Sept 2014	Stage 2	Goleta Water District
Mar 2015	Ordinance 94	MWD – Increases water allotments
April 2015	Executive Order B-29-15	Governor of CA issues Executive order for mandatory reductions for urban water suppliers
May 2015	Stage 2 Stage 3	Carpinteria Valley Water District City of Santa Barbara and Goleta Water District
Sept 2015	Stage 2	Santa Ynez Water Conservation District ID No. 1

Each stage of declared drought can mean something different at each water agency. Most drought stages set limits on outside water use. Unique among agencies enacting water use restrictions is the Montecito Water District. Rather than limiting water uses and adding a drought surcharge to water bills, which would compensate for some of the reduced revenue from decreased water use, MWD (in Ordinance 93) gave an allotment of water to each customer based on property size, enacted penalties for overuse, and added a moratorium on water service connections. Of concern to the Jury is the action taken by MWD, and the confusing message it sent to its customers with the passage of Ordinance 94, in March 2015. Ordinance 94 was enacted in response to a successful search to buy supplemental state water on the open market. In this ordinance, the MWD Board of Directors approved an increase in water allotments to their customers. This occurred just one month before the Governor of California enacted an unprecedented executive order for statewide mandatory water use reductions.

Member units need to work together to send a clear message to their constituents, to reduce confusion and to emphasize the severity of the water shortages all residents are facing. Of benefit to the regional water community would be a consistent set of defined conservation measures that would be written into the subcontracts between the Agency and all member units, and that member units would enact within their jurisdictional areas in response to specific drought triggers.

Regional Cooperation

The Jury learned that during the previous drought period of 1986-1990, member units voluntarily agreed to a 20% decrease in their allotments when the Lake's capacity reached 100,000 AF. A similar voluntary reduction was not agreed to by all members during the current drought. The Jury learned how such a decision is understandable. From the viewpoint of a water agency that has a diversified

water portfolio, such as the Goleta Water District, it can opt to make decisions, based on financial reasons, to use up all of its allotment of inexpensive Lake water before dipping into its more expensive groundwater or State Project Water supplies, see Table 2. However, not all member units participating in the Cachuma Project are fortunate enough or have had the foresight to develop a diversified water portfolio. The member units that rely on surface water for up to 90% of their water supplies are more focused on keeping as much water in the Lake for as long as possible.

The City of Santa Barbara has started to rebuild its desalination plant as one way to diversify its water supply. Montecito Water District relies almost exclusively (95%) on surface water with groundwater making up the remaining 5%. The Jury learned that Santa Barbara and Montecito are involved in discussions to participate as partners in the rebuilding of the City's desalination plant. The Jury recommends that in light of regional cooperation, and obtaining a new reliable source of water for the South Coast, that these discussions continue.

Cooperation among member units took a turn for the worse in 2011 when CCRB was transferred to COMB, which then began implementing the Fish Management Plan. When this happened, Santa Ynez ID No.1 lost some of their power in how the Fish Management Plan was implemented and has continuously objected to paying for their share of work they believe is outside the scope of the original fisheries Memorandum of Understanding and Biological Opinion. This conflict is beyond the scope of this report, but should be resolved within the existing organizational structure.

At the same time, Carpinteria Valley Water District dropped out of CCRB for financial reasons. CCRB's activities are funded by its members, which in turn are funded by their water rate payers. Carpinteria stopped paying their share of CCRB's operating costs while still retaining the benefits reaped from the advocacy activities of this group. This action has placed a greater financial burden on the other member units and their rate payers.

Community Development Plans

Control of growth within an area is, in part, the responsibility of planning and development departments. However, when a development is approved at the planning level, the developer is required to receive notification from the governing water agency in that area confirming that water is available to service the needs of the development. Each water agency does this in a slightly different way, whether through "Can and Will Serve" letters, "Intent to Serve" letters, or a similar document. The Jury learned that water agencies are loathe to be the limiting factor for development. However, they are the responsible agency when it comes to determining whether they have adequate water supplies to support the needs of their service areas.

Until recently, developments continued to receive approval for water service. The Jury noted that most of these approvals have no expiration date. Documents issued by all member units that approve new water service must include language that limits the permit life.

Developments that replace existing structures are approved with the understanding that water for the development is limited to the same amount as is being used under the existing structure. The Jury was told that in some cases, if low flow plumbing fixtures are installed and/or if landscaping is drought tolerant or restricted, water demand at the new development could be less than the existing demand.

New construction is minimal in a city such as Santa Barbara that has little room for growth. However, in a newer city such as Goleta, new construction is taking place throughout the community. Citizens of Goleta continue to express their dismay within formal public arenas (such as newspapers, board meetings, and online chat websites) and less formally in casual conversations all over town, at the amount of development that is going on during the worst drought in history. The Jury learned that the Goleta Water District issues its "Can and Will Serve" letters on water resources they predict will be available during a normal weather year. No consideration is given to the possibility of having to supply water to an ever growing community when water shortages occur over many years. The result of this type of approval is that Goleta Water District residents are asked to pay more for water, perhaps at the expense of their quality of life.

Future commitments for water service for all water agencies must be based on the water available under the worst case water supply scenario, not under what would be a "normal" year, as there does appear to be a "new normal" emerging.

CONCLUSION

The 2015-16 Santa Barbara County Grand Jury, made up of 19 citizens from throughout the County with a variety of backgrounds and a genuine interest in the operations of government within the County of Santa Barbara, found it difficult to unravel the complex web of water agencies, water contracts, water regulations, water purchases, water sales, water portfolios, and water management plans that are designed to supply a safe and secure water source to all people living on the South Coast. This report attempts to unravel portions of this web and to address those issues deemed most pressing and most able to be improved with a focus on the importance of Lake Cachuma.

As the residents of the South Coast of Santa Barbara County come to terms with an ever limited supply of water for an ever growing community, the value of every drop of water has come to be appreciated. The Jury recommends that local water agencies work cooperatively to craft a new master contract with periodic mandatory review and revision clauses between the United States Bureau of Reclamation and the Santa Barbara County Water Agency for the operations of Lake Cachuma and include: the lost water storage capacity due to siltation, the increased demand for downstream habitat preservation, and the reality of more frequent multiyear droughts. The Jury also recommends that each member unit of the Cachuma Project improve their individual water portfolio and reassess their process of approving new water service in light of more limited water supply.

For close to two centuries, providing a reliable and sufficient water supply to the residents and agriculture of Santa Barbara County has been a challenge. This challenge has been met year after year by sometimes contentious meetings as public officials try to come to terms with the stress of making sure their constituents have a safe and sufficient supply of water at a reasonable cost. Meeting this challenge in the future with the possibility of increasing multi-year droughts, will be ever more difficult.

With the predicted population increase, the demands on this limited resource will also increase. Approximately 250,000 people, many without knowing it, are reliant on their local elected water officials and staff to work together to ensure that wherever they live in Santa Barbara County and regardless of their income, they will have enough water for their basic human needs.

FINDINGS AND RECOMMENDATIONS

Finding 1
Siltation is continuing to decrease the storage capacity and the safe yield of Lake Cachuma as defined in *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995*.

Recommendation 1
That the safe yield from Lake Cachuma as defined in *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995*, be recalculated and used in the new master contract between the United States Bureau of Reclamation and the Santa Barbara County Water Agency taking into account lost storage capacity due to siltation.

Finding 2
Downstream water rights are protected in the *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995* and must be considered when calculating the safe yield.

Recommendation 2
That the new master contract between the United States Bureau of Reclamation and the Santa Barbara County Water Agency must continue to emphasize the importance of downstream water rights and be used in the calculations of the safe yield.

Finding 3
The *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995* was written prior to the 2000 National Marine Fisheries Service Biological Opinion and does not include the requirement to release water under the auspices of the Endangered Species Act.

Recommendation 3a
That the new master contract between the United States Bureau of Reclamation and the Santa Barbara County Water Agency include the required water releases for the protection of fish habitat under the 2000 National Marine Fisheries Service Biological Opinion.

Recommendation 3b
That the new master contract between the United States Bureau of Reclamation and the Santa Barbara County Water Agency add language to include the amount of water that will be required to be released by the new Biological Opinion from the National Marine Fisheries Services when it is released.

Finding 4

The 2011-2016 drought is far worse than the "design drought" of 1947-1952 used in the *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995* for Lake Cachuma.

Recommendation 4
That the new master contract between the United States Bureau of Reclamation and the Santa Barbara County Water Agency calculate new water entitlements for member units using the current 2011-2016 worst case drought as its "design drought".

Finding 5
The *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995* extending from 1995 to 2020 (25 years) is too long a period and includes no review and revision clauses to recalculate the "safe yield" of the Cachuma Project.

Recommendation 5a
That the term of the new contract between the United States Bureau of Reclamation and the Santa Barbara County Water Agency be less than 25 years in length.

Recommendation 5b
That the new contract between the United States Bureau of Reclamation and the Santa Barbara County Water Agency include periodic mandatory review and revision clauses on the order of every five or six years to recalculate the "safe yield" of Lake Cachuma and to make any other necessary contract changes.

Finding 6
Safe yield from Lake Cachuma in the current *United States Department of the Interior, Bureau of Reclamation, Cachuma Project, California, Contract Between the United States and Santa Barbara County Water Agency Providing for Water Service from the Project, 1995* is based on a static volume per year.

Recommendation 6
That the new master contract between the United States Bureau of Reclamation and the Santa Barbara County Water Agency include a new safe yield in Year One after Lake Cachuma spills, and, in subsequent years, use either a sliding scale or specify mandatory reductions.

Finding 7
The Montecito Water District does not have an updated Urban Water Management Plan.

Recommendation 7
That the Montecito Water District update its Urban Water Management Plan.

Finding 8
Conservation policies and drought declarations differ from one member unit to another, possibly confusing water users.

Recommendation 8a
That the member units, in conjunction with the Santa Barbara County Water Agency, create consistent policies and procedures that govern conservation efforts especially during times of a severe drought and that these are documented in the subcontracts between the Santa Barbara County Water Agency and the member units.

Recommendation 8b
That the policies and procedures in Recommendation 8a be announced to the community by all member units at the same time.

Finding 9
The City of Santa Barbara has started to rebuild its desalination facility and has been in intermittent discussions with the Montecito Water District on sharing use of the facility.

Recommendation 9
That the City of Santa Barbara and the Montecito Water District continue discussions on options that could optimize the desalination facility as a regional one.

Finding 10
The Carpinteria Valley Water District no longer participates in the Cachuma Conservation Release Board yet continues to reap the benefits of negotiations paid for by the remaining agencies.

Recommendation 10
That the Carpinteria Valley Water District, as a benefiting party, rejoin and participate in the Cachuma Conservation Release Board.

Finding 11
Member units approve new water service by issuing, can and will serve letters, intent to serve letters, water service availability documents, or other documents, without expiration dates to citizens and developers.

Recommendation 11
That all member units include expiration dates for their water service approval documents.

Finding 12
Member units utilize can and will serve letters, intent to serve letters, water service availability documents, or other documents to grant new water service that are approved based on water availability during a "normal" year's water supply.

Recommendation 12
That member units change their policies to begin approving new water service on the water available during a "worst case" drought year.

REQUEST FOR RESPONSE

Pursuant to *California Penal Code Sections 933 and 933.05*, the Jury requests each entity or individual named below to respond to the enumerated findings and recommendations within the specified statutory time limit:

Santa Barbara County Board of Supervisors – 90 days
Findings 1, 2, 3, 4, 5, 6, 8
Recommendations 1, 2, 3, 4, 5a, 5b, 6, 8a, 8b

Carpinteria Valley Water District Board of Directors – 90 days
Findings 1, 2, 3, 4, 5, 6, 8, 10, 11, and 12
Recommendations 1, 2, 3, 4, 5a, 5b, 6, 8a, 8b, 10, 11, and 12

City of Santa Barbara City Council – 90 days
Findings 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, and 12
Recommendations 1, 2, 3, 4, 5a, 5b, 6, 8a, 8b, 9, 10, 11, and 12

Goleta Water District Board of Directors – 90 days
Findings 1, 2, 3, 4, 5, 6, 8, 10, 11, and 12
Recommendations 1, 2, 3, 4, 5a, 5b, 6, 8a, 8b, 10, 11, and 12

Montecito Water District Board of Directors – 90 days
Findings 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12
Recommendations 1, 2, 3, 4, 5a, 5b, 6, 7, 8a, 8b, 9, 10, 11, and 12

Santa Ynez River Water Conservation District ID No. 1 Board of Directors – 90 days
Findings 1, 2, 3, 4, 5, 6, 8, 11, and 12
Recommendations 1, 2, 3, 4, 5a, 5b, 6, 8a, 8b, 11, and 12