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BEFORE THE

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

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| In re State Water Resources Control Board Petition Requesting Changes in Water Rights of the Department of Water Resources and U.S. Bureau of Reclamation for the California WaterFix Project. | **TESTIMONY OF JOSE GUTIERREZ** |

I, Jose Gutierrez, do hereby declare:

I am the Assistant Chief Operating Officer at Westlands Water District ("Westlands"). A Statement of my Qualifications is submitted concurrently with my written testimony as Exhibit WWD-2. My responsibilities include planning, organizing, and directing Westlands' water resource activities including its Federal contract water supply and acquired supplemental water supplies; administering and scheduling water deliveries; managing Westlands' power programs; directing groundwater management and conservation activities; implementing State regulatory mandates; reviewing Westlands' land lease and sales activities; and implementing Westlands' capital improvement projects to enhance water supply reliability. I have been employed by Westlands since November 1, 2012. Prior to my employment with Westlands, my professional experience included approximately three years serving as an engineer with the U.S. Environmental Protection Agency, and 17 years as a consulting engineer working on water-related projects throughout California. I am a registered Professional Engineer in Civil Engineering in the State of California, and have held my license continuously since 1997. I earned a Bachelors and Masters of Science degree from the University of California at Berkeley in 1992 and 1994, respectively. My coursework focused on groundwater and surface water supply and treatment. I was born and raised in the San Joaquin Valley and worked in agriculture and related industries prior to college.

Summary of Testimony

In this testimony, I will provide background information regarding Westlands and describe Westlands' water supply, the role of Central Valley Project operations in delivering Westlands' supply, and how Westlands puts its water to use. In addition, I will discuss the need to restore and protect CVP water supplies in Westlands, and both the likely benefits to Westlands if California WaterFix moves forward and likely adverse impacts to Westlands if California WaterFix does not move forward, or moves forward in a way with more significant operational limitations than exist today.

Westlands Water District is a California water district with its service area in western Fresno and Kings counties encompassing over 600,000 acres with the historical demand for water or about 1.4 million acre feet per year primarily for irrigation. Water supplied to Westlands Water District comes through various water service contracts with the Bureau of Reclamation that provides water from the Central Valley Project. Westlands' water allocation has declined considerably since 1991 because of regulatory restrictions. Regulatory restrictions on the CVP, including restriction of Reclamation's ability to export water south of the Delta, could further reduce water supply reliability. If the change petition is approved but imposes significant operational limitations or does not provide terms and conditions necessary to protect and restore water supplies to Westlands as a CVP South of Delta Agricultural Water Service Contractor, there is a significant risk of adverse impacts to Westlands' water supply. Without the restoration and protection of reliable Central Valley Project water supplies south of the Delta, there is a significant risk of adverse impacts to the district including land fallowing, increased groundwater pumping, increased soil salinity, increased energy use, increased water costs for disadvantaged communities, permanent crop damage, unemployment and reduced air quality.

## I. Introduction to Westlands Water District

Westlands is a California water district formed pursuant to California Water Code sections 34000 et seq. Westlands' main office is in Fresno, California. Westlands' service area is in western Fresno and Kings counties, and encompasses approximately 600,000 acres, and includes some of the most highly productive agricultural lands in the world. Westlands provides water primarily for irrigation of farms, but provides water for some municipal and industrial uses as well. Westlands is a member agency of the San Luis & Delta-Mendota Water Authority.

Historically, the demand for irrigation water in Westlands has been about 1.4 million acre feet per year. That demand has been satisfied primarily through water provided to Westlands from the Central Valley Project ("CVP") under contracts with the United States Bureau of Reclamation ("Reclamation"). The CVP is a federal water project that stores water in large reservoirs for use by cities and farms throughout California, including areas served by Westlands. Water rights for operation of the CVP are held by the United States, and water from the CVP is made available under terms and conditions of contracts between the United States and water agencies or, with respect to settlement contracts, individuals and other entities. Reclamation operates the CVP as an integrated project. This means that Reclamation uses water from all CVP facilities subject to the consolidated place of use approved by Water Rights Decision 1641 to meet the United States' contractual obligations and does not make allocation decisions based on geographical regions. It is my understanding that Reclamation, the Water Board, and courts have consistently declined to give priority to contractors based on "area of origin" principles. Rather, Reclamation makes allocation decisions based on the terms of the CVP contracts and other policies. Different allocations are made to contractors in one region versus another only in circumstances where Reclamation is unable because of regulatory constraints to move CVP water from one region to another.

Unlike water agencies with more abundant supplies, Westlands must allocate (ration) water to its farmers, even in the wettest years. Westlands' water supplies are not increasing, but instead have declined in recent years. Once water supplies leave the CVP facilities, Westlands delivers water to farmers through approximately 1,034 miles of underground pipe and over 3,300 metered delivery outlets. In this manner, Westlands serves more than 600 family-owned farms that produce more than 60 different high quality commercial food and fiber crops sold for the fresh, dry, canned and frozen food markets, both domestic and export. The distribution system and associated infrastructure that deliver Westlands' water have been in operation for more than 50 years.

## II. Westlands' Sources of Water

### A. Water Service Contracts

Reclamation has allocated Westlands' full contractual entitlement to CVP water in only three of the past twenty-eight years. Indeed, in half of those years Westlands received fifty percent or less of its full contractual allotment, all across a broad range of water year types. In water contract year 2015—and for the second consecutive year—Westlands received a zero percent allocation under its CVP contract, and for water contract year 2016 received a mere five percent, even though the North Sierra 8-Station Precipitation Index finished the water year at 112 percent of average. Although Reclamation announced that the 2016 allocation was five percent, Westlands received approval to use this water with only two months left in the contract year, and then nearly lost this water due to filling and spilling of San Luis Reservoir when record precipitation started in January 2017.

#### 1. 1963 Long-Term Water Service Contract

In 1963, Westlands entered a contract with Reclamation for water service, Contract No. 14-06-200-495-A, which provided for delivery of up to 1,008,000 acre-feet of water per year through CVP facilities. (Exh. WWD-3.) On June 25, 1965, the California Legislature enacted the Westlands Water District Merger Law, which merged the West Plains Water Storage District into Westlands. (Wat. Code, § 37800 *et seq.*) As a consequence of the judgment entered on December 30, 1986, in *Barcellos and Wolfsen, Inc., et al., v. Westlands Water District, et al.*, No. CV 79-106-EDP (E.D. Calif. Dec. 30, 1986), Westlands' contractual entitlement to CVP water increased to 1,150,000 acre-feet of CVP water per year. To extend the term of the original contracts, Westlands entered renewal agreements with Reclamation; Contract No. 14-06-200-495A-IR1, which ended on February 28, 2010; Contract No. 14-06-200-495A-IR2 which ended on February 29, 2012; Contract No. 14-06-200-495A-IR3 which ended on February 28, 2014; Contract No. 14-06-200-495A-IR4, which ended on February 29, 2016; and Contract No. 14-06-200-495A-IR5, which will end on February 28, 2018.

A copy of the current renewal agreement is submitted as Exhibit WWD-4.

**2. Contract Assignments**

Broadview Water District

In 1959, Broadview Water District ("BWD") entered a contract with the United States for water service, Contract No. 14-06-200-8092, which provided for delivery of up to 27,000 acre-feet of water per year through CVP facilities. To extend the term of the original contract, BWD entered nine successive renewal contracts with the United States, including Contract No. 14-06-200-8092-IR9, ending on February 28, 2007. In 2007, Westlands' Distribution District No. 1 entered an agreement with Reclamation for assignment of BWD's water service contract. Since that time, Westlands' Distribution District No. 1 has entered into successive interim renewal contracts with Reclamation for continued water service, including Contract Nos. 14-06-200-8092-IR10, 14-06-200-8092-IR11, 14-06-200-8092-IR12, 14-06-200-8092-IR13, 14-06-200-8092-IR14, and 14-06-200-8092-IR15 ending February 28, 2018.

Widren Water District

In 1959, Widren Water District ("Widren") entered a contract with the United States for water service, Contract No. 14-06-200-8018, which provided for delivery of up to 2,990 acre-feet of water per year through CVP facilities. To extend the term of the original contract, Widren entered eight successive renewal contracts with the United States, including Contract No. 14-06-200-8018-IR8, ending on February 28, 2006. In 2005, Westlands' Distribution District No. 1 entered an agreement for assignment (2,990 acre-feet) of Widren's water service contract. Since that time, Westlands' Distribution District No. 1 has entered into successive interim renewal contracts with Reclamation for continued water service, including Contract Nos. 14-06-200-8018-IR9-B, 14-06-200-8018-IR10, 14-06-200-8018-IR11-B, 14-06-200-8018-IR12-B, 14-06-200-8018-IR13-B, 14-06-200-8018-IR14-B, and 14-06-200-8018-IR15-B ending February 28, 2018.

Centinella Water District

In 1977, Centinella Water District ("CWD") entered a contract with the United States, Contract No. 7-07-20-W0055, which provided for delivery of up to 2,500 acre-feet of water per year through CVP facilities. To extend the term of the original contract, CWD entered eight successive renewal contracts with the United States, including Contract No. 7-07-20-W0055-IR8, which ended on February 28, 2006. In 2004, Westlands' Distribution District No. 1 entered into agreements for assignment (2,500 acre-feet) of CWD's water service contract. Since that time, Westlands' Distribution District No. 1 has entered into successive interim renewal contracts with Reclamation for continued water service, including Contract Nos. 7-07-20-W0055-IR9-B, 7-07-20-W0055-IR10-B, 7-07-20-W0055-IR11-B, 7-07-20-W0055-IR12-B, 7-07-20-W0055-IR13-B, 7-07-20-W0055-IR14-B, and 7-07-20-W0055-IR15-B ending February 28, 2018.

Mercy Springs Water District

In 1959, Mercy Springs Water District ("MSWD") entered a contract with the United States for water service, Contract No. 14-06-200-3365, which provided for delivery of up to 13,300 acre-feet of water through CVP facilities. To extend the term of the original contract, MSWD entered into successive renewal contracts with the United States.

In May 1999, Westlands Distribution District No. 1, Santa Clara Valley Water District ("SCVWD"), Pajaro Valley Water Management Agency ("PVWMA") and the United States through the Bureau of Reclamation entered into an agreement for partial assignment (6,260 acre-feet) of MSWD's water service contract. Under this Assignment Contract, MSWD assigned its right, title and interest to 6,260 acre-feet of its water service contract to Distribution District No. 1, SCVWD, and PVWMA. Since February 29, 2000, Distribution District No. 1, SCVWD and PVWMA have entered into successive interim renewal contracts (Contract Nos. 14-06-200-3365A-IR3-B through 14-06-200-3365A-IR15-B) with the United States for continued water service through February 28, 2018.

In 2003, Westlands' Distribution District No. 2 entered into agreements for partial assignment (4,198 acre-feet) of MSWD's water service contract. In February 2006, Westlands' Distribution District No. 2 entered into a successive interim renewal contract with Reclamation for continued water service, Contract No. 14-06-200-3365A-IR9 C ending on February 28, 2007. Westlands' Distribution District No. 2 subsequently entered six more successive renewal contracts with Reclamation, including Contract Nos. 14-06-200-3365A-IR10-C, 14-06-200-3365A-IR11-C, 14-06-200-3365-IR12-C, 14-06-200-3365-IR13-C, 14-06-200-3365-IR14-C, and 14-06-200-3365-

IR15-C ending February 28, 2018.

**B. Water Transfers**

In addition to its contractual entitlements, Westlands acquires supplemental water on behalf of its water users and facilitates water user transfers from other districts. Supplemental water is water other than from Westlands' water service contracts. Below is a summary of the supplemental water and water user transfers facilitated by Westlands from 2006 through the present. Supplemental water is typically acquired through the San Luis and Delta Mendota Water Authority ("SLDMWA") or through annual procurement from willing sellers. Supplemental water is typically more expensive than water service contract supplies. For example, in 2015, the supplemental water rate was $1,219 per acre-foot, the 2016 supplemental water rate was $679 per acre-foot, and the 2017 supplemental water rate is estimated at $308 per acre-foot. In comparison, Westlands' CVP Agricultural Water Rate (which includes Reclamation, SLDMWA, and Westlands' costs) was $86.29 per acre-foot in 2011, $300.21 per acre-foot in 2016, and $160.18 per acre-foot in 2017. In addition to the higher costs, supplemental water is unreliable, receives lower conveyance and storage priority, requires annual approvals, and is exposed to greater risk of loss.

| Year | CVP Allocation (%) | Supplemental Water (acre-feet) | Water User Transfers (acre-feet) |
|---|---|---|---|
| 2006 | 100 | 38,298 | 45,936 |
| 2007 | 50 | 61,646 | 87,554 |
| 2008 | 40 | 112,986 | 85,421 |
| 2009 | 10 | 159,810 | 68,070 |
| 2010 | 45 | 70,533 | 71,296 |
| 2011 | 80 | 49,010 | 60,380 |
| 2012 | 40 | 123,636 | 111,154 |
| 2013 | 20 | 158,793 | 101,413 |
| 2014 | 0 | 118,301 | 81,005 |
| 2015 | 0 | 110,166 | 52,909 |
| 2016 | 5 | 142,149 | 72,154 |
| 2017 | 100 | 15,212 | 30,000 (est.) |

**C. Groundwater**

The figure titled "Westlands Water District Water Supply, 1988 through 2017" demonstrates how Westlands' water users conjunctively optimize the use of surface water when it is available and shift to groundwater when necessary. Groundwater pumping in Westlands fluctuates annually and the variation depends primarily on the CVP allocation. In the 2016/17 water contract year, Westlands' CVP allocation was only 5 percent and approximately 612,000 acre-feet of groundwater was pumped in the 2016/17 water contract year. In the 2017/18 water contract year, Westlands' CVP allocation is 100 percent and staff forecasts that approximately 60,000 acre-feet of groundwater could be pumped in the 2017/18 water contract year.

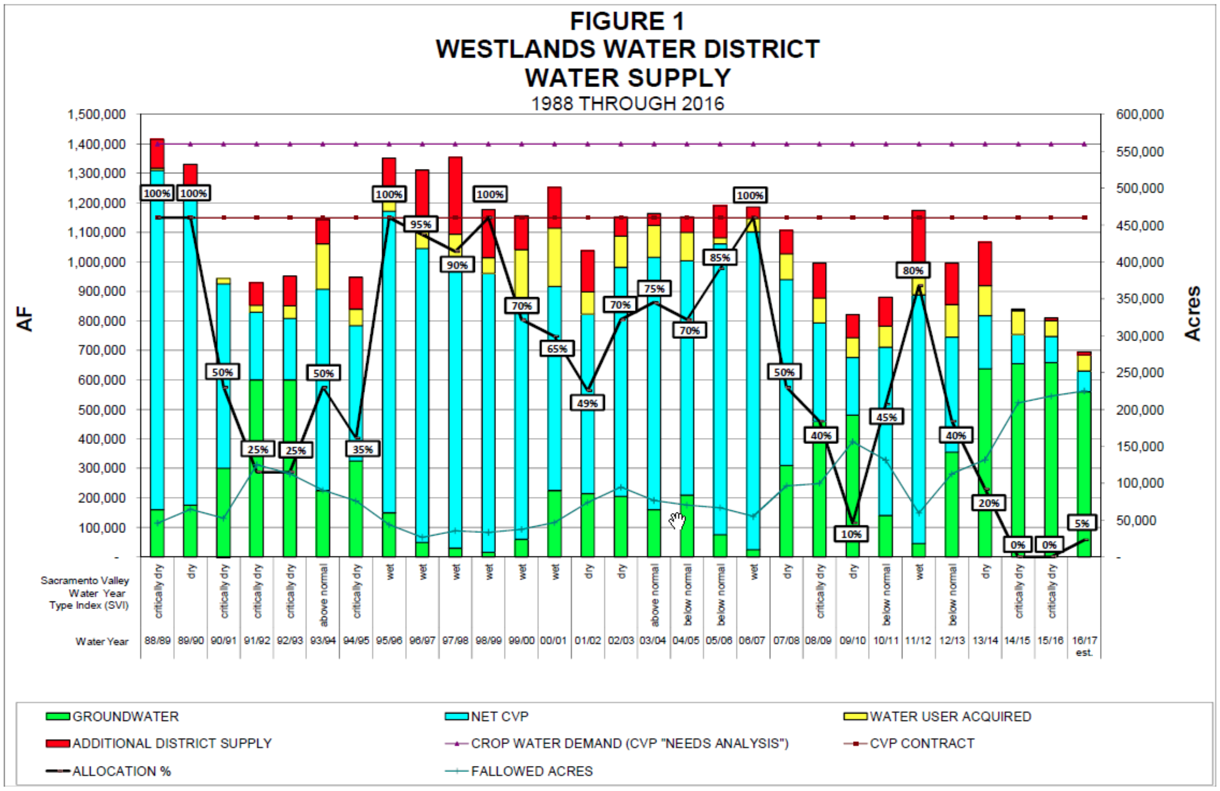
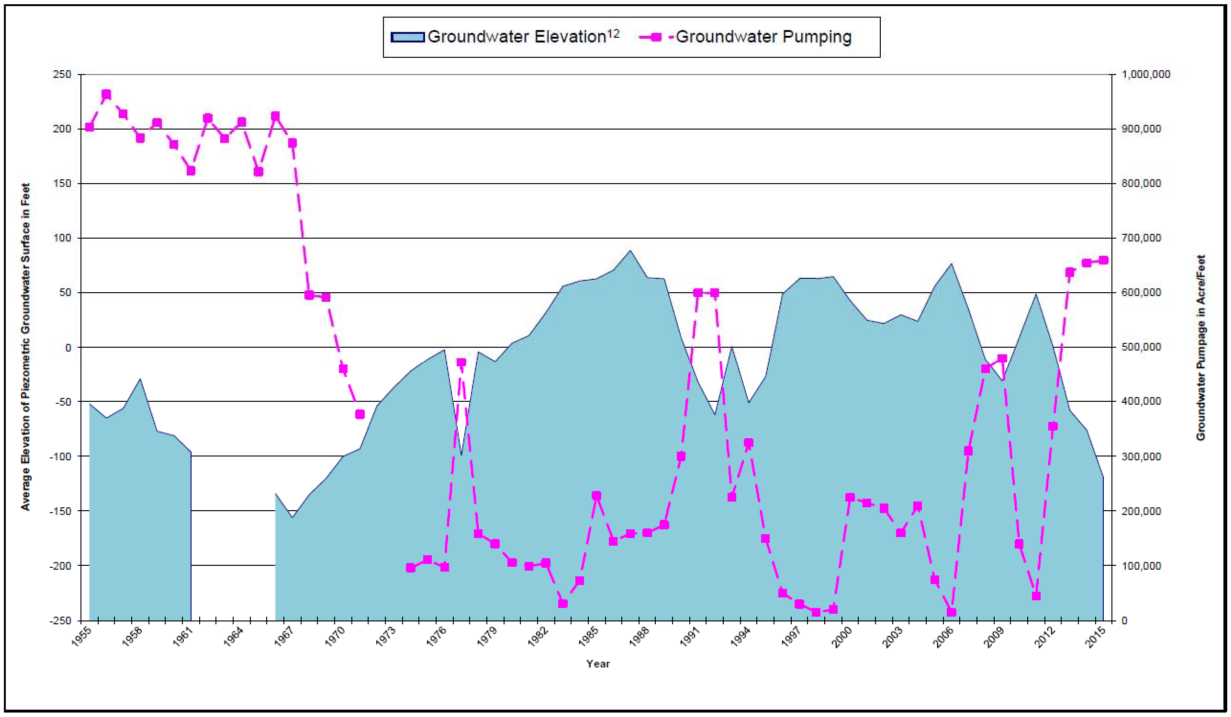


FIGURE 1
WESTLANDS WATER DISTRICT
WATER SUPPLY
1988 THROUGH 2016

In 2006, groundwater pumping equaled 25,000 acre-feet. Annual groundwater pumping has averaged about 281,000 acre-feet from 1988 through 2016. On a 10-year rolling average, District-wide groundwater pumping exceeded 250,000 acre-feet five times from 1988 through 2016. However, four of the five times occurred in 2013, 2014, 2015, and 2016, and the current 10-year average (2007-2016) is 435,500 acre-feet. Average groundwater levels have not reached the historical low measured in 1967. Though there were certain areas in the southern part of Westlands that were near or below 1967 groundwater elevation levels in 2016, those levels have recovered and are now above the historical low. Conjunctive use of surface water and groundwater ensures that the District and its water users are optimizing the water demand and supply balance.

The figure titled "Historical Groundwater Pumping Rate (1955-2015)" illustrates historical groundwater pumping rates and the average piezometric groundwater surface elevation throughout the District.

Figure 3: Historical Groundwater Pumping Rate (1955-2015)




[1] Elevation Data from 1955-1961 and 1977 from Bill Coor, USBR, on 4/20/1978 for WWD
[2] Elevation Data from 1966-1976 from Plate 5 of "Project Effecrs on Sub-Corcoran Water Layers" (April 1977)

As presented in the table titled "District-Wide Groundwater Pumping," groundwater pumping exceeded 250,000 acre-feet from 2012 through 2016. Based on historic data it is anticipated that the groundwater surface elevation should recover or stabilize with the implementation of the Sustainable Groundwater Management Act ("SGMA").

**District-Wide Groundwater Pumping**

| Year | Groundwater Pumping (acre-feet) | SOD CVP Allocation | Northern Sierra Precip. 8-Station Index (inches) |
|---|---|---|---|
| 2007/08 | 310,000 | 50% | 37.1 |
| 2008/09 | 460,000 | 40% | 34.9 |
| 2009/10 | 480,000 | 10% | 46.8 |
| 2010/11 | 140,000 | 45% | 54.2 |

| | | | |
|---|---|---|---|
| 2011/12 | 45,000 | 80% | 72.7 |
| 2012/13 | 355,000 | 40% | 41.6 |
| 2013/14 | 638,000 | 20% | 44.3 |
| 2014/15 | 655,000 | 0% | 31.3 |
| 2015/16 | 660,000 | 0% | 37.2 |
| 2016/17 | 612,000 | 5% | 57.9 |
| 2017/18 | 60,000 (est.) | 100% | 4.8 to date |

## III. Central Valley Project Operations and Westlands' Water Supply

Water is delivered to Westlands through the CVP. The CVP stores water in large reservoirs in Northern California for use by cities and farms throughout California. After it is released from CVP reservoirs, the water is pumped from the Sacramento-San Joaquin Delta ("Delta") and delivered 70 miles through the Delta-Mendota Canal to San Luis Reservoir. Under typical operating conditions during the spring and summer, the water is released from San Luis Reservoir and delivered to Westlands through the San Luis Canal and the Coalinga Canal. Once it leaves the federal project canals, water is delivered to farms through 1,034 miles of underground pipe and more than 3,300 water meters. Though 2016 was not a typical operating year, it provides a realistic example of how the CVP could be operated going forward.

In 2016, Reclamation did not pump sufficient water from the Delta, even though excess water was flowing through the Delta during certain periods. An insufficient amount of water was pumped and stored in the San Luis Reservoir to supply Reclamation's core demands. Therefore, Reclamation appropriated water purchased by agricultural service contractors to meet its core demands and announced that water deliveries would be shut off to Westlands. Even though Westlands' water users invested millions of dollars to acquire supplemental water to offset the lack of CVP water supply, the water was not available during peak irrigation season and farmers were forced to access other supplies, such as pumping more groundwater from an over drafted basin.

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## IV. How Westlands Puts its Water to Use

The San Joaquin Valley ranks as one of the highest agricultural producers in the world. As the largest agricultural region in the state, Westlands growers produce a wide variety of crops. (See Exh. WWD-5, Map of Westlands' Service Area.) These agricultural contributions significantly impact the economies of local communities, the San Joaquin Valley, the State of California, and the nation.

### A. Crops Grown

Growers in Westlands produce more than sixty high-quality food and fiber crops, including row crops, grapes and nut crops. Westlands farms lead the state in the production of six of California's top ten valued commodities. Below is Westlands' 2017 Crop Acreage Report, which summarizes the different crop types grown and corresponding acreage within Westlands' service area.

USDA-

CFSA

net

## WESTLANDS WATER DISTRICT
## 2017
## Crop Acreage Report

| Crop | Acres1/ | Crop | Acres1/ |
|---|---|---|---|
| Alfalfa-Hay | 2,063 | Nectarines | 370 |
| Alfalfa-Seed | 1,615 | Nursery | 142 |
| Almonds | 87,882 | | |
| Apples | 118 | Oats | 496 |
| Apricots | 605 | Onions-Dehy | 3,980 |
| Asparagus | 115 | Onions-Fresh | 5,528 |
| | | Oranges | 1,785 |
| Barley | 12,109 | | |
| Beans-Dry | 154 | Parsley | 1,393 |
| Beans-Garbanzo | 6,978 | Pasture | 465 |
| Beans-Jojoba | 9 | Peaches | 1,296 |
| Blueberries | 80 | Peppers-Misc | 92 |
| Broccoli | 1,059 | Pistachios | 44,103 |
| | | Plums | 261 |
| Cabbage | 30 | Pomegranates | 2,175 |
| Cantaloupes | 11,952 | Prunes | 140 |
| Carrots-Bulk | 306 | Pumpkins | 18 |
| Cherries | 755 | | |
| Corn-Field | 330 | Safflower | 415 |
| Corn-Sweet | 5,611 | Seed Crop-Misc | 805 |
| Cotton-Lint-Acala/Upland | 2,507 | Spinach | 154 |
| Cotton-Lint-Pima | 42,771 | Squash | 96 |
| | | Sugar Beets | 2 |
| Flowers | 38 | | |
| | | Tangerines | 1,830 |
| Garlic | 14,353 | Tomatoes-Fresh | 3,830 |
| Grain Hay | 15,113 | Tomatoes-Proc. | 56,795 |
| Grain/Sorgham | 343 | | |
| Grapefruit | 50 | Walnuts | 475 |
| Grapes-Raisin | 1,226 | Watermelons | 3,109 |
| Grapes-Table | 1,285 | Wheat | 23,666 |
| Grapes-Wine | 16,505 | | |
| | | NB Trees & Vines | 30,756 |
| Honeydew Melons | 2,838 | Fallow | 140,477 |
| | | Non-Harvested | 5,798 |
| Lemons | 579 | | |
| Lettuce-Fall | 4,563 | | |
| Lettuce-Spring | 3,547 | | |
| | | Subtotal | 567,941 |
| | | Double Crop | 4,324 |
| | | Total | 563,617 |

cropped acreages

**B. Application and Conservation of Water and Sustainable Practices**

Water conservation and sustainability have been at the core of Westlands' comprehensive water delivery system. The closed pipeline system—over 1,000 miles of underground pipe—and metered deliveries enables the delivery of water with virtually no losses to seepage, evaporation, or spills. Laser leveling, computer-aided drip irrigation and the extensive use of global positioning systems help Westlands growers achieve water use efficiencies of 85 percent or more. By 2010, more than two-thirds of Westlands' irrigated lands were served by drip irrigation systems, representing an investment of more than $500 million.

Westlands provides growers with information and assistance directed at achieving higher irrigation efficiencies and reducing deep percolation. From 1987 to 1991, Westlands provided nearly $1 million to Westlands growers to obtain the services of irrigation consultants. Under this program, consultants evaluated the growers' irrigation systems and management and made recommendations directed at increasing irrigation effectiveness and reducing deep percolation.

Westlands responds to the needs of growers and addresses critical conservation issues, such as soil salinity, by implementing grower information and assistance programs to achieve the following goals:

- Increase seasonal application efficiency
- Increase distribution uniformity
- Increase crop yields
- Decrease deep percolation
- Decrease the effects of soil salinity

Overall, water conservation and increased irrigation efficiencies have resulted in improved stabilization of shallow groundwater depths, substantial increases in the number of drip irrigation systems, and intensified irrigation management due to the utilization of irrigation specialists and scientific technology. The increased efficiency, groundwater stabilization, and advanced irrigation practices exist due to a multifaceted sustainability program that has been studied, modified and improved for over 40 years. Results are achieved through the following practices:

- Providing growers with current Irrigation Guides detailing water requirements for crops based on actual weather and computer modeling. A separate weekly guide is sent to growers providing detailed information on the three climatic regions throughout Westlands.

- Providing growers with The Water Conservation and Management Handbook, containing specific water management information on Westlands' farming conditions.
- Providing technical assistance and conservation computer programs to growers, allowing growers to personally study irrigation management issues and solutions.
- Maintaining an aggressive program to install, upgrade and repair water meters.
- Monitoring groundwater to provide growers with up-to-date information on the quality and depth of groundwater.
- Ongoing efficiency testing for Westlands' pumps, preventing potentially catastrophic system downtime and reducing electrical consumption and costs.
- Improving overall water supply reliability through the efficient use of surface and groundwater to extract maximum benefit and preserve environmental resources.
- Offering opportunities to growers to lease or own innovative equipment such as drip, micro-spray, sprinkler, and aluminum piping to encourage conversion to more efficient irrigation technology.

**C. Shallow Groundwater Management within Westlands**

To address drainage issues, Westlands employs intense irrigation management techniques restricting leaching to the absolute minimum needed to maintain a salt balance, thereby limiting deep percolation and choosing a crop rotation and cultural management regime to minimize the required leaching.

Over the years, Westlands farmers have become highly proficient at implementing water and soil testing for data and solutions related to ground salinity. We have developed expertise in sustainable methods for managing the salt load from irrigation drainage, including innovative cultivation techniques—sometimes called "precision agriculture"—that keep farms operating at peak water-efficiency and cut dust pollution. Local farmers have also mastered field elevation, slope (grade), and topography assessment techniques which also impacts drainage. Farmers are using scientific data and technology to better pinpoint when, where and how much to irrigate.

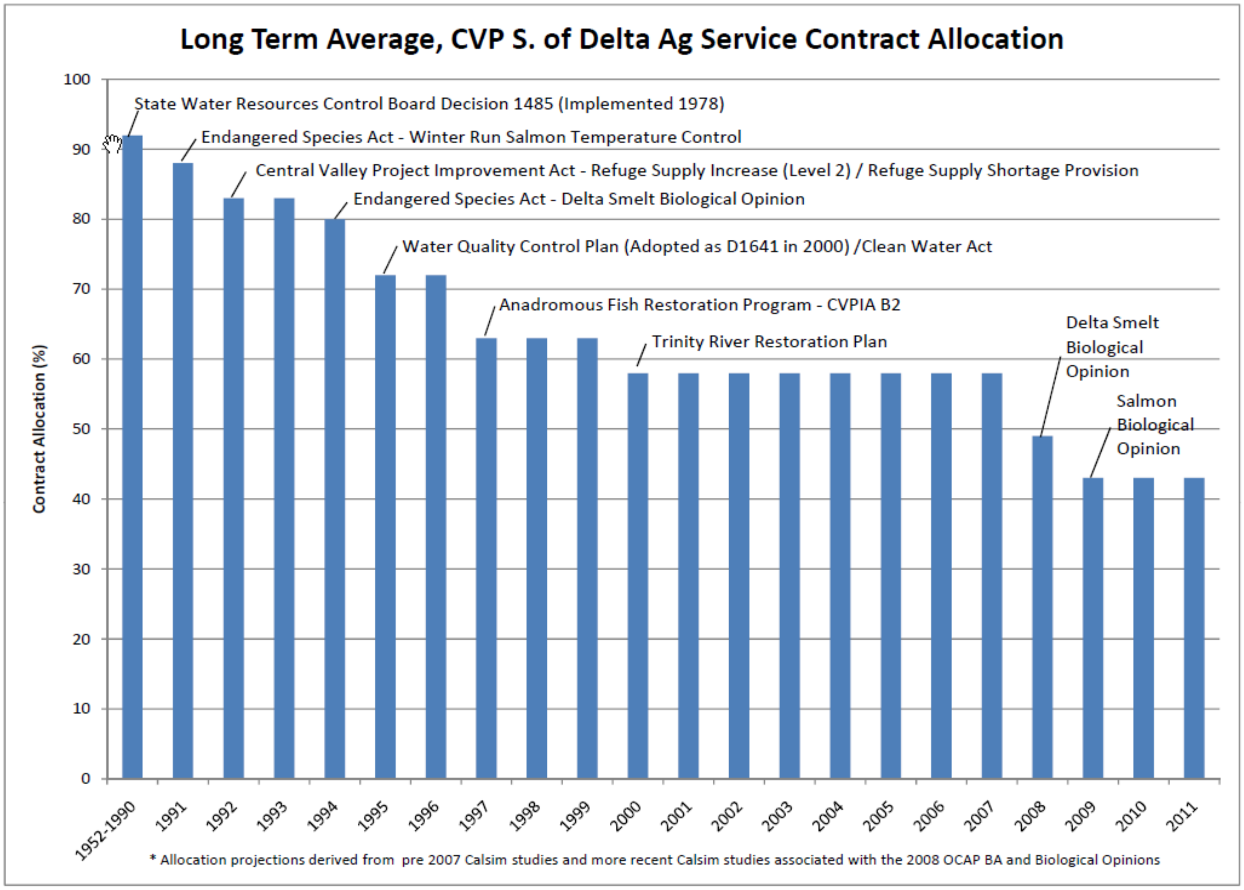
Westlands is a leader in water conservation; this leadership includes facilitating the transition to drip irrigation, the use of cover crops and no-tillage for better soil health and reduced water usage, employing the latest technology to pinpoint inefficiencies in irrigation, and funding plant science where genetic engineering could help crops withstand drought.

Since 1985, Westlands has studied a number of available or emerging drainage technologies, at a cost of over $8 million, including land application, evaporation and solar ponds, biological selenium removal, a deep injection well, cogeneration, agroforestry, and upper zone pumping. Advanced water management techniques implemented by Westlands growers have reduced deep percolation below the crops' root zone and lessened the immediate impacts of the lack of drainage.

## V. The Need to Protect and Restore Reliable Water Supply

### A. Allocation History

Westlands' allocation has declined considerably since 1991. The figure titled "Long Term Average, CVP South of Delta Agriculture Service Contract Allocation" developed by SLDMWA illustrates the anticipated reduction in CVP allocation resulting from successive regulatory decisions implemented since 1978. As shown in the illustration, the anticipated allocation going forward, following implementation of the 2008 Delta Smelt and 2009 Salmon Biological Opinions, is about 40%. However, as experienced since 2012, when we endure below normal hydrology, the allocation will be significantly less than 40%.




T. Boardman, SLDMWA
10/25/2013

The table below summarizes the final CVP South of Delta Agriculture Service Contract Allocation from 1968 through the 2017 water contract year. In water contract year 2015—and for the second consecutive year—Westlands received a zero percent allocation under its CVP contracts. Westlands' 2016 water contract year allocation was merely five percent, even though the North Sierra 8-Station Precipitation Index is 112 percent of average. Despite the allocation and above normal precipitation, Reclamation notified its contractors that the CVP water was not available for delivery until the end of December 2016, with only two months remaining in the contract year. Reclamation announced an allocation on April 1, 2016, but without access to the water during the peak summer irrigation and post-harvest months, for all practical purposes the 2016/17 water contract year was a third zero allocation year.

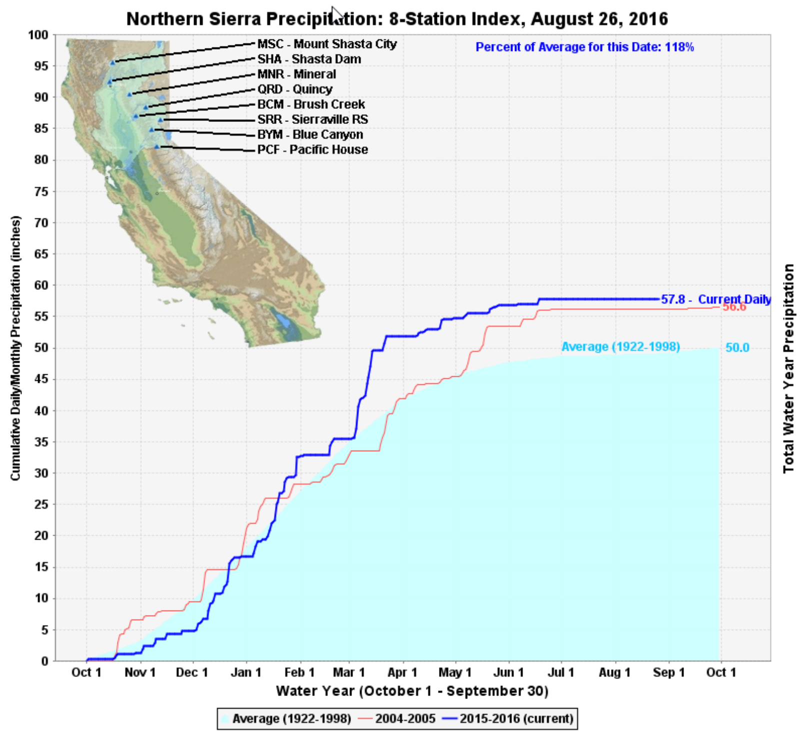
| Year | Final CVP South of Delta Agriculture Service Contract Allocation |
|---|---|
| 1968/69 | 100% |
| 1969/70 | 100% |
| 1970/71 | 100% |
| 1971/72 | 100% |
| 1972/73 | 100% |
| 1973/74 | 100% |
| 1974/75 | 100% |
| 1975/76 | 100% |
| 1976/77 | 100% |
| 1977/78 | 25% |
| 1978/79 | 100% |
| 1979/80 | 100% |
| 1980/81 | 100% |
| 1981/82 | 100% |
| 1982/83 | 100% |
| 1983/84 | 100% |
| 1984/85 | 100% |
| 1985/86 | 100% |
| 1986/87 | 100% |
| 1987/88 | 100% |
| 1988/89 | 100% |
| 1989/90 | 100% |
| 1990/91 | 50% |
| 1991/92 | 25% |
| 1992/93 | 25% |
| 1993/94 | 50% |
| 1994/95 | 42.51% |
| 1995/96 | 100% |
| 1996/97 | 95% |
| 1997/98 | 90% |
| 1998/99 | 100% |
| 1999/00 | 70% |
| 2000/01 | 65% |
| 2001/02 | 49% |
| 2002/03 | 70% |
| 2003/04 | 75% |
| 2004/05 | 70% |
| 2005/06 | 85% |
| 2006/07 | 100% |
| 2007/08 | 50% |
| 2008/09 | 40% |
| 2009/10 | 10% |

| | |
|---|---|
| 2010/11 | 45% |
| 2011/12 | 80% |
| 2012/13 | 40% |
| 2013/14 | 20% |
| 2014/15 | 0% |
| 2015/16 | 0% |
| 2016/17 | 5% |
| 2017/18 | 100% |

### B. Precipitation/Water Year Type History

The Northern Sierra 8-Station Precipitation Index ended the 2016 water year with above average precipitation totals. Years with similar precipitation totals included the 2005 and 2010 Water Year. The 2005/06 CVP South of Delta Agriculture Service Allocation was 85%, and the 2010/11 allocation was 45%. The Northern Sierra 8-Station Precipitation Index total for Water Year 2005 was 56.6 inches, and Water Year 2010 was 54.2 inches. In comparison, the rainfall total for the 2016 Water Year, 57.9 inches. Below is a figure that illustrates the similarities of the three water year types, even though the CVP allocations were completely different.

The table following the illustration summarizes the Water Year Northern Sierra 8-Station Index and San Joaquin Valley Tributary 5-Station Index precipitation totals. In addition, the table presents the calculated Sacramento Valley and San Joaquin Valley Water Year hydrologic classification index from 1968 through 2017; and Westlands' allocation for those years.

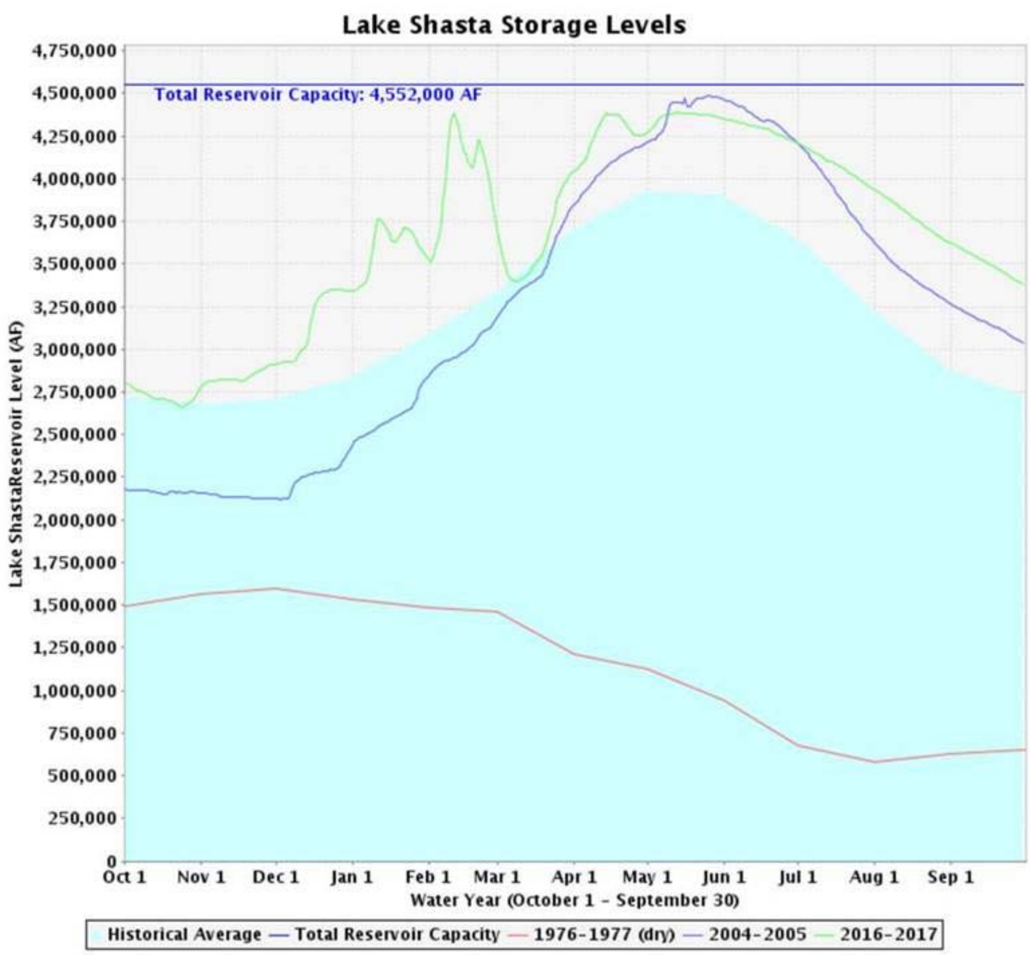



| Water Year | Northern Sierra 8 Station Precipitation (in) | Sacramento Valley Water Year Hydrologic Classification Index | San Joaquin Tributary 5 Station Precipitation (in) | San Joaquin Water Year Hydrologic Classification Index | Westlands Allocation |
|---|---|---|---|---|---|
| 1968 | 39.94 | AN | 23.6 | D | 100% |
| 1969 | 66.25 | W | 67.93 | W | 100% |
| 1970 | 59.97 | W | 40.03 | AN | 100% |
| 1971 | 57.46 | W | 32.98 | BN | 100% |
| 1972 | 36.25 | BN | 28.11 | D | 100% |
| 1973 | 51.65 | AN | 38.89 | AN | 100% |
| 1974 | 78.55 | W | 47.3 | W | 100% |
| 1975 | 48.79 | W | 43.62 | W | 100% |
| 1976 | 28.3 | C | 24.95 | C | 100% |
| 1977 | 19.04 | C | 15.37 | C | 25% |
| 1978 | 71.56 | AN | 65.1 | W | 100% |
| 1979 | 39.09 | BN | 38.41 | AN | 100% |
| 1980 | 59.56 | AN | 56 | W | 100% |
| 1981 | 37.63 | D | 26.62 | D | 100% |
| 1982 | 84.82 | W | 67.49 | W | 100% |
| 1983 | 88.49 | W | 77.41 | W | 100% |
| 1984 | 58.07 | W | 43.39 | AN | 100% |
| 1985 | 37.82 | D | 31.24 | D | 100% |

| | | | | | |
|---|---|---|---|---|---|
| 1986 | 72.07 | W | 58.64 | W | 100% |
| 1987 | 28.56 | D | 20.4 | C | 100% |
| 1988 | 34.86 | C | 26.78 | C | 100% |
| 1989 | 50.13 | D | 32.88 | C | 100% |
| 1990 | 35.97 | C | 27.75 | C | 50% |
| 1991 | 32.17 | C | 30.53 | C | 25% |
| 1992 | 36.01 | C | 29.56 | C | 25% |
| 1993 | 65.32 | AN | 53 | W | 50% |
| 1994 | 31.83 | C | 24.05 | C | 43% |
| 1995 | 85.39 | W | 70.01 | W | 100% |
| 1996 | 61.31 | W | 43.46 | W | 95% |
| 1997 | 68.76 | W | 54.68 | W | 90% |
| 1998 | 82.4 | W | 65.23 | W | 100% |
| 1999 | 54.75 | W | 36.63 | AN | 70% |
| 2000 | 56.7 | AN | 41.99 | AN | 65% |
| 2001 | 32.97 | D | 29.34 | D | 49% |
| 2002 | 46.34 | D | 33.25 | D | 70% |
| 2003 | 59.77 | AN | 39.17 | BN | 75% |
| 2004 | 47.29 | BN | 28.3 | D | 70% |
| 2005 | 57.51 | AN | 54.41 | W | 85% |
| 2006 | 80.15 | W | 56.25 | W | 100% |
| 2007 | 37.21 | D | 24.94 | C | 50% |
| 2008 | 34.99 | C | 27.95 | C | 40% |
| 2009 | 46.85 | D | 38.91 | BN | 10% |
| 2010 | 53.59 | BN | 44.66 | AN | 45% |
| 2011 | 72.7 | W | 65.37 | W | 80% |
| 2012 | 41.61 | BN | 24.92 | D | 40% |
| 2013 | 44.26 | D | 26.46 | C | 20% |
| 2014 | 31.34 | C | 20.37 | C | 0% |
| 2015 | 37.2 | C | 19 | C | 0% |
| 2016 | 57.8 | BN | 40.1 | D | 5% |
| 2017 | 95.12 | W | 72.7 | W | 100% |

### C. Historic Federal Reservoir Levels

The amount of water in storage is no longer a reliable indicator of whether south of Delta agricultural water service contractors will receive an allocation. For example, using the 2005 water year again, Lake Shasta reached about 4,500,000 acre-feet of storage in May 2005, and had about 3,250,000 acre-feet of storage by the end of August as illustrated below. In comparison, Lake Shasta reached about 4,250,000 acre-feet in May 2016 and had about 3,000,000 acre-feet in storage in September 2016. Although the water year hydrology and storage in Lake Shasta were nearly equal in those two years, Westlands' CVP allocation was 85% in 2005 and 5% in 2016. One principal difference between these two years is the way exports were managed, in particular, how Jones Pumping Plant operated and the amount of water conveyed into San Luis Reservoir storage. Delta exports is the primary variable for determining south of Delta agricultural service contractor allocation, not northern California storage. The regulatory limits placed on Delta exports essentially guarantees that Jones Pumping Plant will seldom operate at its maximum permitted capacity.



### D. Potential Impacts to Westlands from Approval or Rejection of California WaterFix Change Petition

Westlands' support for the California WaterFix dates back to 2006, when Westlands, along with other federal, state, and local agencies, and non-governmental organizations, executed the planning agreement for the Bay Delta Conservation Plan ("BDCP"). (Exh. WWD-6.) The Planning Agreement included the planning goals for BDCP to "[a]llow… projects to proceed that restore and protect water supply, water quality, and ecosystem health within a stable regulatory framework." (Planning Agreement, § 3.)

The potential benefits to Westlands' farmers by restoring CVP water supply are tremendous. Going forward, Westlands anticipates that its average long-term CVP water supply reliability is 30% to 40% under the current regulatory restrictions; the reliability could drop below 30% if re-consultation and Delta water quality objectives, among other regulatory restrictions, further reduce Reclamation's ability to export water at Jones Pumping Plant. If the California WaterFix can be part of a comprehensive strategy to restore Westlands' CVP allocation to an average of 70% (~840,000 acre-feet), then, when combined with sustainable groundwater management practices and access to supplemental water, there should be sufficient supply to harvest the remaining irrigable acres in Westlands. On average, groundwater pumping would be limited to the sustainable yield of the groundwater subbasin, which avoids the negative effects associated with over-drafting an aquifer.

Conversely, if the change petition is approved but imposes significant operational limitations or does not provide terms and conditions necessary to protect and restore water supplies to Westlands as a CVP South of Delta Agricultural Water Service Contractor, there is a significant risk of adverse impacts to Westlands' water supply above and beyond those adverse impacts already described from existing water shortages.

The adverse impacts of a reduced CVP water supply flow into other areas of concern to the public interest, including land fallowing, increased groundwater pumping (with increased overdraft and potential for subsidence, and lower crop yields), increased soil salinity, increased energy use, increased water costs for disadvantaged communities, permanent crop damage, unemployment and reduced air quality. Below I describe these consequences in more detail.

Land Fallowing

At some point the high costs and low availability of supplemental surface water, combined with increasing cost to pump salty groundwater, forces farmers within Westlands to fallow their land. In the years 2013, 2014, 2015, and 2016 Westlands' farmers fallowed 132,000, 220,000, 220,000, and 176,000 acres, respectively, due to reduced or no CVP allocations and limited transfer water. Although the allocation in the 2016/17 Water Contract year was 100%, Reclamation's announcement was made in the middle of April and for many farmers was too late to plant crops and benefit from the increased allocation.

Loss of Permanent Crops

A shift to permanent and higher value crops has occurred in response to Westlands' existing chronic shortage of water, in an effort to keep farms profitable with less acreage in production. While the average quantity of water needed to produce a crop on land within Westlands is approximately 2.3 to 2.5 acre-feet per acre per year, permanent crops such as almond trees require 4.0 to 4.5 acre-feet per acre per year. The shift to permanent crops has hardened the demands in Westlands because permanent crops cannot be fallowed and represent a long-term investment for the farmers and without sufficient and reliable water, the farmers will lose their investment.

Increased Groundwater Pumping

While increased groundwater pumping can help mitigate the loss of CVP supply temporarily, it also poses significant problems, and is not sustainable for the long term. The sustainable yield of the aquifer beneath Westlands' service area is about 200,000 to 250,000 acre-feet per year. There is not enough groundwater to alone meet water demand within Westlands, nor is the water quality appropriate to serve as the primary irrigation supply for certain crops. Pumping in excess of the sustainable yield creates a condition of overdraft.

Due to well capacity limitations and no groundwater in some areas of Westlands, farmers cannot make up for an entire CVP shortfall, even in the short term. In a scenario where the CVP allocation falls to zero, there is a shortfall. Westlands' distribution system cannot accomplish the required redistribution of groundwater completely. There are about 25,000 acres west of Interstate

5 in Westlands that do not have access to groundwater due to the terrain and aquifer conditions.

In addition, increases in groundwater extraction may lower the level of usable groundwater and may make it necessary to substantially modify wells in the area or chemically treat the water prior to use. The necessary modifications may result in a substantial cost to the water user if wells need to be re-drilled and deepened, and larger pumps are installed to extract water from deeper depths. The availability of well drilling companies that provide these services is limited due to the demand and current backlog, which could interrupt a farmer's only source of water supply for several months. In addition, pumping power costs may increase as a result of the modifications.

Groundwater Overdraft and Subsidence

Groundwater overdraft occurs when groundwater pumping exceeds the sustainable yield of an aquifer. Even short term periods of overdraft can have lasting negative impacts. The groundwater beneath the west side of the San Joaquin Valley is contained in the spaces between the particles and the sediment, which includes silts and clays. My understanding of subsidence is when the water is removed from these spaces, particularly the silt and clay materials where "water of compaction" can be squeezed out, the soils compact, and the volume that the previously-saturated soil has occupied is reduced and, as a result, the ground surface and the area where the water was extracted subsides.

Continued reductions in the CVP water supply to Westlands may cause increased reliance on groundwater pumping, which could increase subsidence, potentially damaging facilities in the region. A recent study released by the California Department of Water Resources reported that the rate of subsidence has increased in the San Joaquin Valley due to excessive groundwater pumping. As demonstrated above, increased groundwater pumping in Westlands is related to decreased CVP water deliveries. Further, land subsidence permanently reduces the water holding capacity of the underground materials, harming future groundwater supplies.

Increased Soil Salinity

Increased groundwater pumping may reduce the quality of water applied to the soil. In most areas of Westlands, the groundwater has significantly higher salinity and boron concentration compared to CVP water supplies. As compared to water available from the CVP, groundwater in

Westlands has concentrations that are several times higher for constituents of concern for growers. For example, boron concentrations for water from the CVP range from 0.1 to 0.2 parts per million (ppm), while groundwater wells in Westlands typically range from 0.5 to 2.0 ppm. Similar differentials in concentrations exist for several constituents of concern, including sodium, sulfate and total dissolved solids. Application of poor quality water increases soil salinity and reduces the yields of salt intolerant crops. Further, certain permanent crops, such as almonds, would be irreparably harmed if irrigated only with groundwater.

Increased Energy Use

Increased groundwater pumping may result in an increase in demand for energy. A study prepared by Westlands in 2006 showed that wells in Westlands required an average of 740 kWh to produce 1 acre-foot of water. More recent analysis (Summer 2016) indicates that wells in Westlands require, depending on water table height, an average of 1,000 kWh to produce 1 acre-foot of water. There are environmental impacts associated with this level of increased (35%) energy use.

Impacts to Air Quality

As described above, water supply constraints are expected to lead to significant land fallowing. In addition to reduced food production, fallowed fields negatively impact the air quality of the San Joaquin Valley and impair major transportation routes through the valley, including Interstate 5. Fugitive dust emissions from fallowed fields have contributed to exceedances of ambient air quality standards for particulate matter. Best management practices exist to mitigate the air quality impacts of fallowed fields, but the best management practices are not expected to eliminate those impacts.