Testimony of Heather S. Cooley

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Before the House Subcommittee on Water and Power:

"Extinction is not a Sustainable Water Policy: The Bay-Delta Crisis and the Implications for California Water Management"

July 2, 2007

Summary

Scientific evidence indicates that the health of the Sacramento-San Joaquin Delta is unstable and rapidly deteriorating. While there is no single solution to the problems that plague the Delta, reducing Delta water exports must be a fundamental element of any sustainable management strategy. The economic and political pressures to maintain water exports to urban and agricultural users remain high, and exports from the Delta continue to increase. Yet research shows that our current water use is wasteful. Conservation and efficiency improvements can provide substantial water savings and allow us to reduce Delta exports. Furthermore, local resources, such as recycled water and more effective groundwater management, can provide a reliable new supply of water. It is critical that we move toward a more sustainable management strategy today; waiting another five to ten years will make solving California's complex water challenges more difficult and expensive.

Current State of the Delta

The Sacramento-San Joaquin Delta provides a number of key services to California, including drinking water for 18 million Californians, water for agricultural uses, recreational opportunities, and habitat for 500 species. The Delta also serves as a hub for electricity and gas transmission and numerous transportation lines.

Scientific evidence indicates that the health of the Delta is unstable and rapidly deteriorating. The recent collapse of the Delta smelt is of particular concern because it is an indicator species whose survival is a reflection of ecosystem health. Instead of pursuing an effective management strategy, state and federal agencies apply a Band-Aid and simply wait for the next crisis. This pattern of crisis management is proving to be both expensive and largely ineffective.

While there is no single solution to the problems that plague the Delta, reducing Delta water exports must be a fundamental element of any sustainable management strategy. Scientific evidence shows a clear relationship between increasing water exports from the Delta and its declining ecosystem health. We know that the physical barriers and huge pumps in the delta that permit massive exports of water to farms and cities in the south

kill fish directly and radically change flows in the delta, affecting water quality, water temperatures, and access to habitat vital for fish survival.

The economic and political pressures to maintain water exports to urban and agricultural users remain high, and exports from the Delta continue to increase. In addition, some members of the water community are calling for increased surface storage and conveyance to meet growth-related needs and address potential impacts associated with climate change. This approach is merely a continuation of traditional water planning, which has brought tremendous benefits to California in the past, but has also wrought unanticipated social, economic, and environmental costs, as evidenced by the current status of the Delta. Strategic planning and management can help California reduce Delta withdrawals without the need for additional surface storage.

Traditional Water Planning Assumptions are Incorrect

Water planning, as practiced in the 20th century, is based on two assumptions:

- First, that the economy, population, and water use are inextricably linked such that economic and population growth will result in increases in water demand and any reductions in water availability will hurt the economy.
- Second, that meeting the needs of a growing population requires building more physical infrastructure to take water from rivers, lakes, and groundwater aquifers.

Today, these assumptions are outdated and inaccurate.

Over the past 30 years, the economy and population have grown while water use has declined. Figure 1 shows California's gross state product, population, and water use between 1975 and 2001. **Total water use in California was less in 2001 than it was in 1975, yet population increased by 60% and gross state product increased 2.5 times.** In 1975, we produced only $3 in goods and services for every 100 gallons of water we used. Today we produce $9 for every 100 gallons used, in constant dollars (Figure 2). Forty years ago we used nearly 2000 gallons for every person in the state every day. Today we use half that amount (Figure 3). We can break, and in fact, have broken the link between growing water use, population, and economic well-being. This has been achieved in part by improvements in conservation and efficiency, as well as the changing nature of our economy.

Conservation and Efficiency Can Meet California's Water Needs

Although Californians have improved efficiency of our water use over the past 25 years, current water use is still wasteful. The Pacific Institute's 2003 report, "Waste Not, Want Not," provides a comprehensive statewide analysis of the conservation potential in California's urban sector. This study finds that **existing, cost-effective technologies and policies can reduce current (2000) urban demand by more than 30 percent.**

Substantial savings are available from the agricultural sector as well. More than 65% of all crops in California are still grown with inefficient flood or sprinkler irrigation systems. Studies have shown that installing efficient irrigation technologies, such as drip

system, can reduce water use and increase agricultural yield. Given that the agricultural sector uses 80% of California's water supply, or about 34 million acre-feet per year, even small efficiency improvements can produce tremendous water savings. Additional water savings are possible if farmers continue the trend of moving away from water-intensive crops like cotton, pasture, rice, and alfalfa in favor of more valuable low-water crops like vegetables, fruits, and nuts.

Conservation and efficiency can meet our needs for decades to come. In the 2005 report "California Water 2030: An Efficient Future," the Pacific Institute presents a vision of California in which improvements in water-use efficiency are considered the primary tools for reducing human pressures on the state's water resources. This study finds that **California's total water use in 2030 could be 20% *below* current levels while still satisfying a growing population, maintaining a healthy agricultural sector, and supporting a vibrant economy**. Some of the water saved could be rededicated to agricultural production elsewhere in the state; support new urban and industrial activities and jobs; and restore California's stressed rivers, groundwater aquifers, and wetlands – including the Sacramento-San Joaquin Delta.

Research shows that significant water savings can be found for much less than the cost of building new supply or expanding our current supply. These savings are real and represent a tremendous amount of untapped potential in California's urban and agricultural sectors. This suggests that improved efficiency and conservation are the cheapest, easiest, and least destructive ways to meet California's water supply needs.

Water conservation and efficiency has the additional benefit of producing significant energy savings. Capturing, treating, transporting, and using water require a tremendous amount of energy. This is particularly true in California, where water supplies and population centers are separated by hundreds of miles, requiring a tremendous amount of infrastructure to move water from where it is available to where it is needed. As a result, **California's water-related energy consumption accounts for roughly 19% of all electricity used in California, approximately 32% of all natural gas, and 88 million gallons of diesel fuel**. Thus improving statewide water conservation and efficiency can achieve substantial energy savings.

Additional Water Supply Options Are Available

In addition to conservation, communities throughout California have a number of other options available to augment their existing supplies. These options include:

- **Recycled Water:** Reclamation can augment water supplies, as well as provide a means to treat wastewater and reduce environmental discharge. Water agencies in California currently produce about 500,000 acre-feet of recycled water, the majority of which is used for agricultural and landscape irrigation. Expanding current efforts could produce a substantial amount of new water. For example, the Irvine Ranch Water District, in Southern California, meets nearly 20% of its total demand with recycled water. A new residential community in Ventura

County, California has decided to use recycled water for all of its landscaping needs at an estimated cost of $200 per acre-foot, far below the cost of new surface storage. This suggests that significant opportunities exist to increase recycling and reuse throughout the state, effectively lessening the need to identify and develop new water supplies.

- **Conjunctive Use:** Surface water and groundwater are hydrologically linked. Conjunctive use takes advantage of this connection by storing excess surface water, including stormwater, in groundwater basins for later use. This option can improve supply reliability and flexibility, reduce land subsidence, and minimize the impacts of urban runoff on local steams and the marine environment.
- **Desalination:** Appropriately designed and sustainably managed desalination (both seawater and groundwater) can provide a reliable, high-quality water supply that is independent of weather conditions.

Conclusions

Today's Delta crisis is unfortunate, but it provides an opportunity to work towards a new path. Smart management and efficiency improvements can enable us to meet current and future water needs more sustainably. Waiting another five to ten years will make solving California's complex water challenges more difficult and expensive.

Supporting Figures for the Testimony of Heather S. Cooley

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California Economy, Population, and Water Use

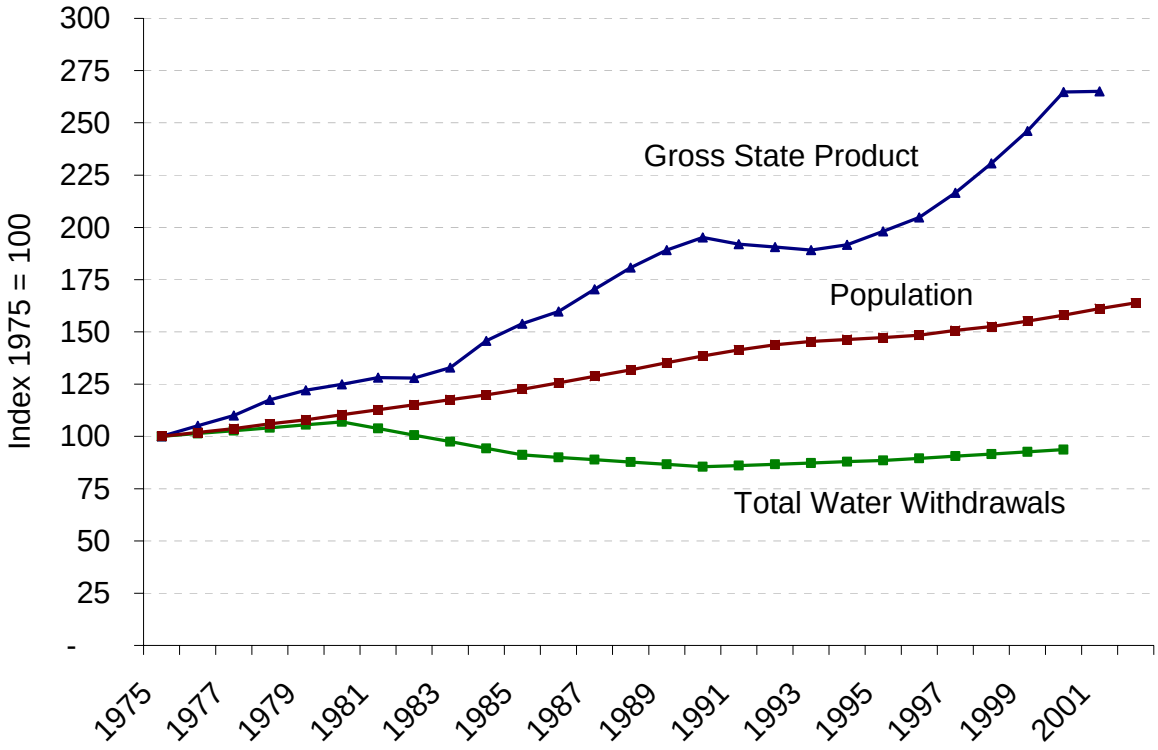

Figure 1. California's water use (green line), population (red line), and gross state product (blue line) between 1975 and 2001. Data are indexed to 1975. Note that GSP has gone up more than 2.5 times, while water use has actually declined. Water use from the U.S. Geological Survey. Analysis by the Pacific Institute.

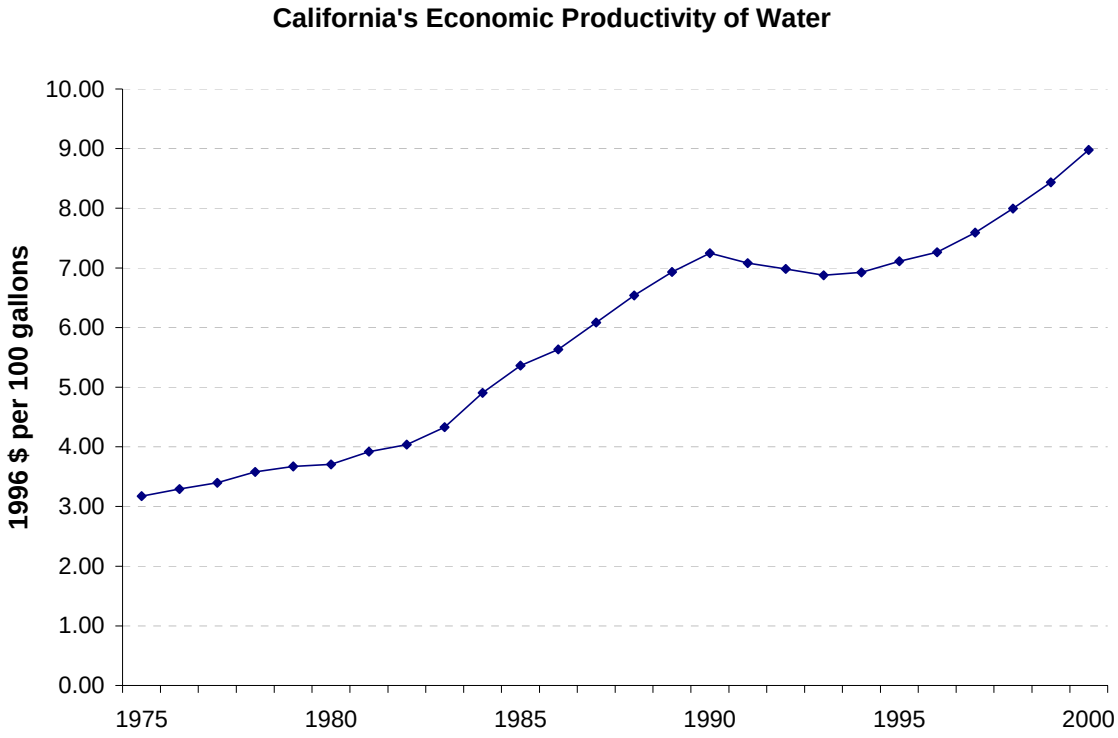

Figure 2. California's "economic productivity of water" showing that the state now produces nearly $9 of goods and services for every 100 gallons of water used, compared to $3 per 100 gallons in 1975 (in constant dollars). Analysis from the Pacific Institute.

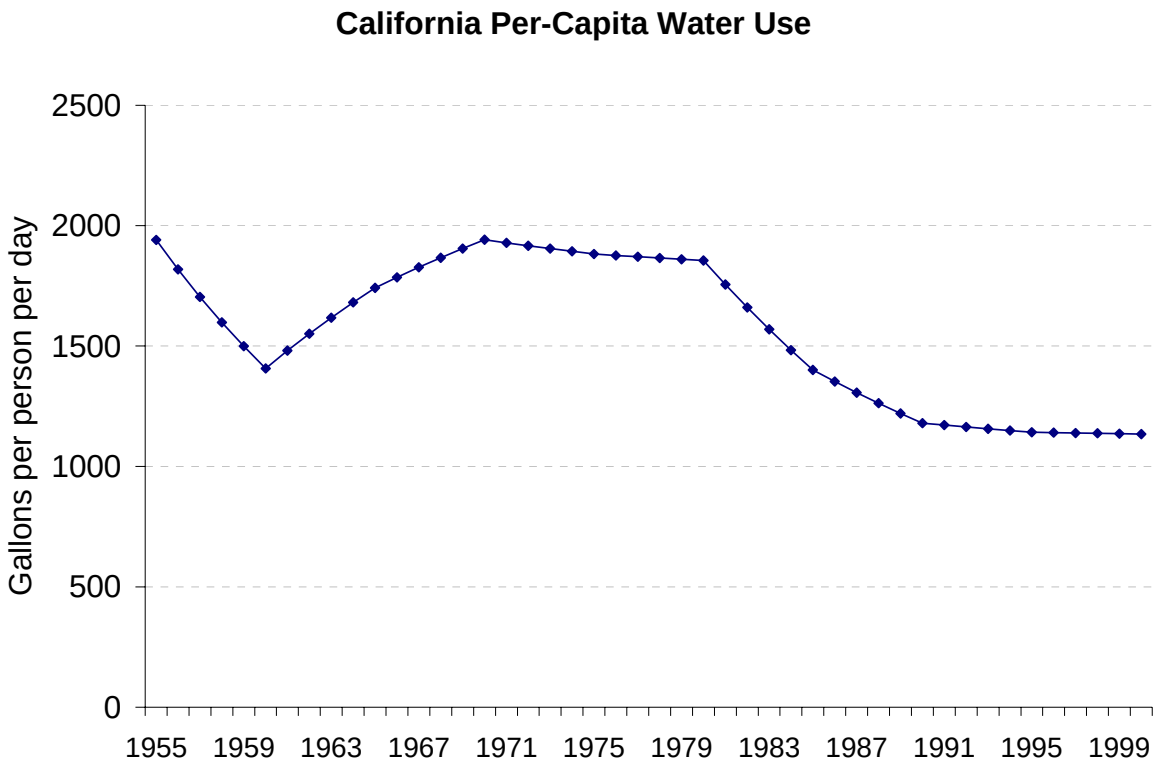

Figure 3. Water use per person in California. Note that water use per person has dropped by nearly 50% over the past forty years as conservation and efficiency, and changes in California's economy, have improved productivity.