

ISSUES: WATER SUPPLY RELIABILITY

BACKGROUND- Experience shows that water supply has often been uncertain in California. While no drought in this century has lasted longer than seven years, the analysis of tree rings tells us that periods of low rain and snowfall have lasted much longer in the distant past. Before humans settled the state and began storing and diverting fresh water for uses in cities and on farms, the estuary's freshwater flows were determined by rain and snowfall patterns and other natural processes. In average years, flows increased in late fall as rains swelled streams and rivers and continued to increase during the winter, peaking in spring with the Sierra snowmelt. The spring peak kept sea salts from entering the Delta, brought nutrients into estuary waters, and allowed fish to migrate, spawn and rear successfully.

Freshwater flows began to be modified shortly after the Gold Rush as miners in the Sierra diverted streams to supply the giant water cannons used in hydraulic mining. By 1867, 300 streams were being diverted to supply water for the irrigation of nearby farms. The first major San Joaquin Valley agricultural diversion was built in 1852 along the Merced River. By 1890 more than one million acres of Central Valley land was being irrigated. During the next 70 years, the state's two huge water projects, the Federal Central Valley Project and the State Water Project were constructed. Hundreds of other storage and diversion dams were built on Central Valley tributaries in the last century including storage reservoirs for the major metropolitan areas of California. The overall effect of these actions has been to reduce the volume of water flowing downstream throughout the late fall, winter and spring, and increase flows during the summer on major tributaries, depleting flow on others. Additionally, salinity has been slightly increased in the western Delta and in Suisun Bay during spring and summer and greatly decreased during fall and winter.

Water diverted upstream from the estuary's tributaries in the Central Valley and from the Delta is used to meet a large proportion of the state's water demand. In 1985, water diverted from these areas made up almost half of the state's total net water use.

CONCERNS- The predictable availability of water is of major importance to urban and agricultural users. Businesses can't expand and farmers can't get bank loans without a predictable water supply. The timing of fresh water flow also greatly affects environmental conditions in the estuary. Volume and timing of freshwater affect circulation patterns, water quality, and the abundance of many species of plants and animals. Controlling the timing of supply has been a key objective for many of the major water developments in California. Competition between uses with respect to the timing of water availability has increased during the past several decades. In response to declining fish and wildlife populations, water timing protections have been put into place for certain fish and animal species dependent on freshwater flows. In some cases, these additional environmental water requirements have decreased the predictability of water supply for other uses.

California's human population is expected to continue to climb in the next 50 years. Demand for drinking water and water for industry will grow. Agricultural water demands are expected to decline slightly due to more efficient methods, shifts in crops, and land moving out of agriculture and into urban use. Water storage and delivery systems involving the Delta will play a key role in meeting future demands.

Most parties agree that the Delta does not currently function well in a dual capacity as an important part of the natural system and as an essential cog in the state's water supply network. The reliability of water supplies available for municipal, industrial, environmental, and agricultural use is increasingly uncertain; both due to increasing human needs and the growing recognition of the water export and operational impacts to the fish and wildlife of the estuary.

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Actions are needed to supplement, improve, and more efficiently use existing water resources. How we accomplish this while protecting and enhancing the estuaries biological resources is a critical question.