1974

California State Water Project Annual Report 1974

Department of Water Resources

California State Water Project Annual Report 1974

STATE OF CALIFORNIA
The Resources Agency
Department of Water Resources

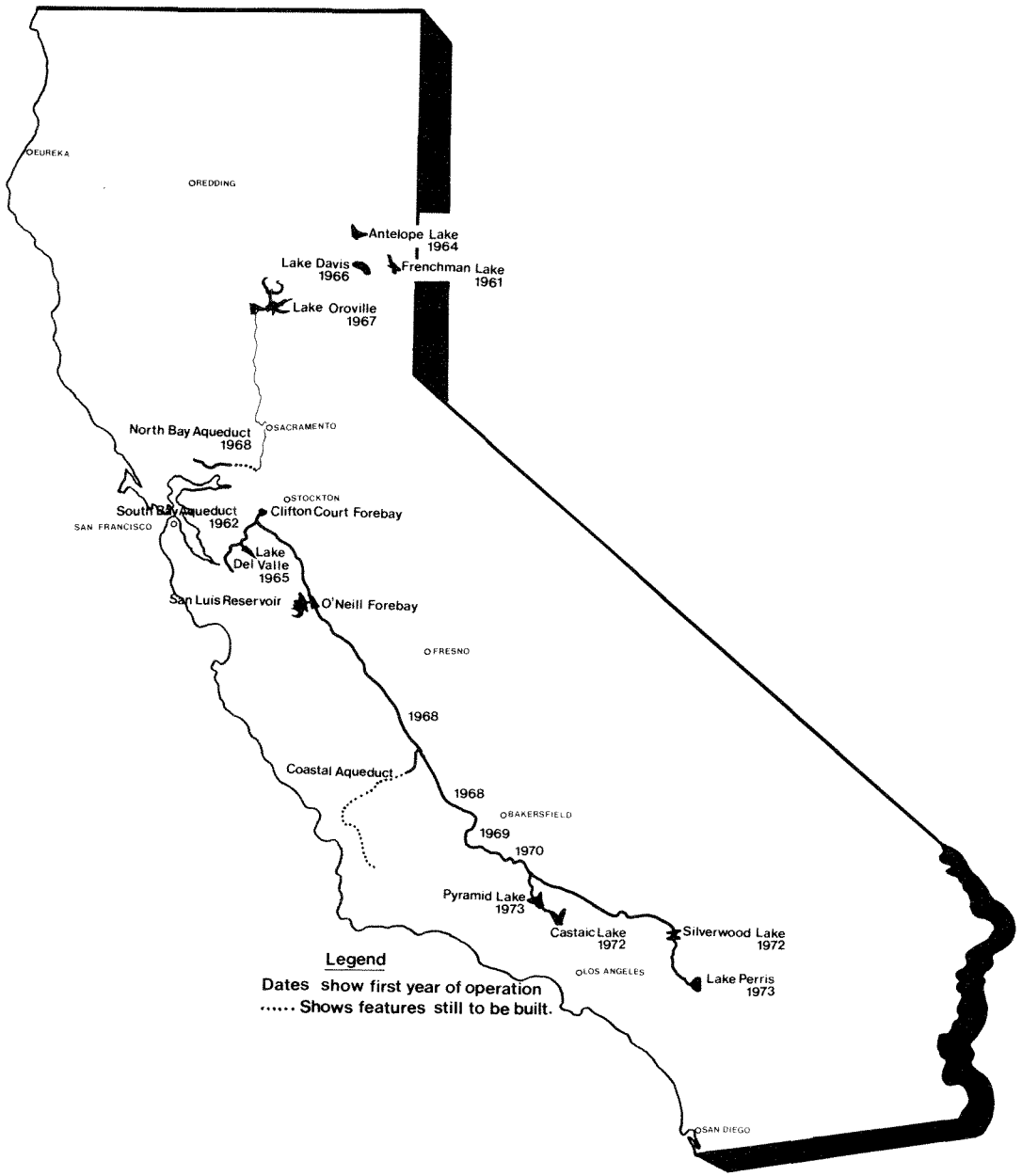
The Department of Water Resources is responsible for protecting and conserving California's water resources, for planning to meet California's water needs from all available sources, and for providing for public safety in relation to water resources. One of the Department's major responsibilities is the planning, construction, and operation of the State Water Project, a multipurpose project to develop certain of the State's water resources for water supply, hydroelectric power production, flood control, and recreation purposes.

EDMUND G. BROWN JR., Governor, State of California
CLAIRE T. DEDRICK, Secretary for Resources, The Resources Agency
RONALD B. ROBIE, Director, Department of Water Resources

Contents

California State Water Project

Water, Flood Control, Hydroelectric Power and Recreation for Californians



The State Water Project is a "multiple-purpose" project—one which provides for not only water supply but for a myriad of other uses, such as flood control; hydroelectric power; irrigation, municipal and industrial uses; recreation; water quality improvement; and fish and wildlife protection.

The Project originates in the northeastern part of California with the Upper Feather River lakes, which offer water recreation and fishery enhancement and provide water for municipal and irrigation purposes.

Oroville Dam, the key water conservation facility of the Project, controls Feather River flood waters, conserves water for release downstream, supplies energy for power generation and provides a multitude of recreation opportunities at Lake Oroville.

From Oroville, the water travels through natural channels until it reaches the Sacramento-San Joaquin Delta. Through the North Bay Aqueduct, water is delivered to Napa County. The South Bay Aqueduct, one of the first operational units of the Project, conveys water for municipal and industrial uses in the southern San Francisco Bay Area. Lake Del Valle stores water for flood control, recreation and regulation of Aqueduct flow.

The California Aqueduct is one of the most spectacular features of the Project. Its main line extends 444 miles from the Delta to Riverside County in Southern California.

In its initial stretch, the California Aqueduct carries water south along the western edge of the San Joaquin Valley where much of it is used to irrigate farmlands. By the time the remaining water reaches the southern end of the Valley, it has traveled approximately 300 miles and been elevated nearly 1200 feet. The water then is raised almost 2000 additional feet in a single lift to the first tunnel of the Tehachapi Crossing to bring water to Southern California.

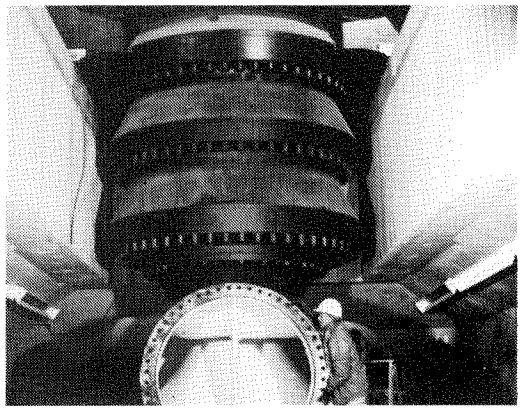
On the south side of the Tehachapi Mountains, the Aqueduct splits into two branches. The East Branch serves the Antelope Valley and parts of San Bernardino, Riverside, Orange and San Diego counties. The West Branch serves the Los Angeles Basin and the southern coastal areas.

In addition to facilities which provide water for municipal and industrial use and for power generation, the West Branch has two lakes, Castaic and Pyramid.

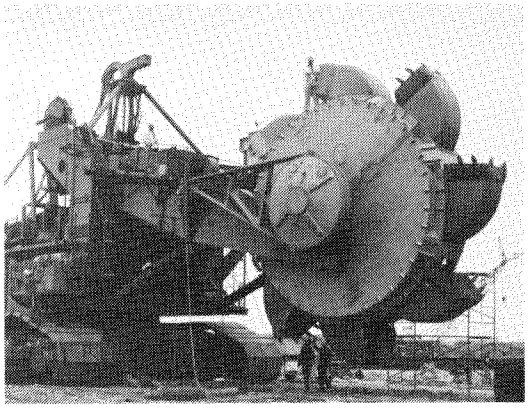
The East Branch facilities provide power generation and water for municipal and industrial uses. This branch also has two lakes, Silverwood and Perris.

The Project is not subsidized by the taxpayers. All costs are paid—with interest—by Project beneficiaries.

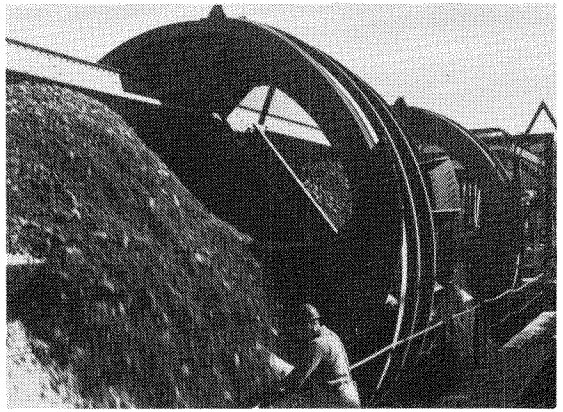
Project History · · 1951 to 1974



Pump



Bucket wheel excavator



Earth mover

Ever since Father Junipero Serra came to what is now California and founded Mission San Diego de Alcala, people have realized that water would have to be conserved in areas of water surplus and moved to areas of water need.

By the mid-1930s it was clear that local water projects alone could not take care of all local needs and that a statewide water project was needed.

Planners for the Project realized that benefits other than conservation and beneficial use of water could be achieved, and so the plans for the State Water Project were drawn to include recreation as a major purpose, along with flood control and hydroelectric power.

With the basic planning completed, and financing provided, the Department of Water Resources designed, constructed, and finally operated the Project.

Highlights of the Project's History

1951 Project first authorized by California Legislature.

1957 Project construction started with Western Pacific Railroad and Highway 40 relocations at Oroville.

1959 Legislature passed Burns-Porter Act, providing major Project financing and requiring that those who benefit pay all the costs . . . Legislature passed Davis-Grunsky Act for State Water Project loans and grants for local developments.

1960 California voters approved the Burns-Porter Act, authorizing sale of Project construction bonds . . . First contract signed for delivery of Project water, guaranteeing that water users would repay all Project construction and operation costs allocated to water supply—with full interest.

1961 The Legislature passed the Davis-Dolwig Act which directs that recreation and the enhancement of fish and wildlife must be provided by the Project . . . Frenchman Dam and Lake—first Project feature to comply with the provisions of the Davis-Dolwig Act—completed.

1962 First water deliveries were made from Project facilities in the San Francisco Bay Area . . . work started on Oroville Dam on the Feather River . . . work started on San Luis Joint-Use Facilities in the San Joaquin Valley.

1963 Work started on the 444-mile California Aqueduct . . . California Supreme Court decisions validated prototype water supply contract and reaffirmed the State's authority to issue revenue bonds to help finance the Project.

1964 First Project flood control operation when partially completed Oroville Dam saved Yuba City and other downstream areas.

1965 Work began on the Tehachapi Crossing, with start of excavation for the five-mile-long Carley V. Porter Tunnel.

1967 Oroville-Thermalito Power Sale Contract signed, providing for payment to the State of $16,150,000 per year for hydroelectric power . . . long-term contracts completed for purchase of power to pump Project water . . . Oroville Dam completed, filling of Lake Oroville began.

1968 Water contracting program completed with 31 agencies to repay all costs allocated to water conservation and delivery . . . first Project water deliveries in the upper Feather River area, in the north San Francisco Bay area, and in the San Joaquin Valley.

1969 Oroville-Thermalito Power Complex began full operation . . . Lake Oroville and San Luis Reservoir filled for the first time . . . all features of the San Luis facilities in operation . . . all features of South Bay Aqueduct in operation . . . first fishing access site completed along the California Aqueduct.

1970 Work started on Perris Dam, the southern terminus of the California Aqueduct . . . Tehachapi Crossing essentially completed . . . installation of first pumps was begun at A. D. Edmondston Pumping Plant.

1971 Wind Gap, Pearblossom and A. D. Edmondston Pumping Plants began operation . . . Silverwood and Castaic Lakes began filling . . . Pyramid Dam construction started.

1972 Angeles and San Bernardino tunnels completed . . . Castaic and Devil Canyon powerplants started generating electric power . . . first repayment of principal on Revenue Bonds.

1973 Santa Ana Valley Pipeline completed to Lake Perris . . . Perris Dam Dedication, signaling delivery of Project water to its most southerly point . . . first repayment of principal on Project general obligation bonds.

Highlights of 1974

Alessandro Island

Boating at Pyramid Lake

Lake Perris

The California State Water Project moved another step closer to completion in 1974 with the filling of Lake Perris and Pyramid Lake. Both of these Project reservoirs were also opened for recreational use during the year. Of all the major Project lakes only Castaic Lake has not been filled.

During 1974, the Project transported a total of 2,446,607 acre-feet of water. (An acre-foot of water is 325,900 gallons.) Deliveries to water contracting agencies totaled 1,324,860 acre-feet, an increase of 30 percent over 1973 deliveries. The Project also moved 1,121,747 acre-feet of federal Central Valley Project water through the joint facilities in the San Joaquin Valley.

Water contractor deliveries and the percent of the total deliveries included: the San Joaquin Valley 895,375 acre-feet (68 percent); San Francisco Bay area 97,122 acre-feet (7 percent); Feather River area 17,258 acre-feet (1 percent); and Southern California 315,105 acre-feet (24 percent).

Of the total deliveries to State Water Project contractors, 865,000 acre-feet were delivered for agricultural use. This was an increase of 180,000 acre-feet over 1973 deliveries. Nearly all of this agricultural use was in the South San Joaquin Valley. Acreage irrigated with Project water totaled 290,000, an increase of 45,000 acres. The gross value of the crops raised, principally cotton, exceeded $100 million.

A near-record water year in the Feather River drainage area resulted in the production of a record amount of hydroelectric power at the Edward Hyatt-Thermalito complex power plants. This generation of 4.1 billion kilowatthours (kWh) of electricity was almost 2 billion kWh more than the long term average. As a result, the State earned $3.3 million more than the $16.15 million guaranteed by the utilities and banked an additional $725,000 worth of energy.

The second of six 200,000 kilowatt generators was installed at the Castaic Powerplant, bringing the plant's installed capacity to 450,000 kW.

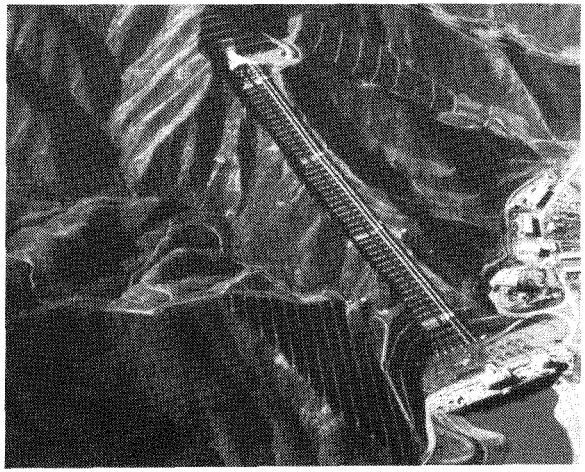
At Lake Perris, a boat-in facility on Alessandro Island was completed in February, as was the Dam, while a beach drainage modification was completed in April. Pyramid Dam was completed in March.

A draft environmental impact report (EIR) on the Project's Delta facilities, the proposed Peripheral Canal, was published in August, and a series of public hearings were held to receive public comments.

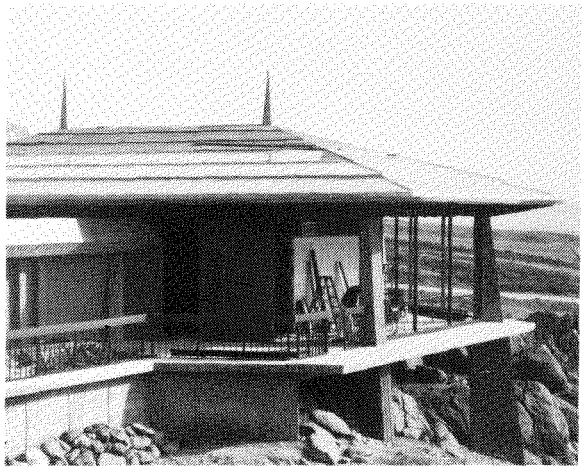
The Department participated in a feasibility study of a proposed San Joaquin Nuclear Project in Kern County. The project is being managed by the Los Angeles Department of Water and Power and includes other California utilities. If such a plant is built, the Department of Water Resources would own 10 percent of the nuclear plant and 10 percent of the power generated. This would provide a portion of the power required for future operation of the State Water Project. A Department decision on project participation will not be made before mid-1976.

During 1974, the Department prepared plans and specifications for 68 contracts including procurement, construction, and furnishing and installation contracts. The Department awarded 61 contracts totaling $10.9 million. Construction expenditures for 1974 totaled $19.7 million. All work needed to bring the East Branch of the Aqueduct to full capacity by July 1, 1976, was under contract by the end of 1974.

Future Plans



Castaic Powerplant



Castaic Visitors Center

Switchyard at Oroville

Although the State Water Project has been built and is operating along its entire north-south length, extensive work still remains to be done to bring it to its full operating capacity.

With energy availability and costs becoming increasingly significant, Project plans for hydroelectric power include the installation of additional generators at the Castaic Powerplant to bring its installed capacity to 1,250 megawatts by 1978; completing the installation of the second 60-megawatt unit at Devil Canyon Powerplant in 1975; construction of a 157-megawatt power plant above Pyramid Lake by 1981; and construction of a 15-megawatt Cottonwood Powerplant on the East Branch of the California Aqueduct by 1982.

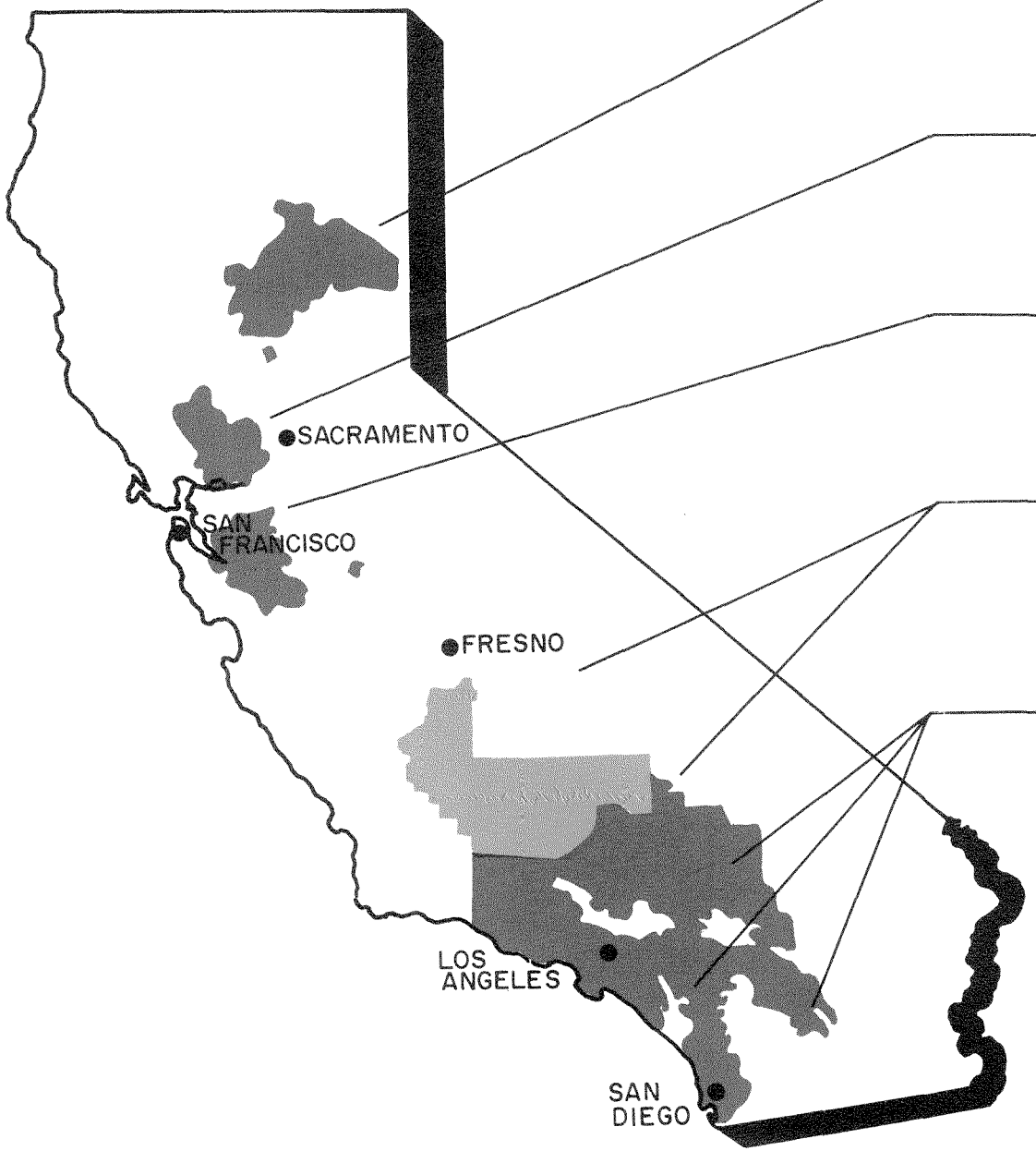
The Department is investigating a wide range of alternatives in seeking power sources to operate the Project. These include developing California geothermal fields, participation in California thermal plants powered by nuclear fuel, gas, oil or other fuels, purchase of power from California utilities or from the Pacific Northwest, participation in out-of-state coal-fired plants, development of more hydroelectric power in California, and withdrawing some Project-generated power to reserve it for Project use.

Also scheduled for the future, depending on the desires of the local purchasers, are extending the North Bay Aqueduct to serve Solano County and extending the Coastal Branch Aqueduct in the 1980s to San Luis Obispo and Santa Barbara counties. Additions are being built in 1975 to bring the East Branch of the Project to full capacity.

The Department is undertaking a new planning program to produce an Action Water Plan for the next 25 years. A forthcoming report, "The California Water Plan 2000—Design for the Future," will include studies on providing new water supplies for the Project. The report will define water needs by specific areas and sources available to meet the needs. The plan is to serve as a total water management plan rather than only a plan for water development. Emphasis will be given to solutions stressing conservation of existing water supplies.

Among future plans is the use of Project water to recharge Southern California ground water basins on a long-term basis to provide carryover storage and dry-year energy supplies. Greater emphasis will be placed on water conservation by Project contractors to the end of reducing Project demand and the concurrent energy needs.

Water Deliveries 1974



Feather River Area 17,258 Acre-Feet

(33% of area's total entitlement)
Maximum Annual Entitlement
51,800 Acre-Feet

North Bay Area 4,870 Acre-Feet

(7% of area's total entitlement)
Maximum Annual Entitlement
67,000 Acre-Feet

South Bay Area 92,252 Acre-Feet

(49% of area's total entitlement)
Maximum Annual Entitlement
188,000 Acre-Feet

San Joaquin Valley Area 895,375 Acre-Feet

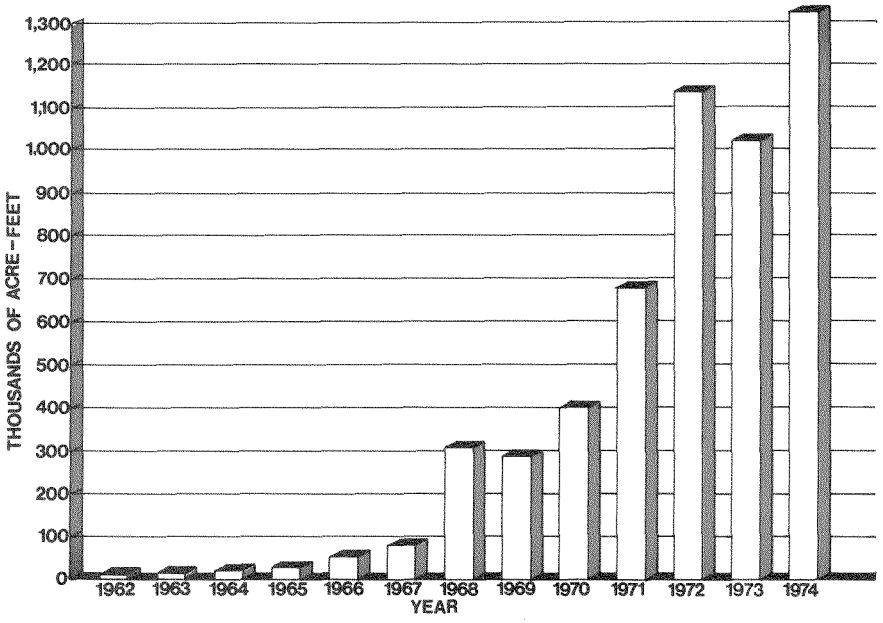
(62% of area's total entitlement)
Maximum Annual Entitlement
1,437,700 Acre-Feet

Southern California 315,105 Acre-Feet

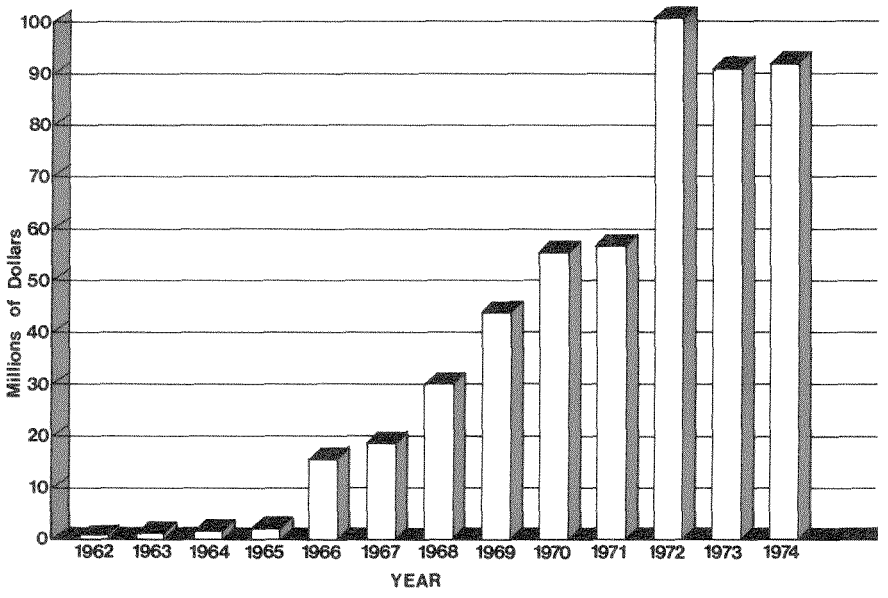
(13% of area's total entitlement)
Maximum Annual Entitlement
2,497,500 Acre-Feet

Total Deliveries in 1974 1,324,860 Acre-Feet

Maximum Annual Entitlement
4,242,000 Acre-Feet



ANNUAL WATER DELIVERIES 1962–1974



ANNUAL PAYMENTS BY WATER USERS 1962–1974

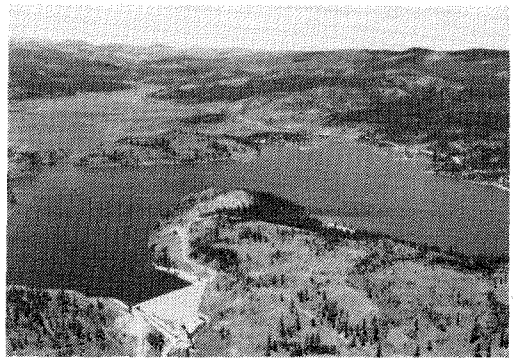
During 1974, the State Water Project transported a total (State and Federal) of 2,446,607 acre-feet—nearly 800 billion gallons.

For the third consecutive year, the Department of Water Resources delivered more than a million acre-feet of water to water service contractors. A total of 1,324,860 acre-feet was delivered in 1974—a 30 percent increase over 1973 deliveries.

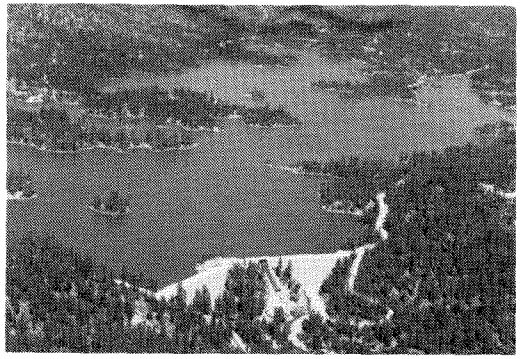
The Project also delivered an additional 1,121,747 acre-feet of water for the U.S. Bureau of Reclamation's Central Valley Project. The two agencies share the capacity of San Luis Reservoir, and both federal and state water are carried in the California Aqueduct from San Luis to Kettleman City, a distance of about 106 miles. The joint-use facilities were designed and built by the United States with cooperation and consultation by the State. The State paid 55 percent of construction costs and the United States 45 percent. The joint facilities are maintained and operated by the Department with both agencies sharing in the cost of operation, maintenance and replacement.

Project deliveries increased in all service areas except the San Francisco Bay area, which showed a 3½ percent drop to 97,122 acre-feet, due to better than normal availability of local water supplies. Feather River area deliveries were up 26 percent to 17,258 acre-feet. San Joaquin Valley deliveries totaled 895,375 acre-feet, up 29 percent. In Southern California, the only service area which experienced below-normal water conditions in 1974, deliveries increased 51 percent to 315,105 acre-feet.

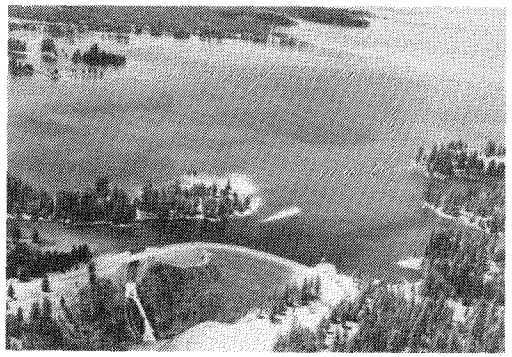
Major Project Reservoirs



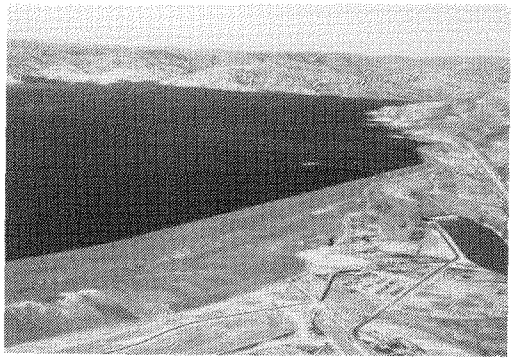
Frenchman Lake



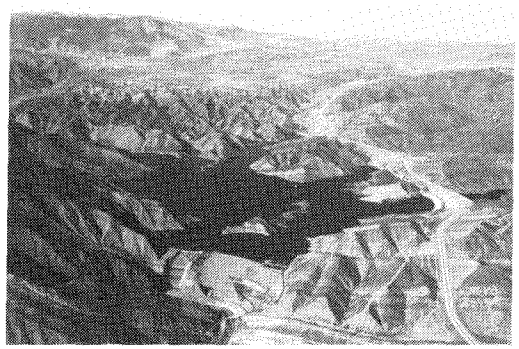
Antelope Lake



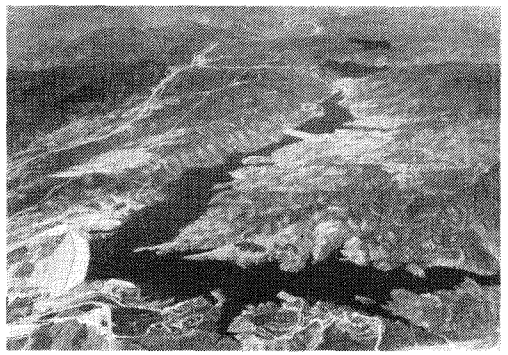
Lake Davis



San Luis Reservoir

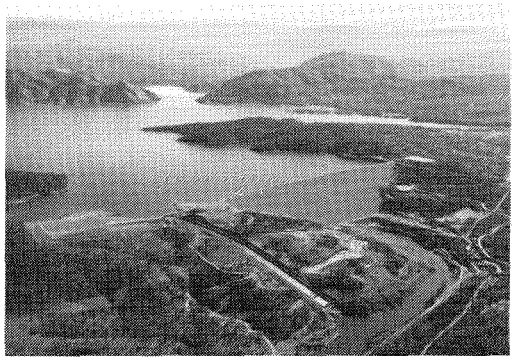


Pyramid Lake

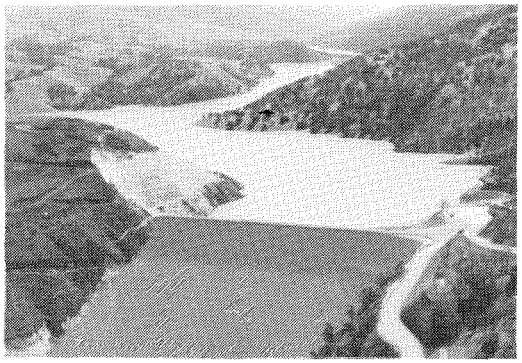


Castaic Lake

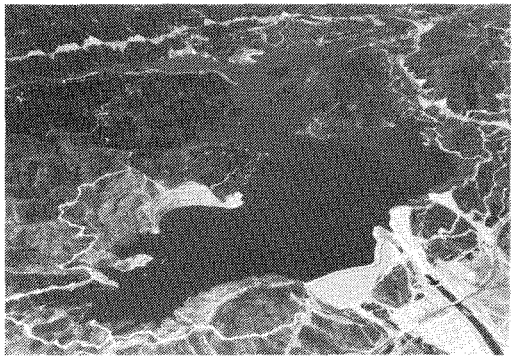
	SHORELINE		SURFACE AREA		MAXIMUM DEPTH		LENGTH OF DAM		HEIGHT OF DAM	
	Miles	Kilometers	Acres	Square Kilometers	Feet	Meters	Feet	Meters	Feet	Meters
Frenchman Lake	21	34	1,580	6	101	31	720	219	139	42
Antelope Lake	15	24	931	4	62	19	1,320	402	120	37
Lake Davis	32	51	4,026	16	108	33	800	244	132	40
Lake Oroville	167	269	15,805	64	690	210	6,920	2,109	770	235
Lake Del Valle	16	26	1,060	4	141	43	880	268	235	72



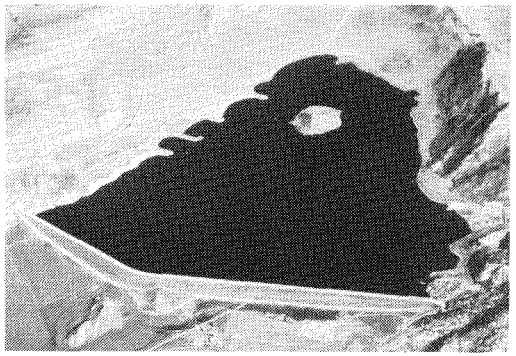
Oroville Dam and Lake



Lake Del Valle



Silverwood Lake



Lake Perris

FRENCHMAN LAKE — On Little Last Chance Creek in Plumas County, seven miles north of Chilcoot.

ANTELOPE LAKE — Remotest of the Upper Feather lakes, on Indian Creek in Plumas County 41 miles northeast of Quincy.

LAKE DAVIS — On Little Grizzly Creek in Plumas County, five miles north of Portola.

LAKE OROVILLE — Key facility of the Project, in Butte County four miles northeast of the city of Oroville.

LAKE DEL VALLE — In Alameda County, four miles south of Livermore, midway along the South Bay Aqueduct.

SAN LUIS — A major storage facility for the California Aqueduct, 12 miles west of Los Banos in Merced County.

PYRAMID LAKE — In the mountains of northern Los Angeles County, six miles southeast of Caswell, 22 miles northwest of Saugus.

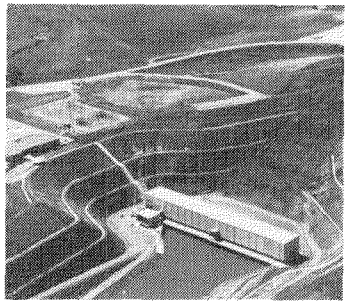
CASTAIC LAKE — Terminus of the west branch in northern Los Angeles County, 12 miles northwest of Saugus.

SILVERWOOD LAKE — On a fork of the Mojave River in western San Bernardino County, nine miles east of Cajon, 28 miles south of Victorville.

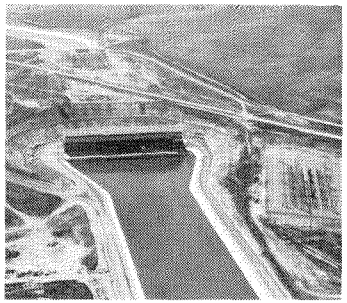
LAKE PERRIS — Terminus of the east branch, 15 miles southeast of Riverside in Riverside County.

	SHORELINE		SURFACE AREA		MAXIMUM DEPTH		LENGTH OF DAM		HEIGHT OF DAM	
	Miles	Kilometers	Acres	Square Kilometers	Feet	Meters	Feet	Meters	Feet	Meters
San Luis	65	105	12,700	51	274	84	18,600	5,669	385	117
Silverwood Lake	13	21	976	4	166	51	2,230	680	249	76
Lake Perris	10	16	2,240	9	107	33	11,600	3,536	128	39
Pyramid Lake	21	34	1,358	5	307	94	1,090	332	400	122
Castaic Lake	29	47	2,230	9	330	101	4,900	1,494	435	133

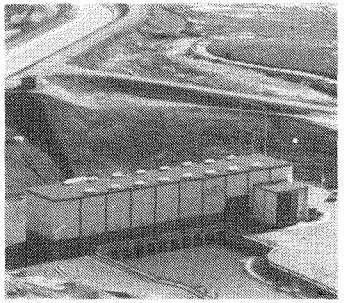
Project Pumping Plants



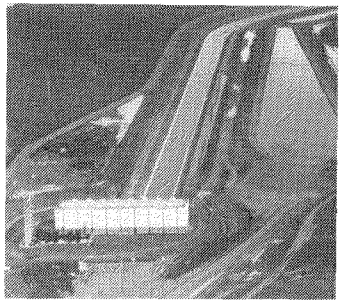
Delta



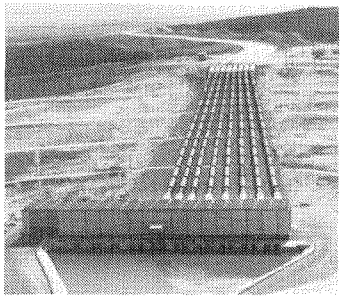
Dos Amigos



Las Perillas



Badger Hill



Buena Vista

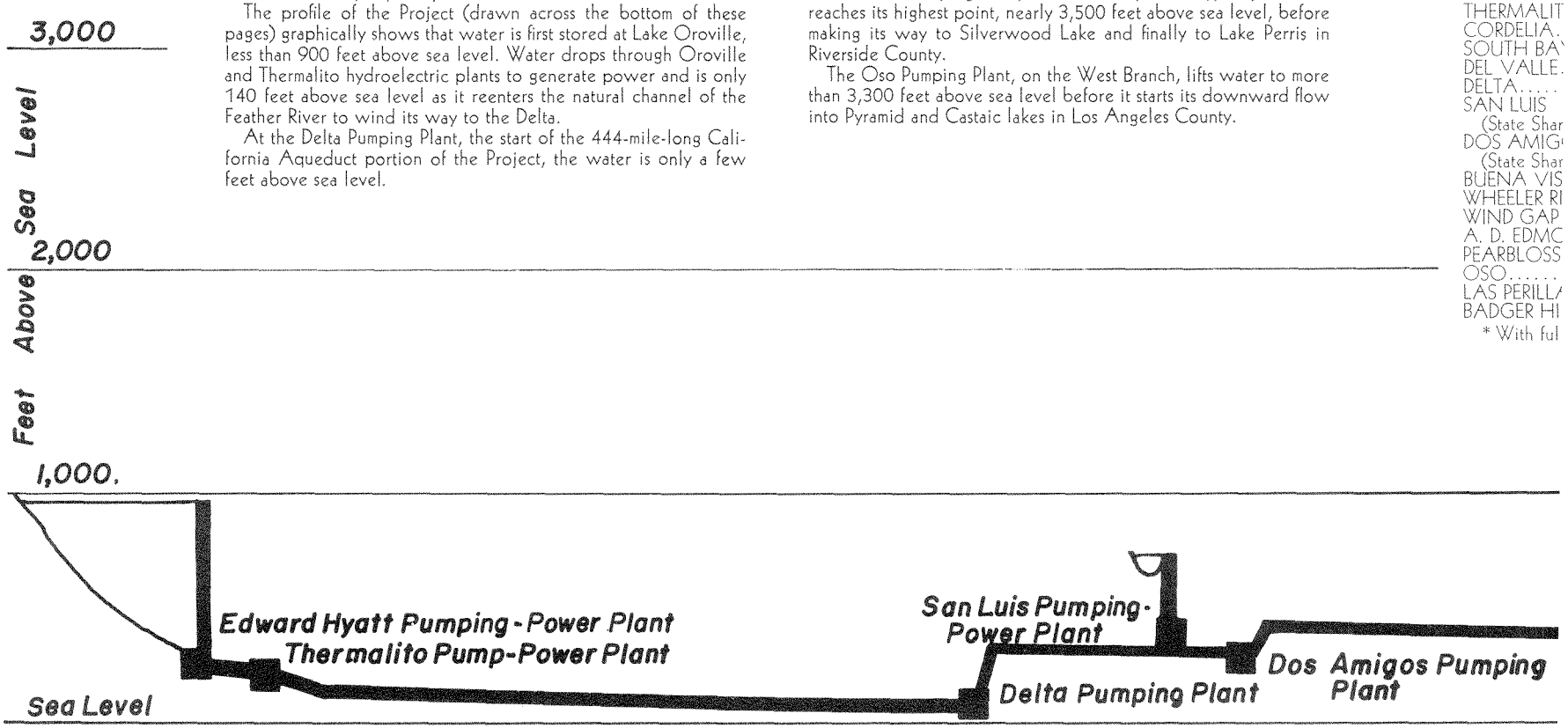
While many people recognize that the State Water Project extends for more than 600 miles north to south through the State, few realize that for 360 of those miles surplus northern California water has to be pumped uphill to reach its destination.

The profile of the Project (drawn across the bottom of these pages) graphically shows that water is first stored at Lake Oroville, less than 900 feet above sea level. Water drops through Oroville and Thermalito hydroelectric plants to generate power and is only 140 feet above sea level as it reenters the natural channel of the Feather River to wind its way to the Delta.

At the Delta Pumping Plant, the start of the 444-mile-long California Aqueduct portion of the Project, the water is only a few feet above sea level.

Pumping plants lift the water to both the San Francisco Bay area and southward through the San Joaquin Valley, up over the Tehachapi mountains and again in Southern California. At the Pearblossom Pumping Plant, in the Antelope Valley, Project water reaches its highest point, nearly 3,500 feet above sea level, before making its way to Silverwood Lake and finally to Lake Perris in Riverside County.

The Oso Pumping Plant, on the West Branch, lifts water to more than 3,300 feet above sea level before it starts its downward flow into Pyramid and Castaic lakes in Los Angeles County.



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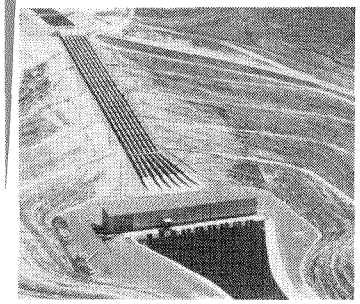
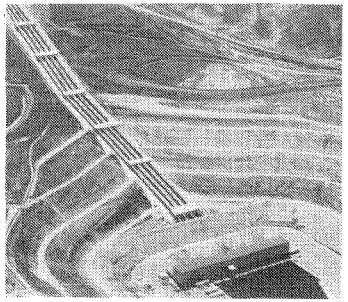
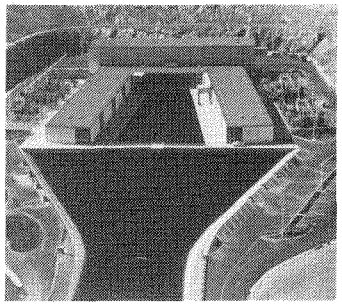


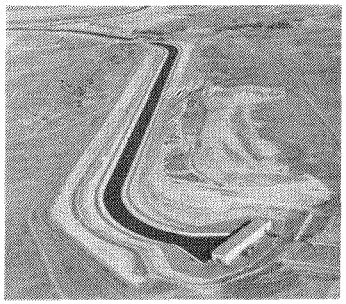
Wheeler Ridge



Wind Gap



A. D. Edmonston



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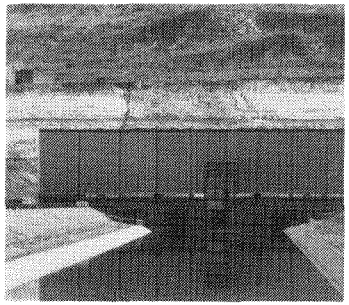
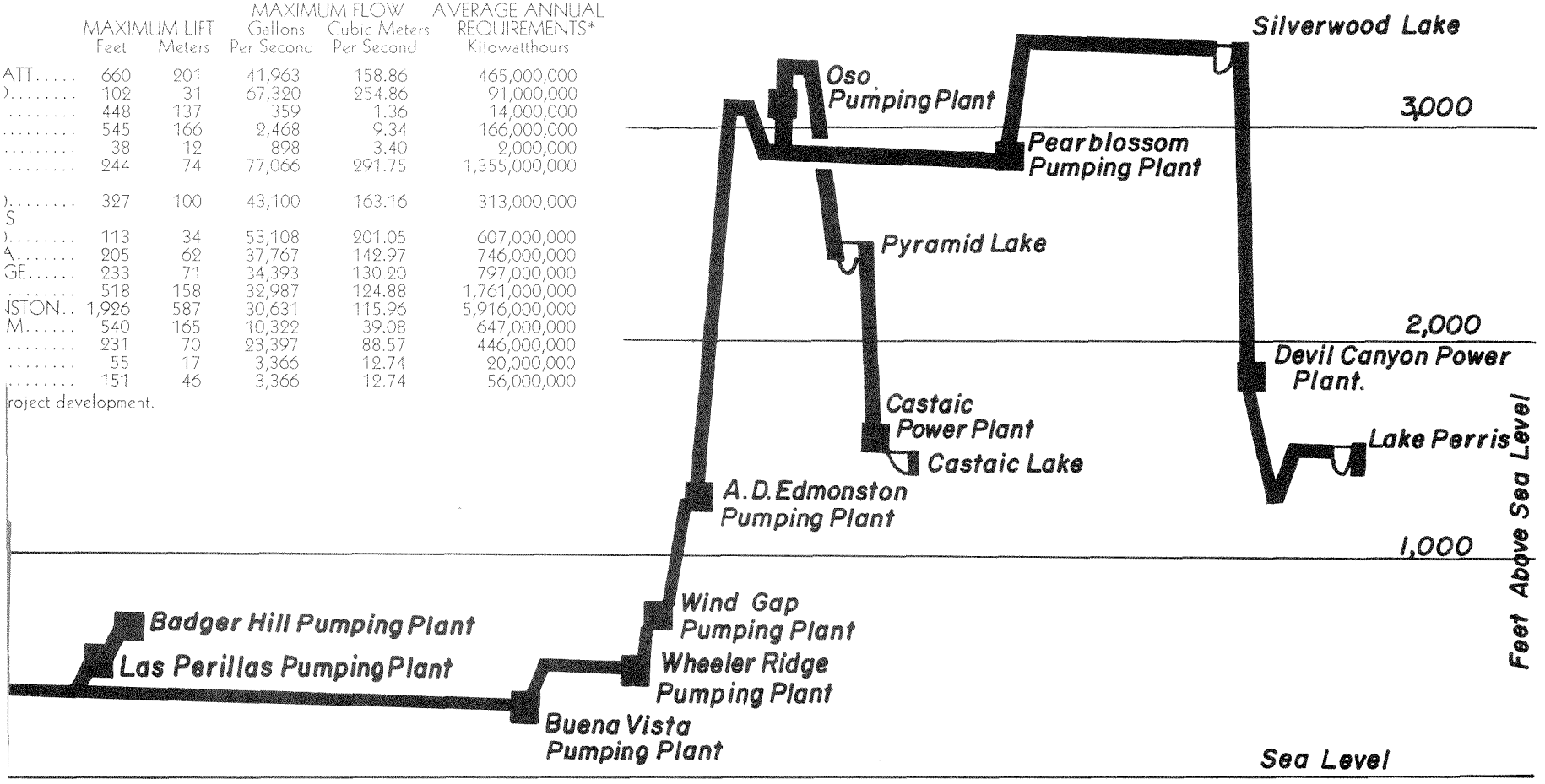


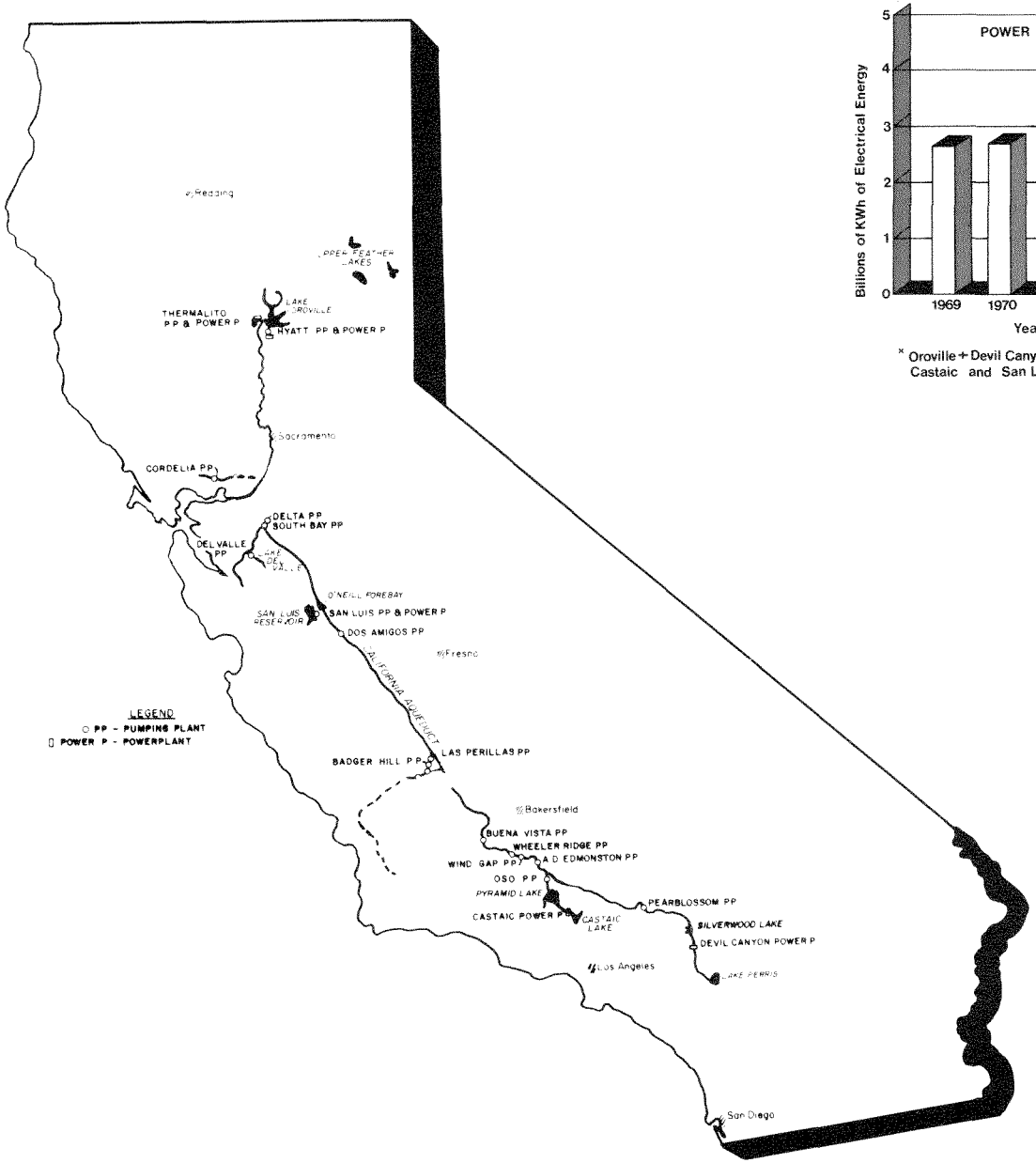
Pearblossom

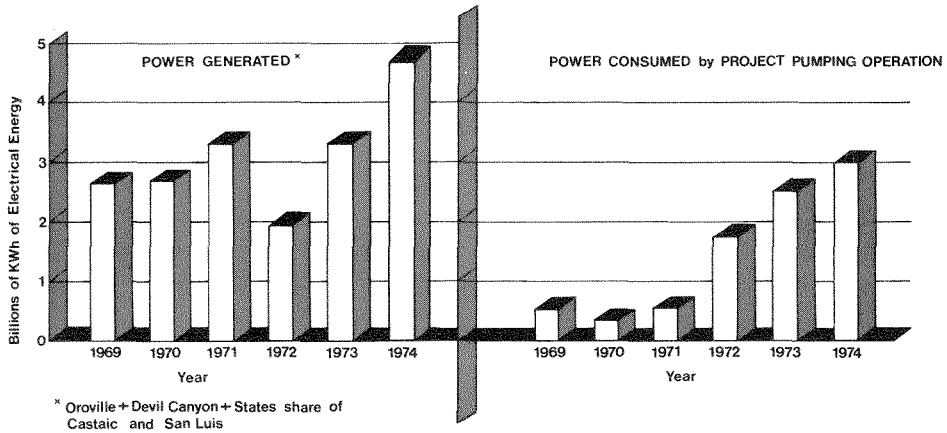
	MAXIMUM LIFT		MAXIMUM FLOW		AVERAGE ANNUAL
	Feet	Meters	Gallons Per Second	Cubic Meters Per Second	REQUIREMENTS* Kilowatthours
ATT.....	660	201	41,963	158.86	465,000,000
).....	102	31	67,320	254.86	91,000,000
.....	448	137	359	1.36	14,000,000
.....	545	166	2,468	9.34	166,000,000
.....	38	12	898	3.40	2,000,000
.....	244	74	77,066	291.75	1,355,000,000
).....	327	100	43,100	163.16	313,000,000
S					
).....	113	34	53,108	201.05	607,000,000
A.....	205	62	37,767	142.97	746,000,000
GE.....	233	71	34,393	130.20	797,000,000
.....	518	158	32,987	124.88	1,761,000,000
NSTON..	1,926	587	30,631	115.96	5,916,000,000
M.....	540	165	10,322	39.08	647,000,000
.....	231	70	23,397	88.57	446,000,000
.....	55	17	3,366	12.74	20,000,000
.....	151	46	3,366	12.74	56,000,000

roject development.



Power Operations





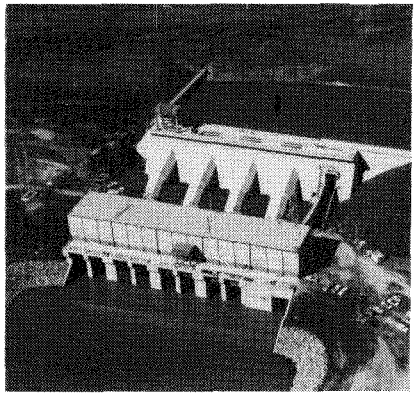
Successful operation of the State Water Project is dependent on a teamwork of water movement and electric power generation. The Project is designed to deliver water which is surplus to the requirements of the northern part of the State to water deficient areas in the San Francisco Bay area, Southern San Joaquin Valley and Southern California.

To accomplish this, the Project is dependent upon electric power to operate its pumps. It also depends, in part, on the generation of electric power to provide some revenues to finance part of the Project costs.

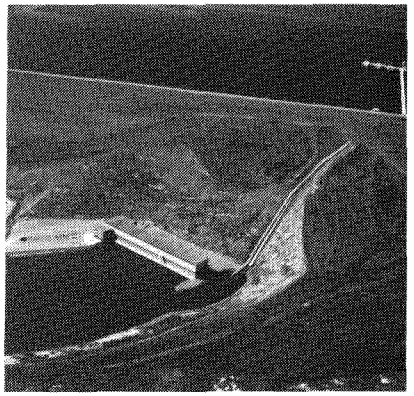
The Project's most northerly power generating plant is the Edward Hyatt Powerplant at Lake Oroville. Downstream from the Hyatt plant, and operated in conjunction with it, is the Thermalito Powerplant. During 1974 the Hyatt-Thermalito complex produced a record four billion kilowatthours of hydroelectric energy—the equivalent of seven million barrels of fuel oil if produced in steam generating plants.

From Oroville, the water travels by natural river channels until it reaches the Sacramento-San Joaquin Delta. At present, delivery of water from the Delta to areas of need in Central and Southern California involves 14 pumping plants and 3 generating plants. These generating plants, which convert the energy of water released from storage into electricity, are the San Luis Pumping and Generating Plant (from San Luis Reservoir); the Castaic Powerplant (from Pyramid Lake); and the Devil Canyon Powerplant (from Silverwood Lake).

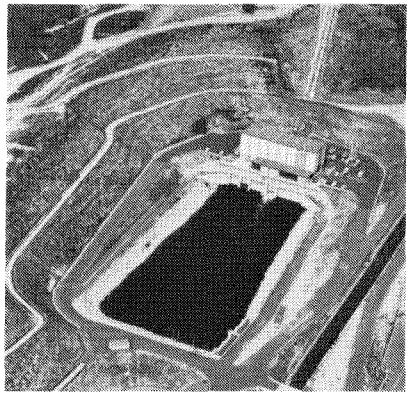
The energy used in 1974 by the Project's pumping plants totaled 3 billion kilowatthours (kWh). This was more than offset by the 4 billion kWh produced at the Hyatt-Thermalito complex and the 505 million kWh produced by the power recovery plants. The power produced at the Hyatt-Thermalito complex was sold to electric public utilities.



Thermalito



San Luis



Devil Canyon

Devil Canyon Switchyard

Energy used by Project pumps was supplied by the power recovery generating plants (505 million kWh); power from the Pacific Northwest (463 million kWh); and power purchased from four California electric utilities (2.03 billion kWh). The Department also purchased 1.3 billion kWh from the Pacific Northwest area, which was resold to three California electric utilities at cost. The power which the State resold to the utilities was used primarily during on-peak periods (periods of high energy use).

As Project pumping increases beyond a certain volume, especially in pumping water over the Tehachapi Mountains, the Project eventually will consume more energy than it produces, thus requiring generation of additional energy from one or more of the outside sources mentioned in future plans for the Project.

PUMPED STORAGE

During weekday daytime and early evening hours (called on-peak hours) more electricity is needed and is worth more money. In contrast, during night and weekend periods (called off-peak hours) less electricity is used and therefore the excess available is worth less.

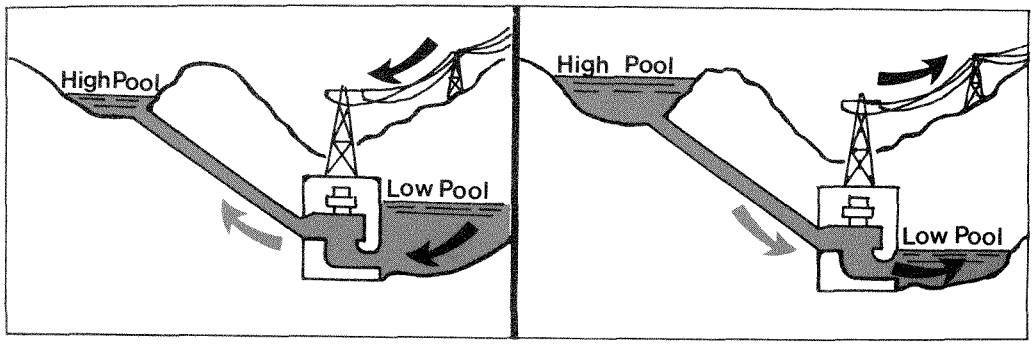
Taking advantage of these differences, some of the Project's hydroelectric plants have been built as both generating and pumping plants. During on-peak periods water drops from the main reservoir, through a generating plant and is stored in a small reservoir. During off-peak periods the water is pumped back uphill into the main reservoir.

This manner of operating a hydroelectric plant is called pumped storage. While it does consume more energy than it produces, operating in this manner assures a high, firm power capability regardless of the natural water supply, and the difference between power cost and power revenue is financially advantageous.

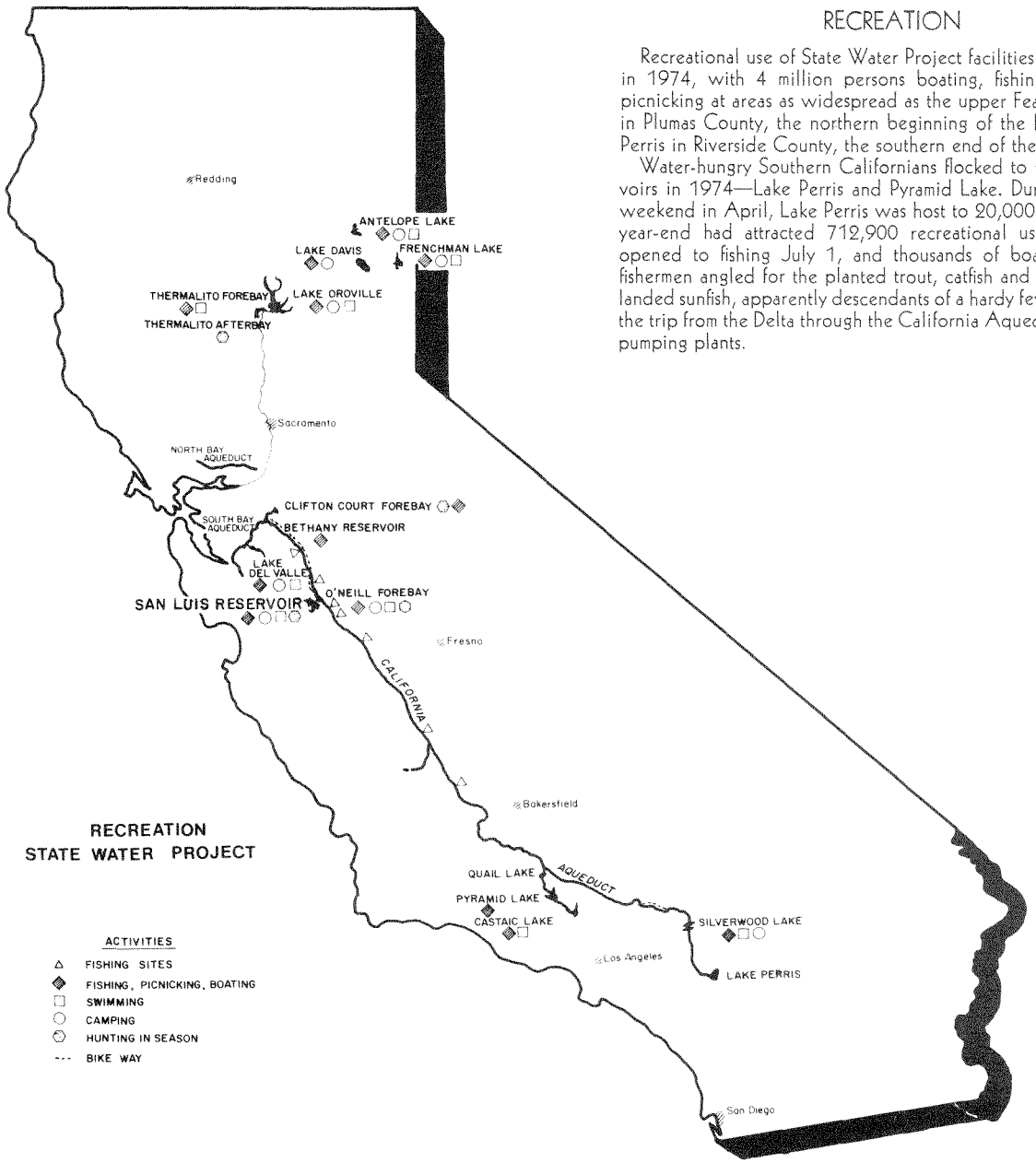
PROJECT POWER PLANTS

	MAXIMUM DROP		MAXIMUM FLOW		ELECTRIC POWER GENERATOR OUTPUT	AVERAGE ANNUAL ENERGY OUTPUT*
	Feet	Meters	Gallons Per Second	Cubic Meters Per Second	Kilowatts	Kilowatthours
Edward Hyatt	676	206	108,834	412.02	678,750	2,475,000,000
Thermalito	102	31	126,412	478.56	119,600	383,000,000
San Luis (State Share)	327	100	50,729	192.04	222,100	170,000,000*
Devil Canyon	1,418	432	8,976	33.98	119,700	1,003,000,000*
Castaic (State Share)	1,063	324	23,128	87.56	214,000	1,457,000,000*

* With full project development



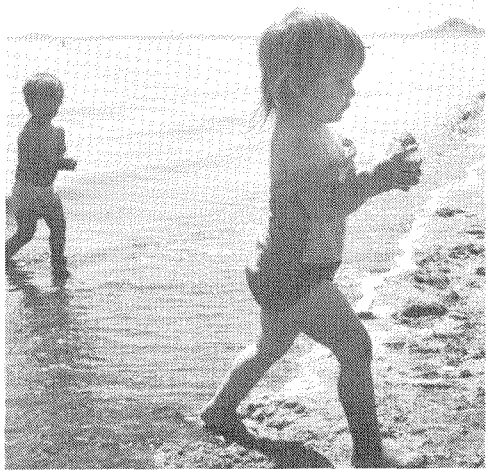
Recreation

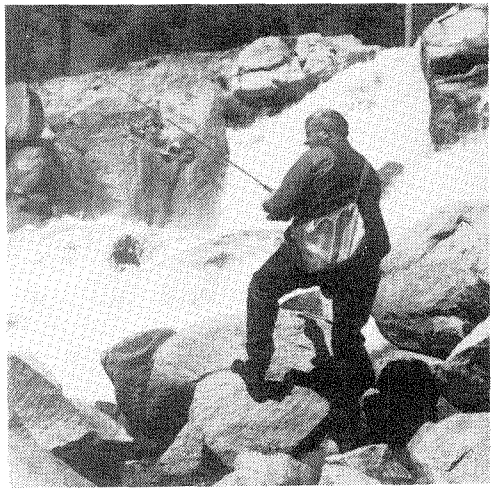


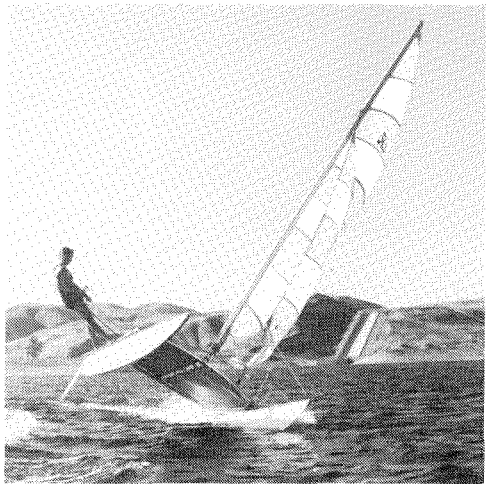
RECREATION

Recreational use of State Water Project facilities nearly doubled in 1974, with 4 million persons boating, fishing, camping and picnicking at areas as widespread as the upper Feather River lakes in Plumas County, the northern beginning of the Project, to Lake Perris in Riverside County, the southern end of the Project.

Water-hungry Southern Californians flocked to two new reservoirs in 1974—Lake Perris and Pyramid Lake. During its opening weekend in April, Lake Perris was host to 20,000 visitors, and by year-end had attracted 712,900 recreational users. Perris was opened to fishing July 1, and thousands of boaters and shore fishermen angled for the planted trout, catfish and bass. Some also landed sunfish, apparently descendants of a hardy few who survived the trip from the Delta through the California Aqueduct and Project pumping plants.







Pyramid Lake opened in August, and anglers and boaters lined up on the approach roads for hours in advance for a chance at trout, bass and catfish planted by the State Department of Fish and Game. Pyramid is an example of interdepartmental cooperation. The Department of Navigation and Ocean Development built the launching ramp and boating facilities, the Department of Parks and Recreation planned the recreation areas, and the U.S. Forest Service operates the recreation facilities (Pyramid is surrounded by the Angeles National Forest). By the end of 1974, Pyramid had attracted 119,400 recreational users.

Castaic Lake in northern Los Angeles County was the most heavily visited with 1,056,300 recreational users. Lake Oroville had 506,300, and the three Upper Feather River lakes 545,500. Silverwood Lake was host to 426,100. San Luis Reservoir 378,800, Del Valle 162,200, the Delta facilities 28,100, and another 40,600 used bikeway and fishing facilities along the California Aqueduct.

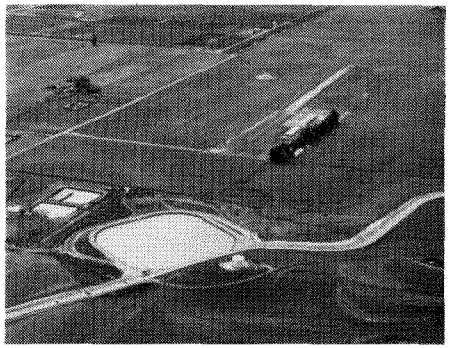
With 177 miles of the Aqueduct now opened for bikeways, 5,800 bicyclists toured along the Project's operating roads during 1974. On the 70-mile bikeway in the northern San Joaquin Valley, 1,600 bikers were recorded, while along 107 miles of bikeway in Southern California, 4,200 riders cycled along the route. Additional sections of bikeway will be opened along the Aqueduct until a total of 397 miles will be open to cyclists.

In addition to recreational users of Project facilities, 1.7 million persons, including residents of 12 foreign countries, visited the Project's visitors centers and overlooks or took guided tours of Project facilities.

The Lake Oroville Visitors Center, with its 47-foot viewing tower, interpretive displays, slides and films about the Project and the construction of Oroville Dam, was completed in May.

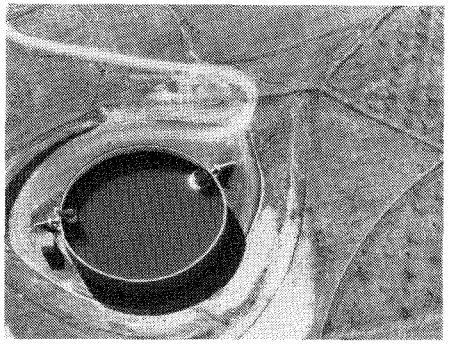
Visitors centers are expected to be completed in 1975 at Lake Perris and at Castaic Lake.

Water Use



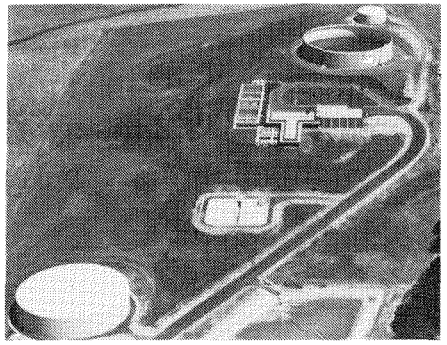
Alameda County Residents receive Project water from Patterson Reservoir through the Alameda County Water District, a contractor for Project water.

Row crops in the vicinity of San Jose grow with help from Project water.

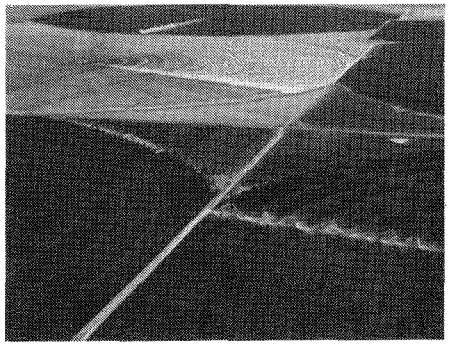


Near San Jose, the Santa Clara terminal facilities of the South Bay Aqueduct provide Project water to the south San Francisco Bay area. The aqueduct began delivering water in 1962.

In the San Joaquin Valley, long straight irrigation ditches carry Project water to thirsty crops.



The Napa County Flood Control and Water Conservation District receives its Project water from this turnout on the North Bay Aqueduct, which began delivery in 1968.



Nearly a third of a million acres of crops in the south San Joaquin Valley were irrigated by Project water in 1974.

Davis–Grunsky

The Davis-Grunsky Act was passed by the Legislature in 1959 and funded when the people voted for the State Water Project in order to help local public agencies in need of financial aid for water development, for water-related recreation facilities, and for fish and wildlife enhancement programs.

Funds for the program come from the $1,750 million Burns-Porter Act monies which fund construction of the State Water Project. In all, $130 million was reserved for Davis-Grunsky Act grants and loans.

Grants are made to local agencies for the part of construction cost of an eligible dam and reservoir project allocated to recreation or enhancement of fish and wildlife. Funds are also available to cover the cost of initial water supply and sanitary facilities needed for public recreation use at dams and reservoirs.

Loans are made to local agencies to enable them to build water supply and water distribution systems. The loans assist financially when other reasonable sources of financing are not available.

Loans and grants have been made for projects in 34 counties. These projects are located throughout the State from areas just south of the Oregon border to south of San Diego. Through December 31, 1974, 40 communities have received approval of construction loans for water supply development. These water supplies serve about 80,000 persons.

During 1974, over 3 million people enjoyed recreation at projects constructed by 27 local agencies which had received Davis-Grunsky grants. With full development, about 7.7 million people will enjoy these facilities each year.

In addition to the construction loans and grants, 9 agencies have received loans to prepare feasibility reports which must accompany applications for Davis-Grunsky funds.

Of the original $130 million, $102 million was committed or earmarked for projects and administration costs by the end of 1974. Formal applications were pending for about $15 million more. Active preliminary requests for $11 million were on hand. Therefore, at the close of 1974 approved projects and applications totalled about $128 million, leaving over $2 million in available funds. Total disbursements to local agencies were $85 million.

During 1974 the Department of Water Resources, with the concurrence of the California Water Commission, approved the following loans for construction of water supply and distribution systems:

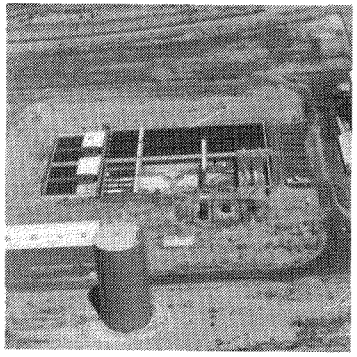
Humboldt Bay Municipal Water District, Improvement District "A"	$100,000
Westwood Community Services District	1,067,000
American Canyon County Water District	2,050,000

During the year the following projects, on which Davis-Grunsky loans and a grant were made, were completed:

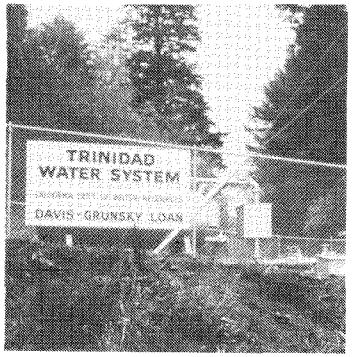
Calaveras Public Utility District Water Supply Project
Fieldbrook Community Services District Water Distribution Project
Sonoma County Water Agency, recreation at Santa Rosa Reservoir

Both the loan and grant aspects of the Davis-Grunsky program help fulfill the concept of the California Water Plan—the water resources of the State should be put to beneficial use.

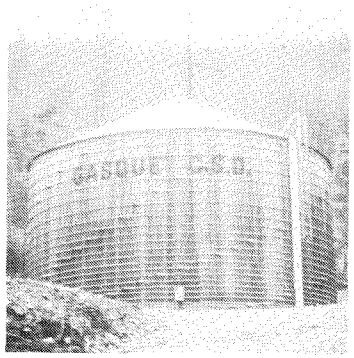
The Davis-Grunsky program has accomplished a great deal to alleviate public health hardships in communities which could not afford to remedy their own problems.



The City of Coalinga water supply project was funded through the Davis-Grunsky Act. Now this Fresno County community no longer has to have one set of faucets for drinking water and another for dishes and cleaning.



Trinidad's domestic water system treats Luffenholtz Creek water in a system built through a Davis-Grunsky loan.

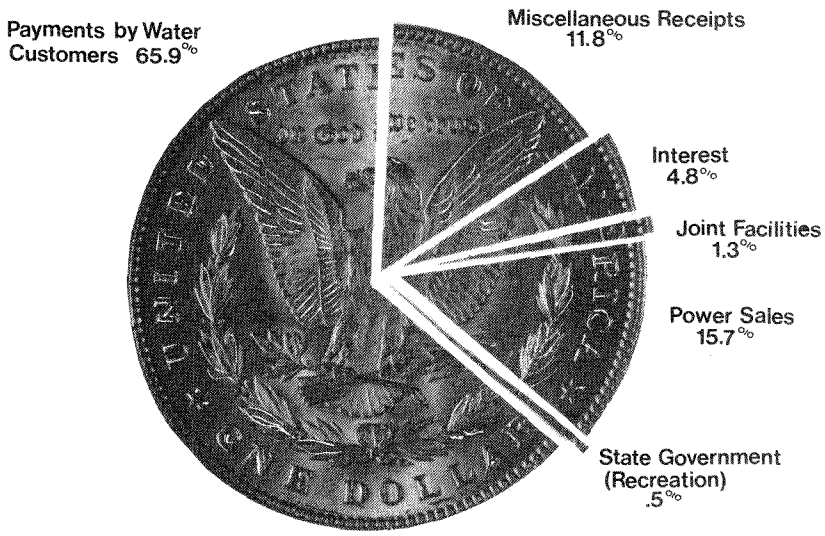


Gasquet's water system was built by the Gasquet Community Services District with Davis-Grunsky funds. This Del Norte County community is on the Smith River.

Trinity County Waterworks No. 1 provides the water needed by the community of Hayfork through Davis-Grunsky funds.

Project Financing 1962-1974

Sources of Operating Income 1962-1974



Total Operating Income $790,836,000

Sources of Project Operating Funds: 1974

Water Supply Contractors—	
Operations and Maintenance	$22,791,054
Capital Cost Repayments	70,704,133
Construction Funds Applied to Debt Service	2,021,376
Interest	3,850,455
Federal Government (San Luis Facilities)	1,958,022
State Government (Recreation)	1,949,566
Power Sales	34,065,932
Total Sources	$137,340,538

The underlying philosophy behind Project financing is to recover the costs from those who receive benefits—those who benefit, pay.

During the 75-year repayment period of the Project, the water supply contractors will pay about 80 percent of the costs, plus interest. Power users will pay about 13 percent; state general funds will pay about three percent for recreation and fish and wildlife enhancement; and the federal government will pay one percent for flood control. The remaining three percent will come from interest earnings and miscellaneous Project revenues.

Project financing, for the most part, is through the sale of general obligation and revenue bonds. Although the two types of bonds are different they have one similar characteristic. Both are being repaid by those who benefit from the Project. Water customers pay the costs allocated to water supply, while power customers pay the costs attributable to hydroelectric power generation.

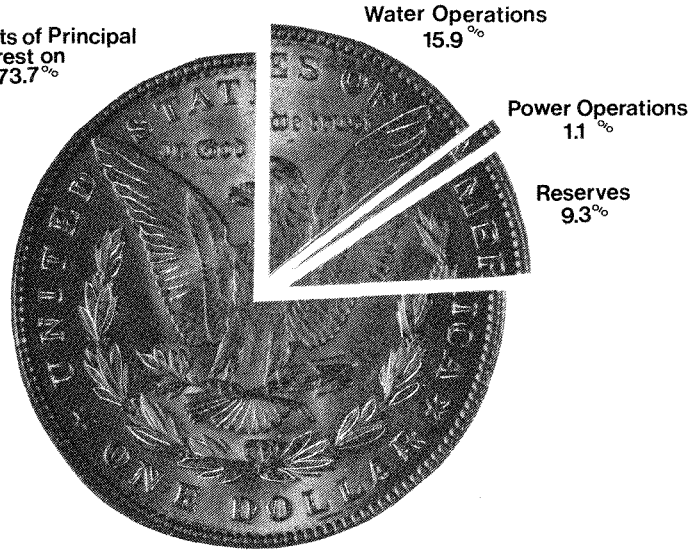
A $1.75 billion general obligation bond issue was authorized by the Legislature under the Burns-Porter Act in 1959 and approved by California voters in 1960 to finance Project construction. As construction money was needed, these bonds were sold. The first of these general obligation bonds were redeemed in 1973.

In all, $1.55 billion worth of bonds have been sold out of the $1.75 billion authorized. Of the remaining $200 million, in bonds, $167 million is reserved for planning and construction of additional facilities of the Project to meet ultimate water commitments while the remainder is for the Davis-Grunsky Program. The average net interest cost of the bonds sold to date is 4.374 percent.

There have been two revenue bond issues sold. Starting in 1968 the State sold bonds based on the generation capability of the Oroville-Thermalito power-generating complex located just north of Oroville on the Feather River. The proceeds from this sale were used to build the complex. The Department started repaying the principal on the earliest of these bonds in 1972.

Devil Canyon-Castaic power facilities revenue bonds were sold in August 1972. These bonds are backed by the electric power generated by the two hydroelectric plants. The Devil Canyon Powerplant is located just north of San Bernardino. The Castaic Powerplant is on the west arm of Castaic Lake about 45 miles north

Application of Project Income 1962 - 1974



Total Operating Expenditures $790,836,000

Application of Project Operating Funds: 1974

Water Plant Operations	$30,089,697
Power Plant Operations	2,470,030
Debt Service	90,137,167
Reserves For:	
Operations and Maintenance	3,011,000
Replacement	1,113,253
Debt Service	10,519,391
Total Applications	$137,340,538

of downtown Los Angeles. This power is used to pump Project water to six water agencies in Southern California. The agencies in turn have contracted to reimburse the State for their portion of the annual debt service on the revenue bonds plus estimated annual operation and maintenance costs of the power facilities.

The two issues of revenue bonds have provided $345 million for power plant construction.

In all, some $2.7 billion has been raised for Project construction. In addition to the $1.55 billion derived from general obligation bonds and the $345 million from revenue bonds, $413 million has come from State advances, $66 million from advances made by water contractors and others, $73 million from federal flood control grants and $23 million from other sources.

Payments from the State's water service contractors amounted to $93 million during 1974. All payments were current at year's end; there were no delinquencies. This is another indication of the financial viability of Project financing. In total, the contractors had paid the State $513 million at year's end. Of this amount $408 million was for capital cost and $105 million was for operating expense.

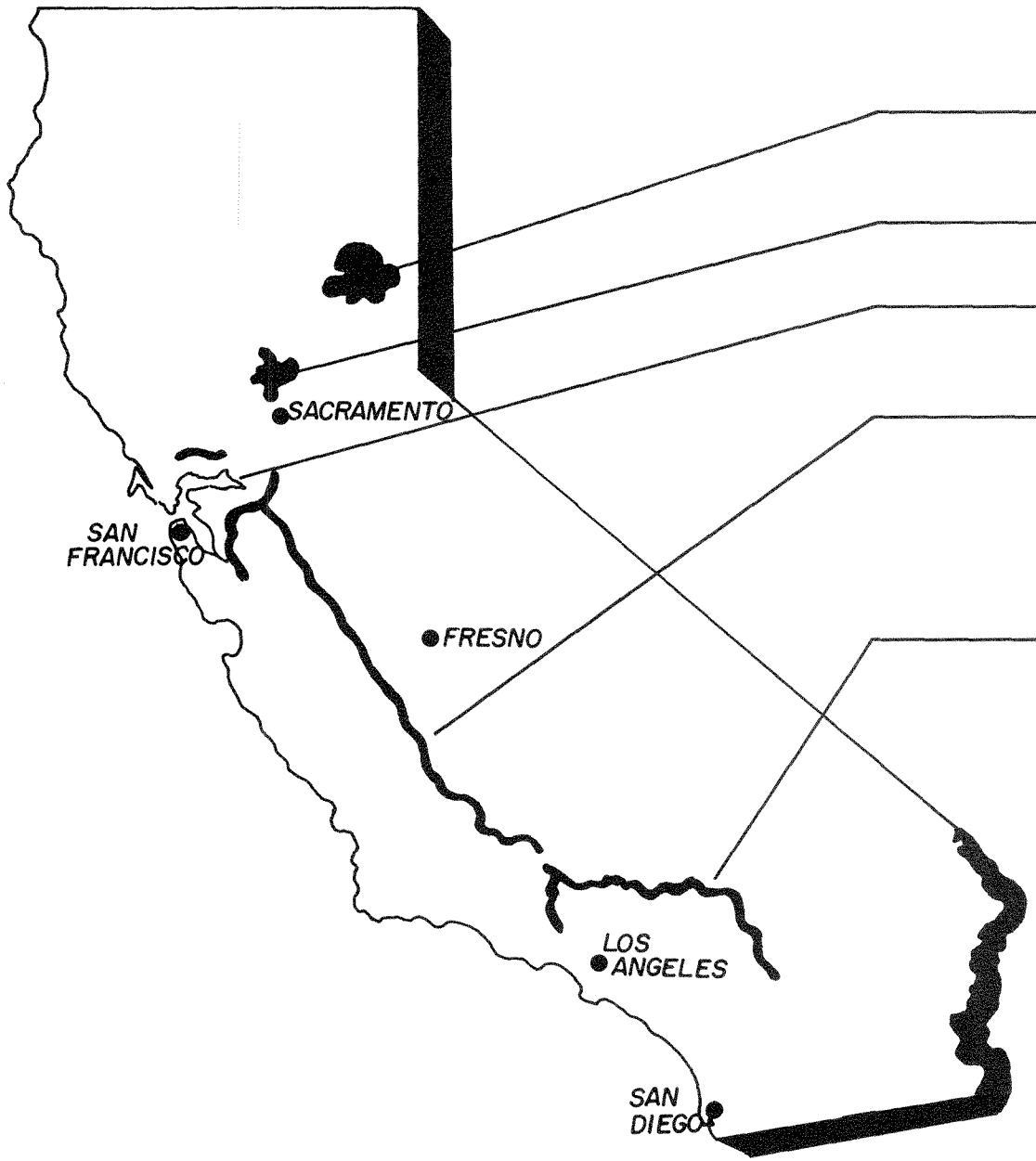
Income from investments rose to $16 million in 1974. State General Fund reimbursements of $5 million were received in payment of Project costs allocated to recreation.

Reflecting completion of the basic project needed to transport surplus northern water to San Francisco Bay communities, the south San Joaquin Valley area and Southern California, construction expenditures declined to $35 million, the lowest annual amount since 1962. Operation and maintenance expenses meanwhile rose to $34 million. This new high reflects the shift of responsibility from construction to operational status of the Project.

Davis-Grunsky loans, grants and administrative costs totaled $3 million.

Project power generation totaled over 4.6 billion kilowatthours. The bulk of this power was produced at the Oroville-Thermalito Complex and generated revenues of $23 million. The power produced at other plants was used in operating the Project's pumps.

Capital Expenditures 1952-1974



TOTAL CAPITAL EXPENDITURES THROUGH 1974
$2,324,000,000

Upper Feather River Facilities
$14,000,000

Oroville Area Facilities
$503,000,000

San Francisco Bay Area Facilities
$96,000,000

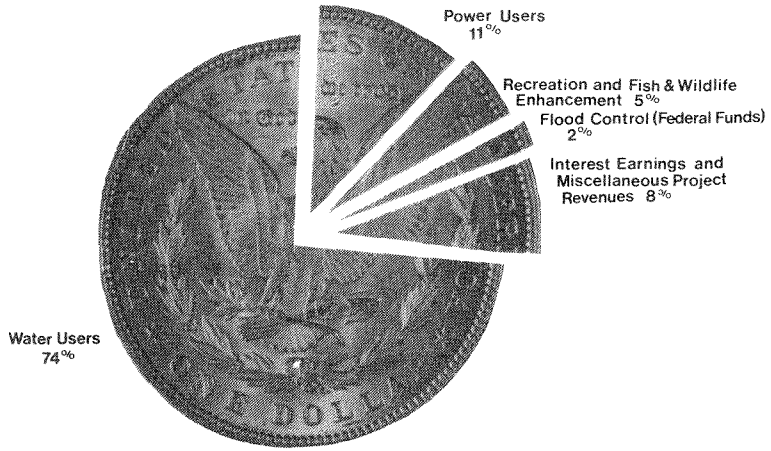
California Aqueduct, San Joaquin Valley
$698,000,000

Planning and Environmental Studies
$17,000,000

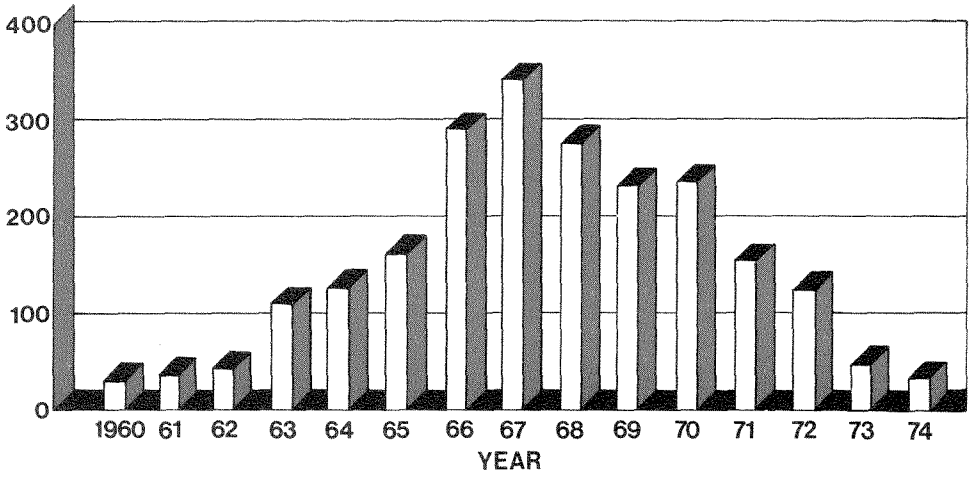
California Aqueduct, Southern California
$906,000,000

Davis-Grunsky Act (Loans and Grants)
$90,000,000

Sources of Repayments of Capital Expenditures



Total Capital Expenditures by Year



Balance Sheet December 31, 1974

Assets

Property, Plant and Equipment	$2,234,577,209
Long-Term Assets	
Funds Held by Revenue Bond Trustee	36,390,530
Long Term Receivable—Energy Adjustment	12,610,060
Loans for Local Water Projects	28,231,046
Investments in Mobile Equipment	5,624,924
	82,856,560
Current Assets	
Cash	1,178,633
Investments	142,391,003
Funds Held by Revenue Bond Trustee	7,899,145
Accrued Interest Receivable	6,579,910
Accounts Receivable	28,013,108
Loans Receivable	2,173,538
Due from Other State Funds	1,603,022
Stores Inventories	707,913
	190,546,272
OTHER ASSETS	17,196,123
	$2,525,176,164

Liabilities

Capitalization	
Funded Long-Term Debt	
General Obligation Bonds	$1,540,800,000
Oroville Power Revenue Bonds	239,530,000
Devil Canyon-Castaic Revenue Bonds	139,165,000
State Advances	246,217,359
Net Grants in Aid of Construction	116,766,185
Accumulated Net Revenue	193,684,647
	2,476,163,191
Current Liabilities	
Long-Term Debt Due Within One Year	6,475,000
Contract Retentions	854,843
Accrued Interest:	
General Obligation Bonds	14,996,147
Oroville Power Revenue Bonds	3,233,035
Accounts Payable	1,658,522
Due to Other State Funds	..
Unearned Income	9,278
	27,226,825
Advances for Construction	17,386,304
Reserve for Plant Replacements	4,399,844
	$2,525,176,164