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State of California  
THE RESOURCES AGENCY

Department of Water Resources

BULLETIN NO. 153—66

ALLOCATIONS OF COSTS  
AMONG PURPOSES  
OF THE  
CALIFORNIA  
STATE WATER PROJECT

JANUARY 1966



HUGO FISHER  
*Administrator*  
The Resources Agency

EDMUND G. BROWN  
*Governor*  
State of California

WILLIAM E. WARNE  
*Director*  
Department of Water Resources

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- 1 Location of Facilities - The California State Water Project

## ARTMENT OF WATER RESOURCES

BOX 388  
SACRAMENTO

FEB 4 1966

Honorable Edmund G. Brown, Governor  
and Members of the Legislature  
of the State of California

Gentlemen:

This bulletin is a progress statement by the Department of Water Resources in its development of allocations of costs among those purposes which are reimbursable by users of the California State Water Project and those purposes which are nonreimbursable by such users.

This is the second of an annual series of reports which will continue, as required, until the allocations of costs among all purposes and for all facilities of the Project have been completed.

Sincerely yours,

A handwritten signature in cursive script that reads "William E. Warne".

Director

STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
EDMUND G. BROWN, Governor  
HUGO FISHER, Administrator, The Resources Agency

DEPARTMENT OF WATER RESOURCES  
WILLIAM E. WARNE, Director

B. ABBOTT GOLDBERG, Chief Deputy Director  
REGINALD C. PRICE, Deputy Director Policy  
NEELY GARDNER, Deputy Director Administration  
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UTILITY COMMITTEE  
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Donald A. Sandison . . . . . Comptroller

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-----O-----

WILLIAM M. CARAH  
Executive Secretary

ORVILLE L. ABBOTT  
Engineer

# THE CALIFORNIA STATE WATER PROJECT



## PREFACE

This is the second in a series of annual progress reports on the development of cost allocations among project purposes for each facility of the California State Water Project.

The original volume of this series, Bulletin No. 153-65, dated January, 1965, presented the Department's allocations for facilities then completed, under construction, or scheduled to be under construction during fiscal year 1965-66. This year's report continues with the development of allocations for facilities on which construction is scheduled to commence in fiscal year 1966-67.

This annual series is intimately related to the Bulletin No. 132 series, the latter constituting the Department's annual official report on the construction, operation, financing, and management of the State Water Project. The estimated costs, water use, and financial management criteria, annually reevaluated in the Bulletin No. 132 series, form a basis for new and/or revised cost allocations developed in the Bulletin No. 153 series. The cost allocations developed in the Bulletin No. 153 series, in turn, are reflected in the annual reevaluation of the estimated project revenues and of the financial program reported in the Bulletin No. 132 series.

The Bulletin No. 153 series covers the allocation of costs among project purposes, as distinguished from: (1) the separation of costs among State Utility, State Nonutility, and Federal Programs; and, (2) the subsequent distribution of the costs allocated to reimbursable purposes assigned to State Utility Programs among the respective contractors of the State Water Project. These latter considerations are covered in detail in the Bulletin No. 132 series.



CHAPTER I. SUMMARY AND PROJECTED EFFECT  
OF COST ALLOCATION

The California State Water Project, being financed and constructed as a part of the State Water Resources Development System under the Burns-Porter and the Central Valley Project Acts, will accomplish a number of purposes. Chief among these are water supply, hydroelectric power generation, drainage benefit, flood control, recreation, and fish and wildlife enhancement.

The State Water Project consists of a number of component facilities which are being constructed for both multiple and single purposes. The majority of the facilities involve the common purpose of water supply and these are subdivided into two categories: (1) project conservation facilities, which will conserve and develop the supply; and (2) project transportation facilities, which will convey the developed supply to project service areas.

The State Water Project also includes the San Joaquin Drainage Facilities, and \$130,000,000 reserved for loans and grants to public agencies for local water projects under the Davis-Grunsky Program. This program is administered separately by the Department, in cooperation with the California Water Commission, and is not covered in this report.

The contracts with 30 public agencies<sup>1/</sup> for a water supply from the State Water Project provide for repayment of those costs of the project conservation and transportation facilities

1/ Since release of last year's report, an additional water supply contract has been executed with the Oak Flat Water District in western Stanislaus County. However, the contract with the City of West Covina has since been terminated, the obligations thereunder having been assumed by The Metropolitan Water District of Southern California.

which are reimbursable, as determined by the State. It is contemplated that similar provisions will be included in future contracts with respect to the San Joaquin Drainage Facilities.

Flood control is considered a federal responsibility and costs allocated to this purpose will be contributed by the United States. The costs allocated to the purposes of recreation and fish and wildlife enhancement are declared, by the Legislature, to be nonreimbursable by project contractors and to be repayable from the State General Fund, under the Davis-Dolwig Act. Water supply, hydroelectric power generation, and drainage benefit costs are reimbursable by project contractors.

The objective of this series of annual reports is to develop allocation percentages to be applied to the costs of respective facilities of the State Water Project, as construction commences for each facility, in order to compute those costs that will be reimbursable and those that will be nonreimbursable by project contractors.

Most of the following chapters of this report summarize the allocation percentages developed in last year's report, for those facilities which will be completed or under construction by the end of fiscal year 1965-66; revise tentative allocation percentages, illustrated in that report; and, develop allocation percentages for those facilities with construction scheduled to commence in fiscal year 1966-67. These chapters are preceded by a brief review of pertinent legislation, provisions of the water supply contracts, and the Department's general criteria for allocations of project costs. A fundamental element of these criteria is the utilization of federal cost allocations for facilities involving flood control.

Three methods were used to make cost allocations for facilities of the State Water Project; the Separable Costs-Remaining Benefits method, the Alternative Justifiable Expenditure method, and the Proportionate Use of Facilities method. These methods have been recognized for some years in cost allocation practice by federal and other agencies and are described in Chapter IV of last year's report and not repeated herein.

The remainder of this chapter summarizes the allocation percentages for the facilities covered in this report, applies these to estimated costs of the respective facilities developed in Bulletin No. 132-05, and recommends an appropriation by the Legislature for 1966-67 to reimburse the Department's expenditures for costs allocated to recreation and fish and wildlife enhancement. A general comment as to the effects of the allocations on charges to water supply contractors is also made.

### Cost Allocations

The cost allocations were determined as percentages applicable to the costs of those portions of multiple-purpose facilities which are jointly used for project purposes, such as dams and reservoirs. The costs to be allocated to each purpose will be determined annually by applying the respective percentages to the actual capital and minimum annual operating costs<sup>2/</sup> incurred for such portions of each multiple-purpose facility. Added to these allocated costs will be costs specifically incurred for the various purposes, such as costs of constructing and maintaining

---

<sup>2/</sup> Under the water supply contracts, minimum operating costs are those that do not depend upon amounts of water delivered, while variable operating costs are those that are dependent upon and vary with amounts of water delivered.

picnic facilities, parking lots, camp sites, and boat ramps for recreation uses, and an annually determined share of any operating costs which may be incurred.

The allocation percentages for the facilities covered in this report are summarized in Table 1. As indicated in that table, the percentage values for the California Aqueduct, North Bay Aqueduct and San Joaquin Drainage Facilities are for illustrative purposes only. This is because much of the data for these facilities are preliminary.

TABLE 1

SUMMARY OF RESULTS OF COST ALLOCATIONS  
(in percent)

Facilities covered in this report	Reimbursable purposes				Nonreimbursable purposes				Total
	Water supply	Power generation	Drainage benefit	Total	Flood control	Recreation and fish and wildlife enhancement	Total	Total	

Capital Costs of Features Jointly UsedProject Conservation Facilities

Frenchman Dam and Lake	50.0	0	0	50.0	0	50.0	50.0	100.0
Antelope Dam and Lake	0	0	0	0	0	100.0	100.0	100.0
Grizzly Valley Dam and Lake Davis	5.1	0	0	5.1	0	94.9	94.9	100.0
Oroville Dam and reservoir*	54.0	24.8	0	78.8	21.2	0	21.2	100.0
California Aqueduct**	94.4	0	0	94.4	0	5.6	5.6	100.0

Project Transportation Facilities

California Aqueduct, excluding Coastal Branch**	97.4	0	0	97.4	0	2.6	2.6	100.0
South Bay Aqueduct: Del Valle Dam and reservoir*	40.0	0	0	40.0	31.4	28.6	60.0	100.0
North Bay Aqueduct**	100.0	0	0	100.0	0	0	0	100.0

San Joaquin Drainage Facilities

San Joaquin Master Drain**	0	0	100.0	100.0	0	0	0	100.0
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Minimum Operating Costs of Features Jointly UsedProject Conservation Facilities

Frenchman Dam and Lake	50.0	0	0	50.0	0	50.0	50.0	100.0
Antelope Dam and Lake	0	0	0	0	0	100.0	100.0	100.0
Grizzly Valley Dam and Lake Davis	8.8	0	0	8.8	0	91.2	91.2	100.0
Oroville Dam and reservoir	42.5	41.0	0	83.5	16.5	0	16.5	100.0
California Aqueduct**	94.4	0	0	94.4	0	5.6	5.6	100.0

Project Transportation Facilities

California Aqueduct, excluding Coastal Branch**	92.9	0	0	92.9	0	7.1	7.1	100.0
South Bay Aqueduct: Del Valle Dam and reservoir	41.9	0	0	41.9	32.5	25.6	58.1	100.0
North Bay Aqueduct**	100.0	0	0	100.0	0	0	0	100.0

San Joaquin Drainage Facilities

San Joaquin Master Drain**	0	0	100.0	100.0	0	0	0	100.0
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\* Percentages shown are those applicable to the costs of the facility as accounted for by the State. The total cost of the facility includes minor amounts of federal expenditures not accounted for by the State.

\*\* Illustrative percentages only.

### Nonreimbursable Project Costs

The probable magnitude of costs of the State Water Project which will be nonreimbursable by project contractors may be estimated, recognizing that such forecasts can only be tentative at this time.

Table 2 presents, first, the results of applying the percentages for nonreimbursable purposes in Table 1 to the estimated capital costs of the corresponding facilities of the State Water Project. The capital costs allocated, shown in Column 1 of Table 2, were taken from Bulletin No. 132-65, "The California State Water Project in 1965", the latest official analysis of the project. The resulting values in Columns 2 and 3 of Table 2 are the costs of only those features of the respective facilities jointly used by project purposes, which are allocated to the non-reimbursable purposes of flood control and of recreation and fish and wildlife enhancement. The estimated total capital costs allocated to these purposes are \$71,517,000 and \$53,214,000, respectively. Column 4 presents estimates of the costs of initial facilities required specifically for recreation and fish and wildlife enhancement, totalling \$83,940,000. These initial facilities would be to accommodate projected visitor use for the first 10 years of development. The next two columns indicate that nonreimbursable costs for flood control and for recreation and fish and wildlife enhancement would total \$71,517,000 and \$137,154,000, respectively. The last column presents the estimated total nonreimbursable costs of \$208,671,000. As indicated, this value includes the estimated total allocated costs of features jointly used and estimated costs of initial specific recreation and fish and wildlife enhancement features.

TABLE C

ESTIMATED CAPITAL COSTS OF FEATURES  
ALLOCABLE TO NONREIMBURSABLE PURPOSES

Facilities covered in this report	Capital costs allocable to nonreimbursable purposes					Totals	
	(1) Capital costs of features jointly used, Bulletin No. 132-65	(2) Features jointly used Flood control	(3) Recreation and fish and wildlife enhancement	(4) Initial specific recreation and fish and wildlife enhancement features**	(5) Total joint and initial specific features Flood control		(6) Total joint and initial specific features recreation and fish and wildlife enhancement
<b>Project Conservation Facilities</b>							
Frenchman Dam and Lake	\$ 3,245,000	0	\$ 1,621,000	\$ 1,710,000	0	\$ 3,331,000	\$ 3,331,000
Antelope Dam and Lake	4,303,000	0	4,303,000	450,000	0	4,753,000	4,753,000
Grizzly Valley Dam and Lake Davis	3,778,000	0	3,585,000	1,760,000	0	5,345,000	5,345,000
Oroville Dam and reservoir	311,507,000	66,039,000	0	19,738,000	66,039,000	19,738,000	85,777,000
California Aqueduct	114,148,000	0	6,392,000	4,562,000***	0	10,974,000	10,974,000
Subtotal	\$ 436,981,000	\$ 66,039,000	\$ 15,901,000	\$ 28,240,000	\$ 66,039,000	\$ 44,141,000	\$ 110,100,000
<b>Project Transportation Facilities</b>							
California Aqueduct, excluding the Coastal Branch	\$ 1,243,176,000	0	\$ 32,323,000	\$ 52,650,000***	0	\$ 84,973,000	\$ 84,973,000
South Bay Aqueduct, Del Valle Dam and Reservoir	17,446,000	5,479,000	4,999,000	3,050,000	5,479,000	3,040,000	13,518,000
North Bay Aqueduct	5,292,000	0	0	-	0	0	0
Subtotal	\$ 1,269,914,000	\$ 5,479,000	\$ 37,313,000	\$ 55,700,000	\$ 5,479,000	\$ 93,013,000	\$ 98,491,000
<b>San Joaquin Drainage Facilities</b>							
San Joaquin Master Drain	\$ 103,613,000	0	0	0	0	0	0
TOTAL COSTS OF FEATURES COVERED IN THIS REPORT	\$ 1,810,507,000*	\$ 71,517,000	\$ 53,214,000	\$ 82,240,000	\$ 71,517,000	\$ 137,134,000	\$ 205,071,000
*Total costs of features not covered in this report (excluding specific recreation and fish and wildlife enhancement features):							
Abby Bridge Dam and reservoir		\$ 4,468,000					\$ 4,468,000
Dixie Refuge Dam and reservoir		2,101,000					2,101,000
Oroville-Thermalito power facilities		148,262,000					148,262,000
California Aqueduct, Coastal Branch		52,533,000					52,533,000
South Bay Aqueduct, total excluding Del Valle Dam and Reservoir		32,750,000					32,750,000
Delta Facilities		154,230,000					154,230,000
Upper Eel River Development		250,301,000					250,301,000
Local Projects (Davis-Grunsky)		131,419,000					131,419,000
		\$ 746,071,000					\$ 746,071,000
**Based on the costs of initial installation sufficient to accommodate the first 10 years of development as shown in Table 3. Minor specific costs for flood control are ignored for purposes of this tabulation.							
***The costs shown for the project conservation facilities include all specific recreation and fish and wildlife enhancement features for the Delta and the Ameg's Pumping Plant for the purpose of this tabulation only.							

Table 3 repeats the cost estimates for initial specific recreation and fish and wildlife enhancement facilities. It presents, in addition, estimates of specific costs for such facilities, continuing after the first 10-year period, which total about \$58,529,000. These are the expenditures which would be made under the procedures of the Davis-Dolwig Act and which would be staged over a 10 to 50-year period. The formulation of many of the recreation facilities has not been completed and recreation development plan reports have not been published. Therefore, the values in Column 4 of Table 2 and in Table 3 are based on incomplete and approximate data. As the development of cost allocation values for all facilities to be jointly used for project purposes is completed and as the planning of specific recreation facilities becomes more advanced, it is probable that the total nonreimbursable costs for recreation and fish and wildlife enhancement will change in future reports of this series.

#### Appropriations for Nonreimbursable Costs

The Department is making, and intends to continue making, requests to the Legislature for the reimbursement of moneys expended initially from funds other than those provided under the Davis-Dolwig Act for:

1. The costs of lands, easements, and rights-of-way purchased specifically for the purposes of recreation and fish and wildlife enhancement on an annual basis.
2. The capital costs allocated to the purposes of recreation and fish and wildlife enhancement for each multiple-purpose facility, after completion of the respective facility.

TABLE 3

ESTIMATED CAPITAL COSTS OF SPECIFIC FEATURES  
FOR RECREATION AND FISH AND WILDLIFE ENHANCEMENT

(Preliminary, subject to revision)

Facilities covered in this report	Costs of	
	Initial installations*	Continuing installations**
Frenchman Dam and Lake	\$ 1,710,000	\$ 829,000
Antelope Dam and Lake	450,000	1,103,000
Grizzly Valley Dam and Lake Davis	1,760,000	2,483,000
Oroville Dam and reservoir	19,738,000	36,953,000
San Joaquin Drainage Facilities***	-	-
California Aqueduct	57,232,000	14,640,000
North Bay Aqueduct***	-	-
South Bay Aqueduct	<u>3,050,000</u>	<u>2,521,000</u>
TOTAL	\$83,940,000	\$58,529,000

\*Sufficient to accommodate the growth in estimated visitor use during the initial 10-year period of operation.

\*\*Sufficient to accommodate the continuing growth in estimated visitor use subsequent to the initial 10-year period of operation.

\*\*\*Specific recreation and fish and wildlife enhancement features have not been formulated for these facilities.

Certain project expenditures for the purposes of recreation and fish and wildlife enhancement have been financed by legislative appropriations from the State General Fund under the Davis-Dolwig Act. Such costs include those for planning and constructing specific recreation features associated with project facilities which are accounted and budgeted by the Department of Parks and Recreation.<sup>3/</sup> Such costs also include the operating costs of multiple-purpose facilities allocated to recreation and fish and wildlife enhancement. These costs have been included, annually, as items in the Department's budget and have been appropriated by the Legislature. The funds provided, to date, by the Legislature under the Davis-Dolwig Act total about \$5,545,000, as shown in the following tabulation:

Fiscal year	Legislative Appropriations from the State General Fund for the Davis-Dolwig Program				Total
	Specific costs	Multiple-	Recreation: Capital	purpose	
	: planning	: outlay	: operating costs:		
(in thousands of dollars)					
1962-63	96	488	10		594
1963-64	119	689	10		818
1964-65	209	1,126	9		1,344
1965-66	<u>198</u>	<u>2,553</u>	<u>38</u>		<u>2,789</u>
Totals	622	4,856	67		5,545

Recommended 1966-67 Appropriations. The Department recommends that the Legislature appropriate \$7,074,900 for fiscal year 1966-67. The basis for the Department's recommendation is shown in Table 4. The recommended appropriation would reimburse

<sup>3/</sup> Similarly, the Department of Parks and Recreation is responsible for accounting and budgeting the operating costs of specific recreation features. However, this responsibility may be assigned to other agencies.

RECREATION AND FISH AND WILDLIFE ENHANCEMENT COSTS  
OF THE STATE WATER PROJECT  
NOT INITIALLY FINANCED BY DWTFS-DEVELOPMENT

(Basis for Department's recommended 1966-67 Appropriation)

Item of capital expenditure	Costs of total features, by calendar year <sup>a/</sup>						Recreation and fish and wildlife enhancement costs								
	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	Total	Allocated <sup>b/</sup>	Specific <sup>c/</sup>	Admin. Interest <sup>d/</sup>	Total
<b>Expenditure by Facilities:</b>															
Multiple-purpose features: <sup>d/</sup>															
Frenchman Dam and Lake	\$2,613	\$204,487	\$64,521	\$ 983,820	\$ 817,732	\$ 439,559	\$ 136,013	\$ 15,021	\$ 3,379	\$3,063,145	\$1,531,573		\$ 8,325	\$1,539,898	
Antelope Dam and Lake	2,175	2,433	10,902	15,173	197,319	934,039	2,943,069	454,082	9,559	4,168,721	4,168,721			4,168,721	
Total multiple-purpose features	\$4,788	\$206,920	\$75,423	\$998,993	\$1,015,051	\$1,373,598	\$2,675,082	\$169,103	\$12,938	\$7,231,866	\$5,700,294		\$ 8,325	\$5,708,619	
Specific recreation features (land): <sup>e/</sup>															
Frenchman Dam and Lake		\$ 42,109				\$ -154							\$ 41,647		\$ 41,647
Antelope Dam and Lake		18,562		\$ 18,563									37,125		37,125
Oroville Dam and reservoir					73,101	222,883	67,833			429,270			429,270	\$ 5,244	434,514
Thermalito Facilities						36,776				44,418			44,418	3,993	48,416
California Aqueduct									684				684	30	714
San Luis Dam and reservoir		2,085			51,659	1,124				54,838			54,838		54,838
Cedar Springs Dam and reservoir					665	40,615				41,280			41,280		41,280
Ferris Dam and reservoir					371,156	283,411				654,569			654,569		654,569
Castaic Dam and reservoir								40,811		40,811			40,811	12,367	53,178
Total specific features (land): <sup>e/</sup>		\$ 60,671	\$ 20,648	\$ 378,798	\$ 125,281	\$ 584,529	\$108,618		\$65,137	\$1,344,642			\$1,344,642	\$21,639	\$1,366,281
GRAND TOTAL	\$4,788	\$206,920	\$75,423	\$1,019,641	\$1,393,849	\$3,259,611	\$577,721	\$79,045	\$9,576,508	\$5,700,294			\$1,344,642	\$29,964	\$7,074,900
<b>Expenditure by Funds:</b>															
General Fund	\$4,788	\$114,269	\$23,013	\$ 17,158	\$ 3,191					\$ 262,419					
Civil Water Fund - Special Appropriations		92,651	418,459	1,002,798	1,082,546	\$ 153,829	\$ -1,310	\$ 103		2,749,076					
Burns-Porter Act Appropriations:					300,412	1,346,332	3,262,194	-8,757	580,577	\$79,266					
California Water Fund										659,843					
California Water Resources Development Bond Fund															
Less: Income credited to construction <sup>f/</sup>		5,378	315		300	1,322	1,273	202	221	9,011					
GRAND TOTAL	\$4,788	\$206,920	\$75,423	\$1,019,641	\$1,393,849	\$3,259,611	\$577,721	\$79,045	\$9,576,508	\$5,700,294			\$1,344,642	\$29,964	\$7,074,900

a/ Negative values denote accounting adjustments.

b/ Based upon the application of the percentages shown in Table 1 to the total cost.

c/ Interest Fund, compounded annually at 3.531 percent to June 30, 1966. The interest charged may be adjusted in future recommended appropriation.

d/ Includes only those multiple-purpose features of facilities at which construction has been completed.

e/ Includes the costs of lands, easements, and rights-of-way purchased specifically for recreation.

f/ Includes miscellaneous project income such as rights-of-way rentals and sales. Such income is applied for accounting purposes to reduce the capital costs of the features from which realized. The costs so credited must, however, be initially financed from other sources.

the Department for moneys expended from funds other than those provided under the Davis-Dolwig Act for:

1. the costs of lands, easements, and rights-of-way incurred in prior years through June 30, 1965, for specific recreation features; and

2. for the multiple-purpose costs of Frenchman and Antelope Dams and Lakes allocable to recreation and fish and wildlife enhancement.

While the Department included a budget proposal corresponding with the \$7,074,000 developed in Table 4, the Governor's Budget actually contains \$5,000,000 for the recommended 1966-67 appropriation.

The Department's request for fiscal year 1965-66, shown to be \$2,832,000 in last year's report, was tied to the passage of Assembly Bill No. 1147 of the 1965 Regular Session of the Legislature. Since the Bill was pocket-vetoed by the Governor, as further explained in the following chapter, the requested amount was not appropriated by the Legislature and is, therefore, included in the amounts shown in Table 4.

The total costs of lands, easements, and rights-of-way, purchased specifically for the purpose of recreation and fish and wildlife enhancement through June 30, 1965, as shown in Table 4, may be adjusted in the future. For instance, it is anticipated that the costs of some 30 percent of the open-space lands at Del Valle, Pyramid, Castaic, Cedar Springs, and Perris reservoirs will be financed by the Federal Government through the open-space recreation land grants of the Housing and Home Finance Agency. These grants are under Title VII of the Housing Act of 1961

(75 Statutes 149). Open-space land is defined as "any undeveloped or predominantly underdeveloped land in an urban area which has value for (a) park and recreational purposes, (b) conservation of land and other natural resources, or (c) historic or scenic purposes."

#### Charges to Water Supply Contractors

The tentative and final cost allocations derived in this series of reports will be reflected in the Department's annual redetermination of charges to water supply contractors. The allocation percentages in this report for project transportation facilities will be accounted for in Bulletin No. 132-66 and in the statements of charges to be provided to water supply contractors on or before July 1, 1966, for payment in calendar year 1967.

The allocations for project conservation facilities will not be reflected in the Delta Water Charges paid by water supply contractors until the beginning of calendar year 1970. The Delta Water Rate is established at \$3.50 per acre-foot until that time.



## CHAPTER II. LEGISLATIVE CONSIDERATIONS

A number of legislative items related to the allocation of costs among purposes of the State Water Project were described in last year's report. Such legislation pertains, primarily, to recreation and fish and wildlife enhancement.

Last year's report also described Assembly Bill No. 17 of the 1964 First Extraordinary Session which was referred to interim study and which dealt with the financing of, and allocations of cost to, these two nonreimbursable purposes of the State Water Project.

This year's report summarizes the more significant items of prior legislation directly affecting the Department's current program and describes the pertinent actions taken in the 1965 Regular Session of the Legislature.

### Previous Legislation

The two most significant statutes of the California Water Code affecting the Department's program with regard to recreation and fish and wildlife enhancement aspects of the State Water Project are Sections 11900 through 11925, constituting the Davis-Dolwig Act, and Section 346, relating to the Department's authority to acquire lands for recreation development.

#### Davis-Dolwig Act

The Davis-Dolwig Act, passed during the 1961 Regular Session, covers all phases of recreation and fish and wildlife enhancement at state water projects. It assigns certain responsibilities to the Department of Fish and Game, to the Department of

Parks and Recreation, and to the Department of Water Resources. It presents legislative policy on recreation and fish and wildlife enhancement at state water projects, from planning, through construction, to the operational phase.

The Davis-Dolwig Act declares recreation and fish and wildlife enhancement to be among the purposes of state water projects. It provides, further, that costs allocated by the Department to these purposes will be nonreimbursable by project water and power customers. The Department is required to revise allocation of costs of any state water project, as necessitated by the expenditure of funds under the Davis-Dolwig Act, for enhancement of fish and wildlife and for recreation in connection with such works. Under the Act, the Department may request, and is requesting, appropriations from the General Fund for these costs at such projects.

#### Section 346

The construction of the facilities of the State Water Project is being financed, primarily, by funds provided under the Burns-Porter Act, Water Code Sections 12930 through 12944. Specific recreation or fish and wildlife enhancement features are not part of the facilities authorized under that Act and the moneys provided thereunder may not be used for the construction or operation of such features. The Department is, however, purchasing lands, easements, and rights-of-way for specific recreation features, concurrently with those for multiple-purpose facilities authorized under the Burns-Porter Act, and with funds provided under the Act, in order to decrease total land costs of the project. This is being done under the authority provided by Section 346 of the Water Code.

Section 346, added to the Water Code in 1958, authorizes the Department to acquire lands for recreation development associated with state constructed water projects, and provides that:

" . . . Any funds, including but not limited to water resources development funds, heretofore or hereafter appropriated to the department for the acquisition of rights-of-way, easements, and property . . ."

may be used for such acquisition. Pursuant to this authority, the Department has budgeted from funds provided under the Burns-Porter Act for the costs of acquiring lands around project reservoirs for onshore recreation developments. As pointed out in Chapter I, the Department is making, and intends to continue making, requests to the Legislature for the reimbursement of such moneys so expended, together with the costs of multiple-purpose features allocated to the purposes of recreation and fish and wildlife enhancement.

#### Legislative Actions During the 1965 Regular Session

Chapter 138, Statutes of 1964, First Extraordinary Session, limited the portion of Long Beach tideland oil and gas revenues to be deposited in the California Water Fund to \$11 million annually.

Assembly Bill No. 17 of the 1964 First Extraordinary Session, which was referred for study to the Assembly Interim Committee on Water, and the Department's recommended draft of a substitute bill presented to the Committee at its hearing in Santa Monica, June 22, 1964, were described in last year's report.

The draft of bill recommended by the Department was reflected in Assembly Bill No. 1147<sup>1/</sup> of the 1965 Regular Session, a bill which passed both houses of the Legislature and was subsequently pocket-vetoed.

Assembly Bill No. 1147, as originally introduced, would have provided for the annual deposit of \$5 million from the Long Beach tideland oil and gas revenues into the existing Central Valley Water Project Construction Fund, after the \$11 million, mentioned previously, is deposited in the California Water Fund. In addition, the Department would be required to report to the Legislature the costs allocated to recreation and fish and wildlife enhancement for each facility of the State Water Project and to report on expenditures for lands acquired for recreation development associated with such facilities. To the extent the Legislature approves such allocations and expenditures, an equal amount of money deposited in the Central Valley Water Project Construction Fund from tideland revenues, as provided above, could be used for any of the purposes of the Central Valley Water Project Construction Fund; i.e., for construction of the project. Thus, to the extent that the funds are released, the Department could use the money either to reimburse project funds for expenditures for recreation and fish and wildlife enhancement or for direct expenditure for these purposes.

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<sup>1/</sup> Introduced by Assemblyman Porter, Ashcraft, Lanterman, Belloti, Chappie, Dannemeyer, Flournoy, Garrigus, Henson, Harvey Johnson, Roy E. Johnson, Monagan, Quimby, Russell, and Williamson (Coauthor: Senator Cobey).

There were provisions in the bill that nothing therein contained should limit the Department in the financing and construction of any of the facilities pursuant to the Burns-Porter Act, nor should the Act constitute a limitation on, or modification of, the responsibility of the Department to make allocations of costs provided for in water supply contracts.

Prior to final passage by both houses of the Legislature, Assembly Bill No. 1147 was amended to provide, also, for the use of tideland oil and gas revenues to finance the Davis-Grunsky Act program, when funds made available by the Burns-Porter Act for that program have become exhausted. The money for this purpose would be deposited into a special account in the Central Valley Water Project Construction Fund, to be known as the Local Project Assistance Account. Under Assembly Bill No. 1147, as amended June 13, 1965, an additional \$5 million of Long Beach tideland oil and gas revenues would be deposited annually in that assistance account, after the deposit of \$11 million in the California Water Fund, and after the deposit of \$5 million for recreation and fish and wildlife enhancement. The Local Project Assistance Account would constitute a revolving fund for the Davis-Grunsky Act program.

Assembly Bill No. 1147, however, was pocket-vetoed by the Governor after having been passed by the Legislature. On announcing his veto, Governor Brown stated:

"I have consistently supported the principle of meeting nonreimbursable costs for recreational development connected with the California Water Program, and we are presently budgeting for some of these costs in the initial construction of the water project.

"I supported AB 1147 when it was introduced with the understanding that a sufficient tax base would be provided to meet its cost.

"However, the stop-gap revenue measure passed on the last day for signing the 1965 budget did not provide continuing revenues for 1966 and future years. There was, therefore, no on-going financing provided to pay for this bill.

"In addition, the legislature amended the original bill to make a future commitment of an additional \$5 million, several years in advance of need to extend state responsibility for recreational development connected with local water projects.

"Since it is generally agreed that the regulations governing these local water project grants must be substantially revised and tightened, it is not appropriate to guarantee the financing to continue this local program before the regulations are actually changed by the legislature.

"While I am not signing AB 1147, I will continue to support the principle of committing funds for nonreimbursable recreational features of the State Water Project when sufficient revenues are provided by the legislature."

Of interest in connection with Assembly Bill No. 1147 is House Resolution No. 633 (Porter) of the 1965 Regular Session, which directs the Rules Committee to assign to an appropriate interim committee for study and report to the 1967 Legislature, the subject of nonreimbursable costs and the allocation of costs of the State Water Project.

Of interest in connection with the allocations of costs of the California Aqueduct among project purposes is Assembly Concurrent Resolution No. 54 (Williamson), Resolution Chapter 109, Statutes of 1965. This resolution requests the Department to implement the recommendations in Department of Water Resources Bulletin No. 154, entitled "Potential Recreation Areas Along the California Aqueduct", by acquiring recreational sites along the

aqueduct in the San Joaquin Valley and also requests the Department of Parks and Recreation to begin development of these areas. The resolution expresses the legislative intent, pursuant to the Davis-Dolwig Act, to appropriate funds to reimburse both departments for expenditures for such purposes.



CHAPTER III. CONTRACT PROVISIONS AND GENERAL  
CRITERIA FOR ALLOCATIONS OF  
PROJECT COSTS

The general legislative directives concerning allocation of project costs, which are primarily set forth in the Davis-Dolwig Act, were described in Chapter II. This chapter describes the provisions of the water supply contracts and the general criteria followed by the Department in implementing those directives.

Provisions of Water Supply Contracts

The water supply contracts executed by the State contain certain provisions with regard to the allocation of costs among project purposes. The major provisions in this area are as follows:

1. That the State shall allocate the costs of facilities to project purposes and shall determine those costs which are reimbursable and those costs which are nonreimbursable by water supply contractors. For example, Article 22(a) states in part:

"Wherever reference is made, in connection with the computation or determination of the Delta Water Charge, to the costs of any facility or facilities included in the System, such reference shall be only to those costs of such facility or facilities which are reimbursable by the contractors as determined by the State."

These words are essentially repeated in Article 23 in connection with the Transportation Charge.

2. That the Federal Government shall perform certain cost allocations, as set forth in Article 22(e):

". . . allocations to purposes the costs of which are to be paid by the United States shall be as determined by the United States."

3. That the Delta Water Charge shall be determined on the basis of an allocation to project purposes, by the Separable Costs-Remaining Benefits method, of all projected costs of all initial project conservation facilities, additional project conservation facilities, and supplemental conservation facilities. For the initial project conservation facilities, this provision is specific only as to those features located in and above the Delta. [Articles 22(e) and 22(g)]

4. That costs chargeable to power generation and transmission shall be allocated as set forth in Articles 22(e) and 22(g):

" . . . all of the projected costs properly chargeable to the generation and transmission of electrical energy in connection with operation of project conservation facilities shall be allocated to the purpose of water conservation in, above, and below the Delta."

5. That for the purpose of determining the Delta Water Charge, the reimbursable costs of the aqueduct intake facilities at the Delta, Pumping Plant I (Delta Pumping Plant), the aqueduct from the Delta to San Luis Forebay, San Luis Forebay, and San Luis Reservoir shall be allocated between the purposes of water conservation and water transportation by the Proportionate Use of Facilities method. [Article 22(e)]

Water supply contracts do not specify the project purposes to which allocations shall be made, nor the purposes which shall be deemed nonreimbursable. Considering the general provisions of the contracts and the additional guidance provided by the Davis-Dolwig Act and existing or proposed contracts with the United States for flood control contributions, the following conclusions may be drawn as to such project purposes and the reimbursability thereof:

1. Water Supply. This purpose includes both (a) the development of the minimum project yield of facilities located in, above, and below the Delta which are classified as "project conservation facilities" and (b) the conveyance of that yield to areas of beneficial use, in facilities classified as "project transportation facilities". The cost of project conservation facilities and project transportation facilities, allocated to the purpose of water supply, are reimbursable by water supply contractors through the Delta Water Charge and the Transportation Charge, respectively.

2. Power Generation. This purpose is taken for this report to cover only power generation in connection with project conservation facilities. The revenues derived from the sale or other disposal of electrical energy generation derived therefrom, as reduced by the costs allocated to this purpose, are deducted from the costs of project conservation facilities which are reimbursable by water supply contractors through the Delta Water Charge.

3. Flood Control. Allocations of cost to this purpose are made for those facilities being constructed by the State which will produce flood control benefits and for which the Federal Government has assumed or will assume financial responsibility. Costs allocated to flood control as determined by the United States are nonreimbursable by project contractors.

4. Drainage Benefit. Allocations of costs to this purpose are made for those facilities which will be constructed by the State for the removal of poor quality drainage waters from the San Joaquin Valley. Since the San Joaquin Drainage Facilities are neither classified as part of the project conservation facilities or of the project transportation facilities defined in the water supply contracts, the costs so allocated are nonreimbursable by water supply contractors. Costs allocated to this purpose are assumed to be reimbursable by those agencies which will contract for drainage benefit.

5. Recreation and Fish and Wildlife Enhancement. In this report, allocations of costs to recreation are not distinguished from those to fish and wildlife enhancement. If further consideration indicates the desirability of separating such values, future reports will take this into account. Costs allocated to recreation and fish and wildlife enhancement are nonreimbursable by project contractors, pursuant to the Davis-Dolwig Act.

The costs of purposes which are reimbursable by project contractors for those facilities of the State Water Project which are jointly used by the federal Central Valley Project pertain only to the portion of such costs borne by the State.

#### General Criteria for Cost Allocations

As indicated above, the water supply contracts specify the method to be used in allocating costs among purposes of project conservation facilities located in and above the Delta.

They are silent, however, as to the methods to be used for allocating costs of other facilities and as to other details. In view of this, it has been necessary for the Department to supplement those provisions with general criteria in order that it can determine those costs which are reimbursable and those which are nonreimbursable by project contractors.

The principal points that the contract provisions do not cover are:

1. The method to be used for allocations of cost among purposes of project conservation facilities located below the Delta.

2. The method to be used for allocations of cost among purposes of project transportation facilities.

3. The method to be used for allocations of cost among purposes of the San Joaquin Drainage Facilities.

4. The subdivisions of facilities or groups of facilities for which allocations are to be made.

5. When cost allocations are to be made.

6. When cost allocations are to be revised.

7. When cost allocations are to be final.

8. The form of the results of cost allocations.

9. How the results will be reflected in charges paid by project contractors.

The Department's present criteria, with respect to these items, are discussed in the following sections:

#### Method of Allocating Costs of Project Conservation Facilities Below the Delta

The costs of multiple-purpose facilities located below the Delta, the water supply features of which will be operated in whole or in part for the function of water conservation, will

be allocated among project purposes by the Separable Costs-Remaining Benefits method. Articles 1(g)(3) and 1(g)(4) of the "Standard Provisions for Water Supply Contract" specify such facilities below the Delta. The costs allocated to each project purpose in this manner will be divided between the water conservation and water transportation functions by the Proportionate Use of Facilities method specified in Article 22(e) of the contracts.

#### Method of Allocating Costs of Project Transportation Facilities

The costs of multiple-purpose facilities, the water supply features of which will be operated solely for the function of water transportation, will be allocated among project purposes by the Alternative Justifiable Expenditure method. The total costs of transportation facilities of the California Aqueduct, allocated to each project purpose, will be the sum of the costs allocated to that purpose by this method and the costs of facilities below the Delta allocated to the same purpose and apportioned to the water transportation function by the method described in (1) above. A special procedure applying to the South Bay Aqueduct, where water supply features will be operated solely for the function of water transportation, is described below.

Del Valle Dam and reservoir are currently the only features of the South Bay Aqueduct which will directly accommodate purposes other than water supply. While recreation and fish and wildlife enhancement features have been considered along the "main-line" of the aqueduct, none have been formulated. Del Valle reservoir will be operated for flood control, water supply,

recreation and fish and wildlife enhancement. A cost allocation for Del Valle Dam and reservoir has been prepared by the Board of Engineers for Rivers and Harbors by the Separable Costs-Remaining Benefits method and represents the current determination by the United States of the costs allocable to flood control<sup>1/</sup>. As previously stated, Article 22(e) of the water supply contracts provides, with respect to project conservation facilities, that "allocations to purposes the costs of which are paid by the United States shall be as determined by the United States". This principle is herein extended to include Del Valle Dam and reservoir, a feature of the project transportation facilities.

#### Method of Allocating Costs of the San Joaquin Drainage Facilities

The costs of multiple-purpose features of the San Joaquin Drainage Facilities will be allocated among project purposes by the Separable Costs-Remaining Benefits method.

#### Facilities to be Covered by Cost Allocations

Project conservation facilities, project transportation facilities and San Joaquin Drainage Facilities set forth in Table 5 are considered as separate entities for cost allocation purposes. Those components which encompass a number of separate multiple-purpose features, such as the Delta Facilities and the Upper Eel River Development, may be subsequently subdivided into several entities for cost allocation.

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<sup>1/</sup> Senate Document No. 128, 87th Congress, 2nd Session.

### Initial Cost Allocations

Allocations of estimated costs among project purposes will be prepared, initially, for each of the components of the State Water Project shown in Table 5, in the fiscal year prior to the fiscal year during which actual construction of the component is scheduled to commence. The priority and schedule for the initial cost allocation of each component is shown in Table 6:

### Revision of Cost Allocations

A cost allocation may be subsequently revised, based on a formal demonstration that such revision is warranted by reason of substantial changes in the factors which supported the preceding allocation.

Demonstration of substantial changes in the supporting factors could include the finding that: (1) funds are not forthcoming for financing the costs of constructing a significant portion of the specific nonreimbursable features previously considered; (2) reimbursements are not forthcoming for the allocated costs of features jointly used, thereby possibly affecting the planned mode of operation of the multiple-purpose features; (3) projections of benefits reflected in the allocation have significantly changed; and, (4) projections of costs reflected in the allocation have significantly changed.

### Finality of Cost Allocations

All cost allocations for complete components of the State Water Project are subject to change. However, certain allocations for particular purposes must be considered final.

TABLE 5

COMPONENTS OF THE STATE WATER PROJECT  
TO BE COVERED BY COST ALLOCATIONS

Components for which separate allocations are to be made :	Features to be included in allocations*
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Project Conservation Facilities

a. Frenchman Dam and Lake	Dam and reservoir
b. Antelope Dam and Lake	Dam and reservoir
c. Grizzly Valley Dam and Lake Davis	Dam and reservoir and the Grizzly Valley Pipeline
d. Abbey Bridge Dam and reservoir	Dam and reservoir
e. Dixie Refuge Dam and reservoir	Dam and reservoir
f. Oroville Dam and reservoir	Oroville Dam, Powerplant and reservoir; Feather River Fish Hatchery and Barrier Dam; Interim Fish Facility; and Thermalito Diversion Dam, Power Canal, Forebay, Powerplant, and Afterbay.
g. Delta Facilities**	. . . . .
h. California Aqueduct	San Luis Dam, Pumping-Generating Plant, and reservoir, and the portion of the aqueduct from the Delta through San Luis Forebay required for water conservation
i. Upper Eel River Development**	. . . . .

Project Transportation Facilities

a. North Bay Aqueduct	Entire aqueduct and appurtenances
b. South Bay Aqueduct	Del Valle Dam and reservoir
c. California Aqueduct	All of the aqueduct and regulating reservoirs south of the Delta, except San Luis Dam, Pumping-Generating Plant, and reservoir, and the portion of the aqueduct from the Delta through San Luis Forebay required for water conservation.

San Joaquin Drainage Facilities

a. San Joaquin Master Drain	Entire drain and appurtenances
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\* In addition to the specific recreation and fish and wildlife enhancement features associated with each component.

\*\* These facilities are currently being formulated.

Such allocations are covered by Article 22(e) of the water supply contracts which provides that, for project conservation facilities located in and above the Delta, ". . .allocations to purposes the costs of which are to be paid by the United States shall be as determined by the United States....". Thus, the cost allocation to the purpose of flood control for Oroville Dam and reservoir is considered to be final in view of the contract with the United States.

Until the time that moneys covering the total costs allocated to, or associated with, nonreimbursable purposes are made available to the project from the Legislature, the United States, or any other entity assuming responsibility for such costs, the Department considers that the cost allocation for a particular component of the State Water Project is subject to change.

#### Form of Results

The allocation of costs among project purposes, for the features of each component jointly used for such purposes, will be expressed in terms of percentage values. These values will be computed to subdivide (a) the total capital costs of the features jointly used, and (b) the applicable operation, maintenance, power, and replacement costs of the features jointly used.

#### Application of Results to Water Supply Charges

The estimated and/or actual costs for each purpose of the respective project conservation facilities and project transportation facilities of the State Water Project will be determined as the sum of:

TABLE 6

SCHEDULE FOR COMPLETION  
OF INITIAL COST ALLOCATIONS

Priority of cost allocations	: Components of the : State Water Project to be : separately allocated : among purposes	: Date of initial : cost allocations
1. Completed facilities	Frenchman Dam and Lake Antelope Dam and Lake	April 1964 January 1965
2. Facilities currently under construction	Grizzly Valley Dam and Lake Davis Oroville Dam and reservoir South Bay Aqueduct: Del Valle Dam and reservoir California Aqueduct	January 1965 January 1965  January 1965 January 1965
3. Facilities with construction scheduled to commence in 1966-67	North Bay Aqueduct San Joaquin Drainage Facilities*	January 1966 January 1966
4. Facilities with construction scheduled to commence in 1967-68	Delta Facilities	January 1967
5. Facilities still under formulation	Upper Eel River Development Abbey Bridge Dam and reservoir Dixie Refuge Dam and reservoir	Following for- mulation of definite facilities

\*Construction schedules not firmly established; however, initial construction on these respective facilities is contemplated to commence during the fiscal years shown.

1. The capital and annual operation, maintenance, power and replacement costs for those specific features constructed solely for the particular purpose.
2. The allocated share of capital and minimum operation, maintenance, power and replacement costs<sup>2/</sup> for those features jointly used with other purposes as determined by applying the percentages determined in the cost allocation.
3. The annually determined share of variable operation, maintenance, power and replacement costs<sup>2/</sup> for those features jointly used with other purposes. Such costs are, for a given year, allocated to the particular purpose in the same proportion that the annual amount of water delivered from or through such features for the purpose bears to the total annual amount of water delivered from or through such features for all purposes.

Generally, all operating costs for the project conservation facilities located in and above the Delta will be incurred independently of the actual deliveries of project water and are thus included in the minimum category. The operating costs of providing water to compensate for evaporation and seepage losses from reservoirs and aqueducts of the project transportation facilities are also included in the minimum category. Variable operating costs, which are directly related to the conveyance of net deliveries of water for the purposes of water supply, recreation and fish and wildlife enhancement, will constitute the major portion of costs incurred in the pumping and power recovery plants of the project facilities located below the Delta.

Operating costs included in the variable category are thus allocated annually among project purposes consistent with

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<sup>2/</sup> See footnote 2, Chapter I.

the annual distribution of such costs among water supply contractors. The allocation among purposes of capital costs and operating costs in the minimum category, by the application of fixed percentages, is also consistent with the distribution of such costs among water supply contractors.

The percentages derived in the cost allocations, for reimbursable purposes of the project transportation facilities, are applied to the actual and estimated costs of each component aqueduct reach jointly used by project purposes. This is necessary since, pursuant to Article 23 of the water supply contracts, the distribution of reimbursable costs among water supply contractors is based upon the proportionate use of each aqueduct reach by each contractor.



## CHAPTER IV. SUMMARY OF PRIOR COST ALLOCATIONS

Last year's report developed the Department's allocations of costs among purposes for those facilities of the State Water Project which were to be completed, or which were scheduled to be under construction, by the end of fiscal year 1965-66. The facilities so covered are those under Priority Nos. 1 and 2 of the schedule shown in Table 6. They include Frenchman Dam and Lake, Antelope Dam and Lake, Grizzly Valley Dam and Lake Davis, Oroville Dam and reservoir, the South Bay Aqueduct (Del Valle Dam and reservoir), and the California Aqueduct, and their location is shown on Plate 1.

The allocations developed in last year's report for the California Aqueduct were qualified as tentative and subject to revision. Revised allocations for this aqueduct have been developed in Chapter V of this bulletin.

The allocations developed for other facilities covered in last year's report are briefly summarized in the following sections of this chapter. Minor modifications and corrections for certain of the allocations are noted. These modifications and corrections pertain primarily to the format of the particular allocations, as previously reported, and do not constitute a basic change in the factors supporting the allocations.

### Frenchman Dam and Lake

The Department's allocation of the costs of Frenchman Dam and Lake and associated features, among the project purposes

of water supply, recreation and fish and wildlife enhancement, is shown in Table 7.<sup>1/</sup> The allocation by the Separable Costs-Remaining Benefits method represents a revision to the original allocation reported in Bulletin No. 59<sup>2/</sup> for the "Frenchman Project" to account for (1) the significant increase in estimated recreation and fish and wildlife enhancement benefits, (2) the decrease in estimated water supply benefits, and (3) the costs of lands, easements, and relocation of public utilities.

It was erroneously shown in last year's report that the equal annual equivalent costs basic to the allocation were computed at an interest rate of 3.5 percent per annum, instead of the 3 percent rate utilized in Bulletin No. 59. This correction has been made in the allocation shown in Table 7.

#### Antelope Dam and Lake

The costs of Antelope Dam and Lake and associated features are allocated in total to the project purposes of recreation and fish and wildlife enhancement. This allocation does not require application of the Separable Costs-Remaining Benefits method, specified in the water supply contracts for the allocation of costs of project conservation facilities located in and above the Delta, because these two purposes are considered as one, for purposes of this report.

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<sup>1/</sup> For a more detailed development of this cost allocation, see Department of Water Resources Bulletin No. 153-65, "Allocations of Costs Among Purposes of the California State Water Project" dated January 1965 (pages 53 through 62).

<sup>2/</sup> Department of Water Resources Bulletin No. 59, "Investigation of Upper Feather River Basin Development", dated February 1957.

TABLE 7

COST ALLOCATION  
FOR FRENCHMAN DAM AND LAKE

(in dollars unless otherwise noted)

Step no. :	Item of benefit or cost* :	: Water: : supply:	: Recreation : : and fish and: : wildlife : : enhancement:	: Total
1.	Benefits	46,500	272,300	318,800
2.	Alternative Costs	46,300	71,600	117,900
3.	Justifiable Costs	46,300	71,600	117,900
4.	Separable Costs:			
	Total	17,400	42,700	60,100
	Capital	14,300	27,600	41,900
	O.M.P.&R.	3,100	15,100	18,200
5.	Remaining Justifiable Costs	28,900	28,900	57,800
6.	Percent Distribution of Remaining Justifiable Costs	50.0%	50.0%	100.0%
7.	Remaining Joint Costs:			
	Total	14,450	14,450	28,900
	Capital	12,000	12,000	24,000
	O.M.P.&R.	2,450	2,450	4,900
8.	Total Allocated Project Costs:			
	Total	31,850	57,150	89,000
	Capital	26,300	39,600	65,900
	O.M.P.&R.	5,550	17,550	23,100
9.	Percent Distribution of Total Project Costs:			
	Total	35.8%	64.2%	100.0%
	Capital	39.9%	60.1%	100.0%
	O.M.P.&R.	24.0%	76.0%	100.0%
10.	Specific Costs:			
	Total	0	25,300	25,300
	Capital	0	13,300	13,300
	O.M.P.&R.	0	12,000	12,000
11.	Total Allocated Costs of Features Jointly Used:			
	Total	31,850	31,850	63,700
	Capital	26,300	26,300	52,600
	O.M.P.&R.	5,550	5,550	11,100
12.	Percent Distribution of Costs of Features Jointly Used:			
	Total	50.0%	50.0%	100.0%
	Capital	50.0%	50.0%	100.0%
	O.M.P.&R. (Minimum Category)	50.0%	50.0%	100.0%

\* Annual benefits and costs through the year 2011 converted to equivalent equal annual amounts for the 50-year period 1962-2011, at 4 percent and 3 percent interest, respectively.

## Grizzly Valley Dam and Lake Davis

The Department's allocation of the costs of Grizzly Valley Dam, Lake Davis, and associated features among the project purposes of water supply, recreation, and fish and wildlife enhancement is shown in Table 8<sup>3/</sup>.

This allocation, by the Separable Costs-Remaining Benefits method, represents a complete revision of the cost allocations for the two alternative "Grizzly Valley Projects" described in Bulletin No. 59. This revision followed the modification of the description of the facility, providing also for the inclusion of the Grizzly Valley Pipeline, by executive order<sup>4/</sup> of the Director of the Department of Water Resources, which order also authorized the construction of the facility.

The cost allocation is unique among those facilities of the State Water Project located in and above the Delta, since Grizzly Valley Dam and Lake Davis constitute a portion of the project conservation facilities and the associated Grizzly Valley Pipeline is part of the project transportation facilities.

The allocation by the Separable Costs-Remaining Benefits method through Step No. 8a in Table 8 deals only with the costs of the project conservation facilities and associated specific recreation and fish and wildlife enhancement features. Such costs are

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<sup>3/</sup> For a more detailed development of this cost allocation, see Department of Water Resources Bulletin No. 153-65, "Allocations of Costs Among Purposes of the California State Water Project", dated January 1965 (pages 65 through 74).

<sup>4/</sup> Department of Water Resources, Project Order No. 3, dated May 7, 1965.

TABLE 8  
COST ALLOCATION  
FOR GRIZZLY VALLEY DAM AND LAKE DAVIS  
(in dollars unless otherwise noted)

Step no.	Item of benefit or cost*	Water supply	Recreation and fish and wildlife enhancement	Total
1	Benefits	11,700	388,900	400,600
2	Alternative Costs	60,800	315,700	376,500
3	Justifiable Costs	11,700	315,700	327,400
4	Separable Costs:			
	Total	0	254,900	254,900
	Capital	0	195,300	195,300
	O.M.P.&R.	0	59,600	59,600
5	Remaining Justifiable Costs	11,700	60,800	72,500
6	Percent Distribution of Remaining Justifiable Costs	16.1%	83.9%	100.0%
7	Remaining Joint Costs:			
	Total	9,800	51,000	60,800
	Capital	8,200	42,600	50,800
	O.M.P.&R.	1,600	8,400	10,000
8a	Total Allocated Costs, Conservation Facilities:			
	Total	9,800	305,900	315,700
	Capital	8,200	237,900	246,100
	P.M.P.&R.	1,600	68,000	69,600
8b	Total Allocated Costs, Project Transportation Facilities:			
	Total	25,100	0	25,100
	Capital	21,600	0	21,600
	O.M.P.&R.	3,500	0	3,500
8c	Total Allocated Project Costs:			
	Total	34,900	305,900	340,800
	Capital	29,800	237,900	267,700
	O.M.P.&R.	5,100	68,000	73,100
9	Percent Distribution of Total Project Costs:			
	Total	10.2%	89.8%	100.0%
	Capital	11.1%	88.9%	100.0%
	O.M.P.&R.	7.0%	93.0%	100.0%
10	Specific Costs:			
	Total	25,100	136,400	161,500
	Capital	21,600	84,900	106,500
	O.M.P.&R.	3,500	51,500	55,000
11	Total Allocated Costs of Features Jointly Used:			
	Total	9,800	169,500	179,300
	Capital	8,200	153,000	161,200
	O.M.P.&R.	1,600	16,500	18,100
12	Percent Distribution of Costs of Features Jointly Used:			
	Total	5.5%	94.5%	100.0%
	Capital	5.1%	94.9%	100.0%
	O.M.P.&R. (Minimum Category)	8.8%	91.2%	100.0%

\*Annual benefits and costs through the year 2014 converted to equal annual equivalent amounts for the 50-year period 1965-2014 at 4 percent interest.

combined with the single-purpose water supply costs of the project transportation facilities, shown in Step No. 8b, to form the total allocated costs of the facility.

#### Oroville Dam and Reservoir

The Department's allocation of costs of Oroville Dam and reservoir, and related features, among the project purposes of flood control, power generation, water supply, recreation, and fish and wildlife enhancement is shown in Table 9<sup>5/</sup>.

This allocation corresponds with the allocation basic to the contract<sup>6/</sup> signed on March 8, 1962 by the United States of America, acting through the Department of the Army, and the State of California, acting through the Department of Water Resources, providing for federal contribution of funds for the costs allocated to flood control. The use of the allocation basic to the federal contribution is in accordance with Article 22(e) of the water supply contracts.

The allocation shown in Table 9 differs in format from the federal allocation in two respects: (1) the estimated specific costs for the purposes of recreation and fish and wildlife enhancement have been added to the total project costs, subsequent to the allocation of remaining joint costs by the Separable Costs-Remaining Benefits method, and (2) the

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<sup>5/</sup> For a more detailed development of this cost allocation, see Department of Water Resources Bulletin No. 153-65, "Allocations of Costs Among Purposes of the California State Water Project", dated January 1965 (pages 75 through 87).

<sup>6/</sup> DA-04-167 AVEng-62-56; DWR-152012.

TABLE 9  
COST ALLOCATION FOR OROVILLE DAM AND RESERVOIR

(in thousands of dollars unless otherwise noted)

Step no. :	Item of benefit or cost :	Flood control :	Power generation :	Water supply :	Recreation and fish and wildlife enhancement :	Total :
1.	Benefits	3,640	19,266	9,284	-	32,190
2.	Alternative Costs	8,966	19,266	10,593	-	38,825
3.	Justifiable Costs	3,640	19,266	9,284	-	32,190
4.	Separable Costs:					
	Total	143	18,955	94	-	19,192
	Capital	137	15,041	83	-	15,261
	O.M.P.&R.	6	3,914	11	-	3,931
5.	Remaining Justifiable Costs	3,497	311	9,190	-	12,998
6.	Percent Distribution of Remaining Justifiable Costs	26.904%	2.393%	70.703%		100.0%
7a.	Remaining Joint Costs:					
	Total	3,063	272	8,048	-	11,383
	Capital	2,968	263	7,798	-	11,029
	O.M.P.&R.	95	9	250	-	354
7b.	Special Considerations, this Allocation:**					
	Total	0	-4,098	0	3,566	-532
	Capital	0	-4,098	0	1,960	-2,238
	O.M.P.&R.	0	0	0	1,706	1,706
	Total Allocated Project Costs:					
	Total	3,206	15,129	8,142	3,566	30,043
	Capital	3,105	11,206	7,881	1,960	24,152
	O.M.P.&R.	101	3,923	261	1,706	5,991
9.	Percent Distribution of Total Project Costs:					
	Total	10.7%	50.4%	27.0%	11.9%	100.0%
	Capital	12.9%	46.6%	32.8%	7.7%	100.0%
	O.M.P.&R.	1.7%	65.4%	4.4%	28.5%	100.0%
10.	Specific Costs:					
	Total	0	11,264	0	3,566	14,830
	Capital	0	7,593	0	1,960	9,553
	O.M.P.&R.	0	3,671	0	1,706	5,377
11.	Total Allocated Costs of Features Jointly Used:					
	Total	3,206	3,865	8,142	-	15,213
	Capital	3,105	3,613	7,881	-	14,599
	O.M.P.&R.	101	252	261	-	614
12.	Percent Distribution of Costs of Features Jointly Used:					
	Total	21.1%	25.4%	53.5%	-	100.0%
	Capital	21.3%	24.7%	54.0%	-	100.0%
	O.M.P.&R. (Minimum Category)	16.5%	41.6%	42.5%	-	100.0%

\* Annual benefits and costs through the year 2018 converted to equal annual equivalents at 4 percent and 3½ percent, respectively, for the 50-year period 1969-2018.

\*\* As distinguished from other allocations included in this report the special considerations included in Step 7b are combined with the separable and remaining joint costs to form the total project costs. This step includes the following items:

- (a) Cost allocation procedures at the time that the federal allocation was made included "taxes foregone" as a cost associated with the project purpose of power generation.
- (b) The project purposes of recreation and fish and wildlife enhancement were excluded in the federal allocation of joint project costs. The estimated specific costs for these purposes are herein added to demonstrate the current distribution of total project costs to project purposes.

respective irrigation and municipal and industrial uses of the purpose of water supply have been combined to correspond with the State's procedures. Both of these format changes have been included in Table 9 in such a manner as not to change the results of the federal allocation shown in Step No. 12; i.e., the percentage distribution of the costs of features jointly used among project purposes.

The allocation percentages developed in Table 9 for Oroville Dam and reservoir are applicable to the costs of features jointly used by project purposes. The estimated first costs of these features, as considered in the allocation, included \$300,000 of estimated federal expenditures for engineering and administration of funds during construction, or \$15,000, expressed as an equal annual equivalent cost at 3.5 percent interest for the 50-year period of analysis. The percentages shown in Step No. 12 of the allocation may be modified so as to be applicable only to the costs incurred by the State by deducting \$15,000 from the equal annual equivalent capital cost allocated to flood control shown in Step No. 11. This adjustment applies only to capital costs since federal operating costs are not involved.

The percentages adjusted to be applicable to costs to be incurred by the State only are derived in the following tabulation:

Step No. :	Item of benefit or cost :	Flood control :	Power generation :	Water supply :	Total :
11.	Total Allocated Costs of Features Jointly Used:				
	Total	3,191	3,865	8,142	15,198
	Capital	3,090	3,613	7,881	14,584
	O.M.P.&R.	101	252	261	614
12.	Percent Distribution of Costs of Features Jointly Used:				
	Total	21.0%	25.5%	53.5%	100.0%
	Capital	21.2%	24.8%	54.0%	100.0%
	O.M.P.&R. (Minimum Category)	16.5%	41.0%	42.5%	100.0%

South Bay Aqueduct: Del Valle Dam and Reservoir

The Department's allocation of the costs of Del Valle Dam and reservoir, and related features, among the project purposes of flood control, water supply, recreation, and fish and wildlife enhancement is shown in Table 10.<sup>7/</sup>

This allocation corresponds with the allocation basic to a proposed contract between the United States and the State of California for federal contribution of funds for the costs allocated to flood control. The federal allocation, together with pertinent correspondence and reports, is contained in Senate Document No. 128, referred to in Chapter III. The cost allocation shown in Table 10 has been derived from Senate Document No. 128 and placed in the format used in this series of reports.

<sup>7/</sup> For a more detailed development of this cost allocation, see Department of Water Resources Bulletin No. 153-65, "Allocations of Costs Among Purposes of the California State Water Project", dated January 1965 (pages 107 through 116).

An error in the reconstruction of the allocation contained in Senate Document No. 128 was reported in last year's report. Table 28 in Bulletin No. 153-65 listed the equivalent annual specific recreation costs of \$72,000, together with \$1,000 for the allocated share of loss in land productivity, as the only specific costs associated with recreation. However, it is apparent that the \$72,000 figure shown as "specific recreation costs" in the cost allocation on page 8 of Senate Document No. 128 covers only the annual payment of the capital costs of \$2,000,000 estimated for specific recreation facilities and lands. Therefore, specific annual O.M.P.&R. costs for recreation in the amount of \$160,000 were erroneously omitted in the Department's summary in Table 28 of Bulletin No. 153-65. This error extends to the last three steps of the table and to the allocation of total costs and annual O.M.P.&R. costs only. The allocation of capital costs is not affected.

The allocation percentages developed in Table 10 are applicable to the total estimated costs of the multiple-purpose features, including a federal expenditure of \$270,000 for engineering, design, supervision and administration during the construction.

The allocation percentages presented in Step No. 12 may be modified to apply only to the costs incurred by the State in a manner similar to that described for Oroville Dam and reservoir.

The estimated total federal expenditure of \$270,000 is equivalent to an equal annual expenditure of \$10,000 as considered

TABLE 10  
 COST ALLOCATION FOR DEL VALLE DAM AND RESERVOIR  
 (in thousands of dollars unless otherwise indicated)

Step no. :	Item of benefit or cost* :	Flood control :	Water supply :	Recreation and fish and wildlife enhancement :	Total
1.	Benefits	240	409	566	1,215
2.	Alternative Costs	432	409	1,009	1,850
3.	Justifiable Costs	240	409	566	1,215
4.	Separable Costs:				
	Total	128	57	232	417
	Capital	107	44	72	223
	O.M.P.&R.	21	13	160	194
5.	Remaining Justifiable Costs	112	352	334	798
6.	Percent Distribution of Remaining Justifiable Costs	14%	44%	42%	100%
7.	Remaining Joint Costs:				
	Total	49	155	148	352
	Capital	42	132	126	300
	O.M.P.&R.	7	23	22	52
8.	Total Allocated Project Costs:				
	Total	177	212	380	769
	Capital	149	176	198	523
	O.M.P.&R.	28	36	182	246
9.	Percent Distribution of Total Project Costs:				
	Total	23.0%	27.6%	49.4%	100.0%
	Capital	28.5%	33.6%	37.9%	100.0%
	O.M.P.&R.	11.4%	14.6%	74.0%	100.0%
10.	Specific Costs, This Allocation:**				
	Total	2	1	233	236
	Capital	2	1	73	76
	O.M.P.&R.	0	0	160	160
11.	Total Allocated Costs of Features Jointly Used:				
	Total	175	211	147	533
	Capital	147	175	125	447
	O.M.P.&R.	28	36	22	86
12.	Percent Distribution of Costs of Features Jointly Used:				
	Total	32.8%	39.6%	27.6%	100.0%
	Capital	32.9%	39.1%	28.0%	100.0%
	O.M.P.&R. (Minimum Category)	32.5%	41.9%	25.6%	100.0%

\* Items of benefits and costs converted to equal annual equivalents for the initial 50-year period of reservoir operation at 2 5/8 percent interest.

\*\*Including the economic costs of "loss in land productivity" distributed among project purposes as considered in the federal allocation.

in the allocation. Deducting this amount from the equal annual equivalent capital costs allocated to flood control in Step No. 11, the adjusted percentages applicable only to the costs to be incurred by the State may be derived as follows:

Step No. :	Item of benefit or cost :	Flood control :	Water supply :	Recreation and fish and wildlife enhancement :	Total :
11.	Total Allocated Costs of Features Jointly Used:				
	Total	165	211	147	523
	Capital	137	175	125	437
	O.M.P.&R.	28	36	22	86
12.	Percent Distribution of Costs of Features Jointly Used:				
	Total	31.6%	40.3%	28.1%	100.0%
	Capital	31.4%	40.0%	28.6%	100.0%
	O.M.P.&R. (Minimum Category)	32.5%	41.9%	25.6%	100.0%

The misinterpretation of the federal allocation also extends to the costs summarized for Del Valle Dam and reservoir shown on Table 27 of last year's report. The corrected values of that table are as follows:

PROJECT COSTS OF DEL VALLE DAM AND RESERVOIR (REVISED)

(in thousands of dollars)

Item of cost	:	:	:	:	:
	:	:	:	:	:
	:	First	:	Equal annual equivalent costs at	
	:	costs	:	2-5/8% interest for the initial	
	:		:	50-year period of operation	
	:		:	Capital : O.M.P.&R.*	Totals
<hr/>					
<u>Features jointly used</u>					
<u>for project purposes</u>					
Dam, reservoir, rights-of-way, and relocations	12,370	447	86	533	
<u>Specific recreation and</u>					
<u>fish and wildlife</u>					
<u>enhancement facilities</u>	2,000	72	160	232	
<u>Additional specific costs</u>					
Federal preauthoriza- tion studies:					
Flood control	30	1	0	1	
Loss in land productivity**:					
Flood control	0	1	0	1	
Water supply	0	1	0	1	
Recreation and fish and wildlife enhancement	0	1	0	1	
TOTAL, DEL VALLE DAM AND RESERVOIR	14,400	523	246	769	

\* All operation, maintenance, power, and replacement costs included in the minimum category with respect to water supply.

\*\*Economic costs distributed among project purposes as included in the federal allocation. These do not represent costs which will be financed by the participating agencies.



## CHAPTER V. REVISIONS TO PRIOR COST ALLOCATIONS

### California Aqueduct

The allocations developed for the California Aqueduct, and presented in this chapter, have been revised to reflect many considerations not available for last year's report.

Such considerations, as presented in Bulletin 132-65, "The California State Water Project in 1965", include: enlargement of the minimum project yield from 4,000,000 to 4,230,000 acre-feet annually; the final project sizing criteria resulting from that enlargement; the selection of the Piru Creek Alignment for the West Branch, including Pyramid reservoir; revisions in estimated costs; increases in project water deliveries (and water supply benefits); and, a decrease in the estimated future project interest rate from 4.0 percent to 3.7 percent per annum.

In addition, the revised allocations developed herein account for those specific recreation and fish and wildlife enhancement features in the San Joaquin Valley, as recommended in Bulletin No. 154, "Potential Recreation Areas Along the California Aqueduct". The implementation of such recommendations was requested by Assembly Concurrent Resolution No. 54, referred to in Chapter II of this report.

Recreation and fish and wildlife enhancement features, meanwhile, are currently being studied for aqueduct reaches south of the Tehachapis. Such features are planned for Pyramid reservoir on the West Branch, but have not, as yet, been formulated. Aquatic parks, also under consideration in Southern California,

include Quail Lake, Barrel Springs, Oro Grande Wash, Mojave Mesa, and Ritter Canyon. In addition to these facilities, fishing access sites are being studied but have not progressed beyond the preliminary stages and, therefore, are not included herein.

Certain features of the California Aqueduct are classified in executed water supply contracts under the State Water Project as "project conservation facilities"<sup>1/</sup>. These facilities constitute a portion of the aqueduct extending from the Delta to, and including, an offstream reservoir near Los Banos in Merced County (San Luis reservoir) as required for the development of the minimum project yield. The project conservation facilities of the California Aqueduct are currently identified as<sup>2/</sup>:

1. 15.8 percent of the aqueduct capacity from the Delta through Bethany reservoir;
2. 16.2 percent of the aqueduct capacity from Bethany reservoir to San Luis Forebay;
3. 100.00 percent of the State's share of San Luis Dam, Pumping-Generating Plant, and reservoir;
4. 45.6 percent of the State's share of the capacities of San Luis Forebay and the aqueduct from that feature to Dos Amigos Pumping Plant.

The remaining aqueduct and reservoir capacities between the Delta and Dos Amigos Pumping Plant, and the total capacities of the aqueduct from Dos Amigos Pumping Plant through

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<sup>1/</sup> Article 1(f) of "Standard Provisions for Water Supply Contract".

<sup>2/</sup> Department of Water Resources "Bulletin No. 132-65, The California State Water Project in 1965", dated June 1965 (p. 122-123).

the termini of the California Aqueduct and its West and Coastal Branches, are classified as "project transportation facilities"<sup>3/</sup>.

The following sections describe the general procedure utilized for this report to develop the allocations of project conservation facilities, and transportation facilities, respectively.

### Benefits

The benefits from project purposes of the State Water Project assignable to the California Aqueduct are for water supply, recreation and fish and wildlife enhancement.

Water Supply. The general approach to the calculation of water supply benefits from the State Water Project, and the assignment of such benefits among physical components of the project, considers that all water supply facilities of the State Water Project, except those of the Upper Feather Area (Frenchman Dam and Lake and Grizzly Valley Dam and Lake Davis), will be operated in a coordinated manner to form an integrated water supply project and will share the benefits derived in proportion to the costs of such facilities allocated to water supply.

The estimated water supply benefits of the State Water Project, exclusive of the Upper Feather Area, are presented in Table 11. These estimated benefits reflect service to water supply contractors contemplated on or about January 1, 1965. The unit benefits applicable to each acre-foot of entitlement are, for the most part, those estimated during the formulation of the State Water Project.

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<sup>3/</sup> Article 1(i) of "Standard Provisions for Water Supply Contract".

Derivation of the portion of the total water supply benefits assignable to the California Aqueduct is presented in Table 12. The water supply benefits and costs basic to the federal allocations of the costs of the Oroville Dam and reservoir and of Del Valle Dam and reservoir, are shown to be deducted prior to the distribution of remaining water supply benefits. As shown in the table, assumed costs allocated to water supply, for facilities to be covered in future allocations, are tentative and subject to verification in future bulletins of this series.

Recreation and Fish and Wildlife Enhancement. Recreation and fish and wildlife enhancement features of the California Aqueduct considered in this report include those contemplated at the following sites:

1. Corral Hollow Fishing Access Site
2. Ingram Creek Aquatic Park
3. San Luis Forebay and reservoir
4. Los Banos Creek detention reservoir
5. Oro Loma Fishing Access Site
6. Three Rocks Fishing Access Site
7. Huron Fishing Access Site
8. Kettleman City Aquatic Park
9. Lost Hills Fishing Access Site
10. Buttonwillow Fishing Access Site
11. Tupman Aquatic Park
12. Buena Vista Aquatic Park
13. Wheeler Ridge Fishing Access Site
14. Cedar Springs reservoir
15. Perris reservoir
16. Castaic reservoir

The locations of these features are shown on Plate 1.

Recreation development plans have been completed for only one of the above sites, item (3). Land use and acquisition

TABLE 11

ILLUSTRATIVE TOTAL WATER SUPPLY BENEFITS  
FROM FACILITIES OF THE STATE WATER PROJECT  
EXCEPT THE UPPER FEATHER AREA

Service area	Maximum annual entitlements* (in acre-foot)	Equal annual equivalent entitlements** (in acre-foot)	Estimated unit net benefits*** (dollars per acre-foot)	Equal annual equivalent net benefits** (in thousands of dollars)
Feather River	37,100	17,127	10.00	172
North Bay	67,000	33,141	24.65	817
South Bay	188,000	158,230	38.00	6,013
San Joaquin Valley	1,345,300	860,970	38.96	33,544
Central Coastal	82,700	33,821	110.08	3,723
Southern California	<u>2,477,900</u>	<u>1,524,540</u>	<u>144.00</u>	<u>219,534</u>
TOTALS, STATE WATER PROJECT	4,198,000	2,627,829	100.39	263,803

\* Existing or assumed as of January 1, 1965 (Bulletin No. 132-65) not including 2,700 acre-foot for the Upper Feather Area

\*\* Annual values through 2017, converted to equal annual equivalents for the 50-year period, 1968-2017, at 3.7 percent interest.

\*\*\* Measured at the points of delivery from project facilities.

reports have been completed for items (1), (2), (3), (8), (14), (15), and (16). The Bureau of Reclamation is purchasing the land for item (4).

The derivation of the estimated recreation and fish and wildlife enhancement benefits from the above-listed facilities is summarized in Table 13. The benefits shown for Cedar Springs, Perris, and Castaic reservoirs, located in Southern California, are quite preliminary and are subject to revision. Furthermore, such benefits will be added in future reports of this series for Pyramid Dam and reservoir, also located in Southern California.

The benefits shown for San Luis Forebay and reservoir and for Los Banos Creek detention reservoir, which facilities will be jointly used by the federal Central Valley Project, represent 55 percent of the total estimated benefit from each, assuming that sharing of such benefits will be in the same ratio as the sharing of costs under the San Luis Contract<sup>4/</sup>. Negotiations with federal agencies concerning the sharing of recreation and fish and wildlife enhancement costs in the Joint-Use Facilities have been initiated.

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<sup>4/</sup> Agreement between the United States of America and the Department of Water Resources of the State of California for the Construction and Operation of the Joint-Use Facilities of the San Luis Unit, dated December 30, 1961.

TABLE 12

ILLUSTRATIVE DERIVATION OF CALIFORNIA AQUEDUCT SHARE  
OF TOTAL STATE WATER PROJECT WATER SUPPLY BENEFITS  
(in thousands of dollars)

Item	Water supply benefits*	Costs allocable to water supply*
Estimated total for the State Water Project, not including the Upper Feather Area	263,803	113,654
Portion of estimated total utilized in completed allocations:		
Oroville Dam and reservoir	9,284	8,142
South Bay Aqueduct-Del Valle Dam and reservoir	<u>409</u>	<u>212</u>
Total, prior allocations	<u>9,693</u>	<u>8,354</u>
Remainder of estimated total for the State Water Project	254,110	105,300
Ratio of remaining water supply benefits to remaining costs allocable to water supply:		2.413:1
Distribution of remaining water supply benefits, based on estimated future allocations of costs to water supply:		
Delta Facilities	13,500	5,600**
Upper Eel River Development	14,900	6,200**
North Bay Aqueduct	1,210	500**
South Bay Aqueduct, exclusive of Del Valle reservoir	5,800	2,400**
California Aqueduct:		
Delta to Dos Amigos Pumping Plant	41,300	17,100***
Dos Amigos Pumping Plant to termini	<u>177,400</u>	<u>73,500***</u>
Total, estimated future allocations	254,110	105,300

\* Annual values through 2017, converted to an equal annual equivalent for the 50-year period, 1968-2017; measured at points of delivery from project facilities.

\*\* Assumed approximate values based on total costs of these facilities given in Bulletin No. 132-65. These assumptions are subject to verification by cost allocations to be present in future reports of this series.

\*\*\* Trial values verified by cost allocations in this chapter. Values are subject to the qualification in the second footnote.

## Project Costs

The costs of the California Aqueduct, as considered in this report, are summarized in Table 14.

The costs of features jointly used for purposes of water supply, recreation and fish and wildlife enhancement and costs of specific water supply features are based upon the latest official analysis of the project, as presented in Bulletin No. 132-65.

As stated before, the costs of specific recreation and fish and wildlife enhancement features shown in this report are unavoidably incomplete and are used for illustrative purposes. The costs shown for those sites located within the Joint-Use Facilities represent 55 percent of the total estimated costs of each.

## Cost Allocation

The allocation of the costs of the California Aqueduct between the project purposes of water supply and of recreation and fish and wildlife enhancement was accomplished by the following steps:

1. The costs of the features jointly used for project purposes from the Delta to Dos Amigos Pumping Plant, which encompasses the project conservation facilities, were allocated among project purposes by the Separable Costs-Remaining Benefits method. This allocation accounted for specific recreation and fish and wildlife enhancement features located above Dos Amigos Pumping Plant.
2. The allocated costs to reimbursable and nonreimbursable purposes were then distributed between the component project conservation facilities and project transportation facilities by the Proportionate Use of Facilities method.



3. The portions of reimbursable and nonreimbursable costs assigned to project transportation facilities in (2) above were combined with similar costs resulting from an allocation of the costs of project transportation facilities located below Dos Amigos Pumping Plant by the Alternative Justifiable Expenditure method. The latter allocation accounted for specific recreation and fish and wildlife features located below Dos Amigos Pumping Plant.

Items (1) and (2) above are combined in the allocation of the costs of facilities from the Delta to Dos Amigos Pumping Plant as presented in Table 15. This table develops, by the Separable Costs-Remaining Benefits method, the allocated costs of features jointly used, shown in Step No. 11. It then allocates these costs, between project conservation facilities and project transportation facilities, by the percentages derived in Table 14, as shown in Step Nos. 13 and 14, respectively. The percentages applicable for the allocation of the costs of the project conservation facilities among project purposes are developed in Step No. 12.

The cost allocation for project transportation facilities located downstream from Dos Amigos Pumping Plant by the Alternative Justifiable Expenditure method is presented in Table 16. The results of this allocation of costs of features jointly used for project purposes are shown in Step No. 11a. These costs are combined with those assigned to project transportation facilities in Table 15, shown in Step No. 11b, to compute the total allocation of costs of the project transportation facilities from the Delta to the termini of the California Aqueduct, shown in Step No. 11c. The percentages

TABLE 14

## ILLUSTRATIVE PROJECT COSTS OF THE CALIFORNIA AQUEDUCT

(in thousands of dollars unless otherwise noted)

Subdivisions of the California Aqueduct	Equal annual equivalent costs						Totals
	First costs	Operation and maintenance costs	Capital costs	Power and replacement costs	Variable costs	Totals	
<u>Features Jointly Used (basic to Bulletin No. 132-65)</u>							
<u>Delta to Dos Amigos Pumping Plant</u>							
Project Conservation Facilities	114,146	5,477	1,607	1,339	2,946	4,475	
Project Transportation Facilities	113,621	5,198	1,925	2,299	4,224	4,432	
Percent Distribution:							
Project Conservation Facilities		51.31%	45.50%	36.81%	41.00%	47.20%	
Project Transportation Facilities		48.69%	54.50%	63.19%	58.91%	52.80%	
<u>Dos Amigos Pumping Plant to Termini (Project Transportation Facilities only)</u>							
Dos Amigos Pumping Plant to Terminal Reservoirs	922,501	39,117	6,288	18,430	24,716	63,552	
Terminal Reservoirs							
Pyramid reservoir	30,142	1,185	22	0	22	1,237	
Castaic reservoir	103,809	4,493	51	0	51	4,544	
Cedar Springs reservoir	43,150	1,821	27	0	27	1,848	
Ferris reservoir	29,953	1,222	32	0	32	1,254	
TOTALS, DOS AMIGOS PUMPING PLANT TO TERMINI	1,129,555	47,838	6,420	18,430	24,550	72,000	
<u>Total Costs of Features Jointly Used, Delta to Termini</u>							
Total, Project Conservation Facilities	114,146	5,477	1,607	1,339	2,946	4,475	
Total, Project Transportation Facilities	1,243,176	53,036	8,345	20,729	29,074	32,117	
TOTALS	1,357,324	58,513	9,952	22,068	32,020	36,582	
<u>Specific Water Supply Features (basic to Bulletin No. 132-65)</u>							
<u>Delta to Dos Amigos Pumping Plant:</u>	0	0	0	0	0	0	
<u>Dos Amigos Pumping Plant to Termini:</u>							
Coastal Branch (Project Transportation Facilities)	52,533	1,757	204	437	641	2,572	
Total Cost of Specific Water Supply Features, Delta to Termini	52,533	1,757	204	437	641	2,572	
<u>Specific Recreation and Fish and Wildlife Enhancement Features (as considered in this report)</u>							
<u>Delta to Dos Amigos Pumping Plant</u>							
Corral Hollow Fishing Access Site	70	3	14	0	14	17	
Ingram Creek Aquatic Park	840	25	110	0	110	135	
San Luis Forebay (State share only)	4,215	93	146	0	146	4,354	
San Luis reservoir (State share only)	5,360	119	182	0	182	5,661	
Los Banos Creek Irrigation reservoir (State share only)	2,399	68	79	0	79	2,546	
TOTAL, DELTA TO DOS AMIGOS PUMPING PLANT	12,884	308	531	0	531	1,333	
<u>Dos Amigos Pumping Plant to Termini</u>							
Oro Loma Fishing Access Site	66	1	3	0	3	4	
Three Rocks Fishing Access Site	69	3	12	0	12	11	
Huron Fishing Access Site	66	2	10	0	10	12	
Kettleman City Aquatic Park	1,262	44	121	0	121	1,427	
Lost Hills Fishing Access Site	70	1	4	0	4	7	
Buttomwillow Fishing Access Site	69	2	6	0	6	7	
Tupman Aquatic Park	5,954	170	179	0	179	3,400	
Buena Vista Aquatic Park	7,237	283	243	0	243	5,260	
Wheeler Ridge Fishing Access Site	69	2	11	0	11	13	
Cedar Springs reservoir	9,622	343	821	0	821	1,164	
Ferris reservoir	11,129	525	1,309	0	1,309	1,534	
Castaic reservoir	16,260	638	909	0	909	1,547	
TOTAL, DOS AMIGOS PUMPING PLANT TO TERMINI	51,875	2,014	3,628	0	3,628	5,642	
Total, Delta to Termini	64,759	2,322	4,159	0	4,159	6,401	
<u>Total Project Costs (as considered in this report)</u>							
<u>Delta to Dos Amigos Pumping Plant</u>							
Features Jointly Used	227,769	10,675	3,532	3,030	7,170	17,845	
Specific Water Supply Features	0	0	0	0	0	0	
Specific Recreation and Fish and Wildlife Enhancement Features	12,884	308	531	0	531	639	
TOTAL, DELTA TO DOS AMIGOS PUMPING PLANT	240,653	10,983	4,063	3,630	7,701	18,484	
<u>Dos Amigos Pumping Plant to Termini</u>							
Features Jointly Used	1,129,555	47,838	6,420	18,430	24,550	72,688	
Specific Water Supply Features	52,533	1,757	204	437	641	2,396	
Specific Recreation and Fish and Wildlife Enhancement Features	51,875	2,014	3,628	0	3,628	5,642	
TOTAL, DOS AMIGOS PUMPING PLANT TO TERMINI	1,233,963	51,609	10,252	16,667	29,119	80,726	
Total, Delta to Termini	1,474,616	62,592	14,315	22,505	36,820	99,412	

TABLE 15

ILLUSTRATIVE COST ALLOCATION FOR THE CALIFORNIA AQUEDUCT  
DELTA TO DOS AMIGOS PUMPING PLANT

(in thousands of dollars unless otherwise noted)

Step no. :	Item of benefit or cost* :	Water supply :	Recreation and fish and wildlife enhancement :	Total
<u>Total Project Costs: Delta to Dos Amigos Pumping Plant</u>				
1.	Benefits (State only)	41,300	1,900	43,200
2.	Alternative Costs	17,700	2,500	20,200
3.	Justifiable Costs	17,700	1,900	19,600
4.	Separable Costs:			
	Total	16,200	1,000	17,200
	Capital	9,300	400	9,700
	O.M.P.&R.	6,900	600	7,500
5.	Remaining Justifiable Costs	1,500	900	2,400
6.	Percent Distribution of Remaining Justifiable Costs	62.5%	37.5%	100.0%
7.	Remaining Joint Costs:			
	Total	900	600	1,500
	Capital	800	500	1,300
	O.M.P.&R.	100	100	200
8.	Total Allocated Project Costs:			
	Total	17,100	1,600	18,700
	Capital	10,100	900	11,000
	O.M.P.&R.	7,000	700	7,700
9.	Percent Distribution of Total Project Costs:			
	Total	91.4%	8.6%	100.0%
	Capital	91.8%	8.2%	100.0%
	O.M.P.&R.	90.9%	9.1%	100.0%
10.	Specific Costs, This Allocation:			
	Total	3,600	800	4,400
	Capital (Specific Features)	0	300	300
	O.M.P.&R. (Specific Features)	0	500	500
	Variable O.M.P.&R. (Joint Features)	3,600	-	3,600
11.	Allocated Costs of Features Jointly Used:			
	Total, excluding Variable O.M.P.&R.	13,500	800	14,300
	Capital	10,100	600	10,700
	Minimum O.M.P.&R.	3,400	200	3,600
12.	Percent Distribution of Costs of Features Jointly Used:**			
	Total, excluding Variable O.M.P.&R.	94.4%	5.6%	100.0%
	Capital	94.4%	5.6%	100.0%
	Minimum O.M.P.&R.	94.4%	5.6%	100.0%
<u>Project Conservation Facilities</u>				
13.	Allocated Costs of Features Jointly Used***			
	Total, excluding Variable O.M.P.&R.	6,700	400	7,100
	Capital	5,200	300	5,500
	Minimum O.M.P.&R.	1,500	100	1,600
<u>Project Transportation Facilities</u>				
14.	Allocated Costs of Features Jointly Used***			
	Total, excluding Variable O.M.P.&R.	6,800	400	7,200
	Capital	4,900	300	5,200
	Minimum O.M.P.&R.	1,900	100	2,000

\* Annual benefits and costs through the year 2017 converted to equal annual equivalents for the 50-year period, 1968-2017, at 3.7 percent interest. Steps 1 through 12 comprise the Separable Costs-Remaining Benefits Method and Steps 13 and 14 express the Proportionate Use of Facilities Method.

\*\* Constituting also the percent distribution of allocated costs of features jointly used in the project conservation facilities of the California Aqueduct.

\*\*\* Distributed by the percentage developed under the first heading of Table 14.

TABLE 16

ILLUSTRATIVE COST ALLOCATION FOR THE CALIFORNIA AQUEDUCT  
DOS AMIGOS PUMPING PLANT TO TERMINI

(in thousands of dollars unless otherwise noted)

Step no. :	Item of benefit or cost*	Water supply :	Recreation and fish and wildlife enhancement :	Total
<u>Project Transportation Facilities: Dos Amigos Pumping Plant to Termini</u>				
1.	Benefits	177,400	9,600	187,000
2.	Alternative Costs	-	-	-
3.	Justifiable Costs	177,400	9,600	187,000
4.	Specific Costs:			
	Total	2,400	5,600	8,000
	Capital	1,800	2,000	3,800
	O.M.P.&R.	600	3,600	4,200
5.	Remaining Justifiable Costs	175,000	4,000	179,000
6.	Percent Distribution of Remaining Justifiable Costs	97.8%	2.2%	100.0%
7.	Remaining Joint Costs:			
	Total	71,100	1,600	72,700
	Capital	46,700	1,100	47,800
	O.M.P.&R.	24,400	500	24,900
8.	Total Allocated Project Costs:			
	Total	73,500	7,200	80,700
	Capital	48,500	3,100	51,600
	O.M.P.&R.	25,000	4,100	29,100
9.	Percent Distribution of Total Project Costs:			
	Total	91.1%	8.9%	100.0%
	Capital	94.0%	6.0%	100.0%
	O.M.P.&R.	85.9%	14.1%	100.0%
10.	Specific Costs, This Allocation:			
	Total	20,800	5,600	26,400
	Capital (Specific Features)	1,800	2,000	3,800
	O.M.P.&R. (Specific Features)	600	3,600	4,200
	Variable O.M.P.&R. (Joint Features)	18,400	-	18,400
11a.	Allocated Costs of Features Jointly Used:			
	Total, excluding Variable O.M.P.&R.	52,700	1,600	54,300
	Capital	46,700	1,100	47,800
	Minimum O.M.P.&R.	6,000	500	6,500
<u>Project Transportation Facilities: Delta to Dos Amigos Pumping Plant</u>				
11b.	Allocated Costs of Features Jointly Used:**			
	Total, excluding Variable O.M.P.&R.	6,800	400	7,200
	Capital	4,900	300	5,200
	Minimum O.M.P.&R.	1,900	100	2,000
<u>Project Transportation Facilities: Delta to Termini</u>				
11c.	Allocated Costs of Features Jointly Used:			
	Total, excluding Variable O.M.P.&R.	59,500	2,000	61,500
	Capital	51,600	1,400	53,000
	Minimum O.M.P.&R.	7,900	600	8,500
12.	Percent Distribution of Costs of Features Jointly Used:			
	Total, excluding Variable O.M.P.&R.	96.7%	3.3%	100.0%
	Capital	97.4%	2.6%	100.0%
	Minimum O.M.P.&R.	92.9%	7.1%	100.0%

\* Annual benefits and costs through the year 2017 converted to equal annual equivalents for the 50-year period, 1968-2017, at 3.7 percent interest. Steps 1 through 11a comprise the Alternative Justifiable Expenditure Method.

\*\* From Step 14, Table 15.

applicable to the allocation of costs of the project transportation facilities among purposes is shown in Step No. 12.

Three important considerations reflected in these illustrative allocations are:

1. As indicated before, the allocations do not include the benefits and costs of the federal Central Valley Project and assume that the United States will share in the costs of specific recreation features of the Joint-Use Facilities and will share in the nonreimbursable benefits derived therefrom in proportion to the percentages set forth in the San Luis Contract for the sharing of construction costs.
2. The alternative costs normally evaluated in Step No. 2 were omitted from the allocation shown in Table 16. It was tentatively assumed that alternative costs will exceed project benefits and, as such, will not affect the allocation.
3. In the final determination of percentages for the allocation of joint operating costs among purposes, both variable operating costs and specific costs were deducted in Step No. 11c. This deduction of variable costs permits the annual allocation of actual operating costs, in that category, based upon actual annual delivery requirements in accordance with the Standard Provisions for Water Supply Contract.

The illustrative allocations of the joint costs of the California Aqueduct among purposes and between project conservation facilities and project transportation facilities, derived in Step No. 12 of Tables 15 and 16, are summarized as follows:

Item	:	:	:	:
	: <td style="text-align: center;">Water</td> <td style="text-align: center;">: <td style="text-align: center;">Recreation</td> </td>	Water	: <td style="text-align: center;">Recreation</td>	Recreation
	: <td style="text-align: center;">supply</td> <td style="text-align: center;">: <td style="text-align: center;">&amp; fish &amp; wildlife</td> </td>	supply	: <td style="text-align: center;">&amp; fish &amp; wildlife</td>	& fish & wildlife
	: <td style="text-align: center;">: <td style="text-align: center;">: <td style="text-align: center;">enhancement</td> </td></td>	: <td style="text-align: center;">: <td style="text-align: center;">enhancement</td> </td>	: <td style="text-align: center;">enhancement</td>	enhancement
	: <td style="text-align: center;">: <td style="text-align: center;">: <td style="text-align: center;">Total</td> </td></td>	: <td style="text-align: center;">: <td style="text-align: center;">Total</td> </td>	: <td style="text-align: center;">Total</td>	Total
<b>Conservation Facilities:</b>				
Capital costs	94.4%	5.6%	100.0%	
Minimum O.M.P.&R. costs	94.4%	5.6%	100.0%	
<b>Transportation Facilities:</b>				
Capital costs	97.4%	2.6%	100.0%	
Minimum O.M.P.&R. costs	92.9%	7.1%	100.0%	

CHAPTER VI. COST ALLOCATIONS FOR FACILITIES WITH  
INITIAL CONSTRUCTION IN 1966-67

This chapter develops the Department's cost allocations for the following components of the State Water Project for which construction commencement is contemplated in fiscal year 1966-67; the North Bay Aqueduct and the San Joaquin Drainage Facilities.

The locations of these facilities are shown on Plate 1.

North Bay Aqueduct

The construction of the North Bay Aqueduct was authorized by the Legislature in 1957<sup>1/</sup>. Construction of Phase I features of the North Bay Aqueduct is scheduled to commence in July, 1966. These features consist of an interim pumping plant at the terminal reservoir of the federal Solano Project in the vicinity of Cordelia, which would lift water purchased from the federal project through a head of about 280 feet, and about six miles of pipeline, extending through Jameson Canyon to the Napa turnout reservoir.

Phase II features of the North Bay Aqueduct would divert project water from the Sacramento-San Joaquin Delta, through an enlargement of Lindsey Slough, to the Calhoun Pumping Plant. The pumping plant would lift the water about 30 feet to

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<sup>1/</sup> California Statutes 1957, Chapter 2252, Water Code Sections 11270-11271.

a canal, thereafter conveying water about 20 miles to service areas in Solano County and to the Cordelia Pumping Plant. The pumping plant would lift the remaining water about 355 feet to connect with the pipeline of Phase I features. The water supply contracts with Napa and Solano Counties provide that the construction of Phase II facilities will not commence until 1975, or at an earlier date if mutually agreed upon by the contracting parties.

One hundred percent of the total costs of the North Bay Aqueduct are tentatively allocated to the project purpose of water supply for use in this bulletin. However, recreation and fish and wildlife enhancement developments are currently being studied for the North Bay Aqueduct, and the single-purpose water supply allocation may be revised to a multiple-purpose allocation when such studies are completed. At the present, studies indicate that the portion of the multiple-purpose costs which may eventually be allocable to the nonreimbursable purposes of recreation and fish and wildlife enhancement would not be of significant magnitude.

#### San Joaquin Drainage Facilities

The San Joaquin Drainage Facilities would be constructed in three stages. The first stage would extend from Antioch Bridge to Kettleman City and be ready to accept waters from Tranquillity northward in 1969. The second stage would extend from Kettleman City south to the beginning of the drain in the vicinity of Buena Vista lakebed. This reach would be operable commencing in about

1980. The third stage would consist of an enlargement of the first stage to its final capacity in about 1986.

The construction of the San Joaquin Drainage Facilities was authorized through the ratification of the California Water Resources Development Bond Act<sup>2/</sup> by the electorate on November 8, 1960. The State Water Facilities authorized therein include "facilities for removal of drainage water from the San Joaquin Valley". The location of the San Joaquin Drainage Facilities is shown on Plate 1 and more fully described in a Department report<sup>3/</sup>. It is contemplated that construction will commence on the first stage features in July, 1966.

For presentation in this bulletin, the San Joaquin Drainage Facilities are assumed to be for the single-purpose of drainage benefit. Therefore, 100 percent of the total costs of the first stage of the San Joaquin Drainage Facilities are tentatively allocated to this project purpose. However, recreation and fish and wildlife enhancement developments are currently being studied for the San Joaquin Drainage Facilities, and the present allocation to the single-purpose of drainage benefit will be revised to a multiple-purpose allocation when such studies are completed. Present indications are that costs of multiple-purpose features which may be allocable to the nonreimbursable purposes of recreation and fish and wildlife enhancement would not be a significant percentage of the total.

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<sup>2/</sup> Calif. Stats. 1959, Ch. 1762, Water Code Secs. 12930-12942.

<sup>3/</sup> Department of Water Resources Bulletin No. 127, "San Joaquin Valley Drainage Investigation, San Joaquin Master Drain", Preliminary Edition dated January 1965.





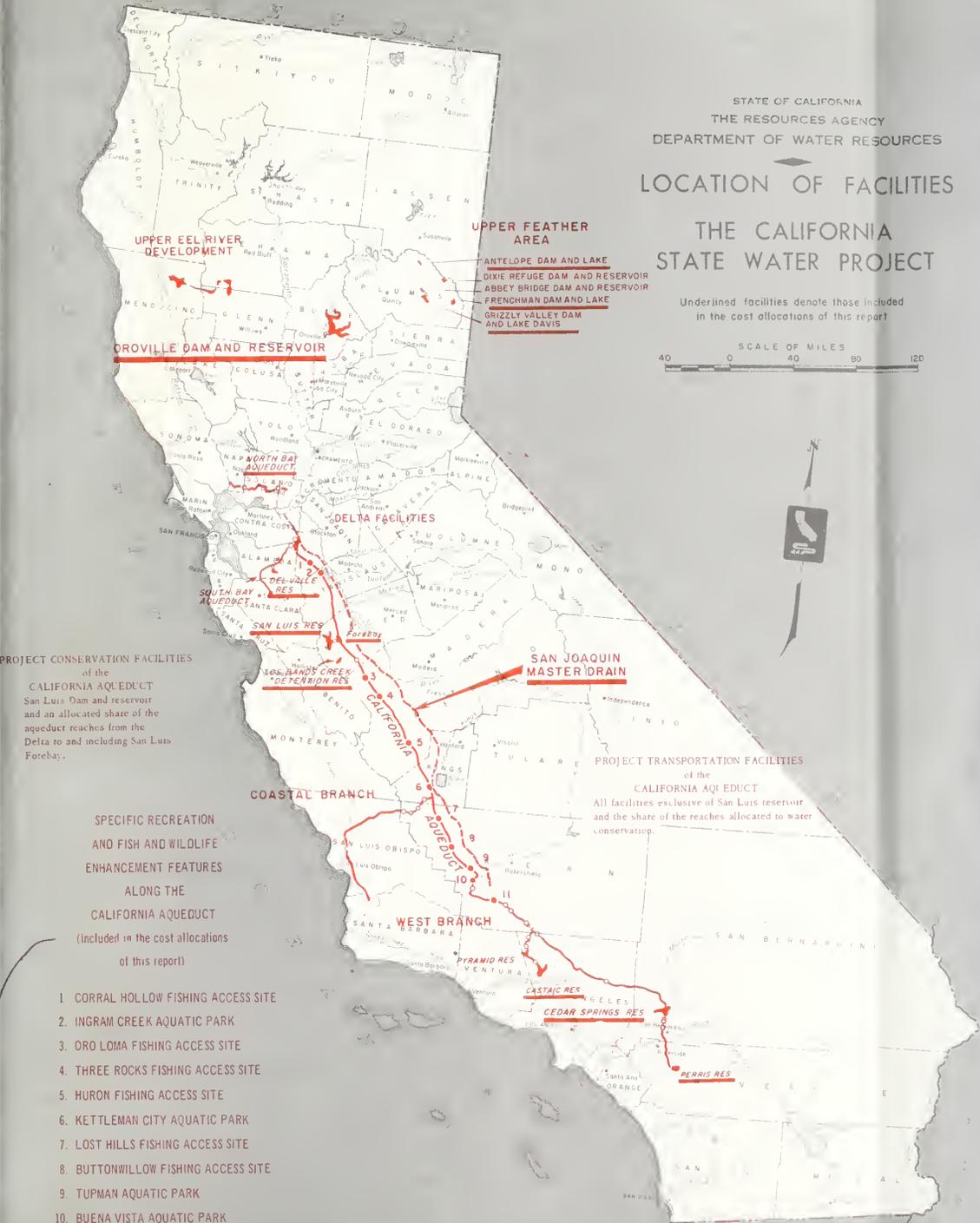
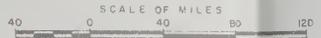


STATE OF CALIFORNIA  
 THE RESOURCES AGENCY  
 DEPARTMENT OF WATER RESOURCES

LOCATION OF FACILITIES

THE CALIFORNIA  
 STATE WATER PROJECT

Underlined facilities denote those included in the cost allocations of this report



PROJECT CONSERVATION FACILITIES of the CALIFORNIA AQUEDUCT San Luis Dam and reservoir and an allocated share of the aqueduct reaches from the Delta to and including San Luis Forebay.

PROJECT TRANSPORTATION FACILITIES of the CALIFORNIA AQUEDUCT All facilities exclusive of San Luis reservoir and the share of the reaches allocated to water conservation.

SPECIFIC RECREATION AND FISH AND WILDLIFE ENHANCEMENT FEATURES ALONG THE CALIFORNIA AQUEDUCT (Included in the cost allocations of this report)

1. CORRAL HOLLOW FISHING ACCESS SITE
2. INGRAM CREEK AQUATIC PARK
3. ORO LOMA FISHING ACCESS SITE
4. THREE ROCKS FISHING ACCESS SITE
5. HURON FISHING ACCESS SITE
6. KETTLEMAN CITY AQUATIC PARK
7. LOST HILLS FISHING ACCESS SITE
8. BUTTONWILLOW FISHING ACCESS SITE
9. TUPMAN AQUATIC PARK
10. BUENA VISTA AQUATIC PARK
11. WHEELER RIDGE FISHING ACCESS SITE





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