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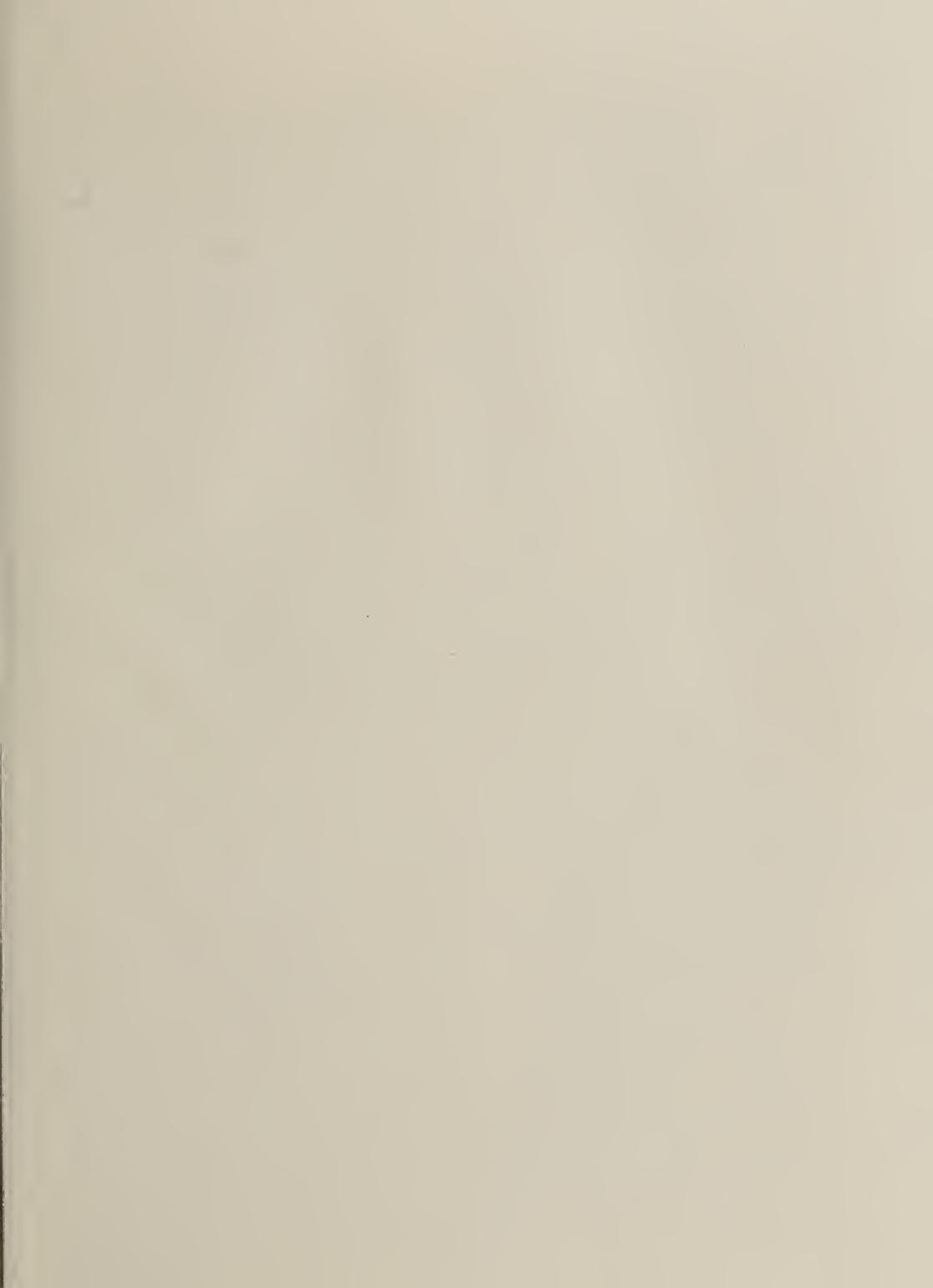
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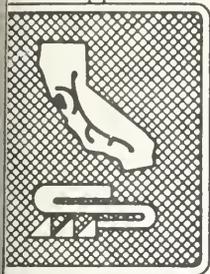
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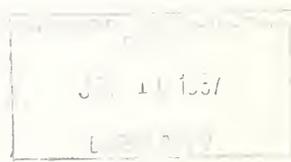


State of California
THE RESOURCES AGENCY
Department of Water Resources

BULLETIN NO. 153-67

ALLOCATIONS OF COSTS
AMONG PURPOSES
OF THE
CALIFORNIA
STATE WATER PROJECT

DECEMBER 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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THE UNIVERSITY OF CHICAGO

PHILOSOPHY DEPARTMENT

PHILOSOPHY 101

LECTURE NOTES

BY

DR. J. M. SMITH

CHICAGO, ILLINOIS

1965

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California State Water Project



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

DEPARTMENT OF WATER RESOURCES
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ABSTRACT

The Department's 1967 report to the Legislature on the subject, "Allocations of Costs Among Purposes of the California State Water Project", requests approval of the joint capital costs allocated to the purposes of recreation and fish and wildlife enhancement for completed Frenchman and Antelope Dams and Lakes (\$6,047,340), and of expenditures made through June 30, 1966, for acquiring rights-of-way, easements and property for recreation development associated with all project facilities (\$2,213,501). The total amount covered by the request (\$8,260,841) includes interest charges through June 30, 1967 -- the date when appropriations from tideland oil and gas moneys deposited in the Central Valley Water Project Construction Fund are assumed to be effective. Written comments by the Departments of Parks and Recreation and Fish and Game, giving their approval of these expenditures, are included at the end of the report. The request for legislative approval is made pursuant to the provisions of the California Statutes of 1966, (First Extraordinary Session), Chapter 27. This important new law is described in detail in the report. Bulletin 153-67 includes maps showing the lands already purchased for recreation development associated with each project facility, a simplified pictorial portrayal of the Department's cost allocation procedures, and a general progress report on the development of allocation percentages for all facilities of the California State Water Project.

CHAPTER I. INTRODUCTION

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

Project costs allocable to water supply, hydroelectric power generation, and agricultural waste water disposal are considered reimbursable, and determine the charges paid by project customers. Project costs allocable to flood control, recreation, and fish and wildlife enhancement are considered nonreimbursable, and generally are covered by appropriations from general tax funds as being in the interest of public health and welfare. The Federal Government has assumed the responsibility for flood control expenditures made for the State Water Project. The California Legislature has declared it to be the policy of this State to assume responsibility for the costs of state water projects allocable to the purposes of recreation and fish and wildlife enhancement.

The State's policy concerning recreation and fish and wildlife enhancement is set forth in the Davis-Dolwig Act, Sections 11900-11925 of the Water Code. The Act was significantly amended by the California Statutes of 1966 (First Extraordinary Session), Chapter 27, to provide a procedure and source of

financing for the reimbursement of expenditures made by the Department of Water Resources from project funds for these purposes. Chapter II describes these important amendments to the Act and presents the Department's request for legislative approval of certain expenditures made to date for the State Water Project -- amounting to \$8,260,841.

The emphasis on recreation and fish and wildlife enhancement purposes should not, however, detract from the long-range objective of the Department's Bulletin No. 153 series: to ultimately develop allocation percentages, for all project purposes, applicable to the actual joint costs of each respective facility of the State Water Project. Allocation percentages for only two facilities, Frenchman and Antelope Dams and Lakes, are involved in the Department's request noted above.

Chapter III of this bulletin describes the projected financial effect of all cost allocation percentages herein developed for State Water Project facilities. Chapter IV reviews the contractual obligations and other general criteria concerning the derivation of allocation percentages. Chapter V summarizes the calculation of allocation percentages previously made. Chapter VI develops revised allocation percentages for certain of the project facilities. Chapter VII presents the derivation of new allocation percentages -- for project facilities with construction scheduled to commence in fiscal year 1967-68.

CHAPTER II. COSTS ALLOCATED TO RECREATION
AND FISH AND WILDLIFE ENHANCEMENT

The costs of project features allocated to the purposes of recreation and fish and wildlife enhancement include:

Joint costs - the costs of those physical features of a multiple-purpose facility which can be readily identified as serving more than one project purpose, such as dams and reservoirs.

Specific costs - the costs of physical features of a multiple-purpose facility which can be readily identified as serving one project purpose exclusively, such as picnic areas and boat ramps (which serve only the purpose of recreation).

The items of project costs allocated to the purposes of recreation and fish and wildlife enhancement include:

Capital costs - the investment costs for planning, land acquisition, and the design and construction of betterments.

Operating costs - the recurring costs for operation, maintenance, pumping power, and replacement (O.M.P.&R.). Under the Project's water supply contracts, operating costs are classified as:

a. Minimum O.M.P.&R. costs, which are incurred in magnitudes that do not depend upon the amounts of water delivered.

b. Variable O.M.P.&R. costs, which are incurred in magnitudes that depend upon, and vary with, the amounts of water delivered.

The determination and funding of recreation and fish and wildlife enhancement costs, for the various features and cost items, are summarized in the following tabulation:

Features and cost items	: Procedure : for allocating costs: : among purposes :	: Source : of : financing
----------------------------	--	---------------------------------

Features jointly used
by project purposes
(joint costs):

- | | | |
|-----------------------------|---|--|
| 1. Capital costs | Percentages shown in Bulletin No. 153 applied to actual capital costs incurred. | Initially from project funds, reimbursed by tideland oil and gas revenues. ^{a/} |
| 2. Minimum O.M.P.&R. costs | Percentages shown in Bulletin No. 153 applied to actual minimum operating costs incurred. | Annual appropriations from the General Fund. ^{a/} |
| 3. Variable O.M.P.&R. costs | An appropriate unit cost applied to actual annual quantities delivered to each purpose. | Annual appropriations from the General Fund. ^{a/} |

Features used solely
for the purposes of
recreation and fish
and wildlife enhance-
ment (specific costs):

- | | | |
|---|---|--|
| 1. Land acquisition costs for recreation development (capital costs). | Totally assigned to recreation and fish and wildlife enhancement. | Initially from project funds, reimbursed by tideland oil and gas revenues. ^{a/} |
| 2. Other capital costs and all operating costs | Totally assigned to recreation and fish and wildlife enhancement. | Annual appropriations from the General Fund. ^{b/} |

^{a/} Accounted and budgeted by the Department of Water Resources.

^{b/} Accounted and budgeted by the Department of Parks and Recreation and/or the Department of Fish and Game.

As noted above, the Department does not account and budget for all recreation and fish and wildlife enhancement costs. Furthermore, two types of funding are involved -- reimbursement of project fund expenditures by tideland oil and gas revenues; and, current appropriations from the General Fund.

Reimbursement by tideland oil and gas revenues is dependent upon a reporting and approval procedure, pursuant to amendments of the Davis-Dolwig Act by the California Statutes of 1966, Chapter 27. These important amendments are described in the following sections:

Reported Costs of Recreation and Fish
and Wildlife Enhancement

Water Code Section 11912 was amended to assign certain reporting responsibilities to the Department, whereby:

"It shall be the duty of the department to report annually to the Legislature the costs, if any, which the department has allocated to recreation and fish and wildlife enhancement for each facility of any state water project. The department shall also report to the Legislature any revisions which the department makes in such allocations.

"The department shall submit each such cost allocation to the Department of Parks and Recreation and to the Department of Fish and Game. The Department of Parks and Recreation and the Department of Fish and Game shall file with the Department of Water Resources their written comments with respect to each such cost allocation, which written comments shall be included in the report required by this section.

"It shall also be the duty of the department to report to the Legislature on any expenditure of funds for acquiring rights-of-way, easements and property pursuant to Section 346 for recreation development associated with such facilities. . ."

The Department has allocated \$6,047,340 of the joint capital costs of Frenchman and Antelope Dams and Lakes to recreation and fish and wildlife enhancement. The expenditure of funds by the Department for acquiring rights-of-way, easements, and property pursuant to Water Code Section 346 (for recreation development associated with facilities of the State Water Project) totals \$2,213,501.

Both the above amounts are shown for the respective facilities in Table 1, and include all Department expenditures through June 30, 1966, together with appropriate interest charges to the date of assumed reimbursement -- June 30, 1967. These costs are further described in the following sections:

Allocated Joint Capital Costs

The Department reports those joint capital costs of a multiple-purpose facility which are allocated to the purposes of recreation and fish and wildlife enhancement after the construction costs are known. The Department recognizes that review of its derivation of allocation percentages for a multiple-purpose facility may require a considerable period of time and study and prepares such percentages in the year preceding the year construction commences.

Construction has been completed for three facilities of the State Water Project, all located in the Upper Feather River Area -- Frenchman Dam and Lake in October 1961, Antelope Dam and Lake in July 1964, and Grizzly Valley Dam and Lake Davis in November 1966. Since the cutoff date for this series of reports is the end of the preceding fiscal year (to allow for

TABLE 1
RECREATION AND FISH AND WILDLIFE ENHANCEMENT COSTS
OF THE STATE WATER PROJECT
FOR WHICH LEGISLATIVE APPROVAL IS REQUESTED
(Pursuant to Section 11912 of the Water Code)

Item	Costs of features, by calendar year ^{b/}											Less: Joint costs allocated to water supply ^{d/}	Add: Interest ^{e/}	TOTAL COST, RECREATION AND FISH AND WILDLIFE ENHANCEMENT
	1957	1958	1959	1960	1961	1962	1963	1964	1965	1/1/66-6/30/66	Total			
Annual expenditures, by facility:														
Features jointly used by project purposes:^{f/}														
Frenchman Dam and Lake	\$2,613	\$204,437	\$460,426	\$ 983,796	\$ 817,732	\$ 439,508	\$ 131,453	\$ 14,300	\$ 9,865	\$ 7,821	\$3,072,111	\$1,536,095	\$ 1,339	\$1,537,395
Antelope Dam and Lake	2,175	2,433	29,445	33,717	197,319	933,980	2,542,562	429,451	260,207	12,353	4,442,642		67,303	4,509,945
Subtotal	\$4,788	\$206,920	\$489,871	\$1,017,513	\$1,015,051	\$1,373,508	\$2,674,015	\$442,841	\$270,072	\$ 20,174	\$7,514,753	\$1,536,095	\$ 69,642	\$6,047,340
Rights-of-way, easements and property for recreation development associated with:^{g/}														
Frenchman Dam and Lake			\$ 46,180			\$ -182	\$ -227	\$ -24	\$ -24	\$ -24	\$ 45,699		\$ -5	\$ 45,694
Grizzly Valley Dam and Lake Davis									10,278	28,365	39,643		2,031	46,674
Oroville Dam and reservoir					\$ 32,950	50,028	223,315	69,773	147,216	880,240	1,402,522		58,154	1,460,676
Thermalito Facilities					144	6,200	36,778				169,883		5,722	175,605
California Aqueduct ^{h/}							4	84	436,805		436,893		31,925	468,818
San Luis Dam and reservoir ^{i/}			\$ 1,420			17,868	618		1,983		21,889		345	22,034
Subtotal			\$ 46,180	\$ 1,420	\$ 33,094	\$ 73,914	\$ 260,488	\$ 69,833	\$596,258	\$1,035,342	\$2,115,529		\$ 97,972	\$2,213,501
TOTAL	\$4,788	\$206,920	\$536,051	\$1,020,933	\$1,048,145	\$1,447,422	\$2,934,503	\$511,674	\$866,330	\$1,055,516	\$9,630,282	\$1,536,095	\$166,614	\$8,260,841

Item	Special appropriations		Bureau-Porter Act Appropriations		Total cost financed	Less: Income credited to construction ^{j/}	Total cost of features
	General Fund	California Water Fund	California Water Fund	California Water Resources Development Bond Fund			
Expenditures, by facility and by fund:							
Features jointly used by project purposes:^{f/}							
Frenchman Dam and Lake	\$171,953	\$2,279,692	\$ 594,780	\$ 32,725	\$3,078,150	\$6,039	\$1,072,111
Antelope Dam and Lake	43,261	37,163	3,666,042	703,406	4,443,872	1,230	4,442,642
Subtotal	\$215,214	\$2,316,855	\$4,254,822	\$ 736,131	\$7,522,022	\$7,269	\$7,514,753
Rights-of-way, easements and property for recreation development associated with:^{g/}							
Frenchman Dam and Lake	\$ 47,205				\$ 47,205	\$1,506	\$ 45,699
Grizzly Valley Dam and Lake Davis				\$ 39,125	39,125	482	39,643
Oroville Dam and reservoir		\$ 7,684	\$ 299,822	1,096,311	1,402,757	235	1,402,522
Thermalito Facilities			43,244	126,761	170,005	122	169,883
California Aqueduct ^{h/}			4	436,889	436,893	0	436,893
San Luis Dam and reservoir ^{i/}		19,287	619	1,983	21,889	0	21,889
Subtotal	\$ 47,205	\$ 26,915	\$ 342,685	\$1,701,069	\$2,117,874	\$2,345	\$2,115,529
TOTAL	\$262,419	\$2,343,770	\$4,597,507	\$2,437,200	\$9,639,896	\$9,614	\$9,630,282
Less:							
Joint costs allocated to water supply ^{d/}	\$ 83,957	\$1,139,346	\$ 296,504	\$ 16,168	\$1,536,055		
Income credited to construction ^{j/}	6,714		1,886	954	9,614		
Add:							
Interest ^{e/}				\$ 166,614	\$ 166,614		
TOTAL COST, RECREATION AND FISH AND WILDLIFE ENHANCEMENT	\$171,748	\$1,203,424	\$4,299,037	\$2,596,692	\$8,260,841		

^{a/} Negative values denote accounting adjustments.

^{b/} Based upon the application of the percentages shown in Table 1 to the total joint cost of Frenchman Dam and Lake.

^{c/} Includes interest on expenditures financed by the California Water Resources Development Bond Fund, compounded at 3.573 percent per annum to June 30, 1967. The interest charged may be adjusted in future recommended appropriations.

^{d/} Includes only those jointly used features of multiple-purpose facilities on which construction had been completed as of June 30, 1966.

^{e/} For which expenditures have been made from project funds pursuant to Water Code Section 346. The areas corresponding to these expenditures are shown on the plates at the end of this report.

^{f/} For Ingers Creek Aquatic Recreation Area.

^{g/} Amounts shown represent 55 percent of the total costs of acquiring recreation lands.

^{h/} 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.

final cost accounting), joint costs allocated to recreation and fish and wildlife enhancement are reported herein for only Frenchman and Antelope Dams and Lakes.

Allocation Percentages. The Department has determined that 50 percent of the joint capital costs of Frenchman Dam and Lake and 100 percent of the joint capital costs of Antelope Dam and Lake are allocable to recreation and fish and wildlife enhancement.

The Department's derivation of the above allocation percentages is summarized in Chapter V. Specifics of Frenchman Dam and Lake allocation are explained in some detail in Appendix B.

Review by Concerned State Departments. Section 11912 of the California Water Code, as amended, provides that:

"The department shall submit each such cost allocation to the Department of Parks and Recreation and to the Department of Fish and Game. The Department of Parks and Recreation and the Department of Fish and Game shall file with the Department of Water Resources their written comments with respect to each such cost allocation, which written comments shall be included in the report required by this section."

The written comments by the Departments of Parks and Recreation and Fish and Game, concerning the amounts shown in Table 1, are included herein as Appendixes C and D, respectively.

Expenditures for Acquiring Recreation Land

Recreation lands acquired for each facility of the State Water Project through June 30, 1966, are located on the plates attached to the end of this report. These plates show for each facility:

a. The outside boundary of land (shown by a dashed line, in black) to be purchased for all project purposes, including the purpose of recreation, and the inner boundary (shown by a heavy solid line, in black) identifying the area which would have been purchased without respect to the purpose of recreation.

b. The current plan of recreation land use (shown by coded symbols, in black).

c. The recreation land areas representing the dollar amounts in Table 1 (shown by solid shades of red), and United States Forest Service lands (indicated by red cross-hatching) which will not have to be specifically purchased by the State.

The Department reports the annual expenditure of project funds for acquiring all lands associated with recreation development in the year following the fiscal year in which the expenditure was made.

The specific costs of recreation lands generally are established when the land is acquired, and will not be affected by future allocations of joint costs. However, there are possibilities whereby the State's cost for certain lands may be subsequently reduced, due to the receipt of contributions from outside funds (such as federal grants) or due to the modification of the recreation land use plan for a particular project facility.

If there are sales of land originally purchased for recreation development, or if outside funds are received, the amount of the receipt will be shown as a negative project expenditure for the appropriate facility in the year received. If there is a change in use of the lands originally purchased (from recreation to joint or other project purposes) the original purchase price, together with appropriate interest

charges thereon, will be reported as a negative expenditure in the year the change in plan occurs.

The above procedures are consistent with the Department's accounting of project costs.

Water Code Section 346. The Department acquires recreation lands concurrently with the acquisition of other project lands, in accordance with the policy of Water Code Section 11900.

The construction of the facilities of the State Water Project primarily is financed by funds provided under the Burns-Porter Act. Recreation or fish and wildlife enhancement features are not part of the facilities authorized under that Act nor may moneys provided thereunder be used for the construction or operation of such features.

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.

Under this authority, the Department is purchasing recreation lands concurrently with those for facilities authorized under the Burns-Porter Act, and with funds provided under the Act, in order to decrease the total land costs of the Project and to acquire property in an orderly manner.

Possible Revisions - Federal Grants. The Department has now signed two contracts with the Federal Government for grants under the federal Open-Space Act (Title 42, U.S.C., Section 1500, et seq.). One contract relates to Perris and Cedar Springs reservoirs and the other to Castaic reservoir. The Department also has an application pending for a grant at Del Valle reservoir. These open-space contracts provide that the Federal Government will pay up to 30 percent of the acquisition costs for lands located above the normal pool elevation at these reservoirs.

Another federal program through which the Department expects to receive financial assistance in acquiring recreation lands is that provided by the Land and Water Conservation Fund Act, P.L. 88-578. This program provides matching federal funds (up to 50 percent) for certain lands. The Department has applied for assistance for several acquisitions through the Resources Agency. The grants could be made either in advance of the land purchases or as reimbursements.

Possible Revisions - Modification of Recreation Land Use Plans. The recreation land use plans for certain of the facilities of the State Water Project are currently undergoing revision; namely, those for Cedar Springs and Perris Dams and reservoirs. Recreation plans for other project facilities will undoubtedly also undergo modification from time to time.

Interest Charges

The interest item shown in Table 1 includes only the net interest charges on the portion of the California Water

Resources Development Bond Fund actually utilized in financing nonreimbursable expenditures -- from the time the costs were incurred to the time that recovery of such costs is assumed (June 30, 1967, for the purposes of the table).

The Department incurs interest costs on Water Bonds used to finance nonreimbursable construction expenditures for the State Water Project. Such interest costs are also nonreimbursable.

Request for Legislative Approval
of Reported Costs

The California Statutes of 1966, Chapter 27, provides for a continuing source of financing for the joint costs of state water projects allocated to recreation and fish and wild-life enhancement, and for the associated specific costs of recreation land. To the extent the Legislature approves such costs reported annually by the Department, the funds provided by the new law will become available for financing a portion of the costs of the State Water Project.

The California Statutes of 1964 (First Extraordinary Session), Chapter 138, provides that the first \$11 million of the State's annual share of tideland oil and gas revenues shall be deposited in the California Water Fund. The California Statutes of 1966, Chapter 27, amends the above enactment to provide that the next \$5 million of the State's annual share of tideland revenues shall be deposited in the Central Valley Water Project Construction Fund -- and adds the following Section 11915 to the Davis-Dolwig Act:

"All moneys deposited in the Central Valley Water Project Construction Fund pursuant to the provisions of Chapter 138, Statutes of 1964, First Extraordinary Session, and all accruals to such moneys so deposited, are hereby appropriated to the department for expenditure by the department without regard to fiscal years for the purposes of the construction fund, in amounts equal to allocations to recreation and fish and wildlife enhancement and to the costs of acquiring rights-of-way, easements and property for recreation development which have become effective pursuant to Section 11912." (i.e., upon approval by the Legislature).

The Department is requesting the Legislature's approval of \$8,260,841 in recreation and fish and wildlife enhancement expenditures reported in Table 1.

Recreation and Fish and Wildlife Enhancement Costs
Not Reported

The costs reported to the Legislature, by the Department, pertain only to those joint capital costs of features jointly used by project purposes and to acquisition costs of recreation lands. Recreation and fish and wildlife enhancement costs which are not included in the above reporting procedure, and are not reimbursed by the Central Valley Water Project Construction Fund, are to be covered by General Fund appropriations under Section 11913 of the Davis-Dolwig Act:

"The Legislature hereby declares its intent that, except as funds are provided pursuant to Section 11915, there shall be included in the budget for the department for the 1962-63 fiscal year and each succeeding fiscal year, and in the Budget Act for that fiscal year and each succeeding fiscal year, an appropriation from the General Fund of the funds necessary for enhancement of fish and wildlife and for recreation in connection with state water projects as provided in this chapter." (i.e., in the Davis-Dolwig Act).

The magnitude of legislative appropriations from the General Fund for these types of costs through fiscal year 1966-67, and proposed budget amounts for fiscal year 1967-68, are shown in the tabulation below:

Item of recreation and fish and wildlife enhancement cost	Fiscal year						Totals
	1962:	1963:	1964 :	1965 :	1966 :	1967 :	thru 1967
	-63	-64	-65	-66	-67	-68a/	-68
(in thousands of dollars)							
Joint operating costs: ^{b/}							
Frenchman Dam and Lake	11	11	9	77	15	9	62
Antelope Dam and Lake	-	15	15	16	17	18	81
Grizzly Valley Dam and Lake Davis	-	-	-	10	15	16	41
California Aqueduct	-	-	-	-	-	82	82
Subtotal	11	26	24	103	47	125	266
Specific capital costs other than those for acquiring recreation lands:							
Planning	96	119	209	198	237	215	1,074
Design and construction	488	689	1,126	2,553	6,297	7,543	18,696
Subtotal	584	808	1,335	2,751	6,534	7,758	19,770
Specific operating costs ^{c/}	-	-	-	-	-	-	-
Total	595	834	1,359	2,854	6,581	7,883	20,036

a/ Proposed budget amounts.

b/ Not including allocated general operating costs.

c/ General Fund appropriations have not been required to date in significant amounts.

Joint Operating Costs

The portion of the operating costs of project features jointly used by project purposes, allocated to recreation and fish and wildlife enhancement, are accounted and budgeted by the Department. Appropriations from the General Fund are made by the Legislature to cover these costs.

Specific Capital Costs (Other than for Recreation Lands)

The specific capital costs of recreation and fish and wildlife enhancement, in addition to the expenditures for acquiring recreation lands, include planning costs subsequent to the development of the recreation land use plan, and design and construction costs of physical developments used solely for the purposes of recreation and fish and wildlife enhancement.

The above types of costs are accounted and budgeted by the Department of Parks and Recreation, except that the Department of Fish and Game budgets and accounts for the construction of fish and wildlife enhancement works.

Specific Operating Costs

The Department of Parks and Recreation is also responsible for accounting and budgeting the specific operating costs of recreation features. However, this responsibility may be assigned to other agencies. The Department of Fish and Game budgets and accounts annual operating costs concerning fish and wildlife resources.

Department Responsibilities Not Affected

The California Statutes of 1966, Chapter 27, also added Section 11915.1 to the Davis-Dolwig Act, which reaffirms the Department's responsibilities in financing, and securing repayment of, the costs of the State Water Project:

"The provisions of this chapter [i.e., the Davis-Dolwig Act] shall not limit the department in the financing and construction of any of the facilities of the State Water Resources Development System pursuant to the provisions of Chapter 8 (commencing with Section 12930) of Part 6, nor shall they constitute a limitation on or modification of the responsibility of the department to make allocations of costs provided for in water supply contracts executed pursuant thereto."

The allocation percentages developed in the Bulletin 153 series will be accounted for in the Department's annual revision of the Project's financing program, and in the annual redetermination of the charges to be paid by its water supply contractors. The projected effect of these allocation percentages is summarized in the following chapter.

CHAPTER III. PROJECTED EFFECT OF COST ALLOCATIONS

The Department's Bulletin 132 series is intimately related to the Bulletin 153 series. The former constitutes the Department's official annual report on the construction, operation, financing, and management of the California State Water Project, and is released in June of each year -- about six months after release of the annual cost allocation report.

The projected costs and water use reevaluated in the Bulletin 132 series form a basis for new and/or revised allocation percentages developed in the Bulletin 153 series. The allocation percentages developed in the Bulletin 153 series, in turn, are reflected in the annual redetermination of water supply revenues and project receipts basic to the revised financial program developed in the Bulletin 132 series.

This chapter summarizes the effect of all allocation percentages developed to date, upon the costs reported for project facilities in Bulletin 132-66, "The California State Water Project in 1966".

Summary of Allocation Percentages

The Department's cost allocations are determined as percentages applicable to the costs of those features of multiple-purpose facilities which are jointly used by project purposes. The allocated costs of each purpose are determined by applying the allocation percentages to the actual capital and minimum annual operating costs incurred for such features of each

multiple-purpose facility -- and an annually determined share of any variable operating costs which may be incurred, based upon actual water quantities delivered to the respective project purposes.

The specific costs of features associated with individual purposes of each multiple-purpose facility must be added to the above allocated costs to arrive at the total costs of the purposes involved. Such specific costs include those for constructing and maintaining picnic facilities, parking lots, camp sites, and boat ramps for the recreation purpose; power-plants, switchyards, and transmission lines for the power generation purpose; etc.

The allocation percentages developed, to date, for the various facilities of the State Water Project are summarized in Table 2.

The percentage values are shown in Table 2 under three groupings of project facilities. The provisions of the water supply contracts classify all facilities of the State Water Project, except the San Joaquin Drainage Facilities, as either project conservation facilities, which conserve and develop the project yield, or project transportation facilities, which convey the developed yield to project service areas. The reimbursable costs of the two classifications are returned to the State through two separate charges paid by water supply contractors: the Delta Water Charge and the Transportation Charge.

TABLE 2

SUMMARY OF COST ALLOCATION PERCENTAGES

(in percent of joint costs of the respective facilities)

Facilities of the State Water Project	Reimbursable purposes				Nonreimbursable purposes			Total
	Water supply	Power generation	Ag. waste water disposal	Total	Flood control	Recreation and fish and wildlife enhancement	Total	
<u>Capital Costs of Features Jointly Used</u>								
<u>Project Conservation Facilities</u>								
Frenchman Dam and Lake ^{a/}	50.0	0	0	50.0	0	50.0	50.0	100.0
Antelope Dam and Lake ^{a/}	0	0	0	0	0	100.0	100.0	100.0
Grizzly Valley Dam and Lake Davis ^{b/}	5.1	0	0	5.1	0	94.9	94.9	100.0
Abbey Bridge Dam and reservoir ^{b/}	0	0	0	0	0	100.0	100.0	100.0
Dixie Refuge Dam and reservoir ^{c/}	0	0	0	0	0	100.0	100.0	100.0
Oroville Dam and reservoir ^{c/}	54.0	24.8	0	78.8	21.2	0	21.2	100.0
California Aqueduct ^{c/}	91.3	0	0	91.3	0	8.7	8.7	100.0
Delta Facilities ^{c/}	67.1	0	0	67.1	0	32.9	32.9	100.0
Upper Eel River Development ^{c/}	100.0	0	0	100.0	0	0	0	100.0
<u>Project Transportation Facilities</u>								
California Aqueduct, excluding Coastal Branch ^{c/}	97.0	0	0	97.0	0	3.0	3.0	100.0
South Bay Aqueduct: Del Valle Dam and reservoir ^{b/}	27.5	0	0	27.5	21.5	51.0	72.5	100.0
North Bay Aqueduct ^{a/}	100.0	0	0	100.0	0	0	0	100.0
<u>San Joaquin Drainage Facilities</u>								
San Joaquin Master Drain ^{c/}	0	0	100.0	100.0	0	0	0	100.0
<u>Minimum Operating Costs of Features Jointly Used</u>								
<u>Project Conservation Facilities</u>								
Frenchman Dam and Lake ^{a/}	50.0	0	0	50.0	0	50.0	50.0	100.0
Antelope Dam and Lake ^{a/}	0	0	0	0	0	100.0	100.0	100.0
Grizzly Valley Dam and Lake Davis ^{b/}	8.8	0	0	8.8	0	91.2	91.2	100.0
Abbey Bridge Dam and reservoir ^{b/}	0	0	0	0	0	100.0	100.0	100.0
Dixie Refuge Dam and reservoir ^{c/}	0	0	0	0	0	100.0	100.0	100.0
Oroville Dam and reservoir ^{c/}	42.5	41.0	0	83.5	16.5	0	16.5	100.0
California Aqueduct ^{c/}	94.4	0	0	94.4	0	5.6	5.6	100.0
Delta Facilities ^{c/}	17.9	0	0	17.9	0	82.1	82.1	100.0
Upper Eel River Development ^{c/}	100.0	0	0	100.0	0	0	0	100.0
<u>Project Transportation Facilities</u>								
California Aqueduct, excluding Coastal Branch ^{c/}	92.9	0	0	92.9	0	7.1	7.1	100.0
South Bay Aqueduct: Del Valle Dam and reservoir ^{b/}	34.9	0	0	34.9	25.6	39.5	65.1	100.0
North Bay Aqueduct ^{c/}	100.0	0	0	100.0	0	0	0	100.0
<u>San Joaquin Drainage Facilities</u>								
San Joaquin Master Drain ^{c/}	0	0	100.0	100.0	0	0	0	100.0

a/ Final percentages for which approval is requested at this time.

b/ Tentative percentages for which approval is not requested at this time.

c/ Illustrative percentages only, assumed for current project financial and repayment analyses.

Note: Percentages shown are those applicable to the costs of the facility as accounted for by the State, or, in the case of federal-state joint-use facilities (San Luis and Delta Facilities), only the State's share of the total cost.

The allocation percentages represent three degrees of finality, as indicated by the following notes to Table 2:

a. Percentages the Department considers to be final, for which legislative approval is requested.

b. Percentages the Department considers to be tentative, but for which legislative approval is not requested at this point in time.

c. Percentages the Department considers to be illustrative and subject to change, but which are assumed for current financial and repayment analyses of the State Water Project.

Summary of Projected Capital Costs, by Purpose

Table 3 presents a distribution of the estimated capital costs of the State Water Project among the various project purposes. This tabulation includes the allocation of the estimated joint capital costs of features jointly used by project purposes, as reported in Bulletin 132-66, by the percentages summarized in the upper portion of Table 2. The tabulation also includes an assignment of the estimated specific capital costs of features used by particular project purposes.

Certain of the above specific costs are reported in Bulletin 132-66. These are costs financed initially from project funds, including the costs of acquiring recreation land to date. However, since Bulletin 132-66 was released six months prior to this bulletin, the land acquisition costs reflected in Table 3 do not agree exactly with the corresponding amounts shown in Table 1.

TABLE 1
ESTIMATED CAPITAL COSTS OF EACH PROJECT PURPOSE
(in thousands of dollars)

Facilities and features of the State Water Project	Estimated capital costs			Estimated capital costs allocated among project purposes					
	As reported by the departments/	As accounted and budgeted by others ^{a/}	Total	Water supply	Power generation	Drainage benefit	Flood control	Recreation and fish and wildlife enhancement	Unspecified ^{d/}
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Project Conservation Facilities									
Frenchman Dam and Lake:									
Joint costs - dam and reservoir			3,093	1,947				1,546	
Specific costs - recreation developments	3,93		2,680					2,561	
Total	3,93	2,530	5,713	1,947				4,127	
Antelope Dam and Lake:									
Joint costs - dam and reservoir	4,446		4,446					4,446	
Specific costs - recreation developments		1,553	2,639					1,553	
Total	4,446	1,553	6,039					6,039	
Grizzly Valley Dam and Lake Davis:									
Joint costs - dam and reservoir	4,129		4,129	211				3,918	
Specific costs - recreation developments		4,243	4,243					4,243	
Total	4,129	4,243	8,372	211				8,161	
Abbey Bridge Dam and reservoir:									
Joint costs - dam and reservoir	5,449		5,449					5,449	
Specific costs - recreation developments		3,530	3,530					3,530	
Total	5,449	3,530	8,979					8,979	
Dixie Refuge Dam and reservoir:									
Joint costs - dam and reservoir	4,693		4,693					4,693	
Specific costs - recreation developments									
Total	4,693		4,693					4,693	
Oroville Dam and reservoir:									
Joint costs - dam, fish hatchery, and reservoir	307,572		307,572	166,088	75,279		65,205	41,129	
Specific costs - power features and recreation developments	170,860	44,434	225,294		170,382			54,984	
Total	478,434	54,664	538,273	166,088	245,661		65,205	54,984	
California Aqueduct:									
Joint costs - San Luis Dam and reservoir, and aqueduct	126,605		126,605	115,936				11,115	
Specific costs - recreation developments		12,885	12,885					12,885	
Total	126,605	12,885	139,573	115,936				23,993	
Delta Facilities:									
Joint costs - Peripheral Canal	55,083		55,083	36,961				19,122	
Specific costs - recreation developments		34	34					34	
Total	55,083	34	55,097	36,961				19,136	
Upper San River Development^{b/}									
Joint costs - dam, reservoirs, and tunnels	226,507		226,507	226,507					
Specific costs									
Total	226,507		226,507	226,507					
Subtotal, project conservation facilities:									
Joint costs	737,517		737,517	546,364	76,279		65,205	41,129	
Specific costs	170,860	79,158	250,018		170,382			79,158	
Total	908,557	79,158	987,711	546,364	246,661		65,205	120,287	
Project Transportation Facilities									
California Aqueduct:									
Joint costs - aqueduct and terminal reservoirs	1,307,444		1,307,444	1,257,211				29,423	
Specific costs - Coastal Branch and recreation developments	57,885	70,314	128,199					70,314	
Total	1,365,329	70,314	1,435,643	1,257,211				99,737	
South Bay Aqueduct:									
Joint costs - Del Valle Dam and reservoir	23,349		23,349	6,441				11,500	
Specific costs - aqueduct and recreation developments	36,135	5,719	41,754					5,719	
Total	59,484	5,719	65,203	6,441				17,219	
North Bay Aqueduct:									
Joint costs - aqueduct	10,469		10,469	10,469					
Specific costs - recreation developments									
Total	10,469		10,469	10,469					
Subtotal, project transportation facilities:									
Joint costs	1,341,262		1,341,262	1,263,111			5,000	57,151	
Specific costs	93,920	84,033	177,953					84,033	
Total	1,435,182	84,033	1,519,215	1,263,111			5,000	141,184	
San Joaquin Drainage Facilities									
Joint costs - drainage canal and regulating reservoirs	53,933		53,933			53,933			
Specific costs - recreation and fish and wildlife developments									
Total	53,933		53,933			53,933			
Miscellaneous Costs (herein considered to be joint costs)									
Reservation for Davis-Grunsky Program	131,419		131,419						131,419
Costs of features deleted from Project	1,829		1,829						1,829
Total	133,248		133,248						133,248
GRAND TOTAL, STATE WATER PROJECT:									
Joint costs	2,265,426		2,265,426	1,332,115	76,279	53,933	70,205	141,287	133,248
Specific costs	294,250	163,197	457,447		170,382			165,197	
Total	2,559,676	163,197	2,722,873	1,332,115	246,661	53,933	70,205	296,484	133,248

a/ Includes all costs initially financed by project funds. These figures are summarized from Bulletin 134-66, Table 15.
b/ Includes costs of initial and continuing recreation and fish and wildlife enhancement developments financed by General Fund appropriations and/or other special state funds. These estimates are incomplete and are expected to increase in the future. Does not include project-associated costs financed by the Federal Government or by local public and private agencies.
c/ Includes the costs of the Davis-Grunsky Program which are disbursed. Roughly 90 percent of the total disbursements for the Program to date have been grants to the purposes of recreation and fish and wildlife enhancement.
d/ Facilities under formulation, and will undoubtedly encompass multiple-purposes including flood control and recreation and fish and wildlife enhancement.

The specific costs of recreation and fish and wildlife enhancement developments (other than land acquisition costs) associated with State Water Project facilities are not reported in the Bulletin 132 series. These amounts (shown in Column 2 of Table 3) are not financed by project funds and are therefore excluded from the financial analyses developed in the Bulletin 132 series.

Table 4 presents a more detailed summary of the specific costs of recreation and fish and wildlife enhancement (exclusive of land acquisition costs) which are accounted and budgeted by agencies other than the Department. The tabulation presents the estimates of such specific costs for initial developments required to accommodate projected visitor use during the first 10 years of operation at each facility and for continuing developments required to satisfy growing demands after the initial 10-year period. Construction expenditures for continuing developments will be staged over a 10- to 50-year period.

The formulation of recreation developments has not been completed for all facilities of the State Water Project. Therefore, the values in Column 2 of Table 3 and in Table 4 are incomplete and approximate. As the development of allocation percentages for all project facilities 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 approximate more than 10 percent of the total costs of the State Water Project -- a Department projection of several years standing.

TABLE 4
ESTIMATED PROJECT CAPITAL COSTS ACCOUNTED AND BUDGETED
BY AGENCIES OTHER THAN THE DEPARTMENT

(Preliminary, in thousands of dollars)

Facilities of the State Water Project	Initial installations ^{b/}	Continuing installations ^{c/}
Frenchman Dam and Lake	\$ 1,710	\$ 829
Antelope Dam and Lake	450	1,103
Grizzly Valley Dam and Lake Davis	1,760	2,483
Abbey Bridge Dam and reservoir	995	2,535
Oroville Dam and reservoir	13,157	41,247
South Bay Aqueduct	3,198	2,521
California Aqueduct:		
Corral Hollow Fishing Access Site	70	0
Ingram Creek Aquatic Recreation Area	336	504
San Luis Forebay	1,381	2,834
San Luis reservoir	1,752	3,608
Los Banos Creek detention reservoir	1,042	1,357
Oro Loma Fishing Access Site	3	65
Three Rocks Fishing Access Site	69	0
Huron Fishing Access Site	0	66
Kettleman City Aquatic Recreation Area	738	524
Lost Hills Fishing Access Site	0	70
Buttonwillow Fishing Access Site	0	69
Tupman Aquatic Recreation Area	205	5,749
Buena Vista Aquatic Recreation Area	7,237	0
Wheeler Ridge Fishing Access Site	69	0
Castaic reservoir	16,190	228
Pyramid reservoir	4,790	84
Ritter Canyon Aquatic Recreation Area	1,431	576
Barrel Springs Aquatic Recreation Area	1,961	1,320
Oro Grande Wash Aquatic Recreation Area	1,881	1,704
Mojave Mesa Aquatic Recreation Area	1,238	552
Cedar Springs reservoir	7,476	192
Perris reservoir	<u>23,552</u>	<u>276</u>
Subtotal	<u>71,421</u>	<u>19,778</u>
TOTAL	92,691	70,496
GRAND TOTAL		\$163,187

a/ Excluding land acquisition costs.

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

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



CHAPTER IV. CONTRACT PROVISIONS
AND GENERAL CRITERIA

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

Provisions of Water Supply Contracts

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

1. 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. 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. 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. Costs chargeable to power generation and transmission shall be allocated as set forth in Articles 22(e):

". . . 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. 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. The contracts do refer to the reimbursable purposes of power generation, water conservation, and water transportation. (Water conservation and water transportation are actually integral functions of the overall purpose of water supply -- i.e., water must be both conserved and transported in order to realize water supply benefits.) Considering the general provisions of the contracts and the additional guidance provided by the Davis-Dolwig Act, the following conclusions may be drawn as to such project purposes and the reimbursability thereof:

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.

Power Generation

This purpose includes, for this report, only power generation from facilities located above the Delta. 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.

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.

Agricultural Waste Water Disposal

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 not classified as part of the project conservation or 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 agricultural waste water disposal.

Recreation and Fish and Wildlife Enhancement

In this report, allocations of costs to recreation are not distinguished from those to fish and wildlife enhancement. Costs allocated to recreation and fish and wildlife enhancement are nonreimbursable by project contractors, pursuant to the Davis-Dolwig Act.

The Davis-Dolwig Act states that ". . . recreation and the enhancement of fish and wildlife resources are among the purposes of state water projects. . . ." The Act does not specify whether they shall be considered separately or combined. The Department recognizes fish and wildlife enhancement as an adjunct to recreation enhancement; the augmentation of fish and wildlife populations sustains additional recreation use. The benefits from a facility due to fish and wildlife enhancement, except those accruing to commercial fisheries, are measured by the same procedures as are recreation benefits. Therefore, the

Department recognizes that it may be necessary to separate the recreational and commercial aspects of fish and wildlife enhancement for those project facilities where the latter aspect is involved.

The costs which are reimbursable by project contractors for those State Water Project facilities 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 those project facilities which are located 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 cost 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 the preceding paragraph.

Method of Allocating Costs of the San Joaquin Drainage Facilities

The formulation of the San Joaquin Master Drain has not been completed. The method of allocating the cost of the Drain will depend upon the number and extent of purposes incorporated with the primary purpose of agricultural waste water disposal.

Facilities to be Covered by Cost Allocations

Table 3 defines the project facilities which are considered as separate cost allocation entities. Those facilities which may encompass a number of separate features jointly used by differing purposes (such as the Delta Facilities and the Upper Eel River Development) may be subsequently subdivided into several cost allocation entities.

Initial Derivation of Allocation Percentages

Cost allocations generally will be prepared for each State Water Project facility in the fiscal year prior to the fiscal year during which actual construction is scheduled to commence. These allocations will determine the percentage of facility costs allocable to each included purpose. The priority and schedule for the initial cost allocation of each project facility is shown in Table 5.

Revision of Allocation Percentages

Allocation percentages 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 determination.

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; (3) projections of benefits have significantly changed; or, (4) estimated costs have significantly changed.

Finality of Allocation Percentages

Certain allocations for particular purposes must be considered final.

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.

TABLE 5
SCHEDULE FOR DETERMINING
INITIAL ALLOCATION PERCENTAGES

Priority for determining: initial allocation percentages	Facilities to be allocated separately	Date of initial determination
1. Completed facilities	Frenchman Dam and Lake Antelope Dam and Lake Grizzly Valley Dam and Lake Davis	April 1964 January 1965 January 1965
2. Facilities currently under construction	Oroville Dam and reservoir South Bay Aqueduct: Del Valle Dam and reservoir California Aqueduct	January 1965 January 1965 January 1965
3. Facilities with con- struction scheduled to commence in 1966-67	North Bay Aqueduct San Joaquin Drainage Facilities ^{a/}	January 1966 January 1966
4. Facilities with con- struction scheduled to commence in 1967-68	Abbey Bridge Dam and reservoir	January 1967
5. Facilities still under formulation	Delta Facilities Upper Eel River Development Dixie Refuge Dam and reservoir	Following formulation of definite facilities

^{a/} Construction of the First Stage of the San Joaquin Drain, originally scheduled to commence in fiscal year 1966-67, has been rescheduled to start in fiscal year 1967-68.

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 allocation percentages for a particular State Water Project facility are subject to change.

Cost Allocation Percentages

The allocation of costs among project purposes, for each State Water Project facility, will be expressed in terms of percentage values applicable to (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:

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 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 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 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 V. SUMMARY OF PRIOR DERIVATIONS
OF ALLOCATION PERCENTAGES

This chapter summarizes the Department's derivation of those allocation percentages, developed in previous annual reports of the Bulletin 153 series, for State Water Project facilities either completed or scheduled to be under construction by the end of fiscal year 1966-67. However, the allocation percentages previously derived for Del Valle Dam and reservoir and for the California Aqueduct are not presented herein. Revised percentages for these two facilities are developed in Chapter VI.

A general explanation of the items affecting the Department's derivation of allocation percentages, summarized in this chapter, is contained in Appendix A.

The percentages shown herein for Frenchman and Antelope Dams and Lakes are considered to be final at this point in time. Additional information in support of the derivation of allocation percentages for Frenchman Dam and Lake is contained in Appendix B. Additional substantiation for Antelope Dam and Lake percentages is not required.

The percentages for Grizzly Valley Dam and Lake Davis, are tentative. It is contemplated, however, that these percentages would form a basis for the facility costs allocated to recreation and fish and wildlife enhancement, which the Department would eventually report to the Legislature.

The percentages for the remaining facilities described in this chapter are of an illustrative character, and will probably be revised. These percentages, together with others

assumed for facilities currently being formulated, are used for present financial and repayment analyses of the Project.

Frenchman Dam and Lake

The construction of Frenchman Dam and Lake was initiated in August 1959 and was completed in October 1961. The description of Frenchman Dam and Lake was modified by Project Order No. 14 of the Director of Water Resources, dated July 22, 1966, to correspond with the constructed facility. The Order stated that "Frenchman Lake regulates the water of Little Last Chance Creek for downstream irrigation use and provides a facility for recreation and fish and wildlife enhancement".

The original allocation percentages for Frenchman Dam and Lake (then known as the "Frenchman Project") were developed in the Department's Bulletin 59, "Investigation of Upper Feather River Basin Development", dated February 1957. However, the estimated land acquisition and relocation were excluded on the basis of criteria assumed at the time.

In 1963, the Department revised the original allocation percentages to account for: (1) a significant increase in estimated recreation and fish and wildlife enhancement benefits; (2) a decrease in estimated water supply benefits; and, (3) the estimated costs of land acquisition and relocations omitted in the original allocation.

The modified derivation, by the Separable Costs-Remaining Benefits method, reflects the costs of the facility on the basis of original estimates, and is presented in Table 6. The details of the computation were reported by the Department to the Assembly Interim Committee on Water at its hearing in Santa Monica on July 22, 1964, and are summarized in Appendix B.

TABLE 6

DERIVATION OF ALLOCATION PERCENTAGES
FOR FRENCHMAN DAM AND LAKE

(in dollars unless otherwise noted)

Step No. :	Item of benefit or cost ^{a/} :	: Recreation :	: Water and fish and :	: Total :
:	:	: supply: wildlife :	: enhancement: :	:
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%

^{a/} 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.

Antelope Dam and Lake

Project Order No. 15 of the Director of Water Resources, dated July 22, 1966, states that Antelope Lake "... will be used for recreation and fish and wildlife enhancement purposes." Therefore, the costs of Antelope Dam and Lake, and of all associated features, are allocated in total (100 percent) to the project purposes of recreation and fish and wildlife enhancement. This allocation is the same as reported for the facility in Bulletin 59, and does not require application of the Separable Costs-Remaining Benefits method since the incorporated purposes are herein considered one -- as explained in Chapter IV.

Grizzly Valley Dam and Lake Davis

The Department's derivation of allocation percentages for Grizzly Valley Dam and Lake Davis, shown in Table 7, represents a complete revision of the alternative allocations described for the facility in Bulletin 59. The revision followed the modification of the facility's description, providing also for the inclusion of the Grizzly Valley Pipeline, by Project Order No. 6 of the Director of Water Resources, dated January 17, 1964. The basic allocation is described in some detail in the Department's Bulletin 128, "Lake Davis", dated May 1965, and was discussed before the Assembly Interim Committee on Water at its hearing in Los Angeles, on January 14, 1966.

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 are part of the project conservation facilities, and the associated Grizzly Valley Pipeline is part of the project transportation facilities.

TABLE 7

DERIVATION OF ALLOCATION PERCENTAGES
FOR GRIZZLY VALLEY DAM AND LAKE DAVIS

(in dollars unless otherwise noted)

Step No. :	Item of benefit or cost ^{a/} :	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%

^{a/} 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.

Oroville Dam and Reservoir

The Department's derivation of allocation percentages for Oroville Dam and reservoir is shown in Table 8. In accordance with Article 22(e) of the water supply contracts, the derivation corresponds with the allocation basic to the contract executed on March 8, 1962, between the United States of America and the State of California, providing for federal contribution of funds for the costs allocated to flood control.

Table 8 differs in format from the federal allocation in that the estimated specific costs of recreation and fish and wild-life enhancement have been added to the total project costs, subsequent to the Separable Costs-Remaining Benefits allocation.

The allocation percentages developed in Table 8 are applicable to the total costs of features jointly used by project purposes -- including some \$15,000 in federal expenditures, expressed as an equal annual equivalent cost. These percentages are adjusted to be applicable only to costs to be incurred by the State in the following tabulation:

Step No. :	Item of benefit or cost :	Flood control :	Power generation :	Water supply :	Total
(in thousands of dollars)					
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%

TABLE

DERIVATION OF ALLOCATION PERCENTAGES FOR OROVILLE DAM AND RESERVOIR

(in thousands of dollars unless otherwise noted)

Step No.	Item of benefit or cost ^{a/}	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	8,046	-	11,383
	Capital	2,968	263	7,798	-	11,029
	O.M.P.&R.	95	9	250	-	354
7b.	Special Considerations, this Allocation: ^{b/}					
	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
8.	Total Allocated Project Costs:					
	Total	3,206	15,129	8,142	3,566	30,043
	Capital	3,105	11,206	7,881	1,960	24,052
	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	9,453
	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%	41.0%	42.5%	-	100.0%

^{a/} 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.

^{b/} 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:

- 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.
- 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.

North Bay Aqueduct

The total costs of the North Bay Aqueduct (100 percent) are tentatively assigned to the project purpose of water supply. Recreation and fish and wildlife enhancement developments are currently being studied for the North Bay Aqueduct. The tentative single-purpose water supply allocation may be revised to a multiple-purpose allocation when such studies are completed. Present studies indicate that the portion of the facility's cost which may eventually be allocable to the nonreimbursable purpose of recreation and fish and wildlife enhancement would not be of an appreciable magnitude.

San Joaquin Drainage Facilities

The San Joaquin Drainage Facilities are tentatively assumed to be for the single purpose of agricultural waste water disposal. Therefore, 100 percent of the total costs of the first stage of the San Joaquin Master Drain is tentatively assigned to this project purpose. Recreation and fish and wildlife enhancement developments are currently being studied for the San Joaquin Drainage Facilities. The present allocation to the single purpose of agricultural waste water disposal may be revised to a multiple-purpose allocation when such studies are completed.

CHAPTER VI. REVISIONS TO PRIOR DERIVATIONS
OF ALLOCATION PERCENTAGES

The allocation percentages derived in previous issues of the Bulletin 153 series for Del Valle Dam and reservoir and for the California Aqueduct are revised in this chapter.

The revised allocation percentages for Del Valle Dam and reservoir are tentative. However, it is contemplated that these percentages would form the basis for the joint costs allocated to recreation and fish and wildlife enhancement to be eventually reported to the Legislature.

The revised allocation percentages for the California Aqueduct are illustrative -- to be used for present financial and repayment analyses of the Project. Many of the recreation developments contemplated for the Aqueduct are still being formulated.

South Bay Aqueduct: Del Valle Dam and Reservoir

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.

Since Del Valle Dam and reservoir are the only multiple-purpose features of the South Bay Aqueduct, the derivation of allocation percentages for the Aqueduct is based upon an allocation of the estimated costs of Del Valle features by the Separable Costs-Remaining Benefits method. This method is generally preferred over the Alternative Justifiable Expenditure method, specified in Chapter IV for the allocation of project transportation facilities. The use of the Separable Costs-Remaining Benefits method for a project transportation facility is permitted in this instance, since the separable costs of the multiple-purpose dam and reservoir can be readily estimated; whereas, the estimation of separable costs for a complex multiple-purpose aqueduct system is subject to conjecture.

The allocation percentages previously presented for Del Valle Dam and reservoir were based upon an allocation prepared by the Board of Engineers for Rivers and Harbors, contained in Senate Document No. 128, 87th Congress, 2nd Session. In that allocation, project costs and recreation benefits were significantly underestimated. The revised estimates of costs and benefits, and the revised derivation of allocation percentages, are described in the following sections:

Benefits

The estimated annual benefits to be realized from Del Valle Dam and reservoir were based upon the 50-year period of analysis commencing with the assumed year of initial reservoir operation (1969). A project interest rate (based upon

the weighted average of interest rates paid by the State on bonds issued under the Burns-Porter Act) of 3.7 percent per annum was used to convert estimates to equivalent equal annual values.

Flood Control. The annual flood control benefits were based upon those estimated by the Corps of Engineers and presented in Senate Document No. 128. However, equivalent equal annual flood control benefits reflected in the original allocation were based upon a federal interest rate of 2-5/8 percent. These equal annual equivalent benefits were adjusted by the Department for an interest rate of 3.7 percent, and are summarized below:

Annual reduction in downstream improvement costs:	
Channel construction	\$ 88,400
Lands and relocations	30,900
Loss in land productivity	9,500
Operation, maintenance, and replacement	25,700
Subtotal	\$154,500
Annual reduction in flood damage:	
Arroyo Del Valle	\$ 28,100
Arroyo de la Laguna	25,700
Niles Canyon	85,600
	\$139,400
TOTAL, EQUAL ANNUAL EQUIVALENT FLOOD CONTROL BENEFITS	\$293,900

Water Supply. Estimated water supply benefits were limited to the estimated costs of the least expensive alternative means of providing the same regulatory storage capacity as provided by Del Valle reservoir. The alternative means was taken as additional storage in project conservation facilities and an assumed enlargement of the South Bay Aqueduct to convey

the project water supply from the Delta on a fully regulated basis -- thus eliminating the need for Del Valle Dam and reservoir from the standpoint of water supply. The equal annual equivalent cost of the alternative means was estimated to be \$460,000.

Recreation and Fish and Wildlife Enhancement. Recreation benefits were based on the results of studies to be presented in the Department's Bulletin No. 117-2, "Del Valle Reservoir, Recreation Development Plan". This report is scheduled for release early in 1967. Benefits were computed using a unit value of \$1.70 per visitor-day of recreation use. These estimated benefits amount to a total present worth of \$83,897,000, for an equal annual equivalent value of \$3,706,000.

Alternative Costs

The alternative costs of providing the same benefits from each purpose included in the multiple-purpose facility were estimated by the Department, based upon the 50-year period of analysis and a project interest rate of 3.7 percent.

Flood Control. The alternative flood control project was assumed to be a single-purpose reservoir located at the Del Valle site with a gross capacity of 49,500 acre-feet. The corresponding costs were estimated to total \$21,900,000 on a present worth basis, for an equal annual equivalent cost of \$968,000.

Water Supply. The single-purpose water supply project was previously discussed concerning water supply benefits. These costs were estimated to total \$10,403,000 on a present worth basis, for an equal annual equivalent cost of \$460,000.

Recreation and Fish and Wildlife Enhancement. The alternative single-purpose recreation project was assumed to be a 40,000 acre-foot reservoir at the Del Valle site. The corresponding costs were estimated to be \$42,389,000 on a present worth basis, for an equal annual equivalent cost of \$1,873,000.

Project Costs

Project costs of Del Valle Dam and reservoir were based upon the latest estimates made by the Department -- at the time the construction contract was awarded (March 1966). This estimate was made subsequent to that contained in Bulletin 132-66. Annual costs were computed at a project interest rate of 3.7 percent. The estimated costs of Del Valle Dam and reservoir are summarized in the following tabulation:

Item of cost	: Equal annual equivalent costs : Capital: at 3.7 percent interest for : costs : the 50-year period 1969-2018 : : Capital: O.M.P. & R. a/ : Totals			
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Features jointly used for project purposes

Dam, reservoir, rights-of-way and relocations	27,880	1,232	86	1,318
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Specific recreation and fish and wildlife enhancement developments

	4,950	219	808	1,027
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TOTAL, DEL VALLE DAM AND RESERVOIR	32,830	1,451	894	2,345
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a/ All operation, maintenance, power, and replacement costs included in the minimum category with respect to water supply.

TABLE 9

DERIVATION OF ALLOCATION PERCENTAGES FOR
DEL VALLE DAM AND RESERVOIR

(in \$1,000, unless otherwise indicated)

Step No.:	Item of benefit or cost ^{a/}	Flood control:	Water supply:	Recreation and fish and wildlife enhancement:	Total
1.	Benefits	294	-	3,706	-
2.	Alternative Costs	968	460 ^{b/}	1,873	3,301
3.	Justifiable Costs	294	460	1,873	2,627
4.	Separable Costs:				
	Total	259	43	1,027	1,329
	Capital	238	30	219	487
	O.M.P.&R.	21	13	808	842
5.	Remaining Justifiable Costs	35	417	846	1,298
6.	Percent Distribution of Remaining Justifiable Costs	2.7%	32.1%	65.2%	100.0%
7.	Remaining Joint Costs				
	Total	28	326	662	1,016
	Capital	27	309	628	964
	O.M.P.&R.	1	17	34	52
8.	Total Allocated Project Costs				
	Total	287	369	1,689	2,345
	Capital	265	339	847	1,451
	O.M.P.&R.	22	30	842	894
9.	Percent Distribution of Total Project Costs:				
	Total	12.2%	15.7%	72.1%	100.0%
	Capital	18.3%	23.3%	58.4%	100.0%
	O.M.P.&R.	2.5%	3.3%	94.2%	100.0%
10.	Specific Costs				
	Total	0	0	1,027	1,027
	Capital	0	0	219	219
	O.M.P.&R.	0	0	808	808
11.	Total Allocated Costs of Features Jointly Used:				
	Total	287	369	662	1,318
	Capital	265	339	628	1,232
	O.M.P.&R.	22	30	34	86
12.	Percent Distribution of Costs of Features Jointly Used:				
	Total	21.8%	28.0%	50.2%	100.0%
	Capital	21.5%	27.5%	51.0%	100.0%
	O.M.P.&R.	25.6%	34.9%	39.5%	100.0%

^{a/} Items of benefits and costs converted to equal annual equivalents for period 1969-2018, at 3.7 percent interest.

^{b/} Alternative single-purpose water supply project is assumed to be original enlargement of Reaches 1, 2 and 4 of the South Bay Aqueduct.

Derivation of Allocation Percentages

The Department's derivation of the revised allocation percentages for Del Valle Dam and reservoir is presented in Table 9.

California Aqueduct

Clifton Court forebay was added to the California Aqueduct by Project Order No. 13 of the Director of Water Resources, dated March 21, 1966. This intake to the Delta Pumping Plant will provide significant recreation and fish and wildlife enhancement benefits.

Recreation developments are still being formulated for the Aqueduct south of the Tehachapis. For these reasons the allocation percentages developed herein for the California Aqueduct are based upon the same projected benefits and costs basic to the determination of Bulletin 153-66 -- with the addition of estimates for Clifton Court forebay.

By letter dated October 28, 1966, the Director of Water Resources transmitted certain information pertaining to Clifton Court forebay to Mr. Ralph Brody, Chairman of the California Water Commission. Page 10 of that letter included the following preliminary allocation of the estimated costs of the forebay, treated as a separate project:

Item	:	Water supply	:	Recreation and fish and wildlife enhancement	:	Total
(in millions of dollars) ^{a/}						
1. Benefit		21.6 (1,005)		41.3 (1,923)		62.9 (2,928)
2. Alternative Cost		12.4 (577)		36.6 (1,704)		
3. Limit of Allocation		12.4 (577)		36.6 (1,704)		
4. Separable Costs:						
Capital		0		14.9 (694)		14.9 (694)
Annual		0		18.5 (861)		18.5 (861)
Total		0		33.4 (1,555)		33.4 (1,555)
5. Remaining Limit		12.4 (577)		3.2		15.6
6. Joint Costs:						
Capital		9.6 (447)		2.5 (116)		12.1 (563)
Annual		0.2 (9)		0.1 (5)		0.3 (14)
Total		9.8 (456)		2.6 (121)		12.4 (577)
7. Total Allocation:						
Capital		9.6 (447)		17.4 (810)		27.0 (1,257)
Annual		0.2 (9)		18.6 (866)		18.8 (875)
Total		9.8 (456)		36.0 (1,676)		45.8 (2,132)

^{a/} Values shown are present worth amounts based on 4 percent per annum over 50-year period. (Values in parentheses are the present worths converted to equal annual equivalent values at 4 percent interest, in thousands of dollars.)

The letter to the Commission pointed out that "... in the final analysis, the forebay will be treated in the overall allocation of the California Aqueduct."

The overall allocation of the costs of the California Aqueduct between the project purposes of water supply and of recreation and fish and wildlife enhancement, including the Clifton Court forebay, is accomplished by the following steps:

1. The costs of the features jointly used for project purposes from the Delta (Clifton Court forebay) to Dos Amigos Pumping Plant, which encompass joint project conservation-transportation facilities, are allocated among project purposes by the Separable Costs-Remaining Benefits method. This allocation accounts for specific recreation and fish and wildlife enhancement developments located above Dos Amigos Pumping Plant.

2. The allocated costs to reimbursable and nonreimbursable purposes for these joint facilities are distributed between the 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 are 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 accounts for specific recreation and fish and wildlife developments 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 10.

The cost allocation for project transportation facilities located downstream from Dos Amigos Pumping Plant is presented in Table 11, using the Alternative Justifiable Expenditure method.

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 12 of Tables 10 and 11, are summarized as follows:

Item	:	:	:	:	Total
	:	Water	Recreation	and fish and	
	:	supply	wildlife	enhancement:	

Conservation Facilities:

Capital costs	91.3%	8.7%	100.0%
Minimum O.M.P.&R. costs	94.4%	5.6%	100.0%

Transportation Facilities:

Capital costs	97.0%	3.0%	100.0%
Minimum O.M.P.&R. costs	92.9%	7.1%	100.0%

TABLE 10
ILLUSTRATIVE DERIVATION OF ALLOCATION PERCENTAGES
FOR THE CALIFORNIA AQUEDUCT
DELTA TO DOS AMIGOS PUMPING PLANT

(in thousands of dollars unless otherwise noted)

Step No.	Item of benefit or cost ^{a/}	Water supply	Recreation and fish and wildlife enhancement	Total
Total Project Costs: Delta to Dos Amigos Pumping Plant				
1.	Benefits (State only)	42,100	3,800	45,900
2.	Alternative Costs	18,300	4,200	22,500
3.	Justifiable Costs	18,300	3,800	22,100
4.	Separable Costs:			
	Total	16,200	2,600	18,800
	Capital	9,300	1,100	10,400
	O.M.P.&R.	6,900	1,500	8,400
5.	Remaining Justifiable Costs	2,100	1,200	3,300
6.	Percent Distribution of Remaining Justifiable Costs	63.6%	36.4%	100.0%
7.	Remaining Joint Costs:			
	Total	1,300	700	2,000
	Capital	1,200	600	1,800
	O.M.P.&R.	100	100	200
8.	Total Allocated Project Costs:			
	Total	17,500	3,300	20,800
	Capital	10,500	1,700	12,200
	O.M.P.&R.	7,000	1,600	8,600
9.	Percent Distribution of Total Project Costs:			
	Total	84.1%	15.9%	100.0%
	Capital	86.1%	13.9%	100.0%
	O.M.P.&R.	81.4%	18.6%	100.0%
10.	Specific Costs, This Allocation:			
	Total	3,600	2,100	5,700
	Capital (Specific Features)	0	700	700
	O.M.P.&R. (Specific Features)	0	1,400	1,400
	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.	13,900	1,200	15,100
	Capital	10,500	1,000	11,500
	Minimum O.M.P.&R.	3,400	200	3,600
12.	Percent Distribution of Costs of Features Jointly Used: ^{b/}			
	Total, excluding Variable O.M.P.&R.	92.1%	7.9%	100.0%
	Capital	91.3%	8.7%	100.0%
	Minimum O.M.P.&R.	94.4%	5.6%	100.0%
Project Conservation Facilities				
13.	Allocated Costs of Features Jointly Used:			
	Total, excluding Variable O.M.P.&R.	6,600	600	7,200
	Capital	5,100	500	5,600
	Minimum O.M.P.&R.	1,500	100	1,600
Project Transportation Facilities				
14.	Allocated Costs of Features Jointly Used:			
	Total, excluding Variable O.M.P.&R.	7,300	600	7,900
	Capital	5,400	500	5,900
	Minimum O.M.P.&R.	1,900	100	2,000

a/ 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.

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

TABLE 11
ILLUSTRATIVE DERIVATION OF ALLOCATION PERCENTAGES
FOR THE CALIFORNIA AQUEDUCT
DOS AMIGOS PUMPING PLANT TO TERMINI

(in thousands of dollars unless otherwise noted)

Step No. :	Item of benefit or cost ^{a/}	Water supply :	Recreation and fish and wildlife enhancement :	Total
<u>Project Transportation Facilities: Dos Amigos Pumping Plant to Termini</u>				
1.	Benefits	176,700	9,600	186,300
2.	Alternative Costs	-	-	-
3.	Justifiable Costs	176,700	9,600	186,300
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	174,300	4,000	178,300
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: ^{b/}			
	Total, excluding Variable O.M.P.&R.	7,300	600	7,900
	Capital	5,400	500	5,900
	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.	60,000	2,200	62,200
	Capital	52,100	1,600	53,700
	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.	96.5%	3.5%	100.0%
	Capital	97.0%	3.0%	100.0%
	Minimum O.M.P.&R.	92.9%	7.1%	100.0%

^{a/} Annual benefits and costs through the year 2017 converted to equal annual equivalents for the 50-year period, 1969-2017, at 3.7 percent interest. Steps 1 through 11a comprise the Alternative Justifiable Expenditure Method.

^{b/} From Step 14, Table 10.



CHAPTER VII. DERIVATION OF ALLOCATION PERCENTAGES
FOR FACILITIES WITH INITIAL CONSTRUCTION
IN 1967-68

This chapter develops the Department's allocation percentages for those State Water Project facilities with construction commencing in fiscal year 1967-68.

Construction is contemplated to be initiated for one additional facility during the coming fiscal year for which allocation percentages have not previously been derived -- Abbey Bridge Dam and reservoir. This is the fourth of the Project's five dams and reservoirs to be constructed in the Upper Feather Area, shown on Plate 1.

Abbey Bridge Dam and Reservoir

The construction of Abbey Bridge Dam and reservoir was authorized on September 11, 1957, as part of upstream features of the Feather River Project under Water Code Section 11260, as amended by Chapter 2359, California Statutes of 1957.

Order No. P. 1 of the Director of Water Resources, dated October 14, 1958, modified upstream features of the Feather River Project to those described in the Department's Bulletin 59.

Abbey Bridge Dam and reservoir was designated in Bulletin 59 as a feature of the Indian Creek Recreation Project. The following statement was made on page 104 of that bulletin under the heading "Cost Allocation":

"It was considered that the recreation purposes and use of Indian Creek Recreation Project would be of general statewide interest, and therefore, in accordance with the criteria adopted for this study, all costs of the project were assumed to be borne by the State and nonreimbursable."

The facility described in Water Code Section 11260 and in Order No. P. 1 was further modified by Project Order No. 16 of the Director of Water Resources, on July 22, 1966, as follows:

"Abbey Bridge Dam will be located on Red Clover Creek in Plumas County. The dam will be an earthfill structure 103 feet high with a crest length of 1,150 feet. The Abbey Bridge reservoir will have a storage capacity of 45,000 acre-feet, a shoreline of 21 miles, and a surface area of 1,925 acres. It will be used entirely for recreation and fish and wildlife enhancement purposes."

Therefore, 100 percent of the total costs of Abbey Bridge Dam and reservoir is allocated 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 cost allocations of project conservation facilities located in and above the Delta, because these purposes are herein considered as one.

APPENDIX A

THE DEPARTMENT'S COST ALLOCATION PROCEDURE



A DERIVATION OF ALLOCATION PERCENTAGES FOR A FACILITY OF THE STATE WATER PROJECT IS SHOWN BELOW. THE FOLLOWING PAGES PRESENT BRIEF REPLIES TO OBVIOUS QUESTIONS CONCERNING THE DERIVATION'S FORMAT--

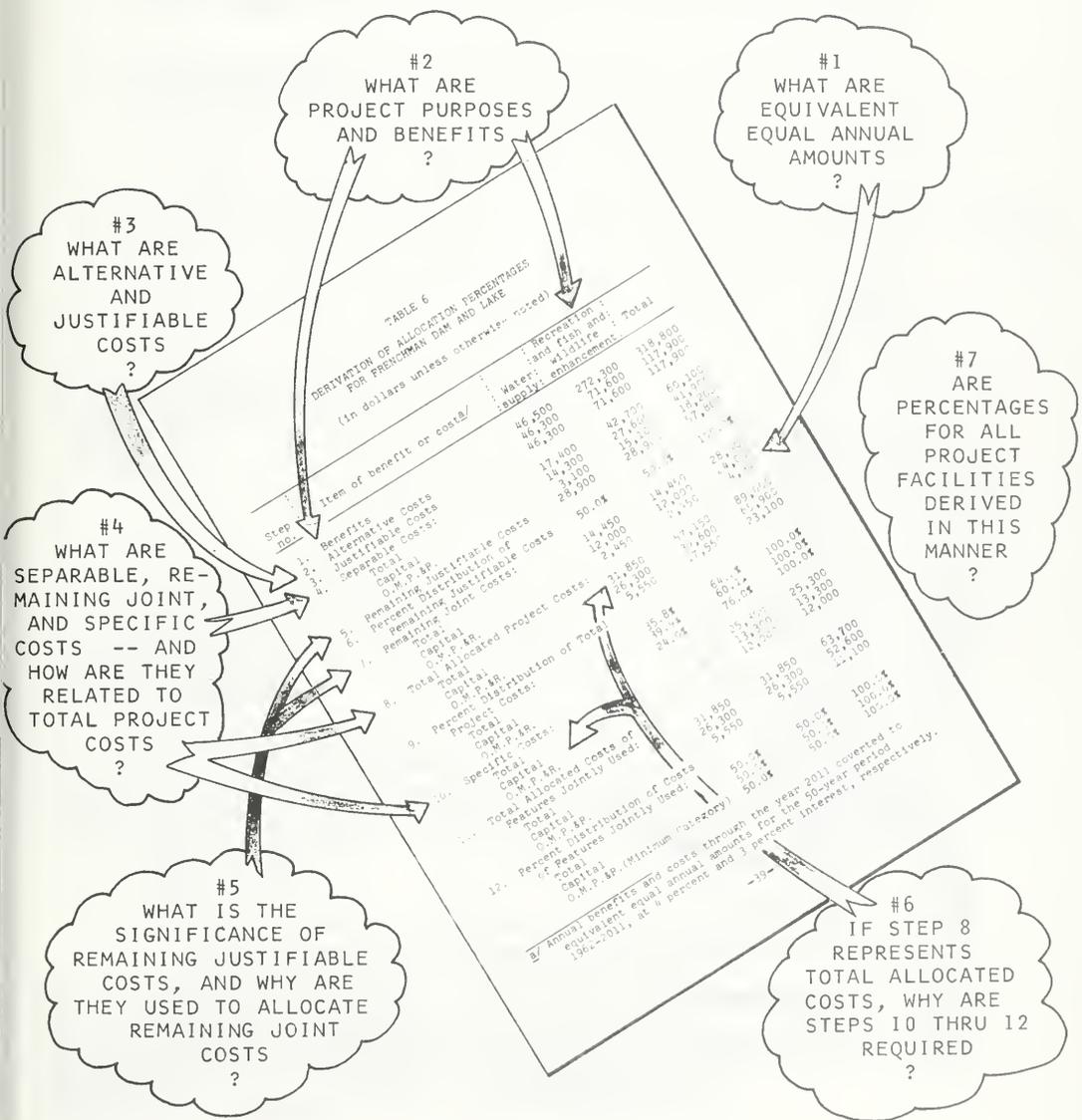


TABLE 6
DERIVATION OF ALLOCATION PERCENTAGES
FOR FRENCHMAN DAM AND LAKE
(in dollars unless otherwise noted)

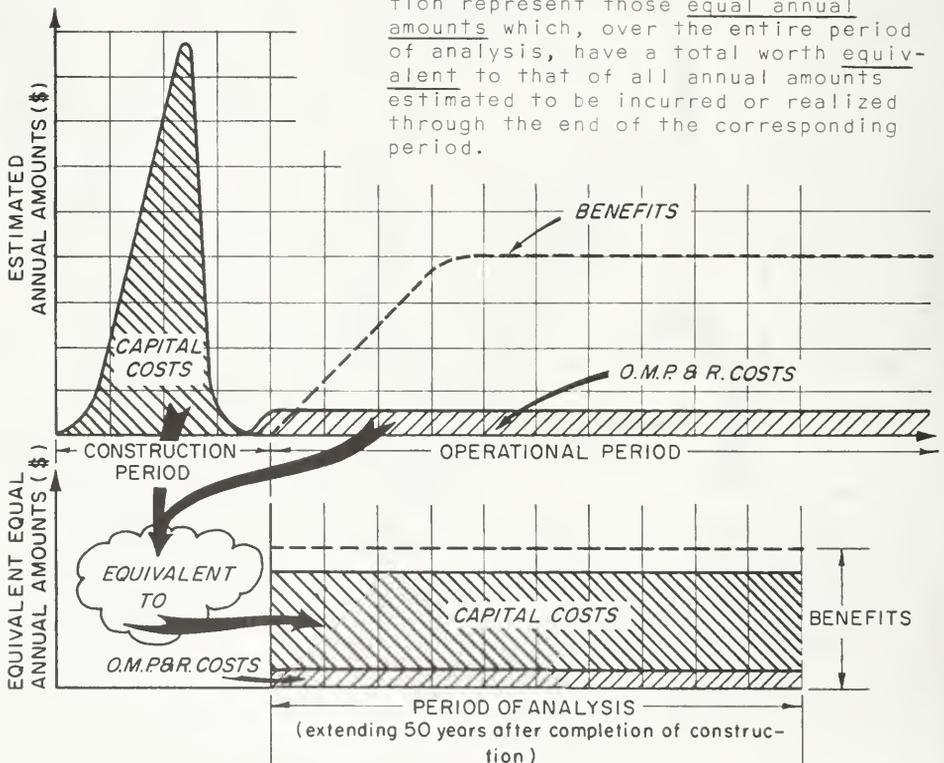
Step No.	Item of benefit or cost/	Recreation (and fish and water supply enhancement)	Water supply	Watershed enhancement	Total
1.	Benefits	272,300	11,600	117,900	401,800
2.	Alternative Costs	46,500	42,700	60,100	149,300
3.	Justifiable Costs	46,500	27,600	18,200	92,300
4.	Separable Costs:				
Capital	11,400	4,700	15,100	31,200	
O.M. & M.	14,200	13,900	13,200	41,300	
Total	25,600	18,600	28,300	72,500	
5.	Remaining Justifiable Costs	50.0%	50.0%	50.0%	50.0%
6.	Remaining Joint Costs:				
Capital	14,450	14,450	14,450	43,350	
O.M. & M.	12,000	12,000	12,000	36,000	
Total	26,450	26,450	26,450	79,350	
7.	Total Allocated Project Costs:	31,850	31,850	31,850	95,550
8.	Total Allocated Project Costs:	31,850	31,850	31,850	95,550
9.	Percent Distribution of Total:	33.3%	33.3%	33.3%	100.0%
10.	Specific Costs:				
Capital	15.6%	15.6%	15.6%	46.8%	
O.M. & M.	15.6%	15.6%	15.6%	46.8%	
Total	31.2%	31.2%	31.2%	93.6%	
11.	Total Allocated Costs of Features Jointly Used:	31,850	31,850	31,850	95,550
12.	Percent Distribution of Costs of Features Jointly Used:	50.0%	50.0%	50.0%	100.0%
Capital	50.0%	50.0%	50.0%	100.0%	
O.M. & M.	50.0%	50.0%	50.0%	100.0%	
Total	100.0%	100.0%	100.0%	200.0%	

Annual benefits and costs through the year 2011 covered to equivalent equal annual amounts for the 50-year period 1962-2011, at 1 percent and 3 percent interest, respectively.

#1 - WHAT ARE EQUIVALENT EQUAL ANNUAL AMOUNTS?

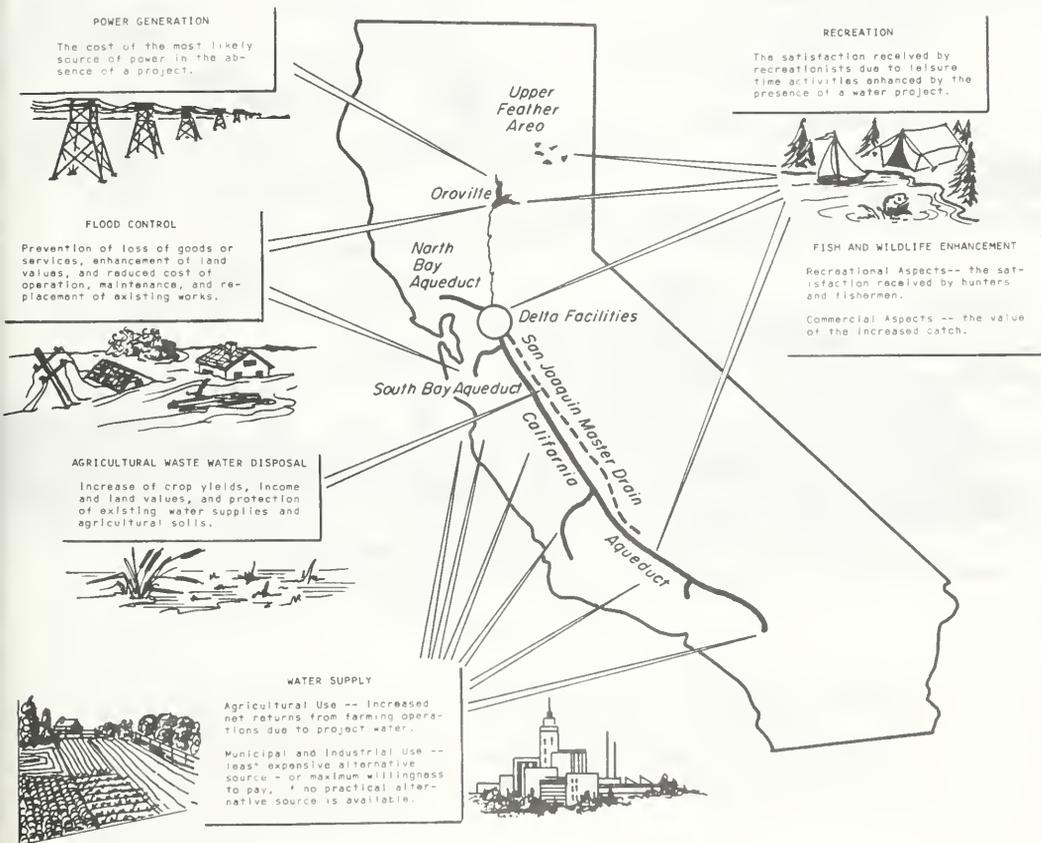
- All financial costs estimated to be incurred for a project facility -- including heavy initial expenditures during the construction period and the subsequent recurring costs for operation, maintenance, power and replacement (O.M.P.&R.) -- are considered in the derivation the facility's allocation percentages.
- The derivation also considers all primary benefits estimated to be realized for the project facility, which generally increase with the buildup in services provided during the operational period.
- Considering the variation of cost and benefit items with time (illustrated below), the derivation must include appropriate interest charges or credits to properly measure the relative weight of each item -- since, because of interest, a dollar expended or received now is worth more than the prospect of expending or receiving a dollar at a future date.

- The dollar amounts shown in the derivation represent those equal annual amounts which, over the entire period of analysis, have a total worth equivalent to that of all annual amounts estimated to be incurred or realized through the end of the corresponding period.



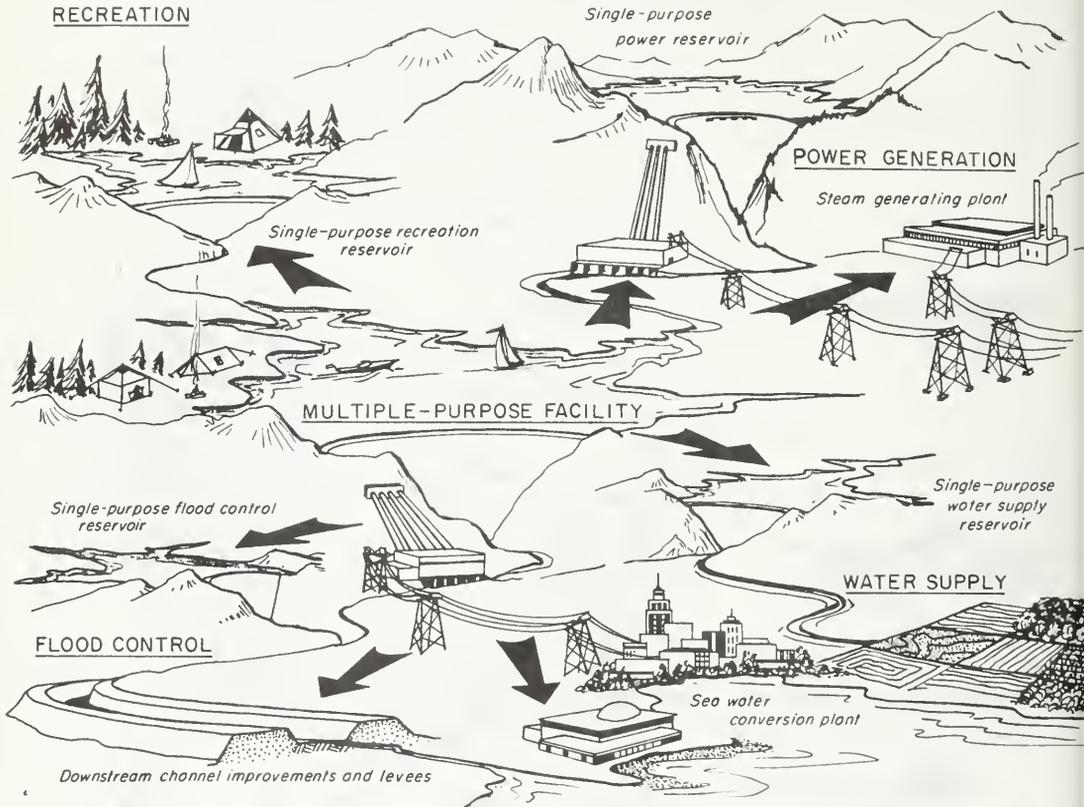
#2 - WHAT ARE PROJECT PURPOSES AND BENEFITS?

- o Water projects are planned and constructed with definite purposes in mind for the benefit of mankind.
- o Project purposes are the respective categories into which primary benefits can be classified -- the worth of each category being estimated under one consistent measure.
- o Primary benefits are estimated as the net value of goods and services directly resulting from a project, after deducting all nonproject costs involved.
- o The facilities of the State Water Project are being planned and constructed for the following purposes, and their respective benefits estimated under the indicated measures:



#3 - WHAT ARE ALTERNATIVE AND JUSTIFIABLE COSTS?

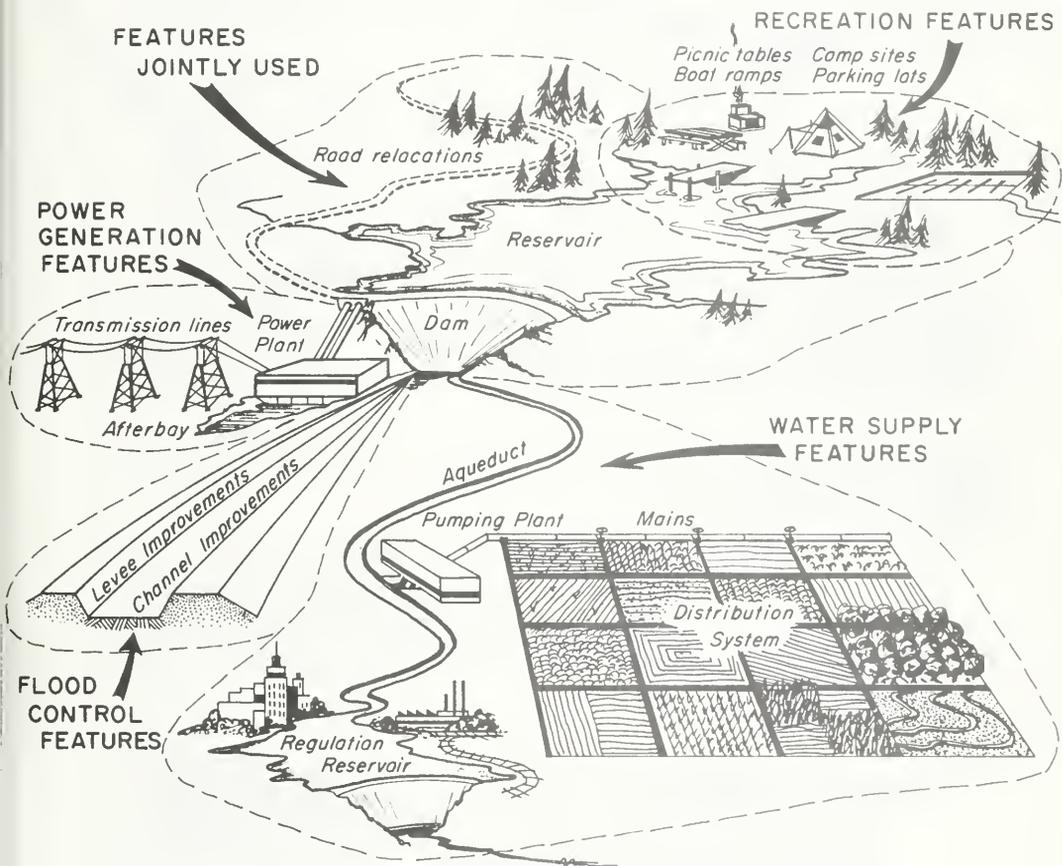
- Alternative costs are those estimated for the least expensive means of providing the same worth of benefits as that for a given purpose included in a particular project facility. Alternative means for various project purposes are illustrated below, and include a hypothetical single-purpose facility located at the same site as the project facility:



- Justifiable costs are the estimated maximum expenditures which theoretically would be justified to realize the benefits of a given project purpose included in a particular project facility. Justifiable costs are equal either to the benefits or the alternative costs of a given purpose, whichever is less.

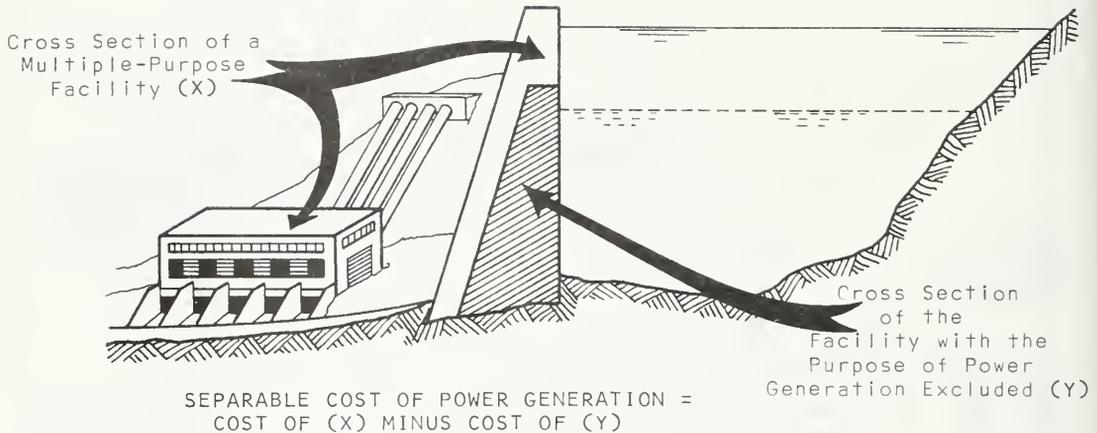
#4 - WHAT ARE SEPARABLE, REMAINING JOINT, AND SPECIFIC COSTS -- AND HOW ARE THEY RELATED TO TOTAL PROJECT COSTS?

- o A typical multiple-purpose facility consists of features jointly used by project purposes, and of features which can be readily identified as serving one project purpose exclusively, as illustrated below:

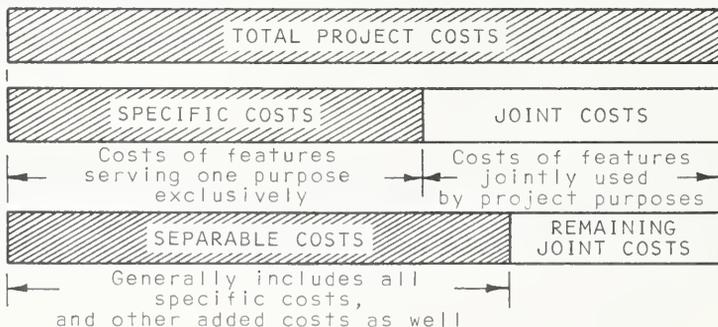


Note: Certain features illustrated above for one project purpose may be jointly used by other purposes -- i.e., the water supply aqueduct could be used also for recreation -- depending upon the particular formulation.

- Separable costs are the estimated costs of including a given project purpose in a particular multiple-purpose facility. (The separable cost of a purpose is determined by estimating the total cost of a multiple-purpose facility with the purpose included and, again, with the purpose omitted. The difference in these two figures constitutes the estimated separable cost of the purpose.)

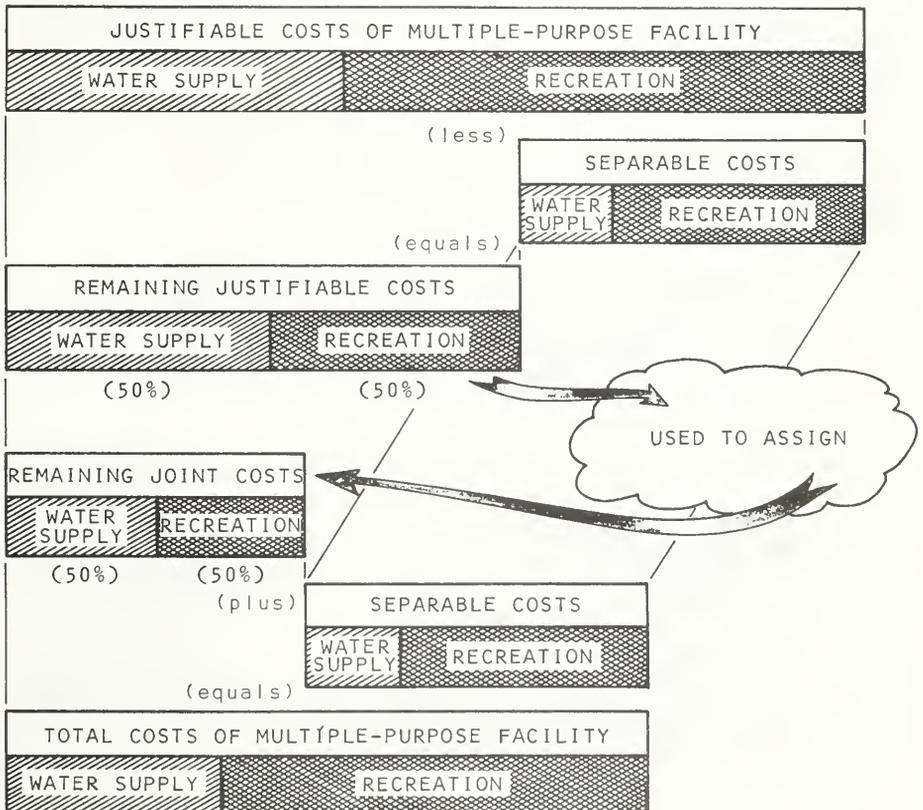


- Remaining joint costs are equal to the total project costs in excess of the separable costs of all purposes included in the facility.
- Specific costs are the costs of features which can be readily identified as serving one project purpose exclusively. Joint costs are the costs of features which can be readily identified as serving more than one project purpose.
- Total project costs are related to separable, remaining joint, specific, and joint costs as illustrated below:



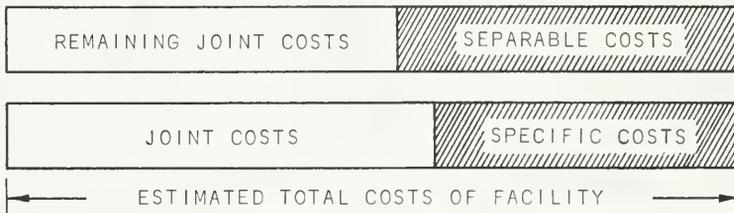
#5 - WHAT IS THE SIGNIFICANCE OF REMAINING JUSTIFIABLE COSTS, AND WHY ARE THEY USED TO ALLOCATE REMAINING JOINT COSTS?

- The remaining justifiable costs of a multiple-purpose facility are those justifiable costs which are in excess of the total separable costs of all purposes included in the facility.
- The proportion of the remaining justifiable costs for each purpose to the remaining justifiable costs, for all purposes of the facility is used to assign a share of the remaining joint costs to each project purpose.
- The above procedure results in an equitable distribution of the total estimated costs of a multiple-purpose facility among the included purposes. The total project costs allocated to each purpose cannot exceed its corresponding justifiable costs, and each purpose carries at least its separable costs. Within these limits, the above procedure provides for proportional sharing of the savings resulting from multiple-purpose formulation.



#6 - IF STEP 8 REPRESENTS TOTAL ALLOCATED COSTS,
WHY ARE STEPS 10 THRU 12 REQUIRED?

- Estimates are inherently involved in the derivation of allocation percentages for a multiple-purpose facility (unless computed in retrospect, at the end of the period of analysis).
- The total project costs of a facility may be estimated as either the sum of estimated separable and remaining joint costs or the sum of estimated specific and joint costs.



- The actual costs for a facility can be determined only as the sum of accounted specific and joint costs, since separable costs represent estimates, which can neither be identified with physical features nor actually determined.



- In the case of recreation and fish and wildlife enhancement (excluding recreation lands), the specific costs of a facility are accounted by agencies other than the Department, and are financed by funds other than project funds.
- Therefore, Steps 10 thru 12 are required to derive percentages for each purpose which may be applied to accounted joint costs, rather than to accounted total project costs, but which would still maintain the purpose's proper relationship to the total project costs as indicated in Step 8.

#7 - ARE PERCENTAGES FOR ALL PROJECT FACILITIES DERIVED IN THIS MANNER?

- o The Department uses three standard methods in deriving allocation percentages for facilities of the State Water Project:

Separable Costs Remaining Benefits - for the project conservation facilities and for joint project conservation-transportation facilities.

Alternative Justifiable Expenditure - for the project transportation facilities.

Proportionate Use of Facilities - for dividing allocated costs of joint project conservation-transportation facilities and for distributing water supply costs of project transportation facilities among contractors.

- o The preceding pages have presented a description of the Department's procedure under the Separable Costs-Remaining Benefits method. This procedure is summarized below:
 1. Percentages applicable to the total estimated costs of a multiple-purpose facility, for determining the portion allocable to each included purpose, are derived by:
 - a. Assigning the estimated separable costs to the purpose; and
 - b. Allocating a share of the estimated remaining joint costs to the purpose on the basis of remaining justifiable costs.
 2. The percentage of each purpose's allocation of the estimated total costs is adjusted to a percentage applicable only to the estimated joint costs by deducting the estimated specific costs of each purpose from the costs assigned in (1) above.

The percentages determined in (2) above can then be applied to the actual joint costs of the facility as accounted by the Department.

- o The Department's procedure under the Alternative Justifiable Expenditure method is the same as for the Separable Costs-Remaining Benefits method, except that specific costs, rather than separable costs, are assigned in 1(a) above.
- o The Department's procedure under the Proportionate Use of Facilities method is the same as for the Alternative Justifiable Expenditure method, except that remaining joint costs are allocated on the basis of the proportionate use of facilities, rather than on remaining justifiable costs, in 1(b) above.

APPENDIX B

SPECIFICS OF THE DERIVATION
OF ALLOCATION PERCENTAGES
FOR FRENCHMAN DAM AND LAKE

APPENDIX B
SPECIFICS OF THE DERIVATION
OF ALLOCATION PERCENTAGES
FOR FRENCHMAN DAM AND LAKE

Frenchman Dam and Lake was constructed to serve the purposes of water supply, recreation and fish and wildlife enhancement. The derivation of allocation percentages for the features of Frenchman Dam and Lake, jointly used by project purposes, by the Separable Costs-Remaining Benefits method, was summarized in Table 6. This method is specified in Article 22(e) of the Project's water supply contracts for the cost allocation of project conservation facilities. Appendix A described the character of the items considered in the Separable Costs-Remaining Benefits method. This appendix substantiates the values shown for each item in Table 6.

Benefits

All estimated annual benefits for Frenchman Dam and Lake were estimated for the 50-year period of analysis, 1962 through 2011 -- and were converted to equal annual equivalent values at an interest rate of 4 percent.

Water Supply

The water supply benefits associated with Frenchman Dam and Lake were estimated on the basis of the increase in net returns from farming operations brought about by operation of the facility. The scope of farming operations without the facility during the 50-year period of analysis was based upon estimates

of acreages that could have been beneficially irrigated by natural flows of Little Last Chance Creek during the historical 50-year period, 1914 through 1963. The farming practices assumed were those currently used in Sierra Valley.

The estimate of net returns from farming operations under project conditions was based on the estimated availability of irrigation water from Frenchman Dam and Lake, assuming the facility had been in operation during the period 1914 through 1963. The reservoir was assumed to be operated to yield a minimum of 5,000 acre-feet per year and a maximum of 12,000 acre-feet per year, producing an average supply over the 50 years of about 10,000 acre-feet. These water supply estimates were used to project annual irrigated acreages and, in turn, net agricultural income. It was predicted that full development of the land under project conditions would occur by the end of the first decade.

The tabulation below summarizes the foregoing estimates of increased net returns from farming operations, due to the contemplated operation of Frenchman Dam and Lake. The estimated annual water supply benefits are shown by decade totals, together with the total present worth of such benefits.

WATER SUPPLY BENEFITS OF FRENCHMAN DAM AND LAKE
(in dollars)

Decade	: Total : benefits	: Present worth : of benefits
1962-1971	194,900	160,200
1972-1981	619,400	344,000
1982-1991	619,400	232,300
1992-2001	619,400	157,000
2002-2011	619,400	106,000
TOTALS	2,672,500	999,500
Equal annual equivalent benefits		
at 4 percent interest for		
50 year period, 1962-2011		
		46,500

Recreation and Fish and Wildlife Enhancement

An actual survey of trips by recreationists to Frenchman Lake was conducted during 1963. On the basis of those data and estimates of the growth of population in the area of California from which recreation visits to Frenchman Lake would originate, the future annual visitor-day use was projected both with and without Frenchman Dam and Lake. The results of these estimates for representative years, together with the projected increases due to the facility, are given in the following table:

VISITOR-USE OF FRENCHMAN DAM AND LAKE
FOR RECREATION AND FISH AND WILDLIFE
(in visitor-days)

Calendar year	Nonproject conditions	Project conditions	Net increases due to project
1962	1,400	32,000	30,600
1963	1,500	61,000	59,500
1970	2,000	100,000	98,000
1980	3,000	127,000	124,000
1990	5,000	146,000	141,000
2000	6,000	167,000	161,000
2010	7,000	218,000	211,000

The derivation of recreation and fish and wildlife benefits due to Frenchman Dam and Lake was based on the above visitor-use estimates. The unit benefit from recreation and fish and wildlife enhancement was estimated to be \$2.40 per visitor-day, inclusive of both daytime and overnight usage. This unit value was applied to each annual value of the projected increase in visitor-day recreation use. The following table summarizes, by decade, the estimated total benefits and the present worths thereof:

RECREATION AND FISH AND WILDLIFE ENHANCEMENT BENEFITS
OF FRENCHMAN DAM AND LAKE
(in dollars)

Decade	:	Total	:	Present worth
	:	benefits	:	of benefits
1962-1971		1,537,000		1,263,200
1972-1981		2,684,800		1,490,800
1982-1991		3,316,500		1,244,100
1992-2001		3,837,600		972,400
2002-2011		5,138,400		879,700
TOTALS		16,514,300		5,850,000
Equal annual equivalent benefits at 4 percent interest for 50-year period, 1962-2011				272,300

Total Project Costs

All equal annual equivalent costs summarized in Table 6 were computed at an interest rate of 3 percent. The total project costs of Frenchman Dam and Lake, estimated originally in Bulletin 59 and used in the cost allocation, are as follows:

TOTAL PROJECT COSTS FRENCHMAN DAM AND LAKE
(in thousands of dollars)

Features	:	:	:	:
	:	Capital	:	Equal annual equivalent
	:	costs	:	costs at 3% interest for
	:	:	:	50-year period 1962-2011
	:	:	:	Capital:O.M.P.&R.: Total
<u>Dam and Reservoir</u>				
Dam and				
appurtenances	885.3	34.3	11.1	45.4
Lands, easements				
and relocations	470.2	18.3	—	18.3
Total Joint Costs	1,355.5	52.6	11.1	63.7
<u>Recreation Development</u>				
Onshore facilities	225.6	8.9	12.0	20.9
Land, easements				
and relocations	113.5	4.4	0	4.4
Total Specific				
Costs	339.1	13.3	12.0	25.3
TOTAL COST OF				
FACILITY	1,694.6	65.9	23.1	89.0

Alternative Costs

The alternative cost of a project purpose is defined as the annual cost of the least costly alternative single-purpose facility that would accomplish the same benefits for that purpose as the multiple-purpose facility. Equal annual equivalent alternative costs were computed at an interest rate of 3 percent.

Water Supply

The single-purpose alternative for the purpose of project irrigation water supply was considered to be a dam and reservoir at the Frenchman site with a gross storage capacity of 30,000 acre-feet and dead storage of 1,300 acre-feet. The following tabulation summarizes the total estimated costs of this hypothetical project:

ALTERNATIVE SINGLE-PURPOSE WATER SUPPLY COSTS (in thousands of dollars)

Features	:	:	: Equal annual equivalent	
	:	Capital	: costs at 3% interest for	
	:	costs	: 50-year period 1962-2011	
	:	:	Capital:	O.M.P.&R.:
<u>Dam and Reservoir</u>				
Dam and appurtenances	626.3	24.3	8.0	32.3
Lands and rights-of-way	316.0	12.3	0	12.3
Relocations	43.2	1.7	0	1.7
Total	985.5	38.3	8.0	46.3

Recreation and Fish and Wildlife Enhancement

The single-purpose alternative facility, which would produce the same recreation and fish and wildlife enhancement benefits as the multiple-purpose facility, was considered to be a dam at the Frenchman site with a gross storage capacity of 30,000 acre-feet. The following tabulation summarizes the total estimated cost of this hypothetical project:

SEPARABLE WATER SUPPLY COSTS
(in thousands of dollars unless otherwise noted)

Facility	:Capacity, : in :acre-feet:	:Capital : costs	:Equal annual equivalents :Capital:O.M.P.&R.:	:Total
Total project facility	50,000	1,694.6	65.9 23.1	89.0
Less: Facility sized without the purpose of water supply ^{a/}	30,000	<u>1,324.6</u>	<u>51.6</u> <u>20.0</u>	<u>71.6</u>
Separable water supply costs		370.0	14.3 3.1	17.4

^{a/} Same as the alternative single-purpose recreation and fish and wildlife enhancement project.

Recreation and Fish and Wildlife Enhancement

The separable recreation and fish and wildlife enhancement cost is the difference in cost between the cost of the multiple-purpose facility and the cost of the facility with the recreation purpose omitted. The following tabulation develops the separable costs of recreation and fish and wildlife enhancement:

SEPARABLE RECREATION
AND FISH AND WILDLIFE ENHANCEMENT COSTS
(in thousands of dollars unless otherwise noted)

Facility	:Capacity, : in :acre-feet:	:Capital : costs	:Equal annual equivalents :Capital:O.M.P.&R.:	:Total
Total project facility	50,000	1,694.6	65.9 23.1	89.0
Less: Facility sized without the purpose of recreation and fish and wildlife enhancement ^{a/}	30,000	<u>985.5</u>	<u>38.3</u> <u>8.0</u>	<u>46.3</u>
Separable recreation and fish and wild- life enhancement costs		709.1	27.6 15.1	42.7

^{a/} Same as the alternative single-purpose water supply project.

Computational Procedure

The estimated total costs of Frenchman Dam and Lake were allocated among the incorporated purposes by the Separable Costs-Remaining Benefits method shown in Steps 1 through 8 of the procedure outlined below. Under this method, each included purpose was assigned its estimated separable cost (Step 4), together with a share of the remaining joint costs (Step 7). The purpose's share of the remaining joint costs was assigned in proportion to the purpose's remaining justifiable costs (Step 5). The steps of the computational procedure were as follows:

1. The benefits for each purpose were presented.
2. The alternative costs of single-purpose facilities were presented.
3. The justifiable costs were determined for each purpose as the lesser of either of the values presented in Step 1 or Step 2.
4. The separable costs of each purpose were presented.
5. The remaining justifiable costs were determined for each facility purpose by subtracting the separable costs for each purpose (Step 4) from its justifiable costs (Step 3).
6. The remaining justifiable costs for each purpose (Step 5) were expressed as percentages of the total.
7. The total separable costs were deducted from the total allocated project costs to determine the total remaining joint costs. The total remaining joint costs were then distributed proportionately among the project purposes by applying the percentages determined in Step 6.
8. The total project costs allocated to each purpose were determined as the sum of the estimated separable costs (Step 4) and the estimated remaining joint costs assigned to the purpose (Step 7).

Percentages applicable to the facility's estimated joint costs (i.e., the estimated costs of features jointly used by both purposes) were then derived from the above allocation -- shown in Steps 10 through 12 of the procedure outlined below. For comparison, the allocation percentages applicable to the total estimated costs of the facility are shown in Step 9, as follows:

9. The estimated total costs, allocated among purposes (Step 8), were expressed as percentages of the total.
10. The estimated specific costs of Frenchman Dam and Lake (i.e., those for the recreation and fish and wildlife development) were presented.
11. The estimated joint costs (i.e., those for features jointly used by both purposes) were assigned to each purpose by deducting the specific costs (Step 10) from the purpose's total allocated costs (Step 8).
12. The estimated joint costs, allocated among purposes (Step 11), were expressed as percentages of the total.

APPENDIX C
COMMENTS BY THE DEPARTMENT OF PARKS AND RECREATION

Memorandum

To : Honorable William E. Warne, Director
Department of Water Resources
Resources Building, 11th Floor
Sacramento, California

Date : December 20, 1966

Subject: Department of Water
Resources' Cost Allocations
for Facilities of the State
Water Project

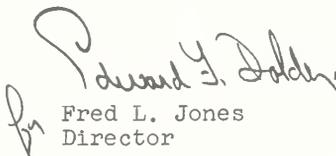
From : **Department of Parks and Recreation**

This is in reply to your recent request for the comments of the Department of Parks and Recreation on proposed cost allocations for Frenchman and Antelope Dams and Lakes and on land acquisition expenditures contained in the Department of Water Resources' Bulletin 153-67.

The Department of Parks and Recreation has reviewed in detail the cost allocation proposals for Frenchman and Antelope Dams and Lakes and agrees to the allocations as presented in Table I of the draft Bulletin 153-67.

Also included in Table I is a listing of costs which apply to rights of way, easements and property for recreation development associated with several of the units of the State Water Project for which the Department of Water Resources is requesting reimbursement. The Department of Parks and Recreation is in agreement with those costs presented for land acquired at each of the units of the State Water Project which are included in Table I of Bulletin 153-67, as revised and presented to the Department of Parks and Recreation on December 19, 1966.

Thank you for the opportunity to review and comment upon the advance copy of Bulletin 153-67.

 **DEPUTY DIRECTOR**
Fred L. Jones
Director

FLJ:WJH:wh

cc: Mr. S. Thompson
Mr. Warren
Mr. Rowe
Mr. Hiller
Mr. Hjersman
Mr. Emrie

APPENDIX D
COMMENTS BY THE DEPARTMENT OF FISH AND GAME

Memorandum

To : Honorable William E. Warne
Director
Department of Water Resources
1416 Ninth Street
Sacramento, California 95814

Date: December 13, 1966

From : Department of Fish and Game

Subject: WP - State of California, Department of Water Resources -
State Water Project - Allocations of Costs to Recreation
and Fish and Wildlife Enhancement

In accordance with Water Code Section 11912, as amended by the 1966 Legislature, you submitted Bulletin No. 153-67 to us for comment on December 6, 1966. This bulletin presents a summary of costs allocated to recreation and fish and wildlife enhancement at facilities of the State Water Project. It further requests the Legislature's approval of allocations and expenditures for recreation and fish and wildlife enhancement in connection with Frenchman Dam and Lake, Antelope Dam and Lake and for certain lands acquired for recreation at a number of project facilities.

We concur with allocated joint costs of \$1,537,395 for Frenchman Dam and Lake, and \$4,509,945 for Antelope Dam and Lake.

The costs allocated to fish and wildlife enhancement apparently will not be separated from costs allocated to general recreation enhancement in future editions of your Bulletin No. 153 series. We would like for you to consider the desirability of separating such costs since it would facilitate our future review of joint cost allocations for a number of facilities of the State Water Project.

The recreation rights-of-way, easements, and property expenditures for which you are requesting legislative approval were based on recommendations made by the Department of Parks and Recreation. We have previously concurred with the recreation land acquisition plans that resulted in the specified expenditures. We believe Parks should now comment on the appropriateness of those acquisitions which have been completed.

December 13, 1966

This Department has previously made specific recommendations for land acquisition for fish and wildlife enhancement at State Water Facilities; however, you are not requesting approval of any expenditures for such lands in Bulletin No. 153-67. In that connection, we are disappointed that you have not been able to proceed with acquisition of lands, easements and rights-of-way along Big Grizzly Creek below Lake Davis, as we recommended in 1964. An outstanding opportunity for substantial improvement of a stream fishery may be lost if public access is not provided to Big Grizzly Creek.



Director

cc: Honorable Fred L. Jones

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

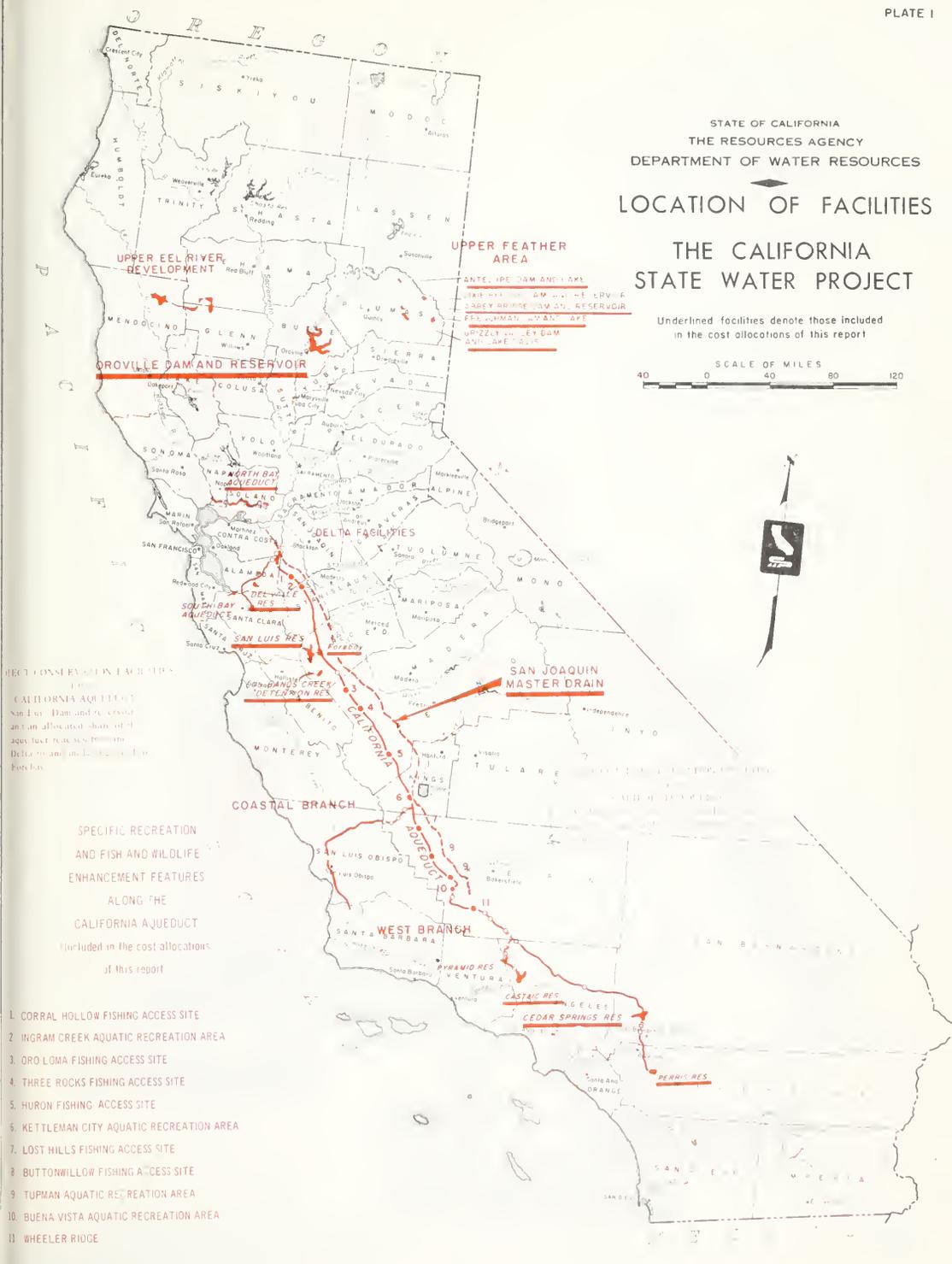


RECREATION FACILITIES

CALIFORNIA AQUEDUCT
San Luis Dam and reservoir and an allocated share of the aqueduct facilities from the Delta to and in Los Angeles County.

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 RECREATION AREA
3. DRO LOMA FISHING ACCESS SITE
4. THREE ROCKS FISHING ACCESS SITE
5. HURON FISHING ACCESS SITE
6. KETTLERMAN CITY AQUATIC RECREATION AREA
7. LOST HILLS FISHING ACCESS SITE
8. BUTTONWILLOW FISHING ACCESS SITE
9. TUPMAN AQUATIC RECREATION AREA
10. BUENA VISTA AQUATIC RECREATION AREA
11. WHEELER RIDGE



STATE OF CALIFORNIA
 THE RESOURCES AGENCY
 DEPARTMENT OF WATER RESOURCES

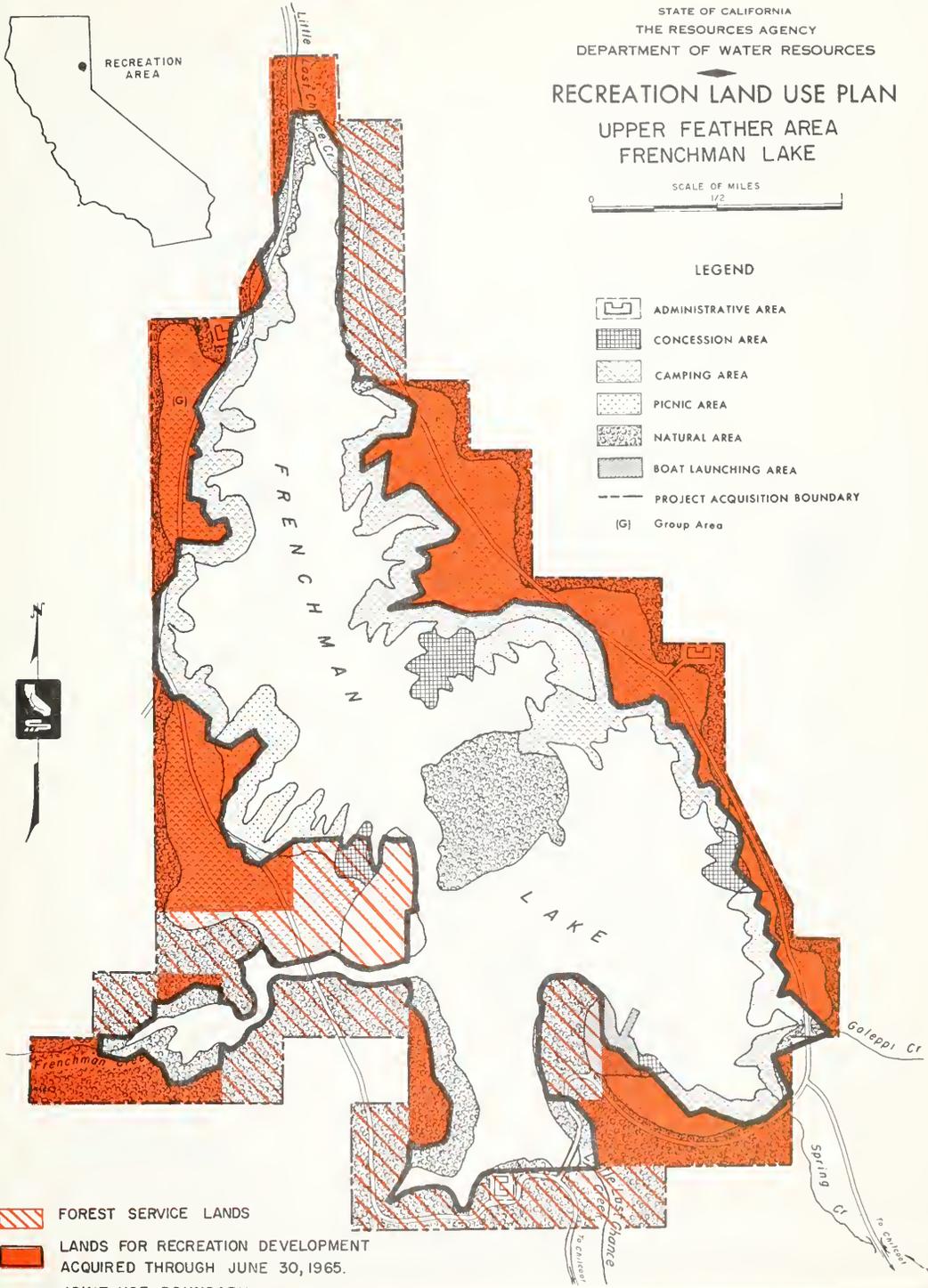
RECREATION LAND USE PLAN
 UPPER FEATHER AREA
 FRENCHMAN LAKE

SCALE OF MILES
 1/2



LEGEND

- ADMINISTRATIVE AREA
- CONCESSION AREA
- CAMPING AREA
- PICNIC AREA
- NATURAL AREA
- BOAT LAUNCHING AREA
- PROJECT ACQUISITION BOUNDARY
- Group Area

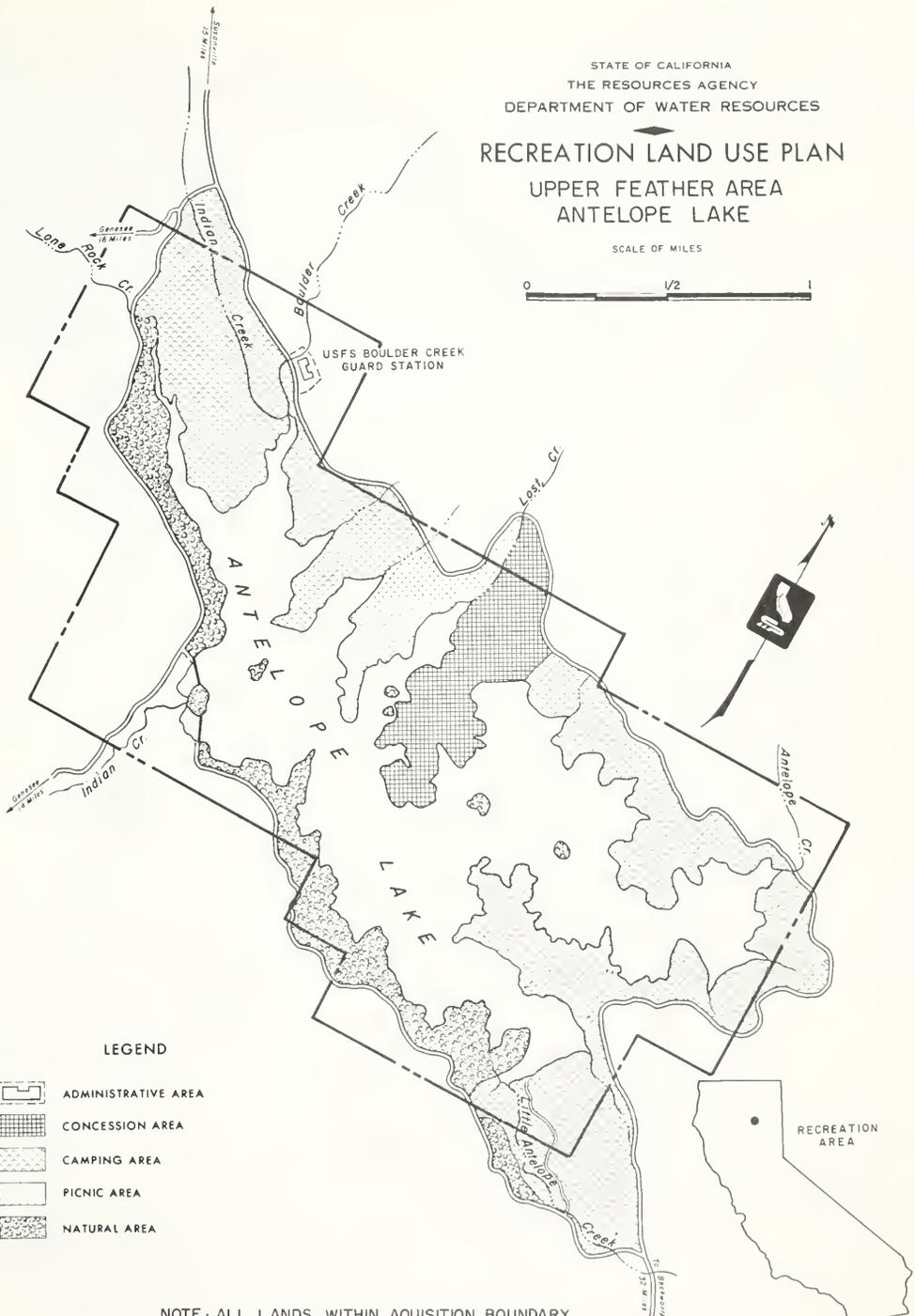
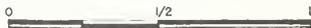


- FOREST SERVICE LANDS
- LANDS FOR RECREATION DEVELOPMENT
 ACQUIRED THROUGH JUNE 30, 1965.
- JOINT USE BOUNDARY

STATE OF CALIFORNIA
 THE RESOURCES AGENCY
 DEPARTMENT OF WATER RESOURCES

RECREATION LAND USE PLAN
 UPPER FEATHER AREA
 ANTELOPE LAKE

SCALE OF MILES



LEGEND

- ADMINISTRATIVE AREA
- CONCESSION AREA
- CAMPING AREA
- PICNIC AREA
- NATURAL AREA

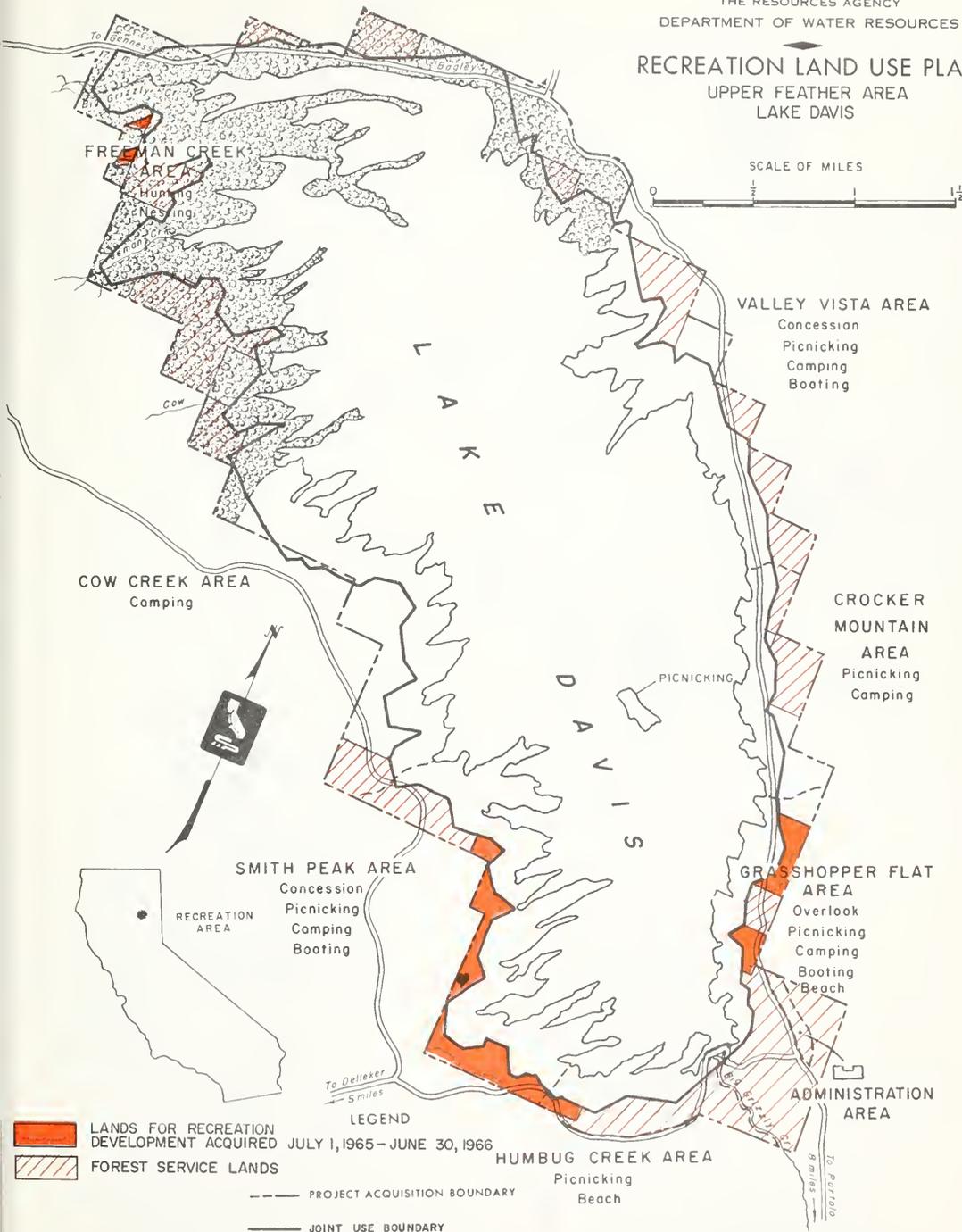
NOTE: ALL LANDS WITHIN ACQUISITION BOUNDARY
 REQUIRED FOR FEATURES JOINTLY USED BY PROJECT PURPOSES

----- ACQUISITION BOUNDARY

STATE OF CALIFORNIA
 THE RESOURCES AGENCY
 DEPARTMENT OF WATER RESOURCES

RECREATION LAND USE PLAN
 UPPER FEATHER AREA
 LAKE DAVIS

SCALE OF MILES



COW CREEK AREA
 Camping

VALLEY VISTA AREA
 Concession
 Picnicking
 Camping
 Boating

CROCKER MOUNTAIN AREA
 Picnicking
 Camping

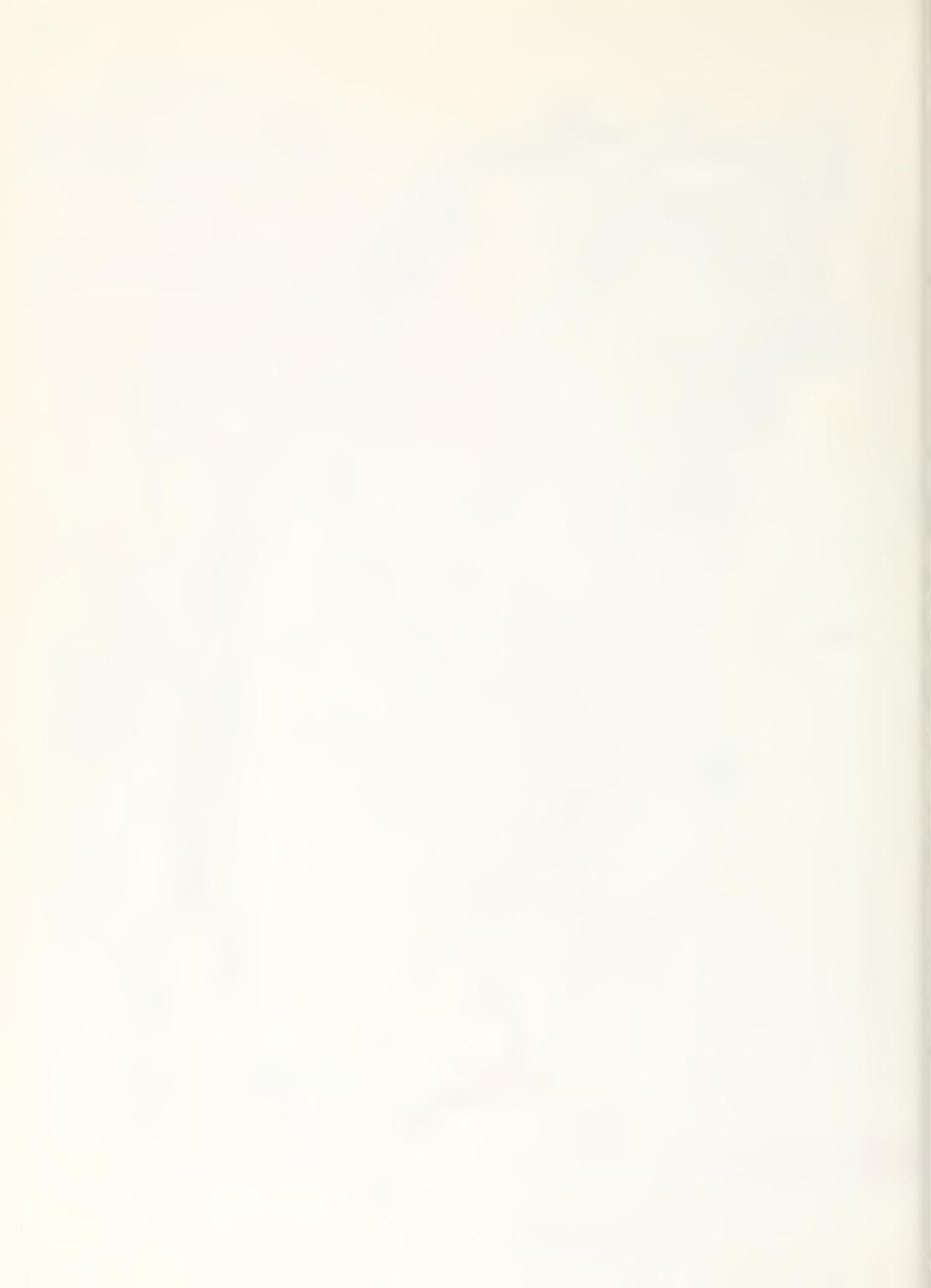
SMITH PEAK AREA
 Concession
 Picnicking
 Camping
 Boating

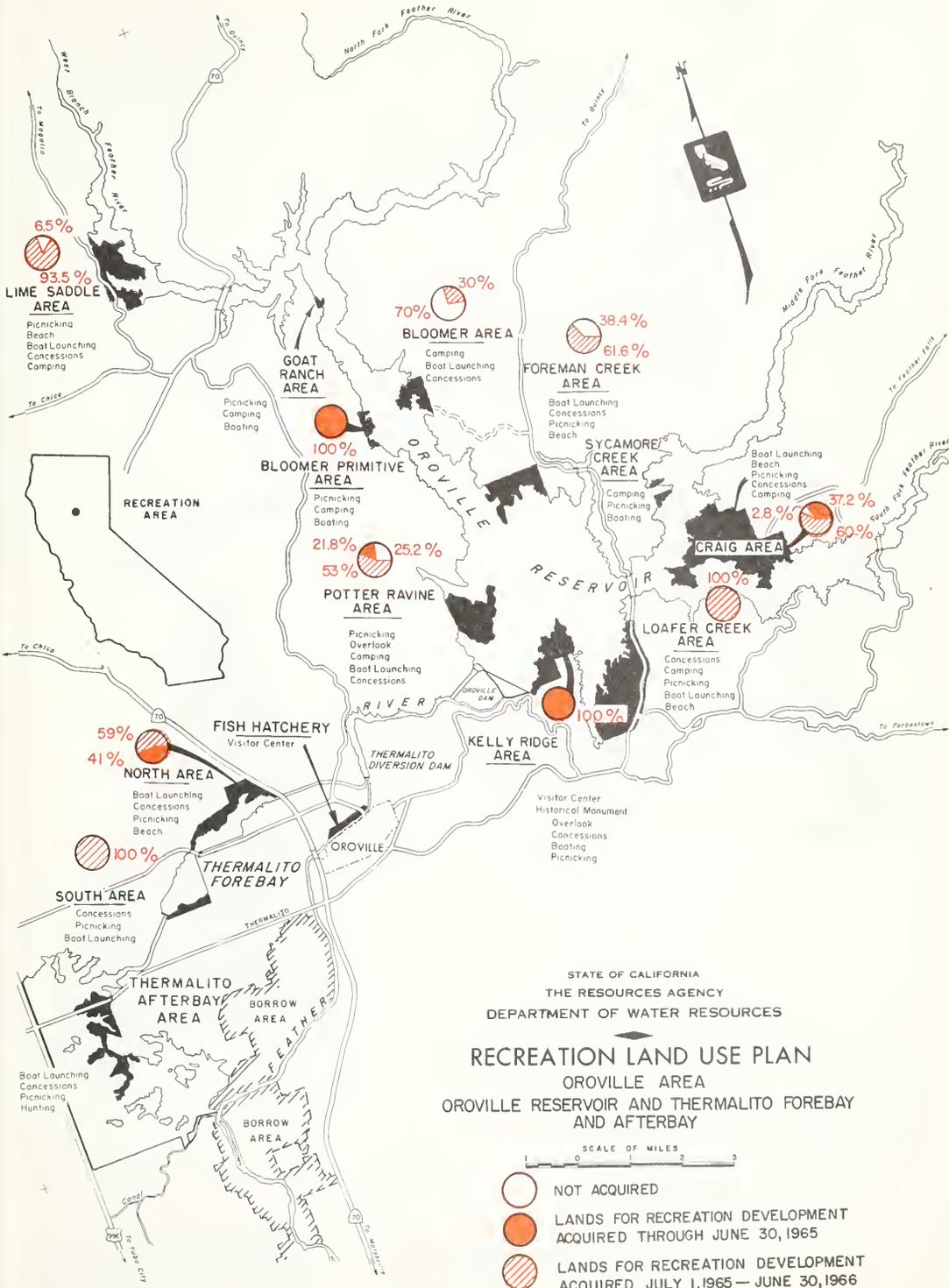
GRASSHOPPER FLAT AREA
 Overlook
 Picnicking
 Camping
 Boating
 Beach

ADMINISTRATION AREA

HUMBUG CREEK AREA
 Picnicking
 Beach

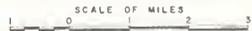
- LEGEND**
- LANDS FOR RECREATION DEVELOPMENT ACQUIRED JULY 1, 1965 - JUNE 30, 1966
 - FOREST SERVICE LANDS
 - PROJECT ACQUISITION BOUNDARY
 - JOINT USE BOUNDARY





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 THE RESOURCES AGENCY
 DEPARTMENT OF WATER RESOURCES

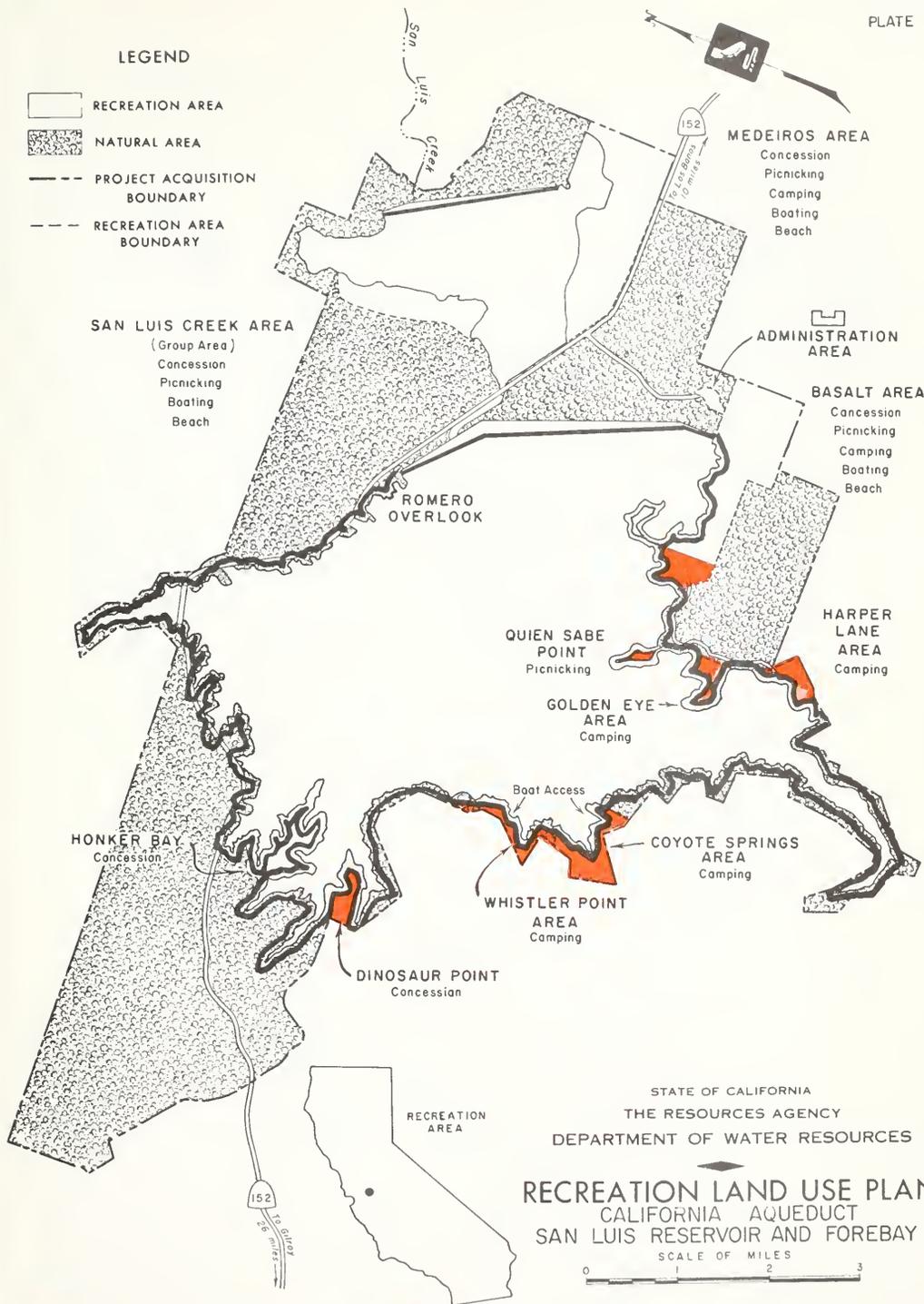
RECREATION LAND USE PLAN
 OROVILLE AREA
 OROVILLE RESERVOIR AND THERMALITO FOREBAY
 AND AFTERBAY



- NOT ACQUIRED
- LANDS FOR RECREATION DEVELOPMENT ACQUIRED THROUGH JUNE 30, 1965
- LANDS FOR RECREATION DEVELOPMENT ACQUIRED JULY 1, 1965 — JUNE 30, 1966

LEGEND

-  RECREATION AREA
-  NATURAL AREA
-  PROJECT ACQUISITION BOUNDARY
-  RECREATION AREA BOUNDARY



 LANDS FOR RECREATION DEVELOPMENT ACQUIRED JULY 1, 1965 - JUNE 30, 1966

 LANDS FOR RECREATION DEVELOPMENT ACQUIRED THROUGH JUNE 30, 1965

 JOINT USE BOUNDARY

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DEPARTMENT OF WATER RESOURCES

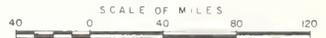
RECREATION LAND USE PLAN
CALIFORNIA AQUEDUCT
SAN LUIS RESERVOIR AND FOREBAY

SCALE OF MILES
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STATE OF CALIFORNIA
 THE RESOURCE AGENCY
 DEPARTMENT OF WATER RESOURCES

SPECIFIC RECREATION
 AND FISH AND WILDLIFE
 ENHANCEMENT FEATURES
 along the
 CALIFORNIA AQUEDUCT

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



INDEX OF FEATURES

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- 2 INGRAM CREEK AQUATIC RECREATION AREA
- 3 PRESTIMBA FISHING ACCESS SITE
- 4 TULUMA FISHING ACCESS SITE
- 5 THREE ROCKS FISHING ACCESS SITE
- 6 HIRSH FISHING ACCESS SITE
- 7 KETTLEMAN CREEK AQUATIC RECREATION AREA
- 8 EAST HILLS FISHING ACCESS SITE
- 9 BAYTONWILL FISHING ACCESS SITE
- 10 TUPMAN AQUATIC RECREATION AREA
- 11 BUENA VISTA AQUATIC RECREATION AREA
- 12 WHEELER RIDGE FISHING ACCESS SITE

- 13 RITTER CANYON AQUATIC RECREATION AREA
- 14 BARRE SPRING AQUATIC RECREATION AREA
- 15 GRAND WASH AQUATIC RECREATION AREA
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