



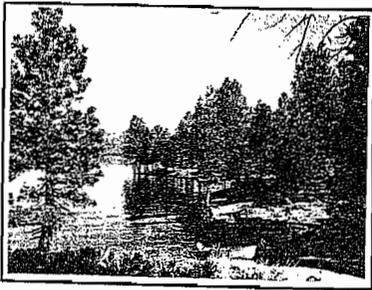
State of California
The Resources Agency

Department of
Water Resources



The California State Water Project— Appendix D Costs of Recreation and Fish and Wildlife Enhancement

Bulletin 132-82
October 1982



ON THE COVER: Fishing boats on the pine-covered shoreline of Lake Davis. (DWR photo 3996-26)

**Department of
Water Resources**

Bulletin 132-82

**The California State
Water Project—
Appendix D
Costs of Recreation and Fish
and Wildlife Enhancement**

October 1982

Huey D. Johnson
Secretary for Resources

Edmund G. Brown Jr.
Governor

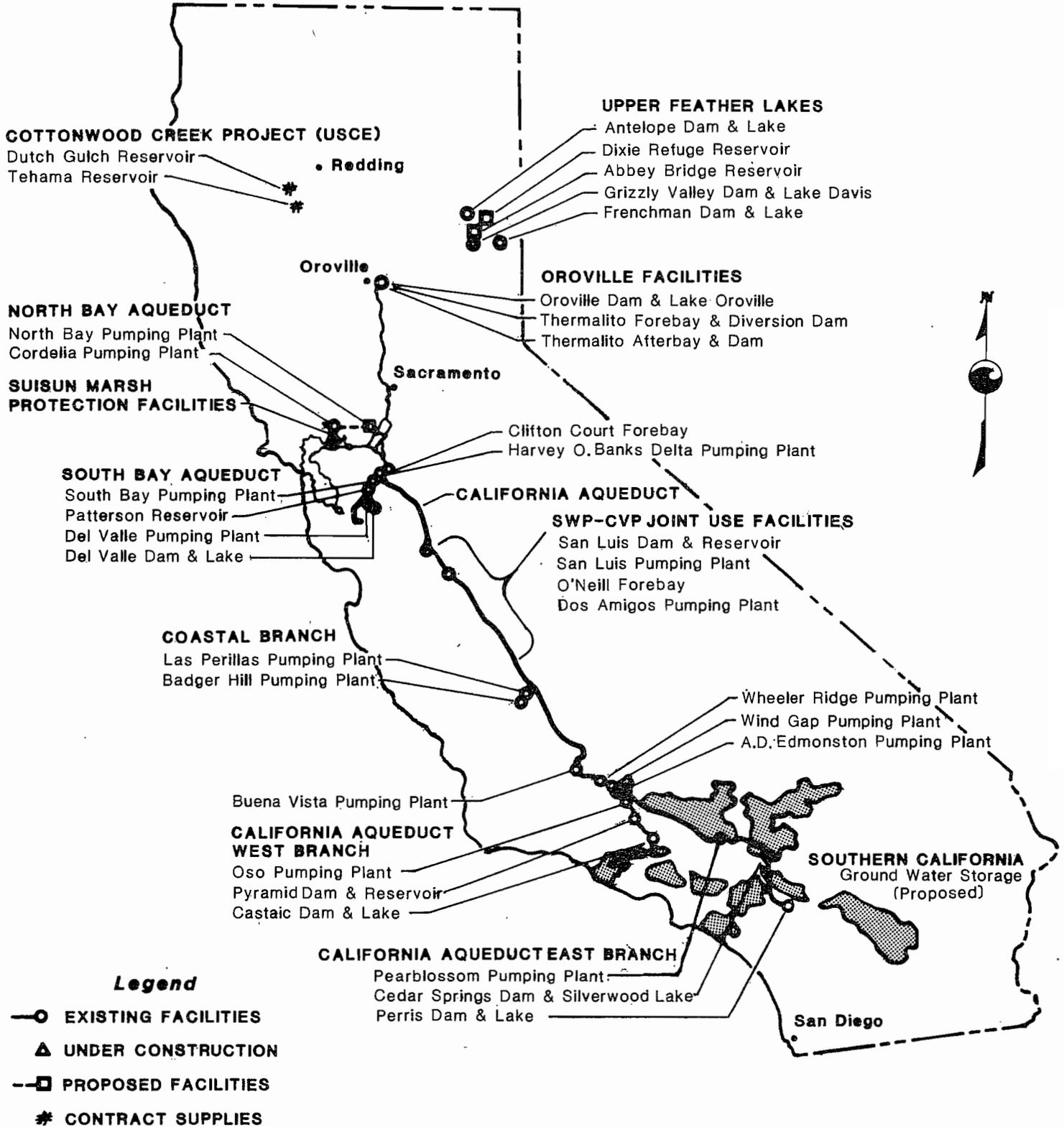
Ronald B. Robie
Director

**The Resources
Agency**

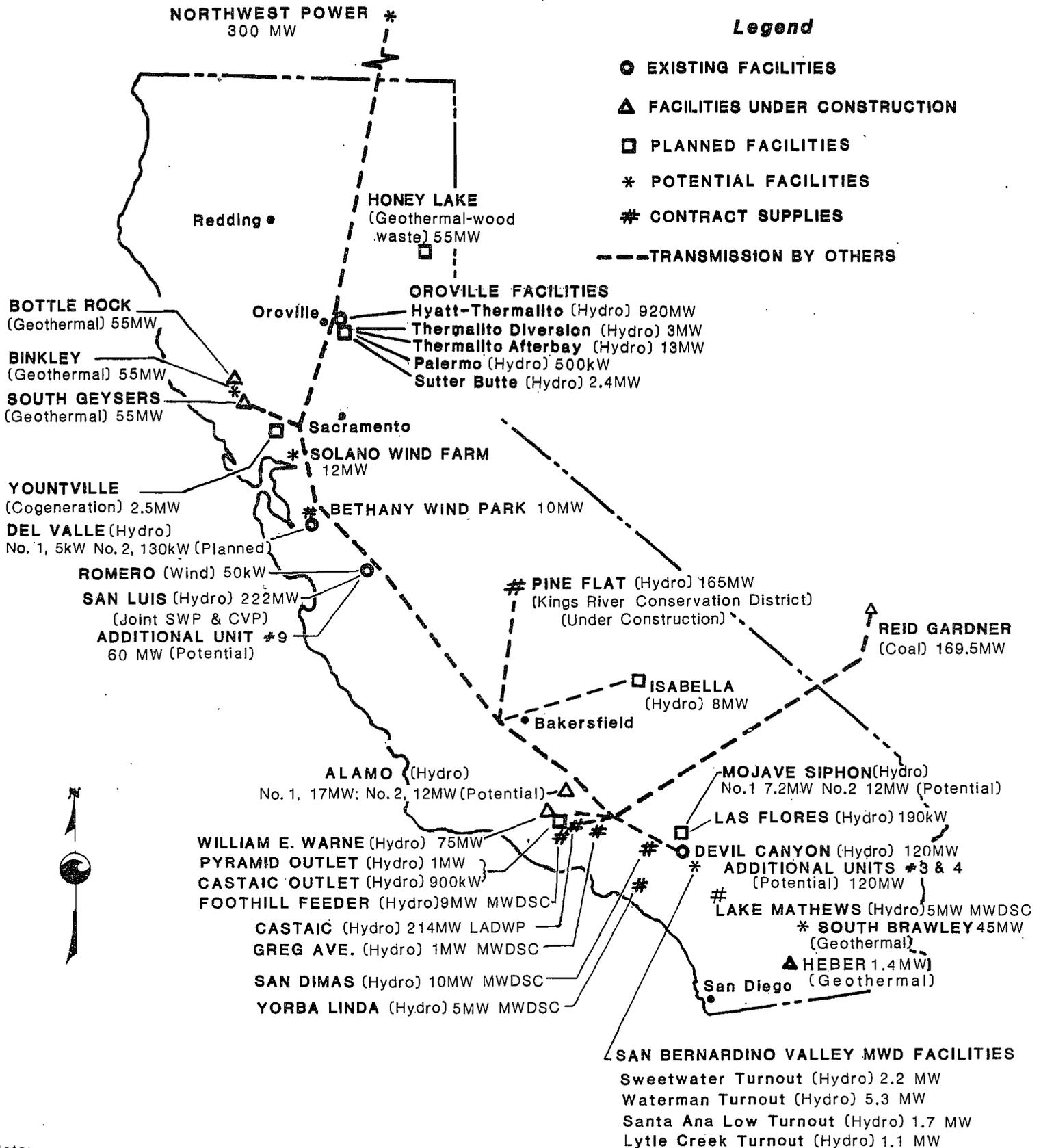
**State of
California**

**Department of
Water Resources**

CALIFORNIA STATE WATER PROJECT WATER FACILITIES



CALIFORNIA STATE WATER PROJECT POWER FACILITIES



Note:
Power exchange and transmission service supplied by Pacific Gas and Electric, Southern California Edison and San Diego Gas and Electric Companies and the Los Angeles Department of Water and Power.

FOREWORD

The Davis-Dolwig Act (Sections 11900-11925 of the California Water Code) declares that providing for the enhancement of fish and wildlife and for recreation in connection with state water projects benefits all of the people of California and that the costs attributable to such enhancement should be borne by them. The act also provides a procedure through which the Department of Water Resources will be reimbursed for those project costs which are allocated to recreation and fish and wildlife enhancement and for costs of acquiring property for recreation development. The Department is to annually report such expenditures to the Legislature. If the Legislature approves the reported costs, a like amount of the State's tideland oil and gas revenues will be released to the Department from a continuing \$5,000,000 annual appropriation of tideland revenues which has been authorized specifically for that purpose (Public Resources Code Section 6217). However, for the 1982-83 fiscal year only, this annual authorization was deleted by the Legislature.

Under Public Resources Code Section 6217 the Department receives from tideland revenues \$5 million annually for repayment of Project capital costs allocated to recreation and fish and wildlife enhancement, and \$25 million a year for State Water Project construction. State Water Project costs allocated to recreation and fish and wildlife enhancement reported herein total \$188,845,155. The Department has been reimbursed \$80,000,000 through the continuing \$5,000,000 annual appropriation of tideland revenues, leaving a current balance of \$108,845,155. The \$25 million a year advanced for Project construction must be repaid to the California Water Fund. In fiscal year 1982-83 the Department repaid the California Water Fund \$52 million, leaving a current balance of \$385 million due the Fund. If the \$108,845,155 balance due to the Department for Project costs allocated to recreation were applied to reduce the amount the Department owes the California Water Fund, the balance due the California Water Fund would be reduced to about \$276 million.

This is the Department's 1982 report to the Legislature in compliance with the Davis-Dolwig Act. An additional \$4,165,602 for recreation and fish and wildlife enhancement is reported herein. This amount consists of \$3,794,630 for joint capital costs of the State Water Project which are allocated to recreation and fish and wildlife enhancement, plus \$370,972 for specific recreation land costs. The additional amount is generally due to costs incurred in 1981 and interest accrued during 1981 on recreation costs not yet reimbursed by the continuing annual appropriation. Also included in this report is the revised derivation of allocation percentages for Grizzly Valley Dam and Lake Davis.



Ronald B. Robie, Director
Department of Water Resources
The Resources Agency
State of California

State of California
EDMUND G. BROWN JR., Governor

The Resources Agency
HUEY D. JOHNSON, Secretary for Resources

Department of Water Resources
RONALD B. ROBIE, Director

CHARLES R. SHOEMAKER
Deputy Director

M. CATHERINE BERGREN
Assistant Director

ROBERT W. JAMES
Deputy Director

MARY ANNE MARK
Deputy Director

GERALD H. MERAL
Deputy Director

DIVISION OF OPERATIONS AND MAINTENANCE

Howard H. Eastin Division Chief
Lawrence A. Mullnix Chief of Operations

This report was prepared by the
STATE WATER PROJECT ANALYSIS OFFICE

Lawrence E. Swenson, Chief

under the direction of

Seymour M. Gould, Chief, Project Administration Branch

Donald R. Long, Chief, Cost Allocation and Repayment Section

by

Jesse J. Cason, Associate Engineer

Marge Hutchinson, Assoc. Govern. Prog. Analyst

Susan Shafer, Editorial Aid

Virginia Merson, Office Technician

and on the basis of records compiled under the direction of

Thomas H. T. Morrow, Chief, Division of Land and Right of Way

Donald A. Sandison, Comptroller

Chester M. Winn, Deputy Comptroller

CALIFORNIA WATER COMMISSION

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The California Water Commission serves as a policy advisory body to the Director of Water Resources on all California water resources matters. The nine-member citizen Commission provides a water resources forum for the people of the State, acts as a liaison between the legislative and executive branches of State Government and coordinates Federal, State, and local water resources efforts.

REPORTING OF RECREATION AND FISH AND WILDLIFE ENHANCEMENT COSTS

Section 11912 of the California Water Code assigns to the Department of Water Resources the following responsibilities:

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 Navigation and Ocean Development (Department of Boating and Waterways), to the Department of Parks and Recreation, and to the Department of Fish and Game. The Department of Navigation and Ocean Development, 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...

This appendix is the Department's 1982 report, as required by Section 11912 of the California Water Code.

For brevity, "fish and wildlife enhancement" is hereafter referred to as "enhancement". The Department's cost allocations treat recreation and enhancement as one combined purpose of the State Water Project.

Organization of Report

The costs of State Water Project facilities the Department has allocated to recreation and enhancement through December 31, 1981 are shown in Table 1, pages 8 and 9. Table 1 also shows the expenditures for acquiring rights of way, easements, and property for recreation development associated with such facilities. Table 2, on pages 14 and 15, details the accrued interest charges included in the costs shown in Table 1.

The notes to Table 1, pages 10 through 13, explain the Department's procedures for reporting recreation and enhancement costs, describe how the amounts shown in the table are calculated, and reconcile significant changes from costs shown in previous reports. A revised derivation of allocation percentages for Grizzly Valley Dam and

Lake Davis is included in this report. The derivation of allocation percentages indicated for joint capital costs of those multipurpose facilities listed in the upper portion of Table 1 (except Grizzly Valley Dam and Lake Davis, which is reported herein) have been described in previous reports. Copies of those descriptions are available on request to the Department.

A summary of allocation percentages is shown on page 16, along with illustrative allocation percentages for facilities not yet reported.

Included at the end of this report are comments by the Department of Boating and Waterways, the Department of Parks and Recreation, and the Department of Fish and Game.

TABLE 1: RECREATION AND ENHANCEMENT
(Reported to the California Legislature in

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TYPE OF COSTS, PROJECT FACILITY, AND SOURCE OF FUNDS	DISBURSEMENTS,						
	1952- 1968	1969	1970	1971	1972	1973	1974
JOINT CAPITAL COSTS ALLOCATED TO RECREATION AND ENHANCEMENT: (b)							
Frenchman Dam and Lake (78.5%)							
California Water Resources Development Bond Fund	93,226	46	1,891	7,199	1,235		
All other funds	2,522,324	1,123	260	225	1,600	272	1,192
Subtotal	2,522,550	1,169	1,551	7,425	2,835	272	1,192
Antelope Dam and Lake (100%)							
California Water Resources Development Bond Fund	921,283	9,831	19,119	24,350	1,605		
All other funds	3,721,166	277,312	5,000	3,028	2,026	1,414	1,806
Subtotal	4,701,649	287,143	24,122	27,378	3,701	1,414	1,806
Oriskany Valley Dam and Lake Davis (99.0%)							
California Water Resources Development Bond Fund	3,960,099	24,507	5,952	10,023	1,733		
All other funds	294,020	163,061	64,884	760	2,728	25,186	47,460
Subtotal	4,255,019	187,568	70,837	10,792	4,461	25,186	47,560
San Luis Dam and Reservoir, O'Neill Forebay and Los Banos Reservoir (3.4%)							
California Water Resources Development Bond Fund	2,004,715	-1,690	6,390	4,940	-18,604	-268	-381
All other funds	1,314,804	28,597	301	2,420	2,227	2,347	22,260
Subtotal	3,319,519	26,907	6,692	7,360	-16,377	2,079	21,879
California Aqueduct, Delta to Los Amigos P.P. (3.4%)							
California Water Resources Development Bond Fund	4,290,003	76,996	80,281	16,390	4,027		
All other funds	406,920	166,778	47,332	3,146	6,245	7,861	12,243
Subtotal	4,756,923	243,774	127,613	19,536	10,272	7,861	12,243
Crowville Division (2.9%)							
California Water Resources Development Bond Fund	5,813,383	26,289	7,453	7,843	4,655		
All other funds	3,284,692	87,220	27,840	1,320	10,773	23,774	26,140
Subtotal	9,098,075	113,509	35,293	9,163	15,428	23,774	26,098
Del Valle Dam and Lake Del Valle (8.0%)							
California Water Resources Development Bond Fund	10,459,262	3,894	19,510	23,848	40,948		
All other funds	2,011,266	88,292	15,201	2,700	6,681	9,614	115,645
Subtotal	12,470,528	88,623	34,711	26,548	46,929	9,614	115,645
California Aqueduct, Dos Amigos P.P. to Termini (5.7%)							
California Water Resources Development Bond Fund	24,458,322	4,441,004	9,013,911	7,815,230	2,994,889	-2,130	-38,892
All other funds	6,641,182	6,128,600	3,365,488	1,848,310	1,313,733	2,730,026	1,466,020
Subtotal	31,102,507	10,569,604	12,379,402	9,663,540	4,308,622	2,716,966	1,427,128
TOTAL	72,159,967	11,759,897	12,700,235	9,774,751	4,356,909	2,794,799	1,643,864
SPECIFIC COSTS OF ACQUIRING LAND FOR RECREATION DEVELOPMENT: (c)							
Frenchman Dam and Lake							
California Water Resources Development Bond Fund	3,061	28	182	108			
All other funds	49,864	74	782	113			
Subtotal	52,925	102	964	221			
Oriskany Valley Dam and Lake Davis							
California Water Resources Development Bond Fund	202,824	324	625	343			
All other funds	5,246						
Subtotal	208,070	324	625	343			
Abbey Bridge Dam and Reservoir							
California Water Resources Development Bond Fund	9						
All other funds	9,227						
Subtotal	9,236						
San Luis Dam and Reservoir, O'Neill Forebay, and Los Banos Reservoir							
California Water Resources Development Bond Fund	228,166	1,344	47,115	1,964	216,691		
All other funds	229,164	1,132	470	470	-1,154	19,102	118
Subtotal	457,330	2,476	47,585	2,434	215,537	19,102	118
California Aqueduct, Delta to Dos Amigos P.P.							
California Water Resources Development Bond Fund	460,516	4,299	5,115	-9,735	891		
All other funds	24,010	11,337	1,353	1,117	180	83	113
Subtotal	484,526	15,636	6,468	-8,618	1,071	83	113
Crowville Division							
California Water Resources Development Bond Fund	1,873,397	-6,886	4,160	10,135	-509		
All other funds	279,242	31,682	1,227	1,537	1,247	1,132	1,201
Subtotal	2,152,639	24,796	5,387	11,672	738	1,132	1,116
Del Valle Dam and Lake Del Valle							
California Water Resources Development Bond Fund	516,647	-1,490	1,689	600	39		
All other funds	-12,954	-260	120	150	728	2,017	820
Subtotal	473,693	-1,750	1,819	750	777	2,017	820
California Aqueduct, Dos Amigos P.P. to Termini							
California Water Resources Development Bond Fund	409,351	52,815	35,374	-8,356	-9,633	-280	
All other funds	19,167	6,560	1,638	2,260	10,317	2,016	1,666
Subtotal	428,518	59,375	37,012	-6,096	704	1,736	1,666
Castaic Dam and Lake							
California Water Resources Development Bond Fund	1,831,796	-44,600	167,713	20,228	-17,551	-2,978	-232
All other funds	36,182	8,898	1,028	1,810	68,130	29,270	6,590
Subtotal	1,867,978	-35,702	168,741	22,038	50,679	25,992	6,358
Cedar Springs Dam and Silverwood Lake							
California Water Resources Development Bond Fund	301,382	32,470	53,310	19,958	18,271		
All other funds	-162,810	222,213	27,051	-12,309	20,654	-325	
Subtotal	131,472	254,683	80,361	7,649	38,925	13,186	28,287
Ferris Dam and Lake Ferris							
California Water Resources Development Bond Fund	839,054	-1,943	271,427	7,776	-94,825	-5,176	
All other funds	3,928,632	-336,325			84,874	20,464	8,222
Subtotal	4,767,686	-338,268	271,427	7,776	-10,951	15,288	8,222
TOTAL	11,157,480	86,359	608,588	47,679	168,318	78,642	40,060
TOTAL RECREATION AND ENHANCEMENT COSTS							
California Water Resources Development Bond Fund	58,728,536	4,617,298	9,746,590	7,922,844	3,020,270	-11,598	-39,634
All other funds	24,288,914	7,228,928	3,258,233	1,852,286	1,298,227	2,882,032	1,731,228
GRAND TOTAL	83,317,447	11,846,226	13,328,823	9,822,430	4,325,227	2,873,441	1,691,924

Footnotes a-g are presented on pages 10 through 13.

Notes to Table 1, Pages 8 and 9

a) Recreation and enhancement costs refer only to (1) multipurpose-facility capital costs allocated to recreation, and (2) the capital costs of lands acquired for associated recreation development. These costs are budgeted by the Department of Water Resources from funds that are available for financing

Project construction costs.

The remaining recreation and enhancement costs not reported in Table 1 are budgeted by several state departments. These costs, financed by appropriations from a variety of funds, are summarized as follows:

Type of Recreation and Enhancement Costs Not Reported in Table 1	General Fund Appropriations, unless otherwise noted		
	1982-83 ^(a)	1981-82 ^(b)	Total 1962-63 thru 1982-83 ^(c)
Allocated operation, maintenance, and replacement costs of multipurpose facilities	\$ 0 ^(d)	\$ 0 ^(d)	\$16,735,000
Capital costs of recreation developments other than for land acquisition	\$4,329,000 ^(e)	\$7,959,000 ^(e)	\$96,683,000 ^{(e) (f)}
Operation, maintenance, and replacement costs of recreation developments	\$7,197,000	\$6,553,000	\$46,174,000

a) *Proposed amounts in Governor's budget.*
 b) *1981-82 budgeted amount.*
 c) *Actual thru 1980-81 plus a) and b).*
 d) *The cost allocation for the California Aqueduct reported in Appendix D to Bulletin 132-80 resulted in general funds being overcollected in past years. The budgeted amounts for 1981-82 and 1982-83 reflect a credit equal to the amounts which the Department otherwise would have budgeted from the general fund. Additional credits will be made in future years until the full amount of the overcollection has been refunded.*
 e) *Amounts from State recreation bond funds and other State and Federal recreation funds.*
 f) *Includes \$1,236,000 from the Harbors and Watercraft Revolving Fund, and \$200,000 directly from the Highway Users Tax Fund.*

Allocated operation, maintenance, power, and replacement costs of multipurpose facilities are budgeted by the Department and financed by annual appropriations from the State General Fund. Capital costs (other than land acquisition costs), along with operation, maintenance, and replacement costs of recreation developments, are budgeted by the Department of Parks and Recreation. However, the costs of constructing boating facilities are budgeted by the Department of Boating and Waterways, and the costs of enhancement developments are budgeted by the Department of Fish and Game.

b) Joint capital costs allocated to recreation and enhancement are based on the Department's derivation, for each multipurpose facility, of the percentages of the total joint costs attributable to each included purpose. These derivations are based on the application of conventional cost allocation methods that weigh the estimated costs to be incurred and the benefits to be realized during a 50-year period of analysis. Allocated costs reflect the application of these percentages to the actual capital costs incurred for each facility, as accounted by the Department.

Costs allocated to recreation and enhancement generally are first reported in the year following the year construction of a facility is completed. However, these allocated costs may be subsequently changed by either the adjustment of accounted capital costs or the revision of allocation percentages.

The allocation percentages of a facility may be revised if it can be demonstrated that such revision is warranted because of substantial changes in the factors supporting the previous derivation. Such demonstration could include a finding that (1) funds are unavailable for financing the costs of planned

project developments, with resulting decreases in projected benefits and costs, (2) a change in cost allocation methods would produce more equitable results, or (3) actual water deliveries or visitor days of use had substantially increased or decreased from the previous projections, resulting in a change in benefits.

The tentative schedule below shows the years when allocated costs of each State Water Project facility were, or will first be, reported and when the factors supporting the derivation of allocation percentages will be periodically reviewed.

TENTATIVE SCHEDULE FOR REPORTING AND REVIEW OF COST ALLOCATIONS

Project Facility	Year Allocation to be Initially Reported	Year Supporting Factors to be Reviewed For Substantial Changes										
		83	84	85	86	87	88	89	90	91	92	93 ^(a)
Frenchman Lake	1965			x						x		
Antelope Lake	1966			x						x		
Lake Davis	1968					x						x
Abbey Bridge Reservoir	(b)											
Dixie Refuge Reservoir	(b)											
Oroville Division ^(c)	1971		x					x				
South Bay Aqueduct (Lake Del Valle)	1973	x					x					x
California Aqueduct, Delta to Dos Amigos Pumping Plant ^(c)	1970											
Bethany Reservoir		x					x					x
San Luis Reservoir		x					x					x
O'Neill Forebay		x					x					x
Los Banos Reservoir		x					x					x
Aqueduct Developments		x					x					x
California Aqueduct, Dos Amigos Pumping Plant to termini	1980											
Pyramid Lake				x						x		
Castaic Lake				x						x		
Silverwood Lake				x						x		
Lake Perris				x						x		
Aqueduct Developments				x						x		

a) Reviews would continue in the pattern indicated.
b) Delayed indefinitely.
c) Will include an evaluation of an allocation of conservation facility costs to recreation and other purposes in Sacramento-San Joaquin Delta.

c) Specific costs of acquiring land for recreation development are incurred by the Department under the authority of California Water Code Section 346. The Department purchases recreation lands concurrently with other lands needed for multipurpose facilities, in

order to (1) decrease the total land costs of the Project and (2) acquire property in an orderly manner. Recreation lands acquired for each Project facility through September 30, 1981 are shown in the following table:

SUMMARY OF RECREATION LAND ACQUISITIONS^(a)
(in acres)
(metric conversion: acres x 0.40469 = hectares)

Project Facility	Acquired (b)	To be Acquired	Federal Lands ^(c)	Total
Frenchman Lake	719	0	0	719
Antelope Lake	1,342	0	0	1,342
Lake Davis	733	0	0	733
San Luis Reservoir and O'Neill Forebay	2,518	0	0	2,518
Oroville Division	2,695	0	212	2,907
Lake Del Valle	1,206	0	0	1,206
California Aqueduct (excluding reservoirs)	1,834 ^(d)	(e)	0	1,834
Castaic Lake	1,915	0	577	2,492
Silverwood Lake	3,223	0	0	3,223
Lake Perris	4,351	115	0	4,466
Total	20,536	115	789	21,440

a) Includes recreation lands for only those project facilities with an established recreation land use and acquisition plan.
b) Costs of acquiring these lands are shown in Table 1.
c) These lands are presently being leased from the Federal Government at a nominal cost to the State.
d) Possession and control of a portion of these lands will be transferred to the Department of Fish and Game for use in the Department's Southern California wildlife mitigation program. When the transfer is made the acreage will be reduced accordingly.
e) Additional land needs are to be identified by future studies.

The Department reports the annual expenditure of Project funds for acquiring all recreation land in the year following the expenditure. The costs of such lands generally are established when acquired, and they are not affected by allocation percentages for the associated multipurpose Project facility. However, the reported costs of certain lands may be subsequently revised due to (1) receipt of certain revenues (such as federal grants and miscellaneous income from rights of way sales), or (2) modification of the recreation land use plan.

The amounts to be reported in future years will include credits for any reduction in previously reported costs, together with interest income thereon. If recreation land is sold or if grants are received, the amount of the receipt will

be reported as a negative cost of the facility during the year received. If recreation land is reclassified as multipurpose Project land, the original purchase price, together with appropriate interest income, will be reported as a negative expenditure for specific land costs, and an appropriate amount will be added to joint capital costs allocated to recreation and enhancement for the associated facility.

The costs of acquiring land for recreation development reported herein include about \$1.1 million for land that will be used to mitigate impacts to wildlife habitat in Southern California resulting from construction of the State Water Project. As these lands are redesignated from recreation to Project (wildlife mitigation) purposes, the amounts to be reported in future years

will include credits for the reduction in previously reported costs, together with appropriate interest income thereon.

The costs of acquiring recreation land also include the salaries of Department personnel engaged in recreation land acquisition activities, together with indirect costs distributed on the basis of direct salaries.

d) Interest accruals are calculated as shown in Table 2. Interest charges are accrued only on the portion of annual disbursements financed by the California Water Resources Development Bond Fund (proceeds from the sale of Burns-Porter bonds) and cease when such disbursements, together with cumulative interest accruals thereon, have been reimbursed. Calculations are based on the weighted average interest costs of Burns-Porter bonds sold to date (4.378 percent for the \$1.57 billion in bonds outstanding on December 31, 1981). This rate differs from the "Project Interest Rate" under Project water supply contracts, in that interest costs on revenue bond sales are not included.

As of December 31, 1981, a total of \$80 million had been reimbursed to the Department under the continuing annual \$5 million appropriation (through fiscal year 1981-82) of State tideland oil and gas revenues, authorized by California Statutes of 1966, First Extraordinary Session, Chapter 27. With no allowance for future interest, reimbursement of the increased costs reported herein would cover the annual appropriations in the full amounts for each fiscal year through fiscal year 2002-03 together with \$3,845,155 of the appropriation for 2003-04. With future interest computed at 4.378 percent, reimbursement of the costs reported herein would cover the appropriations in the full amounts for each fiscal year through 2011-12 together with \$4,541,021 of the appropriation for 2012-13:

e) Costs previously reported are as shown in Table 1 (pages 8 and 9) of Appendix D to Bulletin 132-81. Such

costs were based on the Department's accounting records as of December 31, 1980. The average interest cost on Burns-Porter bond sales was then 4.378 percent.

f) Reasons for cost increases are outlined below:

- o Additional disbursements during 1981 for recreation lands and for joint capital costs allocated to recreation and enhancement \$2,271,000
 - o Additional accrued interest on recreation costs not yet reimbursed by the continuing \$5 million annual appropriation due to changes in bond fund expenditures and an additional year of accrual (1981). . \$3,164,000
 - o Adjustment in allocated costs of Grizzly Valley Dam and Lake Davis resulting from revision of the project purpose cost allocation . \$ 206,000
 - o Adjustment in allocated costs of the California Aqueduct, Delta to Dos Amigos Pumping Plant, for change in allocation of off-site power generating plant costs . . . -\$ 101,000
 - o Adjustment in allocated costs of the California Aqueduct, Dos Amigos Pumping Plant to termini, for change in allocation of off-site power generating plant costs . . . -\$1,664,000
 - o Adjustment to 1980 costs for recreation land acquisition at Grizzly Valley Dam and Lake Davis. . \$ 40,000
 - o Adjustment to previously reported recreation land costs for the California Aqueduct, Dos Amigos to termini, for redesignation of land parcels \$ 232,000
 - o Retroactive accounting adjustment to recreation land costs for the California Aqueduct, Delta to Dos Amigos Pumping Plant \$ 19,000
 - o Other retroactive accounting adjustments on costs reported prior to 1981 \$- 1,000
- TOTAL INCREASE \$4,166,000

TABLE 2: CALCULATION OF INTEREST ACCRUALS ON CALIFORNIA

(in dollars)

YEAR	ITEM	JOINT CAPITAL COSTS ALLOCATED TO RECREATION AND ENHANCEMENT									Tot
		Frenchman Dam and Lake	Antelope Dam and Lake	Grizzly Valley Dam and Lake Davis	San Luis Dam and Reservoir, O'Neill Forebay and Los Banos Reservoir	California Aqueduct Delta to Dos Amigos P. P.	Oroville Division	Del Valle Dam and Lake Del Valle	California Aqueduct Dos Amigos P. P. to Termini		
1952-77	a. Disbursements 1. Calif. Water Resources Development Bond Fund 2. All Other funds	102,997 2,436,781	1,036,428 3,947,517	4,002,314 718,631	2,031,849 1,404,688	4,467,667 816,496	5,859,496 3,927,679	10,546,762 2,297,265	48,622,604 26,828,178	76,670 45,067	
	b. Reimbursements 1967 through 1977 applied to: 1. Calif. Water Resources Development Bond Fund 2. All other funds	104,800 2,436,781	1,134,824 3,947,517	4,420,156 718,631	2,317,471 1,404,688	5,217,325 816,496	7,624,196 3,927,679	14,843,852 2,297,265		35,662 15,549	
	c. Interest accrued to end of 1977	1,803	98,396	417,842	285,622	749,658	1,764,700	4,298,404	23,031,799	30,648	
1978	d. Beginning-of-year balance to be reimbursed: 1. Calif. Water Resources Development Bond Fund 2. All other funds							1,314	71,654,403 26,828,178	71,655, 26,828,	
	e. Disbursements during year: 1. Calif. Water Resources Development Bond Fund 2. All other funds	10,531	18,514	78,416	-56 -22,713	19,999	-19 83,103	9,324	-1,440 864,609	-1, 1,061,	
	f. Reimbursements during year applied to: 1. Calif. Water Resources Development Bond Fund 2. All other funds	10,531	18,514	78,416	-56 -22,713	19,999	-19 83,103	1,314 9,324		1, 197,	
	g. End-of-year balance, without interest for: 1. Calif. Water Resources Development Bond Fund 2. All other funds								71,652,963 27,692,787	71,652, 27,692,	
	h. Interest accrual on average balance of d(1) and g(1)							29	3,136,998	3,137,	
1979	i. Beginning-of-year balance to be reimbursed: 1. Calif. Water Resources Development Bond Fund 2. All other funds							29	74,789,961 27,692,787	74,789, 27,692,	
	j. Disbursements during year: 1. Calif. Water Resources Development Bond Fund 2. All other funds	9,278	16,099	45,873	-2,289	32,771	-23 52,177	33,333	-155 1,602,475	- 1,789,	
	k. Reimbursements during year applied to: 1. Calif. Water Resources Development Bond Fund 2. All other funds	9,278	16,099	45,873	-2,289	32,771	-23 52,177	29 33,333	1,545,163	1,545, 187,	
	l. End-of-year balance without interest for: 1. Calif. Water Resources Development Bond Fund 2. All other funds								73,244,643 29,295,262	73,244, 29,295,	
	m. Interest accrual on average balance of i(1) and l(1)							1	3,240,477	3,240,	
1980	n. Beginning-of-year balance to be reimbursed: 1. Calif. Water Resources Development Bond Fund 2. All other funds							1	76,485,120 29,295,262	76,485, 29,295,	
	o. Disbursements during year: 1. Calif. Water Resources Development Bond Fund 2. All other funds	57,196	61,571	92,805	-2,079 19,287	28,538	-27 29,021	35,922	3,465 2,293,460	1, 2,617,	
	p. Reimbursements during year applied to: 1. Calif. Water Resources Development Bond Fund 2. All other funds	57,196	61,571	92,805	-2,079 19,287	28,538	-27 29,021	1 35,922	3,042,090	3,039, 324,	
	q. End-of-year balance without interest for: 1. Calif. Water Resources Development Bond Fund 2. All other funds								73,446,505 31,588,722	73,446, 31,588,	
	r. Interest accrual on average balance of n(1) and q(1)								3,282,003	3,282,	
1981	s. Beginning-of-year balance to be reimbursed: 1. Calif. Water Resources Development Bond Fund 2. All other funds								76,728,508 31,588,722	76,728,5 31,588,7	
	t. Disbursements during year: 1. Calif. Water Resources Development Bond Fund 2. All other funds	13,711	4,451	10,354	2,020 8,379	173,439	-27 35,716	23,884	-3,421 1,922,022	-1,4 2,191,9	
	u. Reimbursements during year applied to: 1. Calif. Water Resources Development Bond Fund 2. All other funds	13,711	4,451	10,354	2,020 8,379	173,439	-27 35,716	23,884	4,648,020	4,650,0 269,9	
	v. End-of-year balance without interest for: 1. Calif. Water Resources Development Bond Fund 2. All other funds								72,077,067 33,510,734	72,077,0 33,510,7	
	w. Interest accrual on average balance of s(1) and v(1)								3,257,354	3,257,3	
Summary: 1952 thru 1981	x. Beginning of 1982 balance to be reimbursed: 1. Calif. Water Resources Development Bond Fund 2. All other funds Total								75,334,421 33,510,734 108,845,155	75,334,4 33,510,7 108,845,1	
	y. Disbursements, 1952 through 1981: 1. Calif. Water Resources Development Bond Fund 2. All other funds Total	102,997 2,527,497 2,630,494	1,036,428 4,048,152 5,084,580	4,002,314 946,079 4,948,393	2,031,734 1,407,352 3,439,086	4,467,667 1,071,243 5,538,910	5,859,400 4,127,696 9,987,096	10,546,762 2,399,728 12,946,490	48,621,063 33,510,734 82,131,797	76,668,31 50,038,44 126,706,81	
	z. Reimbursements applied thru 1981 to: 1. Calif. Water Resources Development Bond Fund 2. All other funds Total	104,800 2,527,497 2,632,297	1,134,824 4,048,152 5,182,976	4,420,156 946,079 5,366,235	2,317,356 1,407,352 3,724,708	5,217,325 1,071,243 6,288,568	7,624,100 4,127,696 11,751,796	14,843,196 2,399,728 17,242,924	9,235,273	44,899,01 16,527,71 61,426,71	
TOTAL INTEREST ACCRUALS, 1952 THRU 1981	1,803	98,396	417,842	285,622	749,658	1,764,700	4,298,434	35,948,631	43,565,06		

WATER RESOURCES DEVELOPMENT BOND FUND DISBURSEMENTS

@ 4.378% per annum)

COSTS OF ACQUIRING LAND FOR RECREATION DEVELOPMENT

Frenchman Dam and Lake	Grizzly Valley Dam and Lake Davis	Abbey Bridge Dam and Reservoir	San Luis Dam and Reservoir O'Halloran, and Los Banos Reservoir	California Aqueduct Delta to Dos Amigos P. P.	Oroville Division	Del Valle Dam and Lake Del Valle	California Aqueduct Dos Amigos P. P. to Termini	Castaic Dam and Lake	Cedar Springs Dam and Silverwood Lake	Ferris Dam and Lake Ferris	Total	GRAND TOTAL
3,379 49,945	204,116 5,246	9 9,921	395,280 209,707	461,066 110,037	1,879,793 331,359	519,425 -37,515	478,971 56,987	1,954,297 296,447	424,966 259,869	1,022,313 3,769,402	7,343,635 5,061,405	84,013,752 47,438,640
3,513 49,945	219,215 5,246	9 9,921	424,103 209,707	595,796 110,037	2,578,514 331,359	800,256 -37,515	705,489 56,987	2,725,737			8,052,632 735,687	43,715,256 16,284,744
134	15,099		28,823	134,710	698,721	298,349	241,021	1,128,368	247,784	628,190	3,421,199	34,069,423
						17,518	14,503	356,928 296,447	672,750 259,869	1,650,503 3,769,402	2,712,202 4,325,718	74,367,919 31,153,896
			1,075	978	-57 101,283	707	33,357	49,662	8,402	84,460	-57 279,924	-1,572 1,341,707
			1,075	978	-57 101,283	17,518 707	14,503 33,357	356,928 346,109	672,750 268,271	1,650,503 1,337,662	2,712,145 2,089,442	2,713,384 2,286,616
						383	317	7,813	14,726	36,130	59,369	71,652,963 30,208,987
						383	317	7,813	14,726	36,130 2,516,200	59,369 2,516,200	74,849,359 30,208,987
	2,648		56,049	21,950	-69 1,312	262	274,052	113,057	15,953	206,806	-69 692,089	-247 2,481,806
	2,648		56,049	21,950	-69 1,312	383 262	317 274,052	7,813 113,057	14,726 15,953	36,130 2,723,006	59,300 3,208,289	1,604,469 3,395,531
						8	7	171	322	791	1,299	73,244,643 29,295,262
						8	7	171	322	791	1,299	3,241,777
	57,083		126	43,496	-81 1,863	389	125,552	469,446	56,912	879,590	-81 1,634,457	76,486,420 29,295,262
	57,083		126	43,496	-81 1,863	8 389	7 125,552	171 469,446	322 56,912	791 879,590	1,218 1,634,457	1,288 4,252,257
						4	7	171	322	791	1,299	3,041,203 1,958,797
						4	7	171	322	791	1,299	73,446,505 31,588,722
						4	7	171	322	791	1,299	3,282,031
						4	7	171	322	791	1,299	76,728,536 31,588,722
	64,463		27	7,952	-43 442	318	2,681	2,353	1,832		-43 80,068	-1,471 2,272,014
	64,463		27	7,952	-43 442	318	2,681	4 2,353	7 1,832	17	-15 80,068	4,649,998 350,002
												72,077,067 33,510,734
												3,257,354
												75,334,421 33,510,734 108,845,155
3,379 49,945 53,324	204,116 122,440 333,556	9 9,921 9,930	395,280 266,984 662,264	461,066 184,413 645,499	1,879,543 436,259 2,315,802	519,425 -35,839 483,586	478,971 492,629 971,600	-1,954,297 930,965 2,885,262	424,966 -342,968 767,934	1,022,313 4,940,298 5,962,571	7,343,385 7,747,943 15,091,328	84,011,750 57,186,424 141,198,174
3,513 49,945 53,458	219,215 129,440 348,655	9 9,921 9,930	424,103 266,984 691,087	595,796 184,413 780,209	2,578,264 436,259 3,014,523	818,165 -35,839 782,326	720,316 492,629 1,212,945	3,090,653 930,965 4,021,618	687,805 342,968 1,030,773	1,687,441 4,940,298 6,627,699	10,825,280 7,747,943 18,573,223	55,724,310 24,275,690 80,000,000
134	15,099		28,823	134,710	698,721	298,740	241,345	1,136,356	262,839	665,128	3,481,895	47,046,981

Summary of Allocation Percentages

Each year the Department determines water contractor charges for the State Water Project based on allocations of costs among purposes of facilities used for more than a single purpose. These determinations are based on the percent-

ages previously reported to and approved by the Legislature, as well as preliminary estimates for facilities not reported. These percentages are summarized in the following table:

SUMMARY OF COST ALLOCATION PERCENTAGES

(in percent of joint costs of the respective facilities)

Facilities of the State Water Project	Reimbursable Purposes	Nonreimbursable Purposes ^(a)		Total
	Water Supply and Power Generation	Flood Control	Recreation and Fish and Wildlife Enhancement	
Capital Costs of Features Jointly Used				
Project Conservation Facilities				
Frenchman Dam and Lake ^(b)	21.5	0	78.5	100.0
Antelope Dam and Lake ^(b)	0	0	100.0	100.0
Grizzly Valley Dam and Lake Davis ^(b)	1.0	0	99.0	100.0
Oroville Division ^{(b), (c)}	97.1	0	2.9	100.0
California Aqueduct, Delta to Dos Amigos Pumping Plant ^(b)	96.6	0	3.4	100.0
Delta Facilities ^(d)	86.0	0	14.0	100.0
Project Transportation Facilities				
Grizzly Valley Pipeline	100.0	0	0	100.0
California Aqueduct:				
California Aqueduct, Delta to Dos Amigos Pumping Plant ^(b)	96.6	0	3.4	100.0
California Aqueduct, Dos Amigos Pumping Plant to termini excluding the Coastal Branch ^(b)	94.3	0	5.7	100.0
Coastal Branch	100.0	0	0	100.0
South Bay Aqueduct:				
Del Valle Dam and Lake Del Valle ^(b)	25.2	26.8	48.0	100.0
Remainder of South Bay Aqueduct	100.0	0	0	100.0
North Bay Aqueduct ^(d)	100.0	0	0	100.0
<p>a) Additional purposes may be identified after project formulation in the Delta is completed.</p> <p>b) Final percentages, subject to periodic review as discussed on Page 11.</p> <p>c) Percentages are applicable to Capital Costs of Features Jointly Used, minus Federal Flood Control Payments.</p> <p>d) Illustrative percentages only, assumed for current project financial and repayment analyses.</p> <p>NOTE: Percentages shown are those applicable to the costs of the facilities as accounted by the State, or, in the case of federal-state joint-use facilities (San Luis Facilities), only the State's share of the total cost.</p>				

REVISED DERIVATION OF ALLOCATION
PERCENTAGES FOR
GRIZZLY VALLEY DAM AND LAKE DAVIS

Grizzly Valley Dam and Lake Davis are operated to provide local water supply and recreation and fish and wildlife enhancement. An allocation of the costs of both the dam and lake among those project purposes is required for the administration of:

- o The payment provisions of 30 water supply contracts between the State

and local water agencies;

- o the Davis-Dolwig Act provision that the Department shall report to the Legislature the State Water Project costs allocated to recreation and enhancement.

SPECIAL REQUIREMENTS

Construction of Grizzly Valley Dam and Lake Davis was specifically authorized by the Burns-Porter Act. As a separate Project facility, Grizzly Valley Dam and Lake Davis include two categories of features:

- o those used jointly for Project purposes (the dam and lake);
- o those used exclusively to transport water supplies to Plumas County Flood Control and Water Conservation District (the Grizzly Valley Pipeline).

The features used jointly for Project purposes are defined as "Project conservation facilities" under the "Standard Provisions for Water Supply Contract". The Grizzly Valley Pipeline is defined as a "Project transportation facility" in the special provisions of the water supply contract with Plumas County Flood Control and Water Conservation District, Article 45(c).

The costs of "Project conservation facilities" and "Project transportation facilities" reimbursable by the water contractors are returned to the State through payment of two separate charges: the Delta Water Charge and the Transportation Charge. Therefore, the total costs of these two types of facilities are allocated separately among reimbursable (water supply) and nonreim-

bursable (recreation and fish and wildlife enhancement) purposes under the Department's cost-allocation procedure. The costs of the dam, lake, and associated recreation developments are allocated among Project purposes separately from the costs of the Grizzly Valley Pipeline.

The Separable Costs-Remaining Benefits method is used to allocate costs of Grizzly Valley Dam and Lake Davis, as required under Article 22(e) of the "Standard Provisions for Water Supply Contract". Since the Grizzly Valley Pipeline is used exclusively to transport water to Plumas County Flood Control and Water Conservation District, an allocation among purposes is not required for this facility.

The derivation of allocation percentages for Grizzly Valley Dam and Lake Davis was first reported to the Legislature, under Davis-Dolwig Act procedures, in Bulletin 153-68, February 1968. By enactment of Senate Bill 867 (California Statutes of 1968, Chapter 897) the Legislature approved the allocation of costs of Grizzly Valley Dam and Lake Davis. That derivation resulted in the following allocation percentages of joint costs:

1. Water Supply
 - Capital 5.1%
 - Minimum OMP&R 8.8%

TABLE 3

DERIVATION OF PROJECT PURPOSE COST ALLOCATION PERCENTAGES ^{(a)(b)}
GRIZZLY VALLEY DAM AND LAKE DAVIS

(in dollars unless otherwise noted)

Line No.	Item of Benefit or Cost	Water Supply	Recreation and Fish and Wildlife Enhancement	Total
1.	Benefits	3,292	688,530	691,822
2.	Alternative Costs	96,774	452,302	549,076
3.	Justifiable Costs	3,292	452,302	455,594
4.	Separable Costs:			
	Total	0	355,528	355,528
	Capital	0	250,639	250,639
	Minimum OMP&R	0	104,889	104,889
5.	Remaining Justifiable Costs	3,292	96,774	100,066
6.	Percent Distribution of Remaining Justifiable Costs	3.3%	96.7%	100.0%
7.	Remaining Joint Costs:			
	Total	3,194	93,580	96,774
	Capital	2,740	80,285	83,025
	Minimum OMP&R	454	13,295	13,749
8a.	Total Allocated Costs; Conservation Facilities			
	Total	3,194	449,108	452,302
	Capital	2,740	330,924	333,664
	Minimum OMP&R	454	118,184	118,638
8b.	Total Allocated Costs; Transportation Facilities			
	Total	30,263	0	30,263
	Capital	28,546	0	28,546
	Minimum OMP&R	1,717	0	1,717
8c.	Total Allocated Project Costs			
	Total	33,457	449,108	482,565
	Capital	31,286	330,924	362,210
	Minimum OMP&R	2,171	118,184	120,355
9.	Percent Distribution of Total Project Costs:			
	Total	6.9%	93.1%	100.0%
	Capital	8.6%	91.4%	100.0%
	Minimum OMP&R	1.8%	98.2%	100.0%
10.	Specific Costs, This Allocation:			
	Total	30,263	163,636	193,899
	Capital	28,546	69,883	98,429
	Minimum OMP&R	1,717	93,753	95,470
11.	Allocated Costs of Features Jointly Used:			
	Total	3,194	285,472	288,666
	Capital	2,740	261,041	263,781
	Minimum OMP&R	454	24,431	24,885
12.	Percent Distribution of Costs of Features Jointly Used:			
	Total	1.1%	98.9%	100.0%
	Capital	1.0%	99.0%	100.0%
	Minimum OMP&R	1.8%	98.2%	100.0%

a) Benefits and costs for 50 years of Project Operation converted to equal annual equivalent values at 4.630% interest for the 50-year period 1968-2017.

b) The figures represented do not reflect concurrence by the Department of Finance.

TABLE 3A

OUTLINE OF CALCULATIONS FOR DERIVING ALLOCATION PERCENTAGES (a)

(equal annual equivalent values in dollars unless otherwise noted)

Step No.	Calculation
1.	water supply benefits (\$3,292) = justifiable water supply costs (\$3,292) ^b
2.	alternative recreation costs (\$452,302) = justifiable recreation costs (\$452,302) ^b
3.	total project costs (\$452,302) - alternative recreation project costs (\$452,302) = separable water supply costs (\$0)
4.	total project costs (\$452,302) - alternative water supply project costs (\$96,774) = separable recreation costs (\$355,528)
5.	justifiable water supply costs (\$3,292) - separable water supply costs (\$0) = remaining justifiable water supply costs (\$3,292)
6.	justifiable recreation costs (\$452,302) - separable recreation costs (\$355,528) = remaining justifiable recreation costs (\$96,774)
7.	remaining justifiable water supply costs (\$3,292) + remaining justifiable recreation costs (\$96,774) = total remaining justifiable costs (\$100,066)
8.	$\frac{\text{remaining justifiable water supply costs } (3,292)}{\text{total remaining justifiable costs } (100,066)} \times 100 = \text{percent distribution of remaining justifiable water supply costs } (3.3\%)$
9.	$\frac{\text{remaining justifiable recreation costs } (96,774)}{\text{total remaining justifiable costs } (100,066)} \times 100 = \text{percent distribution of remaining justifiable recreation costs } (96.7\%)$
10.	total allocated conservation facility costs (\$452,302) - total separable costs (\$355,528) = total remaining joint costs (\$96,774)
11.	total remaining joint costs (\$96,774) x percent distribution of justifiable water supply costs (3.3%) = remaining joint water supply costs (\$3,194)
12.	total remaining joint costs (\$96,774) x percent distribution of justifiable recreation costs (96.7%) = remaining joint recreation costs (\$93,580)
13.	remaining joint water supply costs (\$3,194) + separable water supply costs (\$0) = total conservation costs allocated to water supply (\$3,194)
14.	remaining joint recreation costs (\$93,580) + separable recreation costs (\$355,528) = total conservation costs allocated to recreation (\$449,108)
15.	conservation costs allocated to water supply (\$3,194) + transportation costs allocated to water supply (\$30,263) = total project costs allocated to water supply (\$33,457)
16.	conservation costs allocated to recreation (\$449,108) + transportation costs allocated to recreation (\$0) = total project costs allocated to recreation (\$449,108)
17.	specific water supply costs (\$30,263) + specific recreation costs (\$163,636) = total specific costs (\$193,899)
18.	total costs allocated to water supply (\$33,457) - specific water supply costs (\$30,263) = joint costs allocated to water supply (\$3,194)
19.	total costs allocated to recreation (\$449,108) - specific recreation costs (\$163,636) = joint costs allocated to recreation (\$285,472)
20.	joint costs allocated to water supply (\$3,194) + joint costs allocated to recreation (\$285,472) = total joint costs (\$288,666)
21.	$\frac{\text{joint costs allocated to water supply } (3,194)}{\text{total joint costs } (288,666)} \times 100 = \text{percent of joint costs allocated to water supply } (1.1\%)$
22.	$\frac{\text{joint costs allocated to recreation } (285,472)}{\text{total joint costs } (288,666)} \times 100 = \text{percent of joint costs allocated to recreation } (98.9\%)$
23.	percent of joint costs allocated to water supply (1.1%) + percent of joint costs allocated to recreation (98.9%) = 100.0%

a) Applicable to the total costs (Capital and OMP&R) of features jointly used by project purposes.

b) Justifiable costs for each purpose are the total benefits of that purpose or the costs of the least costly single-purpose alternative providing the same benefits, whichever is less.

2. Recreation and Enhancement
 - Capital 94.9%
 - Minimum OMP&R 91.2%

The above derivation is in need of revision for the following factors:

- o Project purpose cost allocations for facilities of the SWP generally are based on estimates of costs in the year following completion of the facility. The initial cost allocation for Grizzly Valley Dam and Lake Davis was based on cost estimates made in 1964, and construction was essentially completed in 1967. Therefore, the revised allocation for Grizzly Valley Dam and Lake Davis is based on 1968 costs to conform to the convention established in other cost allocations reported to the Legislature under the Davis-Dolwig Act.
- o The initial derivation of allocation percentages for Grizzly Valley Dam and Lake Davis was computed at 4.0 percent interest. In the revised allocation all costs and benefits

are expressed in equal annual equivalent values for the 50-year period 1968 through 2017 at the estimated 1982 Project Interest Rate of 4.630 percent.

- o To date, recreation use at Lake Davis has been significantly higher than that estimated for the initial allocation. Recreation benefits in the revised allocation were computed using actual visitor-days for 1968 through 1981, and future use was projected at a much lower growth rate than in the initial allocation.
- o In the initial allocation for Grizzly Valley Dam and Lake Davis water supply benefits were based on the contracted entitlement of Plumas County Flood Control and Water Conservation District. However, actual and projected water deliveries to Plumas County are lower than those anticipated in the initial allocation. Water supply benefits in the revised allocation are based on Plumas County's actual deliveries and requests as shown in Bulletin 132-81, Table B-5B.

DERIVATION METHOD

The costs of a multipurpose facility are estimated and accounted as the sum of (1) specific costs (costs of features that can be readily identified as serving one project purpose exclusively -- such as onshore recreation developments); and (2) joint costs (costs of features serving more than one purpose -- such as multipurpose dams and reservoirs). The specific costs of recreation developments (except for associated land costs) are accounted by agencies other than the Department of Water Resources and are financed by funds other than Project funds. Costs of acquiring land for recreation development and all joint costs of the State Water Project facilities are accounted by the Department and financed by Project funds.

The costs of a multipurpose facility

may also be estimated (but not accounted) on the basis of separable costs and remaining joint costs. Separable costs are estimated for each purpose of a multipurpose facility as the difference in the estimated total costs of the facility minus the estimated costs of a similar facility designed to exclude the particular purpose. The separable costs of a facility are the total separable costs for all purposes of the facility. The remaining joint costs are the differences in the estimated total costs of the facility minus the estimated separable costs of the facility.

Justifiable costs are the estimated maximum expenditures that theoretically would be justified to realize the benefits of a multipurpose facility.

Remaining justifiable costs are those justifiable costs in excess of the sum of the separable costs of the facility.

The derivation of allocation percentages for the Grizzly Valley Dam and Lake Davis, as shown in Table 3, must follow the separable costs-remaining benefits allocation method, which is required by the "Standard Provisions". Under this method, total costs of the multipurpose facility are allocated to each purpose to be accommodated by the facility by the sum of:

- o ~~The estimated separable costs of~~ each purpose (Line 4 of Table 3).
- o A share of the estimated remaining joint costs allocated among purposes (Line 7 of Table 3) on the basis of

remaining justifiable costs of each purpose (Line 5 and 6).

Conventionally, the total costs allocated to each purpose (Line 8), expressed as a percentage of such total costs (Line 9), are the final result of the allocation procedure. However, since some of the specific costs of the State Water Project are accounted by agencies other than the Department of Water Resources, the percentage of each purpose's allocation of the estimated total costs must be adjusted to a percentage applicable only to the estimated joint costs (Line 11) by deducting the estimated specific costs. The resulting percentages can then be applied to the actual joint costs of project facilities as accounted by the Department.

BENEFITS

Benefits are the net value of goods and services that result directly from operation of Grizzly Valley Dam and Lake Davis.

Water Supply Benefits: The project purpose of water supply includes the development of a water supply in project conservation facilities (Grizzly Valley Dam and Lake Davis) and delivery of the water supply to Plumas County Flood Control and Water Conservation District through project transportation facil-

ities (Grizzly Valley Pipeline). The service area for the facility is near Portola, where Project water supplements existing water service for domestic and municipal uses. Project water supply benefits are estimated, on the basis of saleability, to be \$37 per cubic dekametre (\$46 per acre-foot).

The estimated buildup of Project water deliveries and Project water supply benefits attributable to Grizzly Valley Dam and Lake Davis are shown in Table 4.

TABLE 4

WATER SUPPLY BENEFITS
OF GRIZZLY VALLEY DAM AND LAKE DAVIS

Decade	Project Water Deliveries (in acre-feet)	Water Supply Benefits at \$46 per Acre-Foot (in dollars)
1968-1977	3,056	140,576
1978-1987	6,712	308,752
1988-1997	10,480	482,080
1998-2007	14,770	679,420
2008-2017	<u>22,740</u>	<u>1,046,040</u>
Totals	57,758	2,656,868
Equal Annual equivalent water supply benefits at 4.630 percent interest for the period 1968-2017- - - - -		
		34,650

Total water supply benefits are distributed to conservation and transportation facilities on the basis of costs of those facilities which are allocable

to water supply. The distribution of water supply benefits (from Table 4) to conservation and transportation facilities is shown in Table 5.

TABLE 5

DISTRIBUTION OF WATER SUPPLY BENEFITS
TO CONSERVATION AND TRANSPORTATION FACILITIES
(Equal annual equivalents in dollars unless otherwise noted)

	Project Conservation Facilities	Project Transportation Facilities	Total
Costs Allocable to Water Supply	3,194	30,263	33,457
Percentages of Costs Allocable to Water Supply	9.5%	90.5%	100.0%
Distribution of Water Supply Benefits	3,292	31,358	34,650

Recreation and Fish and Wildlife Enhancement Benefits. Recreation benefit unit values used in this presentation are the same as those used in the initial allocation for Grizzly Valley Dam and Lake Davis. The increase in recreation use at Lake Davis attributable to the Project is evaluated at \$2.25 per recreation-day. Two factors are used to determine this unit value: (1) variety and quality of recreation, (2) esthetic qualities of the site.

To rate each factor, the Department of Parks and Recreation has established procedures that provide up to 100 points for each factor, or a maximum of 200 points considering both factors. The points are directly convertible to

cents. The dollar value of a recreation-day is obtained by adding the rated value for the two factors to the \$0.50 minimum. Thus, the maximum value resulting from this evaluation is \$2.50 per recreation-day. In recreation studies it is difficult to separate fish and wildlife related activities from other activities. Therefore, the recreation benefit unit values include an amount for fish and wildlife enhancement.

Recreation use with and without Grizzly Valley Dam and Lake Davis, the increase in use due to the Project, and the recreation benefits attributable to the Project are summarized by decade in Table 6.

TABLE 6

RECREATION AND FISH AND WILDLIFE
ENHANCEMENT BENEFITS OF
GRIZZLY VALLEY DAM AND LAKE DAVIS

Decade	Recreation Use		Increase Due to Grizzly Valley Dam and Lake Davis	
	Without Project (visitor-days)	With Project (visitor-days)	Recreation Use (visitor-days)	Recreation Benefits at \$2.25 per Visitor-Day (in dollars)
1968-1977	41,750	3,185,000	3,143,250	7,072,312
1978-1987	56,430	2,785,229	2,728,799	6,139,798
1988-1997	78,470	3,058,316	2,979,846	6,704,654
1998-2007	110,305	3,352,472	3,242,167	7,294,876
2008-2017	<u>146,905</u>	<u>3,674,919</u>	<u>3,528,014</u>	<u>7,938,031</u>
Totals	433,860	16,055,936	15,622,076	35,149,671
Equal annual equivalent recreation and enhancement benefits at 4.630 percent interest for the period 1968-2017 - - - - -				688,530

The estimated capital and equal annual equivalent costs for Grizzly Valley Dam and Lake Davis, for the associated

specific recreation features, and for Grizzly Valley Pipeline are shown in Table 7.

TABLE 7
TOTAL PROJECT COSTS
(in dollars)

Project Features	Capital Costs	Equal Annual Equivalent Costs at 4.630% Interest: 50-Year Period 1968-2017		
		Capital	Minimum OMP&R	Total
<u>Project Conservation Facilities:</u>				
Features jointly used: Grizzly Valley Dam and Lake Davis	4,775,000	263,781	24,885	288,666
Specific recreation land and on-shore development	<u>3,394,000</u>	<u>69,883</u>	<u>93,753</u>	<u>163,636</u>
Subtotal	8,169,000	333,664	118,636	452,302
<u>Project Transportation Facilities:</u>				
Grizzly Valley Pipeline	<u>824,000</u>	<u>28,546</u>	<u>1,717</u>	<u>30,263</u>
Totals	8,993,000	362,210	120,355	482,565

ALTERNATIVE COSTS

In Project formulation and cost allocation studies, the "alternative costs" of a purpose included in a multipurpose facility are estimated as the costs of the least expensive single-purpose alternative means that would provide the same benefits for that purpose as would the multipurpose facility. Alternative means include the possible construction of a single-purpose facility at the same site as the multipurpose facility. Inclusion of a purpose in the planned operation of a multipurpose facility is justified only if the costs allocated to the purpose do not exceed the alternative costs or the benefits of the purpose, whichever is less.

least costly alternative means of providing the same water yield and water supply benefits as the multipurpose Grizzly Valley Dam and Lake Davis is estimated to be those multipurpose facilities resized to accommodate the purpose of water supply only. The least costly alternative water supply facility is estimated to be a dam at the site of Grizzly Valley Dam, which would form a reservoir of about 4 900 cubic dekametres (4,000 acre-feet) gross capacity. The reservoir would have an average annual yield of 3 330 cubic dekametres (2,700 acre-feet) and would provide the same water supply benefits as the multipurpose facility. Costs of this hypothetical single-purpose water supply facility are shown in Table 8.

Water Supply Alternative Costs. The

TABLE 8

WATER SUPPLY ALTERNATIVE COSTS
(in dollars)

Item	First Costs	Equal Annual Equivalent Costs at 4.630% Interest: 50-Year Period 1968-2017		
		Capital	Minimum OMP&R	Total
<u>Project Conservation Facilities:</u>				
Reservoir of 4,000 acre-foot capacity at the site of Lake Davis	1,502,900	83,025	13,749	96,774

Recreation and Fish and Wildlife Enhancement Alternative Costs. The least costly alternative means of providing the same recreation and enhancement benefits as those provided by the multipurpose Grizzly Valley Dam and Lake Davis is estimated to be a dam at the same site as Grizzly Valley Dam and on-shore recreation developments identical to those at Lake Davis. The alternative dam would form a reservoir of about 97 000 cubic dekametres

(79,000 acre-feet) gross capacity and would be less than 0.3 metres (one foot) lower than Grizzly Valley Dam. Therefore, it is assumed that the estimated costs of the alternative facility would be the same as the estimated costs of Grizzly Valley Dam, Lake Davis, and the associated recreation onshore developments. Costs of this hypothetical single-purpose recreation facility are shown in Table 9.

TABLE 9

RECREATION AND ENHANCEMENT
ALTERNATIVE COSTS
(in dollars)

Item	Capital Costs	Equal Annual Equivalent Costs at 4.630% Interest: 50-Year Period 1968-2017		
		Capital	Minimum OMP&R	Total
Grizzly Valley Dam and Lake Davis	4,775,000	263,781	24,885	288,666
Specific Recreation land and on-shore development	<u>3,394,000</u>	<u>69,883</u>	<u>93,753</u>	<u>163,636</u>
Totals	8,169,000	333,664	118,638	452,302

SEPARABLE COSTS

In project formulation and cost allocation studies, the separable cost of a particular purpose of a multipurpose facility is the estimated cost of accommodating that purpose in the planned construction and operation of the multipurpose facility.

Separable costs are the estimated costs of including a project purpose in a multiple-purpose facility. The separable cost of a purpose is determined by estimating the total costs of a multiple-purpose facility with or without the purpose included. The difference in these two estimates is the estimated separable cost of the purpose. The total separable costs of the multipurpose facility is the total of the separable costs for all purposes accommodated in the planned construction and operation of the facility.

Water Supply Separable Costs. The esti-

mated separable costs of water supply are equal to the difference in estimated costs of the multipurpose facility (all features excluding the Pipeline) and the estimated costs of the alternative recreation and enhancement facility. Since the costs of the alternative facility were estimated to be the same as the costs of Grizzly Valley Dam, Lake Davis, and associated recreation developments, the separable costs of water supply are zero.

Recreation and Fish and Wildlife Enhancement Separable Costs. The estimated separable costs of recreation and enhancement are equal to the difference in costs of the multipurpose facility (all features excluding the Pipeline) and the costs of the alternative water supply facility. The estimated recreation and enhancement separable costs were developed as shown in Table 10.

Table 10

RECREATION AND FISH AND WILDLIFE ENHANCEMENT
SEPARABLE COSTS
(in dollars)

Item	Capital Costs	Equal Annual Equivalent Costs at 4.630% Interest: 50-Year Period 1968-2017		
		Capital	Minimum OMP&R	Total
Total conservation facility costs	8,169,000	333,664	118,638	452,302
Less: Hypothetical facilities for water supply (Water Supply Alternative Costs)	<u>1,502,900</u>	<u>83,025</u>	<u>13,749</u>	<u>96,774</u>
Remainder: Recreation and Enhancement separable costs	6,666,100	250,639	104,889	355,528

COMMENTS
BY
THE DEPARTMENT OF BOATING AND WATERWAYS,
THE DEPARTMENT OF PARKS AND RECREATION,
AND THE DEPARTMENT OF FISH AND GAME

Memorandum

To : Ronald B. Robie
Director
Department of Water Resources
1416 - 9th Street - Code A-36
Sacramento, California 95814

Date : JUN 30 1982

Subject: Annual Report to the
Legislature, State Water
Project Cost Allocation
to Recreation and Fish
and Wildlife Enhancement

From : **Department of Boating and Waterways**

In accordance with California Water Code Section 11912, the Department of Boating and Waterways has reviewed the subject report and we have no comment.


MARTY MERCADO
Director

Memorandum

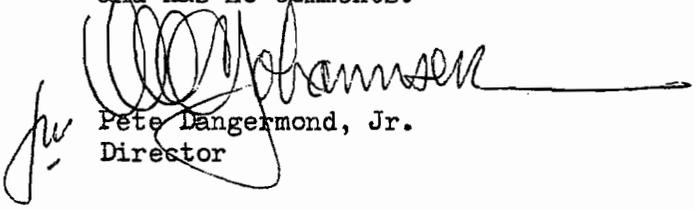
Date : JUN 30 1987

To : Ronald B. Robie, Director
Department of Water Resources
1416 Ninth Street, 11th Floor
Sacramento, CA 95814

From : Department of Parks and Recreation

Subject: Cost Allocations to Recreation
and Fish and Wildlife Enhancement,
State Water Project

The Department of Parks and Recreation has reviewed the subject report and has no comments.



Pete Dangermond, Jr.
Director

Memorandum

To : Ronald B. Robie, Director
Department of Water Resources

Date : July 21, 1982

From : **Department of Fish and Game**

Subject: Annual Report to the Legislature, State Water Project Costs of Recreation and Fish and Wildlife Enhancement

In accordance with California Water Code, Section 11912, you requested our written comments on State Water Project joint costs allocated to recreation, fish and wildlife enhancement, as reported in the review draft of Appendix D to Bulletin No. 132-82.

We have reviewed the 1982 State Water Project draft report, Appendix D, and find it consistent with previous reports. The Department, therefore, supports the cost allocation and recommends the addition of \$4,165,602 for recreation, fish and wildlife enhancement.

Since we no longer employ an economist on our staff, the report was not subject to an economic analysis.

Thank you for the opportunity to review this report.

EC Fullerton
Director

CONVERSION FACTORS

Quantity	To Convert from Metric Unit	To Customary Unit	Multiply Metric Unit By	To Convert to Metric Unit Multiply Customary Unit By
Length	millimetres (mm)	inches (in)	0.03937	25.4
	centimetres (cm) for snow depth	inches (in)	0.3937	2.54
	metres (m)	feet (ft)	3.2808	0.3048
	kilometres (km)	miles (mi)	0.62139	1.6093
Area	square millimetres (mm ²)	square inches (in ²)	0.00155	645.16
	square metres (m ²)	square feet (ft ²)	10.764	0.092903
	hectares (ha)	acres (ac)	2.4710	0.40469
	square kilometres (km ²)	square miles (mi ²)	0.3861	2.590
Volume	litres (L)	gallons (gal)	0.26417	3.7854
	megalitres	million gallons (10 ⁶ gal)	0.26417	3.7854
	cubic metres (m ³)	cubic feet (ft ³)	35.315	0.028317
	cubic metres (m ³)	cubic yards (yd ³)	1.308	0.76455
	cubic dekametres (dam ³)	acre-feet (ac-ft)	0.8107	1.2335
Flow	cubic metres per second (m ³ /s)	cubic feet per second (ft ³ /s)	35.315	0.028317
	litres per minute (L/min)	gallons per minute (gal/min)	0.26417	3.7854
	litres per day (L/day)	gallons per day (gal/day)	0.26417	3.7854
	megalitres per day (ML/day)	million gallons per day (mgd)	0.26417	3.7854
	cubic dekametres per day (dam ³ /day)	acre-feet per day (ac-ft/day)	0.8107	1.2335
Mass	kilograms (kg)	pounds (lb)	2.2046	0.45359
	megagrams (Mg)	tons (short, 2,000 lb)	1.1023	0.90718
Velocity	metres per second (m/s)	feet per second (ft/s)	3.2808	0.3048
Power	kilowatts (kW)	horsepower (hp)	1.3405	0.746
Pressure	kilopascals (kPa)	pounds per square inch (psi)	0.14505	6.8948
	kilopascals (kPa)	feet head of water	0.33456	2.989
Specific Capacity	litres per minute per metre drawdown	gallons per minute per foot drawdown	0.08052	12.419
Concentration	milligrams per litre (mg/L)	parts per million (ppm)	1.0	1.0
Electrical Conductivity	microsiemens per centimetre (uS/cm)	micromhos per centimetre	1.0	1.0
Temperature	degrees Celsius (°C)	degrees Fahrenheit (°F)	(1.8 × °C) + 32	(°F - 32)/1.8

State of California—Resources Agency
Department of Water Resources
P.O. Box 388
Sacramento
95802

