



**MONTEREY PENINSULA
WATER MANAGEMENT DISTRICT**

187 Eldorado • Suite E • P.O. Box 85 • Monterey, CA 93940 • (408) 649-4866

FINAL ENVIRONMENTAL IMPACT REPORT

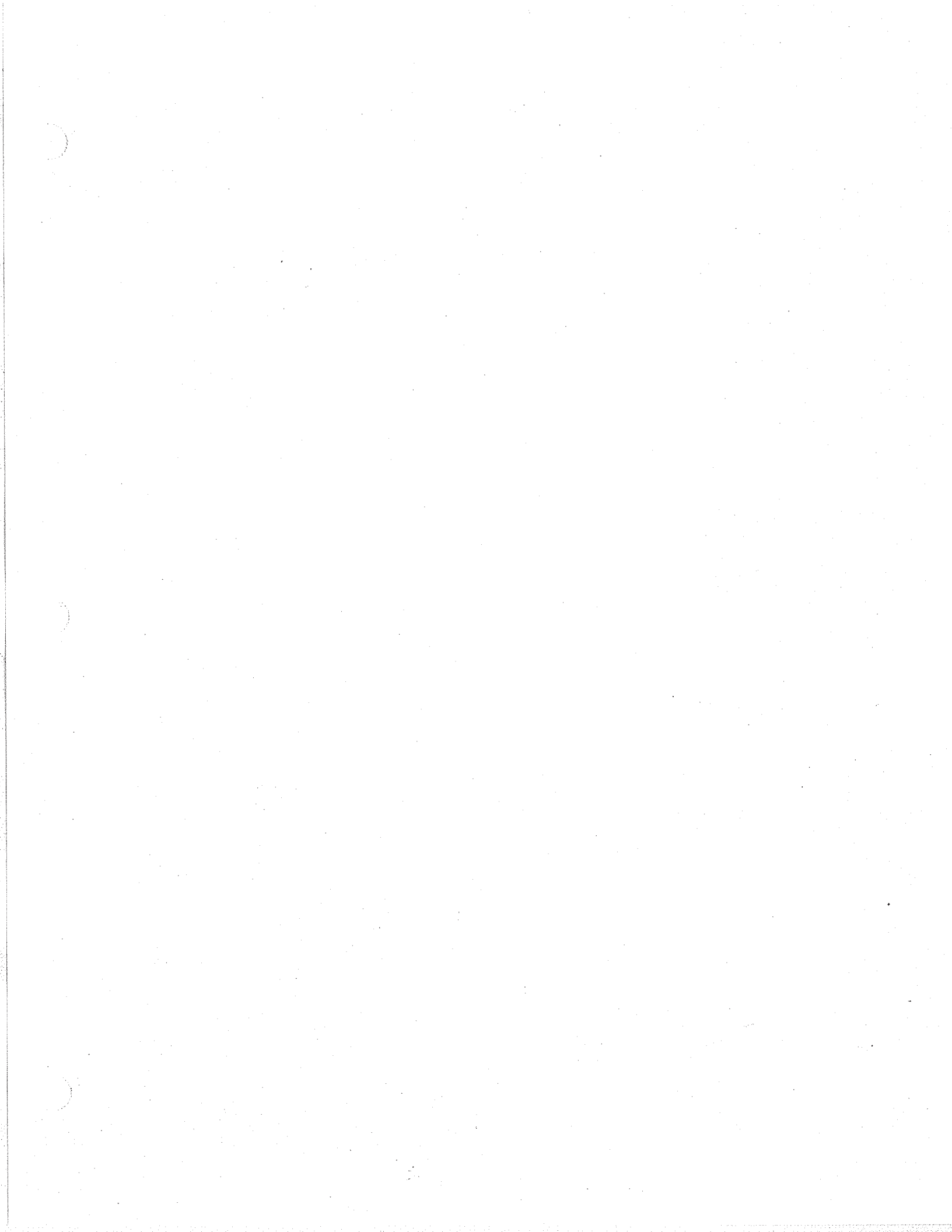
WATER ALLOCATION PROGRAM

**FIVE-YEAR MITIGATION PROGRAM FOR OPTION V --
16,700 AF CAL-AM PRODUCTION**

Adopted by the MPWMD Board

November 1990

Prepared by MPWMD Staff



FIVE-YEAR MITIGATION PLAN FOR OPTION V

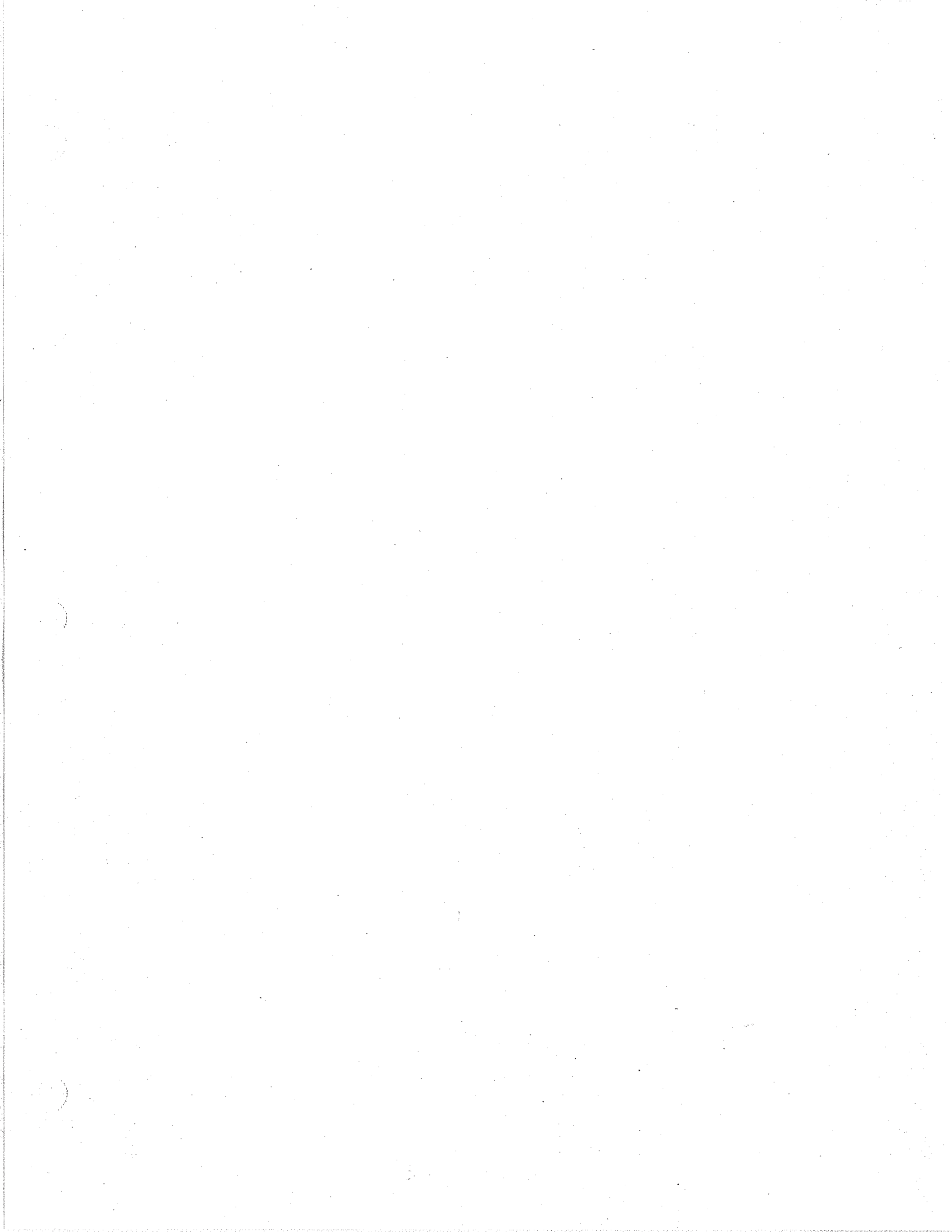
TABLE OF CONTENTS

<u>TOPIC</u>	<u>PAGE</u>
Introduction	1
Fisheries Mitigation Program	6
Riparian Mitigations Program	20
Lagoon Mitigation Program	33
Aesthetics Mitigation Program	40

LIST OF EXHIBITS

<u>EXHIBIT</u>	<u>PAGE</u>
1: Summary of District Mitigation Program	4
2: Cost Estimates for District Mitigation Program	5
3: Cost Estimates for Fisheries Mitigations	11
4: Cost Estimates for Riparian Mitigations	25
5: Cost Estimates for Lagoon Mitigations	36

alloeir/mitcontents



MONTEREY PENINSULA WATER MANAGEMENT DISTRICT
FINAL FIVE-YEAR MITIGATION PLAN FOR OPTION V --
16,700 AF CAL-AM PRODUCTION

November 1990

INTRODUCTION -- CEQA PROCESS

In April 1990, the Water Allocation Program Final EIR was prepared for the Monterey Peninsula Water Management District (MPWMD) by Larry Mintier and Associates. On November 5, 1990, the MPWMD Board certified the Final EIR, adopted findings which included the mitigations contained in this plan, and passed a resolution that set Option V (16,700 AF Cal-Am production) as the new water allocation limit for the Cal-Am system. This document is the final mitigation plan that was adopted by the District Board. It serves as the blueprint for a comprehensive mitigation program that will be carried out over the next five years.

According to the California Environmental Quality Act (CEQA), the basic purpose of an EIR is to (1) inform governmental decision-makers and the public about potential, significant environmental effects of proposed activities, (2) identify ways the environmental damage can be avoided or significantly reduced, and (3) prevent significant, avoidable environmental damage by requiring changes in projects through the use of feasible alternatives or mitigation measures.

When an EIR shows that a project (or program) would cause substantial adverse changes to the environment, a governmental agency must respond by either changing the proposed project, imposing conditions on its approval, adopting plans or ordinances to avoid adverse changes, choosing an alternative way of meeting the same need, or disapproving the project. CEQA states that projects that entail significant environmental effects should not be approved if there are feasible alternatives or mitigation measures available that would substantially lessen these adverse effects.

The definition of "feasible" is important, because an agency can find that changing or altering a project is not feasible. In deciding what "feasible" means, an agency may consider economic, environmental, legal, social, and technological factors. An agency can also find that a project with significant environmental effects may be approved if (1) it publicly discloses that there is no feasible way to lessen or avoid the adverse effects, and (2) it specifically identifies how expected benefits from the project outweigh the general policy to avoid or reduce significant environmental impacts. This is done via a "Statement of Overriding Considerations," which becomes part of the project approval record.

CEQA states that agency decision-makers have an obligation to balance environmental objectives with economic and social factors, "in particular the goal of providing a decent home and satisfying living environment for every Californian." The MPWMD Board weighed the environmental impacts of the water supply options and water distribution alternatives analyzed in the Water Allocation Program Final EIR against the socio-economic impacts of each alternative. Part of their consideration included the feasibility and economic ramifications of this mitigation plan.

This final mitigation plan is judged to be technically feasible by District staff. Based on the cost estimates and other information provided by staff at two public workshops in August and September 1990, the Board has determined that this final plan is feasible in light of economic, social and legal factors.

SUMMARY OF FINAL FIVE-YEAR MITIGATION PLAN

The following sections outline the final mitigation plan for Water Supply Option V (16,700 AF Cal-Am production). Each mitigation measure recommended by the authors of the Water Allocation Program Final EIR was assessed by District staff for technical accuracy and feasibility. Staff then developed specific mitigation programs that would be necessary to implement the mitigations recommended in the EIR. The District Board then determined whether the specific mitigation should be implemented or amended, based on socio-economic factors and institutional feasibility.

The mitigations described herein will be funded and implemented by MPWMD over a five-year period. After five years, the allocation program as a whole, including the mitigation program, will be reassessed, based on results of the mitigation monitoring studies, development of new water supplies, and other factors. Necessary amendments to the program would be made at that time.

It should be noted that most of the mitigations described for the 16,700 AF option would be identical for other water supply options. The main difference would be the greater frequency that a mitigation would be needed with larger water supply options. This would be especially true for fishery mitigations. Capital costs would remain the same, but O&M costs could be significantly higher for supply options greater than 16,700 AF Cal-Am production. Mitigations are recommended whenever the EIR states that a water supply option would have "potentially significant" or "significant" impacts. It should be noted that the consultant often designated an impact as "potentially significant" when the degree of the impact was unknown or when the success of a mitigation measure couldn't be predicted.

Exhibit 1 summarizes the major Board-approved mitigations for each impact topic. Exhibit 2 provides a rough estimate of capital costs and O&M costs for each program as approved by the Board. The total program costs include annual costs of existing District environmental programs in addition to capital and annual costs of

new Board-approved mitigations stemming from the Allocation Program EIR. Capital costs for the comprehensive District program would total about \$442,700. Annual costs would total about \$638,100 per year for most of five years. The Board-approved mitigation program would entail hiring four new permanent staffmembers (riparian program manager; three fishery technicians at 75% time) in addition to several seasonal river maintenance workers. Two additional fishery technicians would be needed during drought years.

REPORT STRUCTURE

The following pages outline the different impact topics and mitigations. For each topic, an introduction provides a brief summary of the consultant's conclusions about impacts in the Water Allocation Program Final EIR and his recommended mitigations. A brief description of existing District programs that address the issue is provided. Key assumptions that were included in the allocation EIR analyses are also noted, where applicable. Staff comments on the consultant's recommendations are provided, and the specific mitigation measures that were approved by the Board are enumerated.

To the extent possible, mitigations for each impact topic are discussed as follows: (1) description of existing District activities, (2) brief description and purpose of the mitigation, (3) implementation and facilities, (4) frequency of use, (5) monitoring and reporting program, (6) permits required, and (7) preliminary cost estimates.

Exhibit 1

**SUMMARY OF MPWMD FINAL FIVE-YEAR MITIGATION PROGRAM
November 1990**

FISHERIES

Continue existing programs
Capture and transport emigrating smolts in spring
Prevent stranding of fall/winter juvenile migrants
Rescue juveniles downstream of Robles del Rio in summer
Modify spillway and transport smolts around Los Padres Dam

RIPARIAN VEGETATION AND WILDLIFE

Continue existing programs
Conservation and water distribution management
Prepare and oversee Riparian Corridor Management Plan
Implement Riparian Corridor Management Program
Expand soil moisture and vegetative stress monitoring

LAGOON VEGETATION AND WILDLIFE

Continue existing programs
Assist with lagoon enhancement plan investigations
Expand long-term lagoon monitoring program
Identify feasible alternatives to maintain adequate lagoon volume

AESTHETICS

Restore riparian vegetation (see above)

u/henri/wp/alloeir/intromit.fin1

Exhibit 2

**COST ESTIMATES FOR FINAL MITIGATION PROGRAM FOR OPTION V
November 1990**

(Values shown are fully funded by MPWMD for five years.)

<u>MITIGATION PROGRAM</u>	<u>CAPITAL COST</u>			<u>ANNUAL COST</u>		
	<u>Existing</u>	<u>New</u>	<u>Total</u>	<u>Existing</u>	<u>New</u>	<u>Total</u>
Fisheries	\$ 9,000	407,700	416,700	\$ 12,800	200,100	212,900 ⁽¹⁾
Riparian Vegetation and Wildlife	\$ 0	10,000	10,000	\$295,000	121,000	416,000
Lagoon Vegetation and Wildlife	\$ 26,000	25,000	51,000	\$ 1,200	2,000	3,200
Aesthetics	\$ 0	0	0	\$ 6,000	0	6,000
GRAND TOTAL	\$ 35,000	\$442,700	\$477,700	\$315,000	\$323,100	\$638,100
ESTIMATED TOTAL COST OF BOARD APPROVED NEW PROGRAMS		\$442,700				\$323,100
ANNUAL FUNDS NEEDED TO CONTINUE EXISTING ENVIRONMENTAL PROGRAMS		N/A				\$315,000
TOTAL MITIGATION PROGRAM COST		\$442,700				\$638,100

NOTE 1: Annual cost estimates for fishery resources are averages; the annual costs could be as high as \$382,000 in individual critically dry years and as low as \$78,700 in wet years.

FINAL FIVE-YEAR MITIGATION PROGRAM FOR FISHERIES -- OPTION V

SUMMARY: The Water Allocation Program Final EIR found that all water supply options, including 16,700 AF Cal-Am production (Option V), would have significant adverse impacts to the fishery resource of the Carmel River without mitigations. Discussion of the mitigation program, which focuses on steelhead salmon, is found on page IV-91 of the document. The following mitigations were recommended by the consultant:

1. Juvenile rescue program downstream of Robles del Rio in summer and fall; includes holding facility near San Clemente Dam.
2. Partially reconstruct fish ladder and alter spillway gates at San Clemente Dam to facilitate adult and juvenile migrations.
3. Additional modifications to Los Padres Dam spillway to prevent fish injuries during emigration.
4. New wells in AQ4 to reduce pumping in AQ2, thereby preserving flow in this river reach.
5. Expand downstream smolt rescue and transport program in spring.
6. Capture and transport fall/winter migrants to prevent stranding in the lower river.
7. Attraction facility to capture and transport spawners to Narrows when there is insufficient flow at the river mouth, but adequate flow at the Narrows.

The consultant concluded that the impacts of Option V would be reduced to a less than significant level if these mitigations were implemented.

Existing District Programs: Ongoing District programs already address some of the environmental impacts of existing water supply practices on the steelhead resource of the Carmel River. The District engages in the following activities:

1. As part of the Interim Relief Program, employs half-time fisheries biologist to monitor steelhead status, conduct habitat assessments and coordinate rescue operations.
2. Rescues juvenile steelhead as waters recede, and transports them to safe habitat during critical flow periods.
3. As part of the Interim Relief Program, rescues smolts during critically dry years, transports them to

acclimation facilities, then releases them into the sea.

4. Designed and constructed emergency fish ladder in winter 1990 to attract spawning adults into the river for subsequent transport to safe habitat upstream.
5. Rehabilitates critical migration riffles.
6. As part of the Interim Relief Program, negotiates an agreement with Cal-Am and California Department of Fish and Game regarding diversion and releases from San Clemente Dam.
7. Submits annual report to State Water Resources Control Board on Interim Relief Program activities.
8. Works diligently towards a long-term water supply project that would result in improved streamflow conditions.

The existing fisheries program is modest in terms of cost, due partly to volunteer labor provided by the Carmel River Steelhead Association. About \$45,200 was expended in FY 1989-90 for specific fisheries projects, including the experimental fish ladder described in District activity #4 above.

Key Assumptions: The fisheries analysis in the Allocation Program EIR was based on the following key assumptions:

1. A dredging program funded and implemented by Cal-Am would keep the Los Padres Reservoir at its existing usable storage of 1,968 AF.
2. Cal-Am's Carmel Valley filter plant could be operated at 1 to 3.5 cfs when inflow to San Clemente Dam is less than 8 cfs.
3. The existing practice of signing an annual agreement, with quarterly review and amendments, depending on the river inflow conditions, would be continued.

Amendments to Consultant's Fisheries Mitigation Program:

Given that the text describing the fisheries mitigations in the Water Allocation Final EIR (page IV-91) was somewhat vague, District staff expanded on six of the seven mitigation measures recommended by the consultant. The facility design, cost estimates, and operations and maintenance are described in detail in the Draft Fisheries Mitigation Plan (Dettman, 1990).

Staff deleted the consultant's mitigation #4 (drilling new wells in aquifer subunit 4) because the results of CVSIM indicate the wells would have been needed only at the end of the 1976-77 drought. In addition, the new wells would exacerbate the environmental impacts identified for riparian vegetation in the

lower Carmel Valley.

The District Board reviewed the staff interpretation of the consultant's mitigation program in terms of cost and institutional feasibility. It solicited comments on proposed mitigation facilities from regulatory agencies such as the California Department of Parks and Recreation (CDPR) and Fish and Game (CDFG), which would need to approve permits for these facilities. Based on their comments and other information, the Board deleted the consultant's mitigations #2 and #7, and modified mitigations #3 and #5.

The consultant's mitigation #2 (partially reconstruct the fish ladder and alter spillway gate operation at San Clemente Dam) was deleted by the District Board because it does not own and operate the dam. The District would consider contributing to a study of the effectiveness of passage at San Clemente Dam if such a study were deemed by CDFG as essential to maintaining the steelhead population. It should be noted that Cal-Am will be altering the spillway gates in the next few years to comply with the State Department of Water Resources -- Division of Safety of Dams requirements.

The consultant's mitigation #3 (additional modifications to the Los Padres Dam spillway) was amended by the Board to entail funding of a five-year study of the effectiveness of the spillway modifications made in 1986, based on a design by CDFG engineers. The District will request that CDFG help pay for the study as well. If the study indicates that additional modifications are necessary, the District assumes that construction will be funded by Cal-Am and CDFG.

The consultant's mitigation #5 (expand downstream smolt rescue and transport program) was altered slightly by the District Board. Instead of a formed, in-place (unmovable) concrete structure in the river, the smolt trap design was changed to consist of portable structures, which are less expensive. Also, the river channel itself has been known to move significantly after large storms; thus a portable unit would be more reliable. The effectiveness of the program would not be diminished by this change.

The consultant's mitigation #7 (attraction facility for spawning adults) was deleted by the Board due to questions about water availability, durability of the structure, institutional feasibility and cost. It is uncertain whether water could be appropriated to pump from an upstream location on the river to an attraction facility on the coast (especially in dry years); whether such diversions would be allowed if the State Water Resources Control Board (SWRCB) decides to adjudicate the basin in response to water rights complaints; and whether the diversion would impact aquatic habitat near the diversion site. The institutional feasibility appears unlikely, as CDPR (a key permitting agency) has indicated significant reservations about the concept. In a letter dated August 15, 1990, CDPR questioned whether "anyone wants to see

an essentially wild run of fish becoming dependent upon the proper operation of a fish ladder at the mouth of the Carmel River." The cost of an attraction facility would be about \$1.7 million, which is considered excessive, given questions about the durability of a fish ladder in the surf zone in winter.

Elements of District's Fisheries Mitigation Program: The above alterations and deletions to the consultant's fishery mitigation concepts by the District staff and Board result in the following specific fisheries mitigation measures that would be carried out by MPWMD. These mitigations would supercede most of the existing District programs:

1. Expansion of the existing program to capture emigrating smolts and transport them downstream during critical years; includes trapping and holding facilities.
2. A program to prevent stranding of early fall and winter migrants by capturing and transporting them to permanent habitat or a temporary holding facility, whenever a risk of stranding exists.
3. A permanent, fully funded program to rescue juveniles from the reach downstream of Robles del Rio to transplant them into permanent habitat or a holding facility below San Clemente Dam.
4. An experimental program to trap and transport steelhead smolts around Los Padres Reservoir to test the effectiveness of modifications to the spillway, and to measure mortality of fish that migrate through Los Padres Reservoir and over Los Padres Dam.

The following pages include a brief description of each mitigation measure and its purpose, implementation or facilities needed, the frequency of use with Option V, monitoring and reporting program, permits needed and preliminary cost estimates for the construction and operation of each measure. A more detailed description of the facility designs and operations is found in the Draft Fisheries Mitigation Plan (Dettman, 1990).

The total estimated capital cost of this Board-approved fisheries mitigation program would be \$407,700 for the first five years. Average annual O&M costs for the first five years are estimated at \$212,900 per year. Annual costs for individual critically dry years could be as high as \$382,200, and as low as \$78,700 in wet years. The fisheries mitigation program costs include funding for the existing fisheries biologist plus three permanent 75% time resource technician positions and two intermittent 100% time resource technicians during drought years. This cost information is summarized in Exhibit 3.

It should be noted that the fisheries mitigation program for the Allocation Program EIR would supercede and expand upon the existing

Interim Relief Program fisheries activities.

The MPWMD Board has adopted a Statement of Overriding Considerations in relation to the fisheries mitigations proposed by Larry Mintier and Associates as interpreted by the District fisheries biologist. With the four Board-approved measures, most impacts to the steelhead population would be reduced to a less than significant level. However, the overall impact of Water Supply Option V on the population will be significant because the impacts to the spawning adults will remain unmitigated (see discussion of consultant's mitigation #7 above). The run of returning adults would be denied access to the Carmel River in parts of January, February and March when flows upstream of the Narrows are suitable for adult migration, and when fish would have migrated in earlier decades with lower levels of municipal water demand and production. This scenario would occur in 21 out of 30 years (two-thirds of the time) for an average of 21 days per year, according to CVSIM output with 16,700 AF of Cal-Am production (Option V). The main effect would be compression of the run in time, which would lead to increased competition by adults and fry, lower survival rates, and a reduced steelhead population.

Exhibit 3

**COST ESTIMATES FOR FINAL FISHERIES MITIGATION PROGRAM -- OPTION V
November 1990**

(Values shown are fully funded by MPWMD for five years. These mitigations would encompass and supercede existing efforts for each measure.)

	<u>MITIGATION PROGRAM</u>	<u>CAPITAL COST</u>			<u>ANNUAL COSTS</u>		
		<u>Existing</u>	<u>New</u>	<u>Total</u>	<u>Existing</u>	<u>New</u>	<u>Total</u>
1.	Expand program to capture emigrating smolts in spring	\$ 9,000	110,200	119,200	\$ 6,200	49,100	55,300
2.	Prevent stranding of early fall and winter migrants	\$ 0	95,200	95,200	\$ 3,600	75,300	78,900
3.	Rescue juveniles downstream of Robles del Rio in summer	\$ 0	173,100	173,100	\$ 3,000	54,600	57,600
4.	Experimental smolt transport at Los Padres Dam	\$ 0	29,200	29,200	\$ 0	21,100	21,100
	TOTAL COST	\$ 9,000	407,700	416,700	\$ 12,800	200,100	212,900 ⁽¹⁾
	ESTIMATED TOTAL COST WITH BOARD-APPROVED PROGRAM		\$407,700				\$212,900

NOTE 1: Annual cost estimates are averages. Individual dry years may cost up to \$382,200 per year, while wet year annual costs may be as low as \$78,700 per year.

FISHERIES MITIGATION #1:

EXPAND PROGRAM TO CAPTURE EMIGRATING SMOLTS IN SPRING

Existing District Program

Under terms of the Interim Relief Program agreement, the District rescues and transports smolts during critically dry years. During the past two years, District staff, members of the Carmel River Steelhead Association (CRSA) and CDFG staff have rescued about 500 smolts from the lower Carmel River. The fish were transported to the ocean, to an acclimation facility at the Monterey Bay Aquarium or to a rearing facility at CDFG's Granite Canyon Marine Laboratory. District costs for this program totalled about \$15,200 during FY 1989-90. Three District staffmembers were involved in this program for two months at one-quarter time.

Description and Purpose

The program to capture emigrating smolts and transport them to the ocean during critical years would be expanded to include all years when March, April and May flows are too low for successful smolt emigration. In addition to expanding the number of years when the program operates, the District would design, construct, and operate several facilities to improve the operation and overall success of the program. These include a seasonal trapping facility near Schulte Road or the Scarlett Narrows, and holding facilities near Schulte Road and at the Carmel River Lagoon. The purpose of the program is to increase the survival of steelhead smolts and the number of smolts which successfully emigrate to the ocean.

Implementation and Facilities

The District would improve the current program for transporting and holding smolts by designing and operating three facilities: (1) a smolt trap in the river near Schulte Road or the Scarlett Narrows, (2) holding facilities near Schulte Road and (3) holding facilities in the Carmel River Lagoon. Conceptual designs for these facilities are discussed in the Draft Fisheries Mitigation Plan (Dettman, 1990). As noted in the introduction of this section, the smolt traps have been changed to portable, rather than the in-place concrete structures described in the Draft Fisheries Mitigation Plan.

Frequency of Use

Studies have shown that the survival of emigrating of smolts is jeopardized as flows decline below 20 cfs. For this reason the District plans to trap and transport smolts during March, April, and May, when flows recede below 20 cfs at the USGS Near Carmel gage. Based on this plan and daily streamflows simulated by CVSIM, the District would operate the smolt emigration facility an average of 40 days per year. During extreme droughts, such as 1976-77, the facility would operate for a maximum of 92 days (March 1 - May 31).

Monitoring and Reporting

A marking program would test the effectiveness of rescuing and transporting juvenile steelhead downstream. As fish are captured at the facility near Schulte Road, District personnel will mark groups of juveniles with coded wire nose tags and release them at several locations and times to compare the survival of rescued, non-rescued, transported and non-transported fish. These comparisons will be made by sampling outmigrating juveniles at the mouth of the Carmel River as well as marked fish upon their return as adults. Annual monitoring reports will be provided to CDFG, SWRCB and the U.S. Fish and Wildlife Service (USFWS).

Permits Required

To construct and operate an expanded smolt trapping program, permits will be needed from Monterey County, CDFG, SWRCB, CDPR and the California State Coastal Commission (CSCC).

Preliminary Cost Estimates

The estimated costs for constructing a facility to trap, temporarily hold, and transport smolts to the ocean totals \$110,200 (costs are shared with Mitigation #2). Operating costs would average about \$55,300 per year and range from zero to \$115,500 per year. These costs include the existing District activities, which would be superceded by this mitigation measure. On average, staff would be needed to run this program for 40 days per year, and up to 98 days (including clean-up) in dry years.

FISHERIES MITIGATION #2:

PREVENT STRANDING OF EARLY FALL AND WINTER MIGRANTS

Existing District Program

There is no formal District program to prevent stranding of early fall and winter migrants. However, staff recognized this problem in the Carmel River, and as time allowed, staff conducted several rescues or coordinated CRSA rescues. District costs for this minimal program during FY 1989-90 were \$3,600. Two staffpersons spent a total of 2-3 weeks on this program.

Description and Purpose

As in other Central California streams, juvenile steelhead in the Carmel River move downstream into lower reaches of the river well ahead of the peak emigration of smolts. There is a high risk that presmolts and other juvenile steelhead will be stranded following early fall and winter storms, which increase flows and stimulate the fish to move downstream into habitat that is subsequently dewatered after the storm peak passes. This risk could be reduced by a program to trap and capture downstream migrants during the high risk period of October through February.

Implementation and Facilities

A program to capture juvenile steelhead before they are stranded would rely on a combination of methods. During and following small fall and early winter storms, the trap and holding facilities for the smolt transport program would be used to intercept fish before they move into habitat that will dry up. Following larger storms that produce flows in excess of 40 cfs at the Schulte trapping facility, District staff will electrofish with backpack and streamside shockers to capture fish in the reach below the trap.

Frequency of Use

With Option V (16,700 AF production) the facility would operate an average of 57 days per year. The most frequent use would occur during and following dry periods. For example, during the simulated 1961-64 period the facility would have operated 94 days in 1961, 79 days in 1962, 126 days in in 1963, and 101 days in 1964.

Monitoring and Reports

Monitoring for this program would entail tabulating the annual number of fish rescued from drying reaches of the Carmel River downstream of the Narrows. The District would also initiate a marking program to test the effectiveness of rescuing and holding juvenile steelhead which migrate downstream into drying reaches. The protocol of this marking program would follow the monitoring design for smolts as described in Mitigation #1 above. As fish are

rescued, District staff will mark groups of juveniles with coded wire nose tags and release them at several locations and times to compare the survival of rescued, non-rescued, held and non-held juveniles. Tallies of the number of marked fish which outmigrate at the mouth of the Carmel River will be the basis for comparing the survival of different groups. Annual monitoring reports will be provided to CDFG, SWRCB and USFWS.

Permits Required

To construct and operate a program to prevent stranding of early juvenile emigrants, permits will be needed from Monterey County, CDFG, and SWRCB.

Preliminary Cost Estimates

The estimated costs for constructing a facility to trap, temporarily hold, and transport juveniles totals about \$95,200. Operating costs would average about \$78,900 per year and range from zero to \$188,000 per year. These costs include the existing program, which would be superceded by this mitigation measure. On average, staff would be needed to run this program for 57 days per year, and up to 151 days in dry years.

Existing District Program

There is no formal MPWMD program to rescue juvenile steelhead during summer months. CRSA has rescued several thousand juveniles during the past five years when water withdrawals isolated juvenile steelhead in pools throughout the lower river. In recognition of this problem, staff conducts rescues whenever conditions and time allow. During the summer of 1989, District staff, CDFG and CRSA rescued 130 juvenile steelhead and released them in safe habitat upstream of Robles del Rio. The District costs for these activities in FY 1989-90 totalled about \$3,000. Two District staffmembers worked about two weeks on the rescues.

Description and Purpose

About 1.8 miles of juvenile rearing habitat between Boronda Road and Robles del Rio dry up nearly every summer. The District has proposed a program to rescue, transplant, and rear juvenile steelhead that are stranded during the dry season from June through December. The purposes of the program are to rescue juvenile steelhead from drying reaches, to transplant juveniles to permanent habitat below San Clemente Dam (if it is available), and to rear young-of-the-year steelhead in a facility below San Clemente Dam.

It should be noted that CVSIM results in the Allocation EIR determined that flows could be maintained at the Narrows in all years, except at the end of the most extreme droughts. However, this finding is based on two important assumptions: (1) Cal-Am would maintain the existing storage in both reservoirs via a dredging program, and (2) the Carmel Valley Filter Plant could be operated between 1.0 and 3.5 cfs.

Implementation and Facilities

Pending approval and agreement with Cal-Am, the District would construct a facility to hold and rear wild juvenile steelhead below San Clemente Dam, near the Sleepy Hollow Weir. The preliminary design consists of several holding pools and an artificial stream channel. The facility could hold and rear a maximum of 64,000 fish to a weight of about 13 grams, equivalent to the size of fish reared under natural conditions in the Carmel River. The fish would be allowed to naturally emigrate out of the holding facility, if habitat is available in the river.

Frequency of Use

The program to rescue and transplant juvenile steelhead will be used every year because a 1.8 mile reach between Boronda Road and Robles del Rio and the 9-mile reach between Highway 1 and the Narrows dry up about 97 percent of the time.

Monitoring and Reports

The program to rescue juveniles stranded in the Carmel River will be monitored by keeping accurate records of the number and size of fish rescued. Groups of juveniles will be marked, weighed and their survival to the smolt stage and returning adults will be compared to naturally reared smolts. Annual monitoring reports will be provided to CDFG, SWRCB and USFWS.

Permits Required

To construct and operate a program to rescue and rear stranded juvenile steelhead, permits will be needed from Monterey County, CDFG, SWRCB, and ACE. A focused EIR may be required.

Preliminary Cost Estimates

The District purchased most of the equipment for capturing and transporting juvenile steelhead as part of the Interim Relief Program, so no major capital expenditures are needed for fish capture equipment. Preliminary estimates of costs for construction of the holding and rearing facility total \$173,100. Annual operating costs are expected to total about \$57,600 per year. The O&M costs include the existing program, which would be superceded by this mitigation measure. This program would run from June through December each year, and staff would be needed for 214 days per year.

Existing District Program

No District program is presently in place to measure the survival of smolts past Los Padres Dam. The District fish biologist and other biologists and engineers have visited the dam, and have noted that conditions over the spillway may reduce survival of emigrating smolts.

Description and Purpose

No downstream fish passage facilities were built at Los Padres Dam when it was constructed in 1949. The situation is probably detrimental for emigrating smolts because the rough spillway abrades fish, and at low flows, fish fall onto the rocks below. In 1986 the spillway at Los Padres was modified to improve passage conditions. To date, no experimental releases of fish have been made to test whether these improvements reduce mortality. Recent photographs indicate that mortality still may occur at low flows.

The purpose of this program is to assess how well the previous spillway modifications are functioning. The mortality of fish emigrating over the spillway and through the reservoir versus the mortality of fish transported around the reservoir would be compared. Depending on the outcome of the experiments, a permanent program could be implemented to transport fish around the reservoir and past the dam.

Implementation and Facilities

The experiments to test mortality of emigrating smolts would be similar to a 1988 USFWS study of salmon smolts in the Sacramento - San Joaquin Delta. Groups of marked smolts are released at different locations and intensively sampled at a point downstream. The number of smolts from the upper release site divided by the number from the lower site is an index of survival. With the proposed experiments at Los Padres Dam, three groups of fish would be marked. Groups would be released at the head of the reservoir, at the top of the spillway and at the base of the spillway. The population of smolts would be intensively sampled at the Bedrock Chutes and at Syndicate Camp, located about 0.5 miles and 2.0 miles downstream of Los Padres Dam, respectively. A survival index would be developed based on the sampling data.

Frequency of Use

The experiments to determine mortality of emigrating smolts would extend over a period of 5 years. If a smolt transport program is needed, it would occur annually from late February through May.

Monitoring and Reporting

Monitoring will consist of annual reports to CDFG, USFWS, National Marine Fisheries Service and Cal-Am which describe the experimental results. After five years of study, a final report will identify whether additional modifications to the spillway are needed, and if so, the nature of the modifications. If modifications are made to the spillway, the monitoring should be extended to determine the success of the modifications. It should be noted that this information is also applicable to the long-term water supply project.

Permits Required

A permit from CDFG will be needed to trap and experimentally mark steelhead.

Preliminary Cost Estimates

Estimated capital costs for conducting mortality experiments would total \$29,200 and annual O&M costs would total \$21,100 for each of the five years. The smolt experiments would occur between late February and May each year. On average, staff would be needed to run this program for 30 days per year.

u/hs/wp/alloeir/fishmit.fin1