WATER PLANNING AREA #2 -- CAYUCOS

Includes coastal watersheds from Cayucos Creek to Toro Creek. The unincorporated community of Cayucos has three water purveyors, which provide services to the local urban area: Morro Rock Mutual Water Company, Paso Robles Beach Water Company, and County Service Area #10.

DEMAND

The development of demands for the San Luis Obispo (SLO) MWP Update involved collection and analysis of four types of existing data: 1) urban demand; 2) agricultural demand; 3) rural demand; and 4) environmental demand. Following the review of existing plans and data, existing demands for each of the four categories were prepared for each of the 12 WPAs. Next, data regarding growth and future water use was analyzed to develop a preferred approach for the development of future water demands. These future demands were then prepared and projected by the same four demand categories for each WPA.

The total existing and future demands for WPA 2 are listed in Table 1. Discussion of demands by each category follows.

Table 1
WPA 2 Demand by Category[a]

Category of Demand	Existing Demand (ac-ft/yr)	Projected Demand (ac-ft/yr)
Urban	470	580-750
Agricultural	740	530-820
Rural	520	680
Environmental	NA	NA
Subtotal	**1,730**	**1,790 – 2,250**

a. All figures have been rounded to the nearest 10's.

Urban Demand

This section documents existing and projected urban water demands for WPA 2. The existing and projected demand figures relied upon a water master plan prepared for the community of Cayucos. Where such recent plans were available, the analyses within these plans were relied on rather than the use of County data. Table 2 summarizes the current and projected urban water demands for WPA 2.

Table 2
WPA 2 Urban Water Demands[a]

Existing Demand (AF)	2020 Demand (AF)	Buildout Demand (AF)
470	580	750

a. All figures have been rounded to the nearest 10's.

The Cayucos Area Water Organization (CAWO) prepared a 1996 Water Management Plan Update. In the 1996 Water Management Plan Update, metered water use amounted to 465 AF annually, with an estimated service area population of 3,325 (1995), and a gross per capita use of about 125 gpcd. Actual residential usage since 1990 has been approximately 103 gpcd. This represented a demand reduction from previous years due to water awareness following the drought. Some rebounding of demand is expected as time goes on, and for future demands some increases are still expected in per capita residential use.

Future demands were determined within the 1996 Water Management Plan Update by examining the number of meters within the service area, seasonal use, and vacancy rates. For future demands, 110 gpcd was estimated within the document as a reasonable residential use per capita for planning purposes. A "normal" residential demand of 408 AF annually was estimated to serve existing residential uses. Future commercial use was projected based upon historical use at 58 AF annually. To project future demands, residential (408 Af) plus commercial and cemetery (76 AF) demands were added to the additional demand required to provide for "will-serve" commitments (42 AF). Total projected demand was thus estimated as 526 AF with a 10 percent cushion added for water planning purposes to bring total projected demand to 577 AF annually. Table 3 includes the existing and projected water demand for Cayucos.

Table 3
Summary of Water Demands for Cayucos

Existing Demand (AF)	2020 Demand (AF)	Buildout Demand (AF)
465	577	749

Agricultural Demand

This section documents existing and projected Gross Irrigation Water Requirements (GIWRs) for WPA 2. The existing and projected demand figures relied upon published data and accepted methods, along with information gathered from extension agents, consultants, growers, and irrigation specialists. Tables 4 and 5 summarize the current and projected agricultural water demands for WPA 2. An increase in Irrigation Efficiency accounts for the reduction in projected GIWR.

Table 4
Existing GIWR for WPA 2 (AF/Yr).

Low	High	Average
574	910	742

Table 5
Projected GIWR for WPA 2 (AF/Yr).

Low	High	Average
527	821	674

Procedures and Concepts

Estimating GIWR for local conditions can be characterized by the following general formula:

$$\text{GIWR} = \frac{\text{Crop ET} - \text{Contrib. from rain or shallow water table}}{(1 - \text{Leaching Requirement}) \times \frac{\text{Irrigation Efficiency}}{100}} + \text{Climate Control}$$

This analysis must be completed for each crop group, acreage, and weather pattern to calculate total GIWR (in AF) by Water Planning Area (WPA). The elements of the formula and the corresponding values associated with WPA1 are described in the following sections.

Cropping Patterns

Table 6 summarizes estimates of irrigated cropping acreage for WPA 2.

Table 6.
Estimated cropping acreage for WPA 2

Permanent		Veg.	Total
Citrus	Decid.		
200	0	400	600

Source: Estimated from annual crop report, county GIS records and pesticide use records.

Crop Evapotranspiration

Several UC Cooperative Extension Leaflets describe estimating crop evapotranspiration (ETc) where:

ETc = ETo x Kc

ETc is estimated by multiplying the weather factor (ETo) with the crop coefficient (Kc). ETo values for the San Simeon climate group (38.2 in/yr) were assigned to WPA 2 and Kc values are specific to the crop groupings (see Chapter 2). Yearly ETc totals for the crops in WPA 2 are summarized in Table 7.

Table 7
Yearly crop evapotranspiration (ft) for each crop group WPA 2.

Permanent		Vegetable
Citrus	Decid.	
1.8	NA	1.2

Effective Rainfall

WPA 2 was assigned the San Simeon rainfall group (23.0 in/yr) for the purpose of estimating effective rainfall (See chapter 2). Ranges of percentage of effective precipitation were applied to the crop groupings in WPA 2 and are listed in Table 8. Higher percentages were assigned to the deeper rooted crops according to their larger rootzone water holding capacity.

Table 8

Assigned ranges of typical effective precipitation for crop groups in WPA 2

Crop Group	Effective Precipitation Range (%) [1]	
	Low	High
Permanent		
Citrus	40	60
Vegetable [2]	15	25

1. As a percentage of total annual rainfall.
2. 2x adjustment factor for multiple cropping.

Frost Protection

No crops in WPA 2 require frost protection.

Leaching Requirements

The amount of extra irrigation water which needs to be applied to satisfy the leaching requirement for a particular crop depends on the salt tolerance of the crop and the irrigation water quality. Ground water quality in San Luis Obispo County is typically adequate for crop production and does not necessitate additional *irrigation* water applied for leaching since it is typically satisfied by normal rainfall. Chipping et al. 1993 reports that of the wells tested in the Paso Robles Ground Water Basin Study, most of the wells tested have EC levels < 1.0 dS/m. Given these water qualities and salt tolerances typical with central coast crops, leaching requirements would be satisfied by rainfall.

Irrigation Efficiencies

Irrigation efficiency can be expressed by the following relationship:

Irrigation Efficiency = Distribution Uniformity x (1 – Losses)

The Cachuma Resource Conservation District routinely conducts irrigation evaluations in Santa Barbara and San Luis Obispo Counties and are excellent resource in describing the actual performances of irrigation systems in the region. Irrigation efficiencies were assigned to crop group according to prevalent irrigation system type and knowledge of typical local uniformities (Table 9).

Table 9

Assigned irrigation efficiency averages for each crop group in WPA2.

Crop Group	Irrigation Efficiency Range (%)	
	Low	High
Permanent	60	70
Vegetable	65	75

Existing Gross Irrigation Water Requirement by Crop Group

Existing GIWRs for WPA 2 are summarized in Table 10. The ranges provided in Table 8 do not represent the extremes in GIWR, but do represent the typical ranges in a normal year given local variations in effective precipitation and irrigation efficiencies.

Table 10
Summary of GIWR range for WPA 2 by crop group (AF/Ac/Yr).

Permanent-Citrus		Vegetable	
Low	High	Low	High
0.9	1.7	1.0	1.4

Future Gross Irrigation Water Requirements by Crop Group
Several issues would affect changes in future irrigation water requirements:

- Changes in cropping acreage and type of crop
- Changes in irrigation methods

Cropping Patterns
Trends in cropping patterns were examined through historical crop reports and previous water use projections completed by the Department of Water Resources. Table 11 summarizes projected crop acreages in WPA 2.

Table 11
Projected cropping acreage for WPA 2

Permanent		Veg.	Total
Citrus	Decid.		
200	0	400	600

Irrigation Methods
Table 12 reflects the projected irrigation efficiencies by crop group in WPA 2.

Table 12
Projected irrigation efficiencies by crop group in WPA 2

Crop Group	Irrigation Efficiency Range (%)	
	Low	High
Permanent	70	80
Vegetable	70	80

The same procedures were utilized in estimating projected irrigation water requirements. The projected values reflect the changes in cropping acreage and irrigation efficiencies.

Table 13
Summary of Projected GIWR by crop group for WPA 2 (AF/Ac/Yr).

Permanent-Citrus		Vegetable	
Low	High	Low	High
0.8	1.5	0.9	1.3

Rural Demands

Rural water demands in the Cayucos WPA include dwelling units scattered throughout the hills. The commercial areas are not included in Tables 14 and 15 below, but included in the urban demand for Cayucos. Water is produced in private wells from the small, coastal basins in the area.

Table 14
Current Demand – 1995

Population	Pop/Du	Houses	Duty	Demand[a]
1,020	2.57	397	1.3	520

a. Demand figure has been rounded to the nearest 10's.

Table 15
Projected Demand – 2020

Population	Pop/Du	Houses	Duty	Demand[a]
1,340	2.57	521	1.3	680

a. Demand figure has been rounded to the nearest 10's.

Data Deficiencies
The following additional data would improve the accuracy of this study:

- **Dwelling Units**. The study was based upon population numbers, with an estimate of dwelling units derived from population figures divided by persons per household. Demand should be based upon a count of dwelling units by WPA. This information would be derived from assessor data.

- **Certificate Lots**. Many parcels of land may be buildable. It is difficult to ascertain how many will be built upon.

Environmental Demands

Current Demands

Information on current environmental water demands is available from two sources: 1)conditions on water rights permits and licenses and associated orders on file with the State Water Resources Control Board, and 2) agreements between the California Department of Fish and Game and other entities. A discussion of current environmental demands in WPA 2, as reflected in actual permit conditions, is presented below.

Old Creek

Subject to Agreement for Supply of Water from Whale Rock Reservoir to Cayucos Area Water Organizations.

Future Demands

The CDFG is currently developing a protocol for determining stream flow needs to protect environmental values (Waithman, CDFG, Yountville, personal communication, February 1998). This protocol is under development and has not been formally accepted or even formally proposed. It is presented here to indicate one estimate of possible future demand. This protocol has not been adopted by CDFG and if it were, it may not be accepted by other groups or agencies. Key provisions may include the following:

- Reservation of 60% of the average annual unimpaired wet-season flow for instream habitat.
- Bypass of all natural flow during dry season (June to September).
- No diversions until stream flows to the ocean (sandbar breached).

Watersheds on the west side of the coast range generally receive higher rainfall than the streams draining inland areas. These watersheds are also somewhat cooler during the summer than inland areas and are more likely to support steelhead. Tidewater goby are also found in lagoons at the mouths of streams in the coastal watersheds. Annual runoff during drought years in these streams can be 10% or less of the average runoff and result in extreme conditions for aquatic life. Extreme high flow events can also occur and these can also be detrimental to aquatic life in the streams. Based on these considerations future environmental water demand for minimum instream uses in WPA 2 was estimated to range from 10% of unimpaired average annual runoff during drought years to 100% of unimpaired average annual runoff in wet years. This assumes that some uncontrolled high flows will still occur with a frequency that maintains basic stream habitat features.

Data Deficiencies

There has been no organized complete effort to quantify instream flow needs in streams of San Luis Obispo County. Studies have been conducted on some streams and restrictions have been placed on certain water rights permit holders to protect instream uses but these have generally focused on the needs of one or a few key species and have not resulted in clear, objective assessments of instream flow needs.

There is not sufficient data to complete a detailed analysis of environmental water demands for all streams in the County. There is no known data for unimpaired runoff for any stream though it is possible estimates could be developed from available rainfall data. The only readily available (electronic) data is from USGS and County maintained streamflow gaging stations. The USGS data presents average runoff estimates as well as minimum and maximum runoff for each station but this data reflects existing water use and water project operations and in most cases does not reflect unimpaired conditions. Average runoff estimates could also be developed for the SLO gage data and discontinued USGS gages but the information would need to be in an accessible database.

A generic approach to instream flow needs assessment may be useful and data for such an assessment may be available. The County should consider a Tennant type approach using unimpaired runoff estimates generated from rainfall data. Given the wide annual variability in rainfall and runoff, an instream flow needs assessment should account for differences in normal, wet, and dry year flow needs. The County should also have all streamflow data entered in a computer database to facilitate its use.

Uncertainties

In many cases permit or license conditions do not specify a reservation of stream flow for environmental benefit. Rather, they are restrictions on use by individual rights holders. These restrictions are intended to provide benefits to fish and wildlife. However, it is not usually clear how restrictions on an individual water right interact with other water rights and effect streamflows. In addition, it is not always clear how permit conditions are interpreted in terms of an environmental demand. For example, many of the permit conditions call for a “visible surface flow” in a given stream but it is not clear how much water this represents.

Future environmental water demand is subject to great uncertainty due to lack of knowledge of instream flow needed to protect the aquatic resources, lack of information on existing runoff conditions and diversions, and the inherent annual variability in rainfall and runoff. For planning purposes, one could assume that the upper range of future demand will be

defined by a percentage of the average annual unimpaired runoff (UAAR) during the wet season and no diversion during the dry season. This task is complicated since many streams are not gaged streams and unimpaired flow must be estimated using hydrologic modeling. This information is not presently available.

References

Stalnaker, C., B.L.Lamb, J. Henriksen, K. Bovee, and J. Bartholow. 1995. The Instream Flow Incremental Methodology: A primer for IFIM. Biological Report 29. U.S.D.I., National Biological Survey, Washington, D.C.

SWRCB, 1997. Staff Report Russian River Watershed. Proposed Actions to be taken by the Division of Water Rights on Pending Water Right Applications within the Russian River Watershed. Division of Water Rights. Sacramento, California

SUPPLY

Three separate purveyors supply domestic water to the community of Cayucos. They share a common source of supply (Whale Rock Reservoir) and operate a common water treatment plant. Interties exist among Morro Rock Mutual Water Company, Paso Robles Beach Water Association, and County Service Area 10A.

Further, Whale Rock Reservoir is located just outside of Cayucos and supplies the City of San Luis Obispo, CMC, and Cal Poly via the Whale Rock Pipeline. By virtue of the Whale Rock Pipeline, Cayucos is intertied with the City of San Luis Obispo, CMC, and Cal Poly. It is further possible that the City of Morro Bay could intertie with Cayucos and the others mentioned, as the Whale Rock Pipeline passes through Morro Bay.

The Whale Rock Pipeline is a 17 mile, 30" diameter prestressed concrete cylinder pipeline that was constructed in the 1960s to convey untreated water. Two pump stations convey water to the City of San Luis Obispo water treatment plant. As with any transmission main, use of the Whale Rock Pipeline for conveying a) treated water, b) higher flows/pressures or c) bi-directional flows must be carefully considered. It is noted here as an existing link among systems that may prove valuable in an emergency

Groundwater Supply

Table 16 lists the ground water basins inWPA 2. Estimates of "basin yield" are provided for those basins that have been studied, coupled with estimates of ground water production. An estimate of annual ground water production is provided on the table, along with the year representing the estimate and a reference to the source of information.

WPA 2 includes the San Geronimo, Cayucos, Old, and Toro Basins. These basins are used principally for local domestic and agricultural purposes. Old Basin is the small alluvial deposit downstream of Whale Rock Dam which is also used by Cayucos water purveyors. The Chevron tank farm at the mouth of Toro Basin uses some water for industrial purposes. The California Department of Water Resources and consultants to the County of San Luis Obispo, to the Cayucos water purveyors and the City of Morro Bay (Cleath & Associates and Converse Consultants) has performed ground water studies of these basins.

The water purveyors in Cayucos have utilized Old Basin downstream of Whale Rock dam also through a ground water recharge and extraction type of operation. But the recent

installation of a water treatment plant for use by the Cayucos Area Water Organizations (CAWO), has replaced this operation, resulting in only the use of wells which obtain water in the basin from very limited local runoff and dam seepage and overflow.

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Table 16
WPA 2 Ground Water Basins

Basin Name	Basin Area in Square Miles	Basin yield with original descriptive term in acre-feet per year	Production - year in acre-feet
Cayucos	0.9 (7)	600 safe seasonal yield (6)	350 – 1,987 (7)
Old			
Toro	0.8 (7)	591 percolation of precipitation (8)	532 – 1,987 (8)

6. California Department of Water Resources, 1958, San Luis Obispo County Investigation: State Water Resources Board Bulletin No. 18, vol. I and II.
7. Cleath, Timothy S., 1988, Ground Water Study, Cayucos Area.
8. McClelland Engineers, February 1988, Final EIR for Appropriative Water Rights for Toro Creek Underflow.

Data Deficiencies

The estimates in Table 1 represent the results of published data from numerous sources, some of which are as much as 40 years old. It is also important to note that most of the basins have not been studied in detail, and true perennial yield values are not known. Thus, much of the information does not reflect current conditions, population, water usage, and agricultural trends. It also tends to point out the necessity of developing new data to more accurately describe the hydrologic conditions of the basins. Most of the estimates of ground water extraction are at least 10 years old.

Uncertainties

The "basin yield" values described in the table reflect the results of a variety of methods of determining yield, including annual recharge, safe yield, seasonal replenishment, and net safe annual extractions, and thus may or may not reflect an accurate perennial yield value for the basin.

Surface Water Supply

A list of existing water supplies in WPA 2 is included in Table 17. WPA 2 receives surface water supplies from Whale Rock Reservoir. The three domestic purveyors in Cayucos (Morro Rock Mutual Water Company, Paso Robles Beach Water Association, and County Service Area 10A) hold a collective entitlement of 600 AFY from Whale Rock Reservoir. Supplies from the reservoir are treated at the new (1997) surface water treatment plant for subsequent delivery to citizens of Cayucos. Water rights information list an estimated 1,560 AFY appropriated stream flows in WPA 2. This supply appears to be associated with California Men's Colony entitlement in Whale Rock Reservoir and is not representative of supply to users within WPA 2.

Table 17
Existing, Developed Water Sources Other Than Ground Water
(Approx. Yield, acre-feet per year)

Existing Source	Approx. Yield
Whale Rock Reservoir	664
Appropriated Stream Flows	1,560
TOTAL NON-GROUND WATER YIELD [1]	**2,224**

1 Source: Water Rights Information Management System printout dated April 23, 1998 from the State Water Resources Control Board for all water rights in SLO County.

Figures shown are "Maximum Annual Use" totals by WPA as noted in water rights filings.
Figures do not include estimated supplies to entities whose app. rights state a max. direct diversion (in cfs) or a max. storage volume (in acre-feet). Due to this, appropriated stream flows stated here are probably under-stated.

Uncertainties

While the water rights information states the amount of water individuals and agencies are entitled to withdraw, it does not tabulate actual withdrawals. For example, an owner may be entitled to divert 86,000 gallons per day from May through October of each year. This does not mean that the owner typically diverts this each and every day for six months. On the other hand, this same owner may, in a dry year, want to divert his full entitlement over the six month period. However, if there is not enough water in the creek to support his diversion, it may not be physically possible to divert the full amount.

The reader is alerted to this especially when interpreting the estimates of appropriated stream flows stated in Table 17.

DEFICIENCIES

The major watershed is captured in Whale Rock Reservoir, and supply is fixed. Demand is increasing year round as residences convert from seasonal use.

Table 18
Existing (ac-ft/yr)

Demand	Grndwater Supply	NonGrndwater Supply	Total Supplies	Balance[a] (Deficiency)
1,730	1,191	2,224	3,415	1,690

a. Balance (Deficiancy) figure has been rounded to the nearest 10's.

Table 19
Projected (ac-ft/yr)

Demand	Grndwater Supply	NonGrndwater Supply	Total Supplies	Balance[a] (Deficiency)
1,790 – 2,250	1,191	2,224	3,415	1,630 - 1,170

a. Balance (Deficiency) figure has been rounded to the nearest 10's.

ALTERNATIVES

This section is an evaluation of future water supply options for WPA 2. The criteria previously selected by the WRAC are:

- Cost
- Risk
- Reliability
- Timing
- Environmental Impacts
- Agricultural Impacts

- Water Rights
- Local Control
- Water Quality
- Institutional Constraints
- Recreation
- Hydroelectric Potential

Each water supply option summary includes a comparative ranking of the criteria listed above. The rankings are based on the following:

Comparative Rankings

Features of water supply options are ranked 1 to 5, with 5 being the best. A "0" implies a fatal flaw which may render the supply option infeasible. The basis of comparison, in general, is:

Cost: The lower the unit cost ($/AFY), the higher the ranking.

Risk: Primarily a subjective comparison of the potential for project cost escalation.

Reliability: Primarily a comparison of project yield, AFY, during years of below-average rainfall.

Water Rights: A favorable 5 ranking indicates no known problems; a 3 indicates potential challenges; and a 1 indicates known opposition which may stop the project.

Local Control: A favorable 5 indicates physically located in and administered by an agency within the County; a 3 indicates some involvement of outside agencies; and a 1 indicates control from outside the County.

Water Quality: A favorable 5 indicates projects which enhance water quality; a 3 indicates no change; and a 1 indicates a negative impact on water quality.

Timing: A favorable 5 indicates projects with designs complete; a 3 indicates projects for which predesign at least is underway; and a 1 indicates projects for which design is 5 years or more away.

Environmental: A favorable 5 indicates certified EIR in place; a 3 indicates environmental review underway and no significant unmitigable issues identified; and a 1 indicates significant impacts foreseen. A "0" in this category indicates a potential environmental fatal flaw.

Agricultural Impacts: A favorable 5 indicates projects which help agricultural, particularly by reducing competition for ground water and by other means.

Institutional Constraints: Reflects the degree of organizational support. A low ranking is indicative of the need for complex agreements.

Recreation: Reflects the degree to which the project may enhance recreational opportunities. A 3 indicates no direct impact.

Hydroelectric Potential: Indicates the degree to which the project may provide opportunities for hydroelectric power generation. Little information is available regarding hydroelectric power generation opportunities for the supply options examined. In general, options with little or no opportunity for power generation were

ranked “1”. Options that may expand existing power generation facilities were ranked “3”.

Potential water supply projects that may benefit this WPA (and for which information exists), include the Nacimiento Water Supply Project. This is not to say that this is the only supplemental water sources available. Rather, published data are currently available for only this potential source.

Nacimiento

The Nacimiento Water Supply Project described herein is as described in the August 1997 Draft EIR. It involves construction of over 60 miles of pipelines ranging in size from 33- to 8-inches in diameter, plus pump stations, storage tanks, and outlet works. The project is planned to supply 17,500 AFY to 18 water purveyors from Paso Robles to Coastal San Luis Obispo County.

Category	Remarks	Comparative Ranking
Cost[i]	▪ $120 million project cost. *WPA 2*: $625 - $1,097 per AFY *WPA 3*: $1,167 - $2,198 per AFY *WPA 4*: $669 - $1,135 per AFY (SLO City) *WPA 4*: $2,488 - $3,783 per AFY (Others) *WPA 9a*: $368 - $1,000 per AFY *WPA 10*: < $200 per AFY (opinion; cursory estimate).	4
Risk[ii,iii]	▪ Long distance conveyance - risk of delivery interruption ▪ EIR seismic evaluation - "Insignificant after mitigation". ▪ Cost sensitive to participation level. ▪ Moderate risk of construction cost escalation. ▪ Forecasted deliveries can be maintained even with a planned 1-month annual maintenance outage.	4
Reliability[ii,iii]	▪ 17,500 AF yield even through 1987-1991 drought. ▪ Complements groundwater supply in planning areas 3, 4, and 9a.	5
Water Rights[iii]	▪ Strong contractual position with Monterey County. ▪ Pending legal challenge originating in Monterey County.	3
Local Control[iv]	▪ Watershed and dam within SLO County, operated by Monterey County Water Resources Agency. ▪ Potential Monterey County and Division of Safety of Dams issues.	4
Water Quality[iv]	▪ Limited data indicates favorable quality.	3
Timing[iv]	▪ High participation needed to advance. ▪ Minimum 3 years for delivery. ▪ Little opportunity for staging (matching supply with demand).	2
Environmental Impacts[ii]	▪ Long term significant residual impacts to recreation and growth inducement. ▪ Cumulative impacts in areas of water resources and fisheries. ▪ Short-term impacts on traffic, air quality and biological resources. ▪ Helps minimize potential overdrafts in regions 9a, 3, and 4.	2

Category	Remarks	Comparative Ranking
Agricultural Impacts[ii]	▪ No short- or long-term significant residual impacts. ▪ Reduces competition between urban and agricultural groundwater users.	4
Institutional Constraints[v]	▪ Usual permitting process for similar pipeline projects. ▪ High project participation required.	3
Recreation[ii]	▪ Associated lake-level impacts may negatively affect recreation.	2
Hydroelectric Potential[iv]	▪ Reduce power generation capability at the dam by < 10 percent. ▪ No new hydro potential identified along pipeline.	1

Data Deficiencies

No data exist for Water Conservation Programs.

References

[i] "Lake Nacimiento Water Supply Project Financing Analysis" by Leifer Capital for San Luis Obispo County Flood Control Water Conservation District, December 1997.

[ii] "Draft EIR Nacimiento Water Project" by Ogden Environmental and Energy Services for County of San Luis Obispo, August 1997.

[iii] "Preliminary Evaluation for the Nacimiento Water Supply Project, Reliability Evaluation" by Boyle Engineering Corporation for San Luis Obispo County Flood Control Water Conservation District, 1992.

[iv] "Nacimiento Water Supply Project EIR preparation Phase Engineering Draft Report" by Carollo Engineers for County of San Luis Obispo, July 1996.

[v] "Nacimiento Water Supply Project Permit Outline" by Boyle Engineering Corporation for San Luis Obispo County, 1997.