

**COVER SHEET**

FEDERAL ENERGY REGULATORY COMMISSION  
FINAL ENVIRONMENTAL IMPACT STATEMENT  
FOR THE OROVILLE FACILITIES PROJECT  
Docket No. P-2100-052

Appendices  
FEIS

**APPENDIX A**  
**REVIEW OF SOCIOECONOMIC MODEL AND RELATED DOCUMENTS**

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## **REVIEW OF SOCIOECONOMIC MODEL AND RELATED DOCUMENTS**

This appendix presents a review of several documents submitted by Butte County (or County) and the California Department of Water Resources (DWR) regarding the Oroville Facilities relicensing process. The focus is on the model and assumptions used by DWR to estimate costs incurred by Butte County to provide project-related services, as well as project-related revenues accruing to the County. This independent review was undertaken to address questions raised by Butte County about the appropriateness of both the model itself and the inputs and assumptions used by DWR in running the model. In our analysis, we used a copy of the model provided by DWR. We did not, however, have access to the original data set used by DWR as input to the model. While we found areas in which the model or assumptions could be improved upon, we found nothing to suggest that the model or assumptions would produce biased results, and therefore conclude that the material submitted by DWR is adequate for the staff's use in preparing the draft environmental impact statement.

### **DWR's MODEL AND ASSUMPTIONS**

As part of the relicensing process, DWR submitted several reports to the Federal Energy Regulatory Commission (FERC, or Commission) detailing the economic impact of the project on Butte County. The reports address fiscal and socio-economic effects that the Commission will consider in its evaluation of the application for license. Of the reports submitted by DWR, our focus is on reports R18, *Recreation Activity, Spending and Associated Economic Impacts* (DWR, 2004a), and R-19, *Fiscal Impacts, Final Report* (DWR, 2004b). R-19 summarizes the fiscal impacts of the project on Butte County. Each report appears to be thorough and comprehensive in its content, using up-to-date methods of analysis, including the IMPLAN model and econometric techniques.

### **The IMPLAN Model**

DWR used the IMPLAN (Impact Analysis for Planning) model to derive its fiscal impact results. The IMPLAN model is an input-output model developed in 1979 by the Forest Service and is one of the most widely used input-output models used to evaluate changes in policy and to produce socioeconomic forecasts. Its primary attribute is that it captures multiplier effects as changes in policy create ripples throughout the economy. The effects can be classified as direct, referring to changes in production associated with a change in demand; indirect, referring to a secondary impact caused by the changing input requirements of producers; and induced, referring to changes in household spending due to additional employment generated by the direct and indirect effects. Its assumptions restrict production functions to be homogenous across all firms within an industry, and linear, with constant returns to scale. Output is also assumed to be homogenous or undifferentiated by quality, branding, etc. The IMPLAN model places no constraints on supply, and it assumes that in- and out-migration maintain the region in question at full employment at all times.

### **IMPLAN Model Inputs**

Inputs used to estimate the fiscal impact of the project's recreation visitors, the primary focus of our review, are the annual number of visitors to the project and their daily expenditures in the County. DWR estimated visitation via traffic counting, supplemented with other data, and estimated expenditures from survey data. Other model inputs, not related to visitor spending, include DWR's estimated annual spending in the County for salaries, goods, and services needed to operate and maintain the project.

## **IMPLAN Model Output**

The direct cost impact of the project on Butte County derives from the County's providing public services (primarily fire and rescue services and law enforcement and criminal justice services) to the project and the project's recreational visitors, as well as to maintaining access roads to sites within the project. The indirect cost impact stems from providing services to the growth-related population associated with project and visitor spending. Direct revenues to the County come from collecting tax revenue associated with project and visitor expenditures in the unincorporated portion of the County; indirect revenues come from taxes paid by the growth-related population. In its application to Butte County, the model predicts that direct costs to the County exceed direct revenue and that indirect costs exceed indirect revenue, such that there is a deficit associated with both recreational visitors and the growth-related population

## **Model Estimation of Indirect Impacts**

Indirect effects flow from changes in input requirements of producers directly affected by economic changes. For example, an increased number of visitors to the project may raise demand for local restaurants. This is the direct effect. But the restaurants will then purchase more food from local suppliers. This is the indirect effect. Both the restaurant and its suppliers are then likely to raise their demand for inputs and labor. As stated above, the IMPLAN model instantaneously "clears" the labor market by assuming that in- and out-migration occur immediately. Thus, in the IMPLAN model, if the demand for labor rises, then it will be met by in-migration. This would result in an increase in the County's population and a subsequent increase in the cost of providing services, but would also raise its revenue through the additional taxes paid by newcomers. Similarly, if the demand for labor falls, workers are assumed to out-migrate such that the economy remains at full employment. This would have the effect of reducing the fiscal burden on the County and also reducing the tax revenue associated with the out-migrants. As noted above, the model predicts that indirect growth adds more to Butte County's cost of providing services than it adds to revenue, such that there is a deficit associated with each additional person.

## **Structural Parameters**

The structural parameters of the IMPLAN model are in widespread use and are considered sound. There is little benefit to reviewing them further, except to say that over time, the parameters of the model are subject to change. The degree of change derives primarily from changes in technology that increase the efficiency of production. For example, as manufacturing establishments are modernized, it takes fewer employees to produce the same amount of output. While it is possible to estimate the process of technological change by a time series analysis of the IMPLAN parameters, it is also reasonable to state that growth in productivity is a slow process. With respect to providing government services, such as police and fire protection, or recreational services, such as food service and hotels, productivity would not likely be appreciably different in the future than it is today. Thus, we find the structural parameters of the model to be entirely suitable to this application.

## **Sensitivity Analysis**

The model reacts to changes in inputs, including the number of visitors and their spending habits during their visit. In this section, we describe the sensitivity of the model to recreational visitation and spending.

## Recreation Days/Visits

DWR provided estimates of annual visits to the project area by recreational site. The number of visits to the project was estimated using traffic count data supplemented by periodic visual inspections of passengers in each vehicle, California Department of Parks and Recreation (DPR) campground information, observational data, other DPR data, and trail counters.<sup>1</sup> Table A-1 shows the total fiscal impact (direct plus indirect effects) of visitors to the project on Butte County, as estimated by DWR's IMPLAN model. In this case, a 5.0 percent change in visitors (holding visitor spending constant) in either direction results in a 5.0 percent change in Butte County's fiscal deficit. This indicates a precise 1:1 relationship between the percent change in visitors and percent change in costs to the County and percent change in County tax revenues.

Table A-1. Fiscal impact on Butte County of recreational visitors to the Oroville Facilities. (Source: DWR IMPLAN model and Staff)

<b>Costs</b>	<b>Baseline</b>	<b>+ 5% Visitor Days</b>	<b>-5% Visitor Days</b>
Fire protection	\$283,584	\$297,764	\$269,405
Law enforcement	\$481,497	\$505,572	\$457,423
Road maintenance	\$129,061	\$135,514	\$122,608
Other Services & Costs	\$131,724	\$138,310	\$125,138
<b>Total Costs</b>	<b>\$1,025,867</b>	<b>\$1,077,160</b>	<b>\$974,573</b>
<b>Percent Change</b>		<b>+5.0%</b>	<b>-5.0%</b>
<b>Revenues</b>			
Sales Tax	\$217,074	\$227,927	\$206,220
Property Tax	\$97,356	\$102,224	\$92,488
Lodging Tax	\$3,348	\$3,516	\$3,181
Other Revenue	\$318,440	\$334,362	\$302,518
<b>Total Revenues</b>	<b>\$636,218</b>	<b>\$668,029</b>	<b>\$604,407</b>
<b>Percent Change</b>		<b>+5.0%</b>	<b>-5.0%</b>
<b>Net Fiscal Effect</b>	<b>-\$389,649</b>	<b>-\$409,132</b>	<b>-\$370,167</b>
<b>Percent Change</b>		<b>+5.0%</b>	<b>-5.0%</b>

Table A-2 provides a range of values for employment and earnings around the baseline visits, as estimated by the model. Again, the relationship is strictly 1:1.

This exercise sheds light on how the model estimates the change in the fiscal burden imposed by the project on Butte County in response to variations in the model inputs. The sensitivity analysis shows that the model used by DWR is strictly linear, which is what one expects of the IMPLAN model, and demonstrates that the model produces the expected results.

<sup>1</sup> Trail counters are infrared sensors placed strategically along side hiking trails. The sensors are placed high enough to avoid counting animals but low enough to count people.

Table A-2. Employment and earnings impact on Butte County of recreational visitors to Oroville Facilities. (Source: DWR IMPLAN model and Staff)

	<b>Baseline Visits</b>	<b>+5% Visits</b>	<b>-5% Visits</b>
Jobs	664	698	631
Percent Change		+5.0%	-5.0%
Earnings	\$12,833,000	\$13,475,000	\$12,191,000
Percent Change		+5.0%	-5.0%

There is a large difference in the visitation numbers used by DWR to run the model and those used by Butte County in its estimates of project-related costs. First, instead of using the year-round average daily visits, the County used average daily visits during the peak season as inputs to its calculations. The County’s estimate of the nonresident visitor population (5,270) is 176 percent higher than the 1,910 figure used in DWR’s license application studies. Holding average spending constant, the use of average peak visits as opposed to year-round averages would naturally raise the estimated fiscal burden placed on the County. Thus, following the logic shown in tables A-1 and A-2, increasing the number of non-resident visitors by 176 percent would also increase project-related costs (\$2,830,534), revenues (\$1,755,429), the net fiscal deficit (\$1,075,105), and the number of jobs (1,832) by the same percentage.

The County states that its rationale for using peak numbers is that the County’s supply of its services is fixed in the short-run, not unlike the supply of electric power or other highly capital intensive enterprises. And like the suppliers of electric power, the use of peak numbers suggests that the County needs to keep spare government services capacity available in order to adequately cover peak periods. The implication of this argument is that the County cannot fluidly procure labor service for fire, police, and so on to cover peak visitation periods and then dismiss these resources during the off-peak periods. In other words, the County must retain the necessary infrastructure to cover peak periods even if it becomes spare capacity during the off-peak period. The larger the difference between peak and off-peak numbers, the starker will be the difference in costs. This inability to hire and fire resources at will would end up raising the fixed costs to the County and hence its fiscal burden. Resources would include at least fire and police equipment and the necessary infrastructure to store and maintain it, additional trained staff, and a communications network.

However, the information on the record also shows that other agencies that provide law enforcement, fire, rescue, and other services in the project area, such as California Department of Parks and Recreation, increase their staff during the peak recreation season and decrease their staff during the off-season. This increase in the availability of other service providers during the peak season argues against the need for Butte County to staff up during the peak season or provide infrastructure designed to meet peak season needs. Additionally, DWR’s proposed funding of DFG under Measure B111 would likely lead to a reduction in the demand for Butte County law enforcement services at the OWA.

On page 32 of its detailed comments on the draft EIS, Butte County provides emergency call statistics that demonstrate at least a 2:1 ratio of peak emergency response calls to off-peak calls to Lake Oroville from 2004 to October of 2006. The data indicate that calls per month during the peak period (May 15 to September 15 each year) equaled 8.8 to 13.5 calls per month, compared to 0.6 to 2.0 calls per month in the off-peak period. This supports the County’s position that peak visitation periods at the project generate a higher number of emergency calls

than off-peak visitation periods. Yet it is still not clear that the additional labor resources required for peak-season visitation could not be augmented on a seasonal basis to handle the number of calls in question.

### Visitor Spending

Visitor spending affects Butte County’s fiscal condition indirectly through its effects on earnings, employment, and population. DWR’s visitor spending estimates were based on data taken from surveys conducted throughout one year. The surveys are subject to error and, as we discuss in more detail below, are considered deeply flawed by Butte County’s consultant, Dr. Jon S. Ebeling. Nevertheless, they provide the only available information on visitor spending in the area. DWR presents spending data with accompanying measures of spread around the mean, by which some assumptions about the distribution can be made. Table A-3 provides a summary of DWR’s visitor spending estimates.

Table A-3. Visitor spending by site at Oroville Facilities. (Source: DWR, 2004a)

Site	Residents of Butte County				Non Residents of Butte County				Number of Residents/Non-Residents Surveyed
	Mean	Std Dev	Min	Max	Mean	Std Dev	Min	Max	
Oroville	\$39.3	\$46.6	\$0.0	\$283.0	\$20.2	\$31.3	\$0.0	\$268.2	268/312
Feather River	\$23.8	\$38.2	\$0.0	\$200.8	\$22.8	\$32.0	\$0.0	\$139.2	49/27
Forebay	\$32.3	\$49.8	\$0.0	\$335.0	\$14.8	\$22.9	\$0.0	\$100.5	71/19
Afterbay	\$35.6	\$35.0	\$0.0	\$206.5	\$11.9	\$21.7	\$0.0	\$82.7	61/43
OWA	\$40.8	\$51.0	\$0.0	\$174.5	\$42.1	\$59.8	\$0.0	\$340.0	31/83

The statistics indicate a wide dispersion of spending among visitors in both the resident and non-resident populations. For each site, the coefficient of variation (standard deviation/mean) is close to one or significantly above one for both residents and non-residents, indicating a high degree of variance in the data set.<sup>2</sup> We have made assumptions about the shape of the distribution in order to apply a Monte Carlo simulation<sup>3</sup>. First, the fields are each truncated at \$0.0 since it is not possible to observe negative spending. Second, at each recreation site, the data in table A-3 indicate that the maximum spending is high relative to the mean. Without the advantage of visual inspection of the distribution, it is reasonable to assume that these statistics

<sup>2</sup> Standard deviation is the most common measure of statistical dispersion, measuring how spread out the values in a data set are. If the data points are all close to the mean, then the standard deviation is close to zero. If many data points are far from the mean, then the standard deviation is far from zero. If all the data values are equal, then the standard deviation is zero. The coefficient of variation is a dimensionless statistic that is useful for comparing the degree of variation from one data series to another, even if the means are drastically different from each other. A coefficient of variation greater than one indicates a high degree of variance in the data points.

<sup>3</sup> In Monte Carlo simulation values for uncertain variables are randomly generated over and over to simulate a model.

indicate a log-normal distribution. Figure A-1 gives a graphical example, showing the theoretical distribution for the log-normal distribution for Butte County resident spending at Lake Oroville.

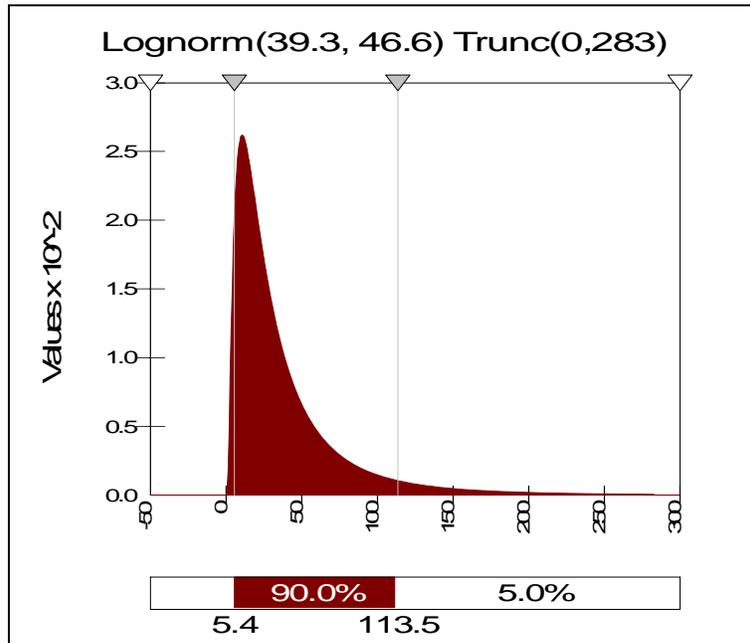


Figure A-1. Log-normal distribution of Butte County resident spending at Lake Oroville. (Source: Staff)

Monte Carlo simulations of the above distributions generate the mean values given in table A-4. In each case the simulated values are lower than the survey sample values.

Table A-4. Survey-based and simulated average spending by site for resident and non-resident visitors at the Oroville Facilities. (Source: DWR, 2004 and Staff)

Site	Residents	Non-Residents
	Survey/Simulated	Survey/Simulated
Oroville	\$39.30 / \$37.50	\$20.20 / \$19.49
Feather River	\$23.80 / \$21.75	\$22.80 / \$20.44
Thermalito Forebay	\$32.30 / \$30.53	\$14.80 / \$13.19
Thermalito afterbay	\$35.60 / \$34.29	\$11.90 / \$10.17
OWA	\$40.80 / \$35.31	\$42.10 / \$39.30

In relative terms, the differences between the simulated and survey values range between 3.5 percent and 14.5 percent. If one holds visitor days constant, this means that the model input used by DWR (the mean of the surveyed spending values) would project a greater effect on employment, population, County expenses, and tax revenue than the simulated values would. Visitor spending falls into the indirect fiscal impact category, estimated via the IMPLAN model, where indirect effects are assumed to be a function of visitor spending across a range of industrial categories. In table A-4, visitor spending averages estimated from survey data and then simulated based on a theoretical log-normal distribution are given. To test the sensitivity of indirect effects on Butte County operations to visitor spending by site, the simulated values are applied under the

assumption that the difference between survey and simulated values is even across all spending items. In addition, the survey averages are subjected to changes of +/-5.0 percent. In each case, visitor days are held constant. Table A-5 contains the results of this exercise.

Table A-5. Fiscal impact on Butte County of recreational visitors to Oroville Facilities, based on surveyed and simulated average visitor spending. (Source: DWR, 2005 and Staff)

<b>Costs</b>	<b>Baseline (from survey)</b>	<b>Simulated Average Visitor Spending</b>	<b>-5% Survey Expenditure</b>	<b>+ 5% Survey Expenditure</b>
Fire protection	\$73,873	\$69,678	\$70,179	\$77,566
Law enforcement	\$304,806	\$287,499	\$289,565	\$320,046
Road maintenance	\$98,399	\$92,812	\$93,479	\$103,319
Other Services & Costs	\$119,892	\$113,085	\$113,897	\$125,887
<b>Total Costs</b>	<b>\$596,969</b>	<b>\$563,074</b>	<b>\$567,121</b>	<b>\$626,818</b>
<b>Percent Change</b>		<b>-5.7%</b>	<b>-5.0%</b>	<b>+5.0%</b>
<b>Revenues</b>				
Sales Tax	\$193,551	\$182,706	\$183,874	\$203,229
Property Tax	\$88,141	\$83,197	\$83,734	\$92,549
Lodging Tax	\$3,298	\$3,084	\$3,133	\$3,463
Other Revenue	\$288,957	\$272,585	\$274,509	\$303,404
<b>Total Revenues</b>	<b>\$573,948</b>	<b>\$541,572</b>	<b>\$545,250</b>	<b>\$602,645</b>
<b>Percent Change</b>		<b>-5.6%</b>	<b>-5.0 %</b>	<b>+5.0%</b>
<b>Net Fiscal Effect</b>	<b>-\$23,021</b>	<b>-\$21,502</b>	<b>-\$21,871</b>	<b>-\$24,173</b>
<b>Percent Change</b>		<b>-6.6%</b>	<b>-5.0%</b>	<b>+5.0%</b>

The results in table A-5 indicate a precise 1:1 proportionality of visitor spending to revenues and costs, such that if inputs are changed by  $X$  percent across all sites and visitor categories (resident and non-resident), all outputs change by the same proportion. Application of the simulated mean expenditure is by site and by residency. In this case, because not all inputs are changed by the same proportion, the model results show that aggregate Butte County service costs would decline by slightly more than revenues and the result is a deficit that would be 6.6 percent lower than the baseline estimate.

In table A-6, we again raise and reduce visitor spending across all sites and visitor types evenly by 5.0 percent and then by the simulated percent differentials by individual site and visitor type to estimate the impact on employment and earnings. The results for the 5.0 percent deviations are identical to the impact of visitor days, such that jobs and earnings both rise and decline in proportion. The simulated differentials result in an average (unweighted) decrease in spending per visit of 7.2 percent for residents and 9.2 percent for non-residents, for a total unweighted average of 8.2 percent. The application of these simulated percentage changes to the model reduces both jobs and earnings by a weighted average 5.6 percent from the baseline estimate.

A more thorough accounting of the possible range of County costs, revenue, employment, and earnings would require simulation over the appropriate distribution of visitor days and visitor spending by site, by type of visitor, and expenditure type simultaneously.

Table A-6. Impact on Butte County employment and earnings of recreational visitors to Oroville Facilities, based on surveyed and simulated average visitor spending. (Source: DWR, 2005 and staff)

	<b>Baseline Average Expenditure</b>	<b>Simulated Average Expenditures</b>	<b>(-5% Survey) Expenditure</b>	<b>(+5% Survey) Expenditure</b>
Jobs	664	627	631	698
Percent Change		-5.6%	-5.0%	+5.0%
Earnings	\$12,833,000	\$12,113,000	\$12,191,000	\$13,475,000
Percent Change		-5.6%	-5.0%	+5.0%

### Visitor Projections

Visitor projections are important in determining the economic impact of the project because a new license could be granted for a period of 30 to 50 years. DWR projects recreational visits to the project on a weighted per capita basis by recreational site (Lake Oroville and Thermalito forebay) using an econometric model that incorporates the joint influences of water levels, population trends, and gasoline prices after 1979.<sup>4</sup> DWR reports the following results:

- Water levels are positively associated with visits to Lake Oroville but negatively associated with attendance at Thermalito forebay, which DWR surmises to be an indication that Thermalito forebay is a substitute recreational good for Lake Oroville. That is, at lower water levels some people who prefer to recreate at Lake Oroville will move instead to Thermalito forebay, but when water levels are higher, they move back to the lake.
- Population growth was considered as a potential factor in explaining demand for recreation at the project, but an analysis of population growth and demand for project recreational facilities over a 30-year period failed to reveal a relationship.<sup>5</sup>
- Because higher gas prices raise the cost of a visit, gas prices have a negative impact on visits to both sites, as expected. With respect to gasoline prices, these are volatile. In addition to economic conditions of supply and demand, they are subject to uncertain geopolitical influences. Hence gasoline prices are notoriously difficult to forecast beyond the short-term and are often forecasted as returning to some long-run trend rate of growth.
- DWR subsequently used the models to project attendance levels annually through 2050.

DWR submitted two annual models and one monthly model to account for seasonal differences in attendance. The models appear to be robust and the coefficients retain the expected

<sup>4</sup> See Projected Recreation Use Final R-12.

<sup>5</sup> See Projected Recreation Use Final R-12, page 5-8.

signs. The models detected that, holding all other variables in the model constant, the trend in visitation between the fiscal years 1980-81 and 2000-01 is negative at both Lake Oroville and at the forebay. We have not examined the statistical properties of the models other than the standard measures of fit, the statistical significance of the estimated coefficients, and assurance that the models have been corrected for autocorrelation.<sup>6</sup> Nor are we in possession of the raw data used to generate the results. However, DWR's results appear to show that their models adequately represent visitation at project facilities.

Butte County does not appear to object to the models' specification but is concerned that DWR does not sufficiently address future variation in the independent variables and does not account for population growth. It is not clear from DWR what their assumptions about gasoline prices and water levels are. With respect to gasoline prices, these are volatile. In addition to economic conditions of supply and demand, they are subject to uncertain geopolitical influences. Hence gasoline prices are notoriously difficult to forecast beyond the short-term and are often forecasted as returning to some long-run trend rate of growth. Recent experience has shown that even a large increase in gas prices does not necessarily result in a reduction in driving. Thus, it would be impossible to predict not only gas prices but the effect of gas prices on recreational use of the Oroville Facilities' recreational amenities.

With respect to water levels, they are a function of weather and various operational requirements of the project. The econometric method employed by DWR should be able to produce models that generate visits for a "worst case", a "base case" and a "best case" scenario. In practice, variations around the baseline forecast are usually generated with 5.0 percent differentials of the independent variables in either direction. DWR provides various scenarios on page 4-9 of R-12, *Projected Recreation Use (Final)*. Using recreation days as units, DWR's base case projections call for a compounded annual average increase in demand at the project of 1.5 percent from 2002 to 2050.

## **MODEL CRITIQUE BY DR. JON EBELING**

In its Answer to DWR's rejection of a motion for relief from alleged negative fiscal impacts imposed by the Project, Butte County submitted a critique of the DWR results by Dr. Jon S. Ebeling of Regional and Economic Sciences. Dr. Ebeling reviewed all submissions by DWR but the bulk of his work was in reviewing R-18, *Recreation Activity, Spending and Associated Economic Impacts*, which is a study of fiscal impacts using IMPLAN (DWR, 2004a). Dr. Ebeling raises seven issues that in his view are critical flaws of the study. We address each of those issues as follows:

**1. Input data are point estimates rather than a range of values around a distribution.** This point is addressed in the sensitivity analysis above by assuming a range of input values of +/- 5 percent around the mean. Given sufficient information, this point can be corrected using Monte Carlo simulations of the data. In the simulations, the distribution of the survey data is inspected and a particular distributional assumption is chosen based on how closely the theoretical shape matched the actual survey data. In most cases, distributions will appear normal or log-normal. The appropriate statistics are entered to simulate values as if they were

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<sup>6</sup> Autocorrelation occurs when the estimated errors of past realizations of the dependent variable are correlated with the current errors. It indicates that the model is partially driven by past "shocks," the effect of which die out only slowly through time. The effect is to render the estimated coefficients inefficient and inferences drawn from them will be prone to error.

picked out of the chosen distribution. The simulations are done typically up to 500 times or more. The simulations will result in a new mean based on the theoretical distribution, as well as extreme values. Each of these outputs can subsequently replace the survey data in the fiscal impacts model. Our application of this method to survey expenditure data (see table A-6) found that under an assumed log-normal distribution, mean spending by Butte County resident and non-resident visitors to project recreational facilities is lower by 8.2 percent on an unweighted average basis, and that the resulting impact would be reduce the County's net fiscal deficit by 6.6 percent and to reduce the indirect employment and earnings estimate by 5.6 percent.

**2. The model is static and does not account for the dynamics of visitation owing to exogenous factors such as varying lake water levels, gasoline prices, population, and population demographics.** We agree with Dr. Ebeling that it is not clear from DWR documents what their assumptions about water levels and gasoline prices are. As we note above in our discussion of Visitor Projections, DWR did not find a correlation between population and visits at the project. Given that water levels depend both on the weather and operational considerations, such as the trade-off between the demand for power and society preferences for recreational facilities, fish flows, etc., and that gasoline prices and consumer responses to those prices are similarly difficult to predict, assumptions based on the long-term average growth rate of each would be reasonable.

**3. The process of “cleaning” the survey data is not properly explained and thus not justifiable.** As was stated in the draft EIS, cleaning the data is not an unusual process. Good practice requires the data analyst to conduct an exploratory analysis of the dataset to eliminate nonsensical responses. Staff finds that the explanation of the data cleaning methods on pages B-2 and page B-3 of the R-18 report (DWR, 2004a) is consistent with good practice.

**4. Indirect effects of the project are not explained.** Above under *the heading Model Estimation of Indirect Impacts*, we describe how indirect effects flow from changes in input requirements of producers directly affected by economic changes. This is a standard feature of IMPLAN and other input-output models. First, the model considers the level of visitor spending and uses input/output coefficients to translate this into earnings and employment by industry generated by the additional demand. The level of new employment must be supplied by either the local labor market or from in-migrants. The model uses a constant ratio of population to employment to generate the new level of population. The new (indirect) population places demands on County services and pays taxes to the County in the same proportion as current residents.

**5. The survey data collection was inadequate and the response rate of 37.3 percent is poor.** In our experience, a response rate of 37.5 percent to a mail survey is not abnormally low. In any case, the response rate of a survey is not the only means by which to judge the adequacy of the sample. If the response rate was even lower but the number of responses was 1) sufficient to satisfy some standard measure of statistical confidence, and 2) is composed of a sample that is demographically representative of the population, then one can conclude that the survey results are valid. In the case of the expenditure data, 484 non-residents and 480 residents responded, which produces a margin of error of +/-4.5 percent at the 95 percent level of confidence.

Regarding the data cleaning methodology, as stated in the DEIS, “cleaning” the data is not an unusual process. Good practice requires the data analyst to conduct an exploratory analysis of the dataset to eliminate nonsensical responses. Staff finds that the explanation of the

data cleaning exercise on pages B-2 and page B-3 of R-18 (DWR, 2004a) is consistent with good practice.

**6. Results could be biased because persons who did respond to the survey may retain unobservable characteristics (and therefore impossible to adjust for) that make them different from those who did not respond.** This is a reasonable point, in that neither Dr. Ebeling nor we can assess the possibility of bias in a study without examining the distribution of data collected. For example, if all respondents belong to just one income, race, or other demographic and the universe is known to contain two or more classes, then the data could be biased. We have no evidence that this is the case.

**7. Forecasts of fiscal impacts were generated using only one year of actual budget data.** DWR used Butte County's FY2001-2002 and FY 2002-2003 budgets to derive its cost and revenue translators for the IMPLAN model. DWR reviewed budget data over time but found inconsistencies that precluded the development of a representative time series. DWR explains its rationale on page 4-4 of study report R-19 (DWR, 2004b). Further, beginning on pages 4 and 5 of R-19, DWR explains its assumptions for forecasted visitor fiscal impacts on the County in the year 2020. Staff finds these assumptions reasonable. Our conclusion is that changing the data collection methods or analytical techniques recommended by Dr. Ebeling would likely improve the robustness of DWR's results, but would not be likely to have a significant effect on the results themselves.

## **QUESTIONS POSED BY BUTTE COUNTY**

In its November 15, 2005 filing with the Commission, Butte County requested that the Commission require DWR to provide responses to the following nine questions posed by Butte County. The Commission declined to make that requirement at that time. In the course of our independent review of DWR's model and analytical approaches, we have reached the following conclusions regarding Butte County's questions.

1. (a) *Please provide the standard deviations that were used after calculating the daily average in table 5.1-1 at page 5-2 of the R-9 Report.*
- (b) *Please provide the formulae used to calculate the daily averages presented in the columns and in the totals in table 5.1-1 at page 5-2 of the R-9 Report.*

The formula used to calculate the daily average is total use for the period/days in the period. The average daily value presented in the table is a typical measure presented by license applicants for this type of study, and we find it adequate for our use. We do not see any evidence that the standard deviations, if calculated by DWR, were used.

2. (a) *Did DWR calculate the daily average visitor figure in parentheses at the bottom of the Season Total column in table 5.1-1 at page 5-2 of the R-9 Report by calculating a weighted average of the Weekday Total and the Weekend Total?*
- (b) *If the answer to question 2(a) above is "yes," please provide an explanation concerning the weights used to calculate the daily average totals for both the column on Recreation Season and the column on Off-Season in table 5.1-1 at page 5-2 of the R-9 Report.*
- (c) *If the answer to question 2(a) above is "no," please state the methodology used and explain the rationale for the use of the methodology. Please provide the formulae that illustrate the calculations for totals for study areas on weekdays,*

*weekends, and seasonal totals for recreation, and the same formulas for weekdays, weekends, and seasonal totals for off-season totals.*

*(d) Please provide the formulae used to calculate the combined season total.*

From our review, it appears clear that the daily averages are a simple calculation based on the following: (1) 124 days in the 4-month season, (2) 241 days in the 8-month off season, (3) 84 weekdays and 40 weekend days during the 4-month season,<sup>7</sup> and (4) 173 weekdays and 68 weekend days during the 8-month off season.

Season total average = visitation for season/days in the season

Combined season total = recreation season total + off-season total

**3. *The following statement appears on Page 5-1 of the R-9 report:***

*It is important to note that visitation at several Lake Oroville sites was probably affected by low water conditions on the reservoir during much of the 2002 recreation season. Compared to pool levels during the previous 12 years (1990 to 2001), the reservoir elevation was approximately 20 to 50 feet below average through most of that summer. By mid-summer, use of several boating and swimming facilities was impaired and some facilities were unusable. The pool level returned to full-pool by May, 2003 as the data collection period for this study ended.*

*(a) Were the data for “recreational days” in table 5.1-1 at page 5-2 of the R-9 Report adjusted to compensate for the low water levels at the lake during the one-year study period between May 15, 2002 and May 14, 2003?*

*(b) If the answer to 3(a) above is “yes”, please provide the compensation formula.*

*(c) If the answer to question 3(a) above is “no”, why not?*

It appears to us from our review of the R-9 report and data that DWR did not adjust the figures in table 5.1-1 to compensate for low water levels. DWR presented the actual data counts. We note that there is no requirement in the R-9 study plan for DWR to adjust the data counts to reflect average conditions.

**4. *How was the number of people per vehicle cited at Page 4-12 of the R-9 Report calculated?***

We find that DWR adequately explains in section 4.2.1.2 of report R-9 how the people-per-vehicle estimates were made

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<sup>7</sup> In 2002, there were actually 88 weekdays and 36 weekend days in the 4-month recreation season (May 15–September 15) defined by DWR. Although not explicitly stated by DWR, it appears that they followed the common practice of counting Memorial Day, July 4, and Labor Day as weekend days rather than weekdays. Because the Fourth of July holiday was on a Thursday in 2002 when the survey was made, DWR appears to have also counted July 5 as a weekend day.

5. *The R-9 Report contains frequent references to “professional judgments”. Regarding estimates of the number of persons visiting the project area, please answer the following:*

*(a) Are the individuals who made the professional judgments employees of a State agency? If so, please name each State agency.*

*(b) How was it determined that the individuals who made the professional judgments are professional? Are these individuals members of a professional organization or organizations? If so, what are the name(s) of said organizations?*

DWR uses the term “professional judgment” in the same way that other applicants use the term: to indicate that those collecting and presenting the recreational use data had to use some judgment in putting together and presenting the raw data acquired in the field. The authors of the R-9 report are noted on the title page of the report. Given that the report was prepared by environmental planners with EDAW, Inc., a firm selected based on criteria spelled out in the study plan and well known for preparing similar studies, and working under the direction of a DWR staff environmental scientist, we see no reason to doubt their judgment, and see no evidence of poorly applied judgment in the report.

6. *There are comments on page 4-17 of the R-9 Report indicates that, although data were collected at several different periods during the day, only peak time data was used to calculate both “people at one time” and the “vehicles at one time”.*

*(a) What are the estimates for non-peak times at these locations?*

*(b) Please provide the data for both “people at one time” and the “vehicles at one time” for all non-peak times.*

*(c) Was the “people at one time” data for non-peak times included in the totals of table 5.1-1 at Page 5-2 of the R-9 Report?*

*(d) Was the “vehicles at one time” data for non-peak times included in the totals of table 5.1-1 at Page 5-2 of the R-9 Report?*

We do not see a need for information about people-at-one-time or vehicles-at-one-time at non-peak periods. These data are generally used to determine the adequacy of facility capacity, such as whether there are enough parking spaces to accommodate the peak number of vehicles at a site. In this context, the peak number of people or vehicles during non-peak times is not relevant.

7. *Page 4-1 of the R-9 Report contains references to several different sources of data, including campground occupancy data, vehicle traffic counter data and observational data.*

*(a) How were all of these sources of data merged and integrated to create table 5.1-1 at Page 5-2 of the R-9 Report? Please provide the formulae used to integrate the data from the various sources to create table 5.1-1 at Page 5-2 of the R-9 Report.*

*(b) Were adjustments made to account for the failure of some of the data collection instruments?*

*(c) If so, please explain how these adjustments were made.*

This section of the report notes that some problems occurred during data collection, such as counters being stolen, batteries being taken, ant infestations, etc. DWR indicates that professional judgments were made to fill in the missing gaps. The data collection problems encountered by DWR are typical of this type of study and the use of professional judgment to fill data gaps is also common. The level of detail provided by DWR is adequate for our analysis.

- 8. *Page 4-12 of the R-9 Report states that there were adjustments made to traffic counted, in order to account for the percentage of non-recreational traffic counted. Please provide each adjustment made, in terms of how many vehicles were counted at each station, percentage of adjustment which was made, and each revised total after each adjustment.***

The non-recreational vehicles that DWR refers to here include DWR's or California Department of Parks and Recreation's vehicles, other state vehicles, and delivery or work vehicles. The report states that the counts were reduced by 1 percent, 5 percent, or 10 percent based on a combination of past DWR estimates, observation data, and professional judgment. Given the small amount of this traffic and the relative ease of estimating it, we do not see the need to know where each and every adjustment was made to account for it.

- 9. *As to the R-18 and the R-19 Report, what is the annual total indirect population figure?***

The model simulates population changes under the assumption that the total population/employment ratio remains constant. This implies an economy at full employment equilibrium. Equilibrium population/employment ratios are derived from census population estimates. In the model, the balance of labor supply and labor demand is disturbed when there is a change in total visits to the project, spending per visitor, or both. Excess labor demand created by increased visits or spending is satisfied by in-migration from outside Butte County. A commuter matrix of weights derived from census "*Journey to Work*" data forms the basis by which population is assigned across the towns and unincorporated areas. The population/employment ratio given in the model is 2.18. At spending levels consistent with those recorded in the survey data, and holding the number of visitor days constant, the model estimates 654 project-generated jobs for the County. At a ratio of 2.18 persons for every job, the project would generate 1,423 additional residents in Butte County.

In the model, population impacts are directly proportional to visitor spending, which probably overstates the impact of visitor spending on Butte County population. In reality, some of the increased jobs generated by the project would be filled by Butte County residents and not exclusively by in-migrants. The precise relationship between local labor supply and jobs generated by the project depends on traditional factors of labor economics, including skills, demographics and especially wages. Because the model predicts that Butte County's costs of serving the additional population would be greater than the revenue associated with those people, any overestimate of population impacts would also overstate the County's project-related fiscal deficit.

## LITERATURE CITED

DWR (California Department of Water Resources). 2005. Responses to Deficiencies, Clarifications, Additional Information Requests, and Revisions to January 2005 License Application, Binder #1 Public Information: California Department of Water Resources, Sacramento, CA. August 2005.

- DWR. 2004a. SP-R18. Recreation activity, spending, and associated economic impacts. Oroville Facilities Relicensing FERC Project No. 2100. California Department of Water Resources, Sacramento, CA. May 2004.
- DWR. 2004b. SP-R19: Fiscal impacts. Oroville Facilities Relicensing FERC Project No. 2100. California Department of Water Resources, Sacramento, CA. May 2004.

**APPENDIX B**  
**CAPITAL COST AND ANNUALIZED COSTS FOR MEASURES FOR THE**  
**OROVILLE FACILITIES PROJECT**

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Appendix B. Summary of initial and subsequent capital cost and annualized costs for measures included in the Settlement Agreement and staff modifications to the Proposed Alternative for Oroville Facilities. (Source: Staff)

Article No.	Environmental Measure	Entity	Capital Cost	Annualized O&M cost	Annualized Cost	Start Year	End Year	Included by Staff	Comment
<b>Geologic Resources</b>									
A100	1. Establish and convene ecological committee within 3 months.	DWR	\$0	\$700	\$700	1	1	Yes	
A100	2. Purpose of Ecological Committee is to provide consultation, review of plans, and advise DWR regarding specific license articles (see note #4).	DWR	\$0	\$50,000	\$50,000	1	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A101	1. Develop and file Lower Feather River Habitat Improvement Plan with FERC for information within 3 years that includes the plans from Proposed Articles A102 through A104, A106, A108, A112, and A115.	DWR	\$0	\$600	\$600	1	3	Yes	We assume that proposed gravel augmentation is 55% of the proposed "Natural Salmonid Spawning and Rearing Habitat" costs, listed in table D.4.7-3 of the revised exhibit D. We assume that the O&M costs for developing the individual plans/monitoring reports for the individual programs are captured within each of those measures; the O&M costs in this measure relate only to adaptive management review and creation of the summary.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A101	2. Develop comprehensive monitoring and adaptive management summary report (including results, proposed changes, and updates to individual plans) 6th year after license issuance and every 5th year thereafter for term of license.	DWR	\$0	\$2,300	\$2,300			Yes	We assume that the O&M costs for developing the individual plans/monitoring reports for the individual programs are captured within each of those measures; the O&M costs in this measure relate only to adaptive management review and creation of the summary.
A106	Develop and file plan for FERC approval within 6 months for the Riparian and Floodplain Improvement Program.	DWR	\$15,000	\$0	\$1,100	1	1	Yes	
A106	Phase 1 within 1 year—Analysis of proposed RFIP with a recommended alternative.	DWR	\$0	\$13,700	\$13,700	1	1	Yes	Cost would be \$200,000 over the years shown.

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<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A106	Phase 2 of Riparian and Floodplain Improvement Program within 4 years—Feasibility evaluation and implementation schedule of Phase 1 alternative (to be designed and commence construction within 8 years).	DWR	\$0	\$182,500	\$182,500	1	4	Yes	Cost would be \$725,000 over the years shown.
A106	Phase 3 of Riparian and Floodplain Improvement Program within 15 years—Analysis of other potentially feasible riparian/floodplain improvement projects with a recommended alternative.	DWR	\$0	\$10,600	\$10,600	1	15	No	Cost would be \$15,000 over the years shown.

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<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A106	Complete construction of Phase 3 Riparian and Floodplain Improvement Program preferred alternative within 25 years.	DWR	\$0	\$59,400	\$59,400	1	25	No	Cost would be \$64,000 over the years shown.
A106	Monitor effectiveness of floodplain work and submit report to the Commission every 5 years.	DWR	\$0	\$900	\$900	1	30	Yes	\$5,000 in years 5, 10, 15, 20, 25, and 30.
A106	Re-evaluate every 5 years in consultation with Ecological Committee and agencies and submit recommended changes to the Commission for approval.	DWR	\$0	\$900	\$900	1	30	Yes	\$5,000 in years 5, 10, 15, 20, 25, and 30.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A106	Cost cap to DWR of \$5 million excluding profits from gravel sales.	DWR	\$0	\$0	\$0			No	The Commission does not recognize cost caps; however, we have adopted the \$5,000,000 total cost as a best estimate. We characterize these costs as O&M costs rather than capital costs.
<b>Water Quality Resources</b>									
A112	Water Quality Monitoring Program.	DWR	\$18,800	\$114,300	\$115,700	1	30	Yes	
A113	Recreation site bacteria monitoring.	DWR	\$7,200	\$129,600	\$130,100	1	30	Yes	
A114	Public education regarding fish consumption risk (Phase 1).	DWR		\$1,900	\$1,900	1	5	Yes	
A114	Public education regarding fish consumption risk (Phase 2).	DWR		\$1,900	\$1,900	6	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
<b>Aquatic Resources</b>									
A102	1. Develop and file plan for Gravel Supplementation and Improvement Program for the Commission's approval within 2 years.	DWR	\$200,000	\$0	\$14,100	1	2	Yes	We assume that proposed gravel augmentation is 55% of the proposed "Natural Salmonid Spawning and Rearing Habitat" costs, listed in table D.4.7-3 of the revised exhibit D. We assume that the O&M costs for developing the individual plans/monitoring reports for the individual programs are captured within each of those measures; the O&M costs in this measure relate only to adaptive management review and creation of the summary.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A102	2. Supplementation of at least 8,300 cubic yards of spawning gravels distributed over up to 15 locations in the low flow channel or high flow channel.	DWR	\$11,439,500	\$0	\$742,200	1	5	Yes	We assume an even cash flow over years shown.
A102	3. Monitor and replenish/rehabilitate gravel to maintain a minimum of 10 riffle complexes at criteria levels.	DWR		\$17,500	\$17,500	6	30	No	O&M cost is \$112,490 in year 6, 11, 16, 21, and 26.
A102	4. Determine need to augment gravel in high flow reach, including gravel budget.	DWR	\$175,000	\$0	\$7,300	10	30	No	
A102	5. Stage spawning gravel stockpile (up to 2,000 cubic yards) in the immediate vicinity of pool below the afterbay outlet.	DWR	\$500,000	\$0	\$19,100	12	12	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A102	6. Monitor, evaluate, and report once every 5 years and coordinate activities with other resource improvement activities.	DWR		\$600	\$600	6	30	Yes	O&M cost is \$4,000 in years 6, 11, 16, 21, and 26.
A103	1. Develop and file a Channel Improvement Plan for improving Moe's and Hatchery ditches to support spawning and rearing. File plan for the Commission's approval within 1 year.	DWR	\$200,000	\$0	\$14,500	1	1	Yes	We assume that proposed channel improvements are 23% of the proposed "Natural Salmonid Spawning and Rearing Habitat" costs, listed in table D.4.7-3 of the revised exhibit D.
A103	2. Modifications to Moe's and Hatchery ditches to be completed within 3 years for salmonid spawning and rearing habitat improvement.	DWR	\$1,750,000	\$0	\$116,500	2	3	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A103	3. Develop and file a Channel Construction Plan in order to identify and construct five additional side channel improvements. File plan for the Commission' approval within 4 years.	DWR	\$300,000	\$0	\$19,400	2	4	Yes	
A103	4. Modifications to five other side channels (2,460 feet) within 10 years to improve salmonid spawning and rearing habitat.	DWR	\$2,899,700	\$0	\$145,000	5	10	Yes	
A103	5. Maintain channel improvements.	DWR	\$0	\$2,400	\$2,400	8	30	Yes	O&M cost is \$11,696 in years 8, 13, 15, 18, 20, 23, 25, and 28.
A103	6. Monitor, evaluate, and report every year.	DWR	\$0	\$5,000	\$5,000	1	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A104	1. Develop and file Structural Habitat Supplementation and Improvement Program plan for the Commission's approval within 2 years; implement plan within 2 years of approval.	DWR	\$250,000	\$0	\$17,600	1	2	Yes	We assume that proposed structural habitat improvements are 22% of the proposed "Natural Salmonid Spawning and Rearing Habitat" costs, listed in table D.4.7-3.
A104	2. Map existing LWD, riparian habitat and sources of riparian and LWD recruitment.	DWR	\$100,000	\$0	\$7,100	1	2	Yes	
A104	3. Place 2 structures per riffle between RM 54.2 and 67.2 for salmonid habitat.	DWR	\$4,575,800	\$0	\$287,500	3	4	Yes	
A104	4. Assess safety to provide for public safety.	DWR		\$0	\$0			Yes	
A104	5. Monitor after high flow events or at least once every 5 years for effectiveness. Definition of high flow events TBD in plan.	DWR		\$700	\$700			Yes	

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<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A104	6. Structure replacement interval TBD in plan but is at least once every 5 years.	DWR		\$4,100	\$4,100			Yes	O&M cost is \$31,596 in years 9, 14, 19, 24, and 29.
A104	7. Report once per year and compile every 5 years a report to the Commission.	DWR		\$700	\$700			Yes	O&M cost is \$5,000 in years 9, 14, 19, 24, and 29.
A104	8. Re-evaluate once every 5 years in consultation with Ecological Committee and agencies and submit recommended changes to the Commission for approval.	DWR		\$700	\$700			Yes	O&M cost is \$5,000 in years 9, 14, 19, 24, and 29.

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<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A105	Develop plan and install fish monitoring weir (Phase I) to determine timing and abundance of spring-run Chinook within 3 years of license issuance.	DWR	\$1,230,000	\$14,300	\$93,800	3	8	Yes	We assumed 30% of the cost for Proposed Article A105 is attributable to the monitoring weir.
A105	Within 8 years of license issuance develop a Phase 2 plan to schedule, install, and operate a segregation fish weir upstream of Thermalito afterbay within 12 years to separate spring- and fall-run Chinook. Evaluate need for egg taking station.	DWR	\$2,870,000	\$44,800	\$154,600	12	30	Yes	We assumed 70% of the cost for Proposed Article A105 is attributable to the segregation weir.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A107	Feather River fish hatchery improvements— Water disinfection system.	DWR	\$2,450,000	\$561,800	\$739,800	1	30	Yes	We assume capital cost as 35% of the \$7 million (beyond no action) shown in DWR's June 28, 2006, updated costs for the Feather River fish hatchery. We assumed that 35% of the \$1,605,000 O&M cost would apply to this measure.
A107	Feasibility studies for Feather River fish hatchery improvements, including management plan implementation and facilities assessment.	DWR	\$4,550,000	\$262,600	\$566,100	1	4	Yes	We assume capital cost as 65% of the \$7 million (beyond no action) shown in DWR's June 28, 2006, updated costs for the Feather River fish hatchery. We assume an even cash flow in years 1 through 4. We assumed that 65% of the \$1,605,000 O&M cost would apply to this measure.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A108	Implement one or more facility modifications or other actions that the temperature feasibility study suggests are most effective in terms of temperature control and cost.	DWR	\$52,870,000	\$86,000	\$2,427,700	10	30	Yes	We assume capital cost of \$52.87 million (beyond no action) shown in DWR's June 28, 2006, updated costs for temperature criteria/targets and an even cash flow of capital costs over 2 years ending in year 10.
A110	Plan and implement projects to benefit warmwater fisheries spawning and rearing habitat in 7-year cycles. Provide \$40,000 per year for 15 habitat units at \$2,000 each and O&M (\$10,000).	DWR		\$0	\$0	1	30	Yes	Part of No-action Alternative; no additional cost.
A111	Stock 170,000 yearling salmon or equivalents per year (+10%) not to exceed \$75,000 annually; \$68,000 for stocking, and \$7,000 for monitoring.	DWR		\$0	\$0	1	30	Yes	Part of No-action Alternative; no additional cost.

Article No.	Environmental Measure	Entity	Capital Cost	Annualized O&M cost	Annualized Cost	Start Year	End Year	Included by Staff	Comment
<b>Terrestrial Resources</b>									
A115	Prescribe management direction for terrestrial, aquatic, and recreational resources through the OWA Management Plan.	DWR	\$432,000	\$692,000	\$723,400	1	30	Yes	Based on Settlement Agreement Explanatory Statement for Proposed Article A115.
A117 – A121	Develop and implement a threatened and endangered species implementation plan.	Interior, Staff	\$0	\$0	\$0			Yes	The cost to prepare this plan is divided equally among A117 through A121.
A117	Protect vernal pools.	DWR	\$5,000	\$17,100	\$17,500	1	30	Yes	The capital cost includes 20 percent of the cost to develop a threatened and endangered species implementation plan for the FWS conservation measures in the biological opinion issued by FWS on April 9, 2007.

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<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A118	Minimize disturbance to nesting bald eagles.	DWR	\$5,000	\$17,100	\$17,500	1	30	Yes	The capital cost includes 20 percent of the cost to develop a threatened and endangered species implementation plan for the FWS conservation measures in the biological opinion issued by FWS on April 9, 2007.
A119	Protect the giant garter snake.	DWR	\$5,000	\$24,300	\$24,700	1	30	Yes	The capital cost includes 20 percent of the cost to develop a threatened and endangered species implementation plan for the FWS conservation measures in the biological opinion issued by FWS on April 9, 2007.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A120	Protect the valley elderberry longhorn beetle.	DWR	\$5,000	\$24,300	\$24,700	1	30	Yes	The capital cost includes 20 percent of the cost to develop a threatened and endangered species implementation plan for the FWS conservation measures in the biological opinion issued by FWS on April 9, 2007.
A121	Protect the red-legged frog.	DWR	\$5,000	\$24,300	\$24,700	1	30	Yes	The capital cost includes 20 percent of the cost to develop a threatened and endangered species implementation plan for the FWS conservation measures in the biological opinion issued by FWS on April 9, 2007.
A122	Construct and recharge brood ponds.	DWR	\$920,000	\$7,500	\$74,300	2	30	Yes	
A123	Provide upland food for nesting waterfowl.	DWR	\$0	\$30,700	\$30,700	1	30	Yes	

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<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A124	Provide nest cover for upland waterfowl.	DWR	\$0	\$51,200	\$51,200	1	30	Yes	
A125	Install wildlife nesting boxes.	DWR	\$5,000	\$6,400	\$6,800	2	30	Yes	
A126	Invasive plant management.	DWR	\$450,000	\$89,300	\$122,000	5	30	Yes	

Article No.	Environmental Measure	Entity	Capital Cost	Annualized O&M cost	Annualized Cost	Start Year	End Year	Included by Staff	Comment
<b>Recreation Resources</b>									
A127	Upon license issuance, implement the Settlement Agreement Recreation Management Plan for the project, including the following elements: a recreation facility development program, a recreation O&M program, a recreation monitoring program, a resource integration and coordination program, a Recreation Management Plan review and revision program, and an interpretation and education program.	DWR, Interior, DFG, Boating Groups		\$139,000	\$139,000	1	30	Yes	
	Prepare a plan addressing accessibility pursuant to the ADA for all public facilities at the Oroville Facilities.	Anglers Committee et al.	\$30,000	\$0	\$2,200	1	1	No	Staff estimate.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
	Develop a plan for conducting recreational use surveys in consultation with the Recreation Advisory Committee and conduct comprehensive recreational use surveys every 5 years beginning October 1, 2007.	Butte County	\$50,000	\$74,800	\$77,700	5	30	No	Staff estimate costs would be incurred every 5 years, not annually.
	In consultation with the Recreation Advisory Committee, update the Recreation Management Plan every 5 years.	Butte County	\$0	\$27,900	\$27,900	2	30	No	Costs would be incurred every 5 years beginning in 2008, not annually.
	Develop a plan to provide sandy beaches at the Oroville Facilities campgrounds located adjacent to a reservoir.	Anglers Committee et al.	\$20,000	\$0	\$1,500	1	1	No	Staff estimate.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 10 years of license issuance, install a sign, barrier, and/or gate at the terminus of the Nelson Bar boat launch.	DWR, Interior, DFG, Boating Groups	\$50,000	\$25,300	\$27,500	10	30	Yes	
A127	Within 10 years of license issuance, provide a variety of enhancements and improvements at the Lime Saddle complex (campgrounds, day-use area, boat launch, marina).	DWR, Interior, DFG, Boating Groups	\$2,250,000	\$63,200	\$160,000	10	30	Yes	
A127	Provide annual O&M at the Vinton Gulch boat launch.	DWR, Interior, DFG, Boating Groups	\$0	\$10,000	\$10,000	1	30	Yes	
A127	Within 10 years of license issuance, install a vault restroom at Dark Canyon boat launch and directional signs along the roads providing access.	DWR, Interior, DFG, Boating Groups	\$33,000	\$5,100	\$6,500	10	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127– A129	Within 10 years of license issuance, install an ADA-accessible vault restroom, 5 to 10 picnic tables with shade ramadas, and interpretive signs at the Foreman Creek boat launch.	DWR, Interior, DFG, Boating Groups	\$2,863,000	\$40,500	\$163,600	10	30	Yes	Contingent on resolving cultural resource issues to the Commission's satisfaction.
	Close the Foreman Creek boat launch and boat-in campground to recreational and other public use.	Berry Creek Rancheria and Mooretown Rancheria	\$30,000	\$5,000	\$7,200	1	30	No	Staff estimate.
	Provide new marina facilities and a boat ramp at Potter's Ravine by 2010.	Pathfinder Quarter Horses et al., George Weir, Vicki Hittson-Weir	\$1,000,000	\$43,300	\$108,000	3	30	No	Staff estimate.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 10 years of license issuance, provide 10 picnic tables with pole stoves/grills and a gravel parking area to accommodate 10 cars with trailers at the Enterprise boat launch; coordinate with the California Department of Boating and Waterways to extend the existing boat ramp to provide a low water access.	DWR, Interior, DFG, Boating Groups	\$3,500,000	\$37,900	\$188,400	10	30	Yes	
A127	Within 10 years of license issuance, install a sign, barrier, and/or gate at the terminus of the Stringtown boat ramp and provide directional signs along the roadside to the site.	DWR, Interior, DFG, Boating Groups	\$34,000	\$5,100	\$6,600	10	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Provide annual O&M at the 7 campgrounds along Lake Oroville with boat-in access.	DWR, Interior DFG, Boating Groups	\$0	\$40,000	\$40,000	1	30	Yes	
A127	Within 10 years of license issuance, provide a trash receptacle and trash pickup service at the Lake Oroville scenic overlook and make minor grading improvements (filling larger holes) at the head of the old construction road.	DWR, Interior, DFG, Boating Groups	\$69,000	\$12,600	\$15,600	10	30	Yes	
A127	Within 10 years of license issuance, install 10 picnic tables, a stock watering trough, and a sink at Saddle Dam Trailhead and provide 1 or 2 additional access trails from the trailhead/parking area to the Lake Oroville shoreline.	DWR, Interior, DFG, Boating Groups	\$145,000	\$12,600	\$18,800	10	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
	By 2009, improve the Saddle Dam Trailhead by providing lighting at the parking area, 2 vault restrooms with hand washing sinks, 10 concrete picnic tables, shade trees, piped potable water, 2 water tanks for horses with outlet valves, and tie rails between the picnic tables and at the restrooms.	Pathfinder Quarter Horses et al., George Weir, Vicki Hittson-Weir	\$500,000	\$37,300	\$71,600	2	30	No	Staff estimate.
A127	Within 10 years of license issuance, provide a variety of enhancements and improvements at the Loafer Creek Complex (campgrounds, day-use area, boat launch).	DWR, Interior, DFG, Boating Groups	\$5,410,000	\$202,300	\$434,900	10	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
	By 2009, build a new equestrian group campground at Loafer Creek with central water availability, 2 restrooms, washing facilities with showers, and parking for 15 vehicles with horse trailers and 15 self-contained RV horse trailers.	Pathfinder Quarter Horses et al., George Weir, Vicki Hittson-Weir	\$500,000	\$37,300	\$71,600	2	30	No	Staff estimate.
A127	Within 10 years of license issuance, provide a variety of enhancements and improvements at the Bidwell Canyon Complex (campground, day-use area, boat launch, and marina).	DWR, Interior, DFG, Boating Groups	\$9,268,000	\$113,800	\$512,300	10	30	Yes	
A127	Within 10 years of license issuance, provide an I&E program and enhance the existing facilities at the Lake Oroville Visitors Center.	DWR, Interior, DFG, Boating Groups	\$200,000	\$43,000	\$51,600	10	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 10 years of license issuance, determine the optimum boarding dock system configuration at the Spillway day-use area boat launch and install additional dock(s), if feasible.	DWR, Interior, DFG, Boating Groups	\$1,486,000	\$50,600	\$114,500	10	30	Yes	
A127	Within 10 years of license issuance, provide 100 parking spaces, 4 to 5 picnic tables with shade ramadas, and ADA-accessible interpretive panels, modify existing parking spaces and restroom to make ADA accessible, and improve the surface of the walkway at the Oroville dam overlook day-use area.	DWR, Interior, DFG, Boating Groups	\$200,000	\$0	\$8,600	10	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
	Construct an enclosed multiple-use events center on Lake Oroville State Recreation Area land with grandstands, concessions, support offices, facilities, and parking to be used for events, such as sporting events, concerts, conventions, livestock expositions, and fair expositions by 2013.	Pathfinder Quarter Horses et al., George Weir, Vicki Hittson-Weir	\$500,000	\$15,000	\$43,800	5	30	No	Staff estimate.
A127	Within 10 years of license issuance, install three new floating campsites on Lake Oroville.	DWR, Interior, DFG, Boating Groups	\$375,000	\$24,300	\$40,400	10	30	Yes	
A127	Continue to provide O&M for the seven floating restrooms on Lake Oroville.	DWR, Interior, DFG, Boating Groups	\$0	\$55,000	\$55,000	1	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 10 years of license issuance, modify or construct seven trails in the Lake Oroville area.	DWR, Interior, DFG, Boating Groups	\$269,000	\$25,300	\$36,900	10	30	Yes	
	Maintain current trail uses.	Anglers Committee et al., Pathfinder Quarter Horses et al., George Weir, Vicki Hittson-Weir	\$0	\$0	\$0	1	30	No	Continuation of existing measure without modifying trail use.
	By 2012, coordinate with DPR, Corps, Forest Service, and volunteers to build the Lake Oroville Rim Trail primarily for equestrians and hikers, and for sections meeting safety guidelines, for shared-use with mountain bikers.	Pathfinder Quarter Horses et al., George Weir, Vicki Hittson-Weir	\$100,000	\$15,000	\$20,800	5	30	No	Staff estimate.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
	By 2011, cooperate with DPR and the Plumas National Forest to extend the equestrian and hiking trail from the Dan Beebe Trail to Feather Falls Village and Trail and then to the Pacific Crest Trail, according to the California Riding and Hiking Trail Laws.	Pathfinder Quarter Horses et al., George Weir, Vicki Hittson-Weir	\$50,000	\$16,100	\$19,100	4	30	No	Staff estimate.
	Annually, provide \$10,000 for stocking bass in Lake Oroville and making a donation to the local bass tournament.	Pathfinder Quarter Horses et al., George Weir, Vicki Hittson-Weir	\$0	\$10,000	\$10,000	1	30	No	Included in recommendation.
A127	Within 11–30 years, provide improvements (campsites, swimming areas, and parking) at Lake Oroville.	DWR, Interior, DFG, Boating Groups	\$20,000,000	\$0	\$642,700	11	30	Yes	

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<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Refurbish and/or replace all recreation facilities at Lake Oroville once during the license term.	DWR, Interior, DFG, Boating Groups	\$19,600,000	\$0	\$444,000	1	30	Yes	
A127	Within 10 years of license issuance, install 10 concrete picnic tables (each with a pole stove/grill), enhance the existing gravel boat launch, and possibly construct an ADA-accessible fishing platform or pier at the diversion pool day-use area.	DWR, Interior, DFG, Boating Groups	\$215,000	\$12,600	\$21,800	10	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 10 years of license issuance, construct access road to railroad bridge crossing at the Thermalito diversion pool, construct a new day-use area including a car-top boat launch, graveled parking area, vault restroom, picnic tables, pole grills, and foot trail access to the shoreline, install fencing to separate facilities from the railroad tracks, and install non-potable water trough near the Lakeland Boulevard Trailhead access.	DWR, Interior, DFG, Boating Groups	\$1,914,000	\$73,400	\$155,700	10	30	Yes	
A127	Within 10 years, enhance a car-top boat launch site at or near the Feather River fish hatchery and include in the I&E program.	DWR, Interior, DFG, Boating Groups	\$45,000	\$13,700	\$15,600	10	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 10 years of license issuance, modify or construct four trails along the Thermalito diversion pool.	DWR, Interior, DFG, Boating Groups	\$316,000	\$25,300	\$38,900	10	30	Yes	
A127	Refurbish and/or replace all recreation facilities at the Thermalito diversion pool once during the license term.	DWR, Interior, DFG, Boating Groups	\$900,000	\$0	\$65,400	1	30	Yes	
A127	Within 10 years of license issuance, provide a fish cleaning station, if it can be connected to the existing sewage system, conduct a feasibility study to evaluate warmer water swimming options, and monitor and maintain water quality in the swimming cove at the North Thermalito forebay day use area.	DWR, Interior, DFG, Boating Groups	\$470,000	\$32,600	\$52,800	10	30	Yes	Water quality monitoring cost not included in this amount.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 10 years of license issuance, enhance the South Thermalito forebay day-use area by providing a sandy swimming beach with safety buoys, picnic tables, pole stoves, shade ramadas, landscaping, and an ADA-accessible fishing pier.	DWR, Interior, DFG, Boating Groups	\$200,000	\$12,300	\$20,900	10	30	Yes	Water quality monitoring cost not included in this amount.
A127	Within 10 years of license issuance, modify or construct trails along the Thermalito forebay.	DWR, Interior, DFG, Boating Groups	\$225,000	\$12,600	\$22,300	10	30	Yes	
A127	Replace and/or refurbish all recreation facilities at the Thermalito forebay once during the license term.	DWR, Interior, DFG, Boating Groups	\$1,900,000	\$0	\$138,000	1	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 10 years of license issuance, provide directional signs along the roadside to the Wilbur Road boat launch.	DWR, Interior, DFG, Boating Groups	\$3,000	\$0	\$100	10	30	Yes	
A127	Provide model aircraft flying facility.	DWR, Interior, DFG, Boating Groups	\$0	\$0	\$0	1	30	Yes	
A127	Continue to provide O&M for the Monument Hill day-use area.	DWR, Interior, DFG, Boating Groups	\$0	\$0	\$0	1	30	Yes	The cost for monitoring water quality is not included in this amount.
A127	Within 10 years, provide a sandy swimming beach with safety buoys, picnic tables, pole stoves, and shade ramadas, and provide directional signs along the roadside to the Larkin Road boat launch.	DWR, Interior, DFG, Boating Groups	\$250,000	\$12,600	\$23,400	10	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 11 to 30 years, provide improvements (campsites, swimming areas, parking) at the Thermalito afterbay.	DWR, Interior, DFG, Boating Groups	\$1,000,000	\$0	\$40,600	11	30	Yes	
A127	Replace and/or refurbish all recreation facilities at the Thermalito afterbay once during the license term.	DWR, Interior, DFG, Boating Groups	\$900,000	\$0	\$65,400	1	30	Yes	
A127	Within 10 years, provide a variety of enhancements and improvements in the Thermalito afterbay outlet area (campground, day-use area, boat launch).	DWR, Interior, DFG, Boating Groups	\$2,450,000	\$139,100	\$244,500	10	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 10 years, provide 2 watchable wildlife sites in the OWA, designate two non-motorized boater launch sites/take-outs as access sites for the proposed River Trail, and maintain and enhance existing access to the OWA for traditional uses such as hunting and fishing.	DWR, Interior, DFG, Boating Groups	\$400,000	\$11,100	\$28,300	10	30	Yes	
A127	Replace and/or refurbish all recreation facilities at the OWA once during the license term.	DWR, Interior, DFG, Boating Groups	\$900,000	\$0	\$65,400	1	30	Yes	
	By 2009, complete the loop trails and trail water crossings as discussed during settlement negotiations.	Pathfinder Quarter Horses et al., George Weir, Vicki Hittson-Weir	\$50,000	\$9,300	\$12,700	2	30	No	Staff estimate.

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 6 months of license acceptance, establish a License Coordination Unit of appropriate DWR staff in Oroville to manage the terms and conditions of the new license.	DWR, Interior, DFG, Boating Groups	\$0	\$75,000	\$75,000	1	30	Yes	
A127	Within 6 months of license acceptance, create a Recreation Advisory Committee to advise DWR on implementation of the Settlement Agreement-Recreation Management Plan components, review recreational use data, and recommend modifications to the Recreation Management Plan.	DWR, Interior, DFG, Boating Groups	\$0	\$0	\$0	1	30	Yes	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
	Maintain Oroville Recreation Advisory Committee to receive community recommendations, oversee feasibility and environmental studies, and advise the Oroville Joint Powers Authority.	Pathfinder Quarter Horses et al., George Weir, Vicki Hittson-Weir	\$0	\$5,000	\$5,000	1	30	No	Staff estimate.
	Establish the Oroville Joint Powers Authority, whose members would include Butte County supervisors representing the cities of Oroville, Richvale, and Paradise, three Oroville City Council members, and the mayor of Paradise.	Pathfinder Quarter Horses et al., George Weir, Vicki Hittson-Weir	\$6,000	\$5,000	\$5,400	1	30	No	Staff estimate.
A127	Cooperate with local groups to plan annual Fourth of July fireworks presentation.	DWR, Interior, DFG, Boating Groups	\$0	\$210,000	\$210,000	1	30	No	

<b>Article No.</b>	<b>Environmental Measure</b>	<b>Entity</b>	<b>Capital Cost</b>	<b>Annualized O&amp;M cost</b>	<b>Annualized Cost</b>	<b>Start Year</b>	<b>End Year</b>	<b>Included by Staff</b>	<b>Comment</b>
A127	Within 1 year of license issuance, file a Recreation Implementation Plan with the Commission.	DWR, Interior, DFG, Boating Groups	\$50,000	\$0	\$3,600	1	30	Yes	
A116	Maintain and enhance existing access to the OWA for traditional uses such as hunting and fishing.	DWR, Interior, DFG, Boating Groups	0	\$0	\$0	1	30	No	
<b>Land Use and Aesthetic Resources</b>									
A132	Screening, fuels management, and miscellaneous land use and aesthetics measures.	DWR	\$750,000	\$35,000	\$89,500	1	30	Yes	
	Plan and implement reseedling on the downstream face of Oroville dam.	Staff	\$11,000	\$700	\$1,500	1	30	Yes	Staff assume that O&M cost would be \$4,000 every fifth year to maintain.
<b>Cultural Resources</b>									
A128	HPMP and temporary closure pending results of Plan for Protection of cultural resource values at Foreman Creek.	DWR	\$19,600,000	\$360,000	\$1,783,900	1	30	Yes	

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<b>Socio-economic Resources</b>									
	Relocate Emergency Operations Center.	Staff, Butte County	\$2,500,000	\$0	\$181,600	1	30	No	
<b>Total Applicant's Proposal</b>			\$186,473,000	\$4,485,600	\$13,371,800				
<b>Total Staff Included</b>			\$186,339,000	\$4,193,800	\$13,075,700				

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**APPENDIX C**  
**STAFF RESPONSES TO COMMENTS ON THE DRAFT EIS**

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## APPENDIX C

### STAFF RESPONSES TO COMMENTS ON THE OROVILLE FACILITIES DRAFT EIS

The U.S. Environmental Protection Agency's (EPA) notice of availability of the draft environmental impact statement (EIS) was issued on September 29, 2006. Comments on the draft EIS were due on November 28, 2006. The following entities filed comments pertaining to the draft EIS.

<b>Commenting Entity</b>	<b>Filing Date</b>
Paul McIntosh, Chief Administrative Officer, Butte County	October 25 and 31, November 20 and 29, 2006
George Weir, Vicki Hittson-Weir, Pathfinder Quarter Horses	October 27 and December 19, 2006, and January 2 and February 23, 2007
Rick Keene, Assembly Member for the Third District	November 1, 2006
Kurt Flynn	November 2, 2006
James Brobeck	November 13, 2006
Joan C. Townsend	November 21, 2006
Mary Keiser	November 27, 2006
George and Marjorie West	November 27, 2006
Tony Rushing	November 27, 2006
Michael L. Ramsey, Butte County District Attorney (2 letters)	November 28, 2006
Janice Wilson, Committee for Access to Recreation for Lake Oroville	November 28, 2006 and December 21, 2006
Neil R. Meyer	November 28, 2006
Planning and Conservation League	November 29, 2006
Berry Creek Rancheria of Maidu Indians	November 29, 2006
State Water Contractors	November 29, 2006
Dr. Jon S. Ebeling and Dr. Frederica Shockley	November 29, 2006
Curt Josiassen, Chairman, Board of Supervisors, Butte County	November 29, 2006
Town of Paradise	November 29, 2006
James Tonick	November 29, 2006
Stacy Tonick	November 29, 2006
Gabriele Potter	December 8, 2006
Grace F. Napolitano, Member of Congress	December 8, 2006
Pamela Fuller	December 12, 2006
Butte County	December 18, 2006
Leslie Sabin	December 18, 2006
California Sportfishing Protection Alliance	December 19, 2006
State Water Resources Control Board	December 19, 2006
Friends of the River, Sierra Club, South Yuba River Citizens League	December 19, 2006
Robert Gage	December 19, 2006
Rebecca Gage	December 19, 2006
State Water Contractors, Inc. and the Metropolitan Water District of Southern California (SWC and Metropolitan)	December 19, 2006
California State Horsemen's Association, Region 2	December 19, 2006
Users of the Lake Oroville Trails	December 19, 2006

<b>Commenting Entity</b>	<b>Filing Date</b>
American Rivers	December 19, 2006
County of Sutter, City of Yuba City, and Levee District No. 1 of Sutter County (collectively Sutter County)	December 19, 2006
County of Plumas and the Plumas County Flood Control and Water Conservation District (collectively Plumas)	December 19, 2006
Gayle Leland	December 19, 2006
Western Canal Water District, Richvale Irrigation District, Butte Water District, Biggs-West Gridley Water District, and Sutter Extension Water District (The Districts)	December 19, 2006
California Equestrian Trails & Land Coalition	December 19, 2006
Butte County	December 19, 2006,
U.S Department of the Interior (Interior)	December 19, 2006
Berry Creek Rancheria, Mooretown Rancheria, and Enterprise Rancheria	December 19, 2006
William O. Davis for the Action Coalition for Equestrians, Equestrian Trail Riders, and Oroville Pageant Riders	December 19, 2006
Lake Oroville Bicyclist's Organization	December 19, 2006
United States Environmental Protection Agency, Region IX (EPA)	December 19, 2006
National Marine Fisheries Service (NMFS)	December 19, 2006
Enterprise Rancheria	December 20, 2006
Frank and Loraine Gomez	December 21, 2006
Hannah Tucker	December 21, 2006
Tammie Powell	December 21, 2006
Lavonne and Ernest Wilson	December 21, 2006
Individual	December 21, 2006
Perry L. Reniff, Sheriff Coroner, Butte County	December 21, 2006
Community Action Agency of Butte County, Inc.	December 21, 2006
Regina Reed	December 27, 2006
Denny Reed	December 27, 2006
Joel Brown	December 27, 2006
Barbara Mertens	March 1, 2007
Patty Walters	March 1, 2007
C. Caldwell	March 1, 2007
Gavin, Melissa, Kaci, and Carson Silberschlags	March 1, 2007
California State Horseman's Association	March 1, 2007
Leana Stoltenberg	March 1, 2007
Steven N. Brooks	March 1, 2007
Tammy Norton	March 1, 2007
Don Jones	March 1, 2007
Fay Verle	March 1, 2007
Ron Lindley	March 1, 2007
Dixie Klemp	March 1, 2007
Arin C. Murphy	March 1, 2007
Barbara Mertens	March 1, 2007
Patty Walters	March 1, 2007
C. Caldwell	March 1, 2007
Gavin, Melissa, Kaci, and Carson Silberschlags	March 1, 2007
California State Horseman's Association	March 1, 2007
Leana Stoltenberg	March 1, 2007

<b>Commenting Entity</b>	<b>Filing Date</b>
Steven N. Brooks	March 1, 2007
Tammy Norton	March 1, 2007
Don Jones	March 1, 2007
Fay Verle	March 1, 2007
Ron Lindley	March 1, 2007
Dixie Klemp	March 1, 2007
Arin C. Murphy	March 1, 2007
High Mountain Riders	March 2, 2007
Brian, Jennifer, Nick, and Jeremy Moreau	March 2, 2007
Adele J. Johnson	March 2, 2007
Liz Murphy	March 2, 2007
Gina Rouse	March 2, 2007
Flying D Kigers	March 2, 2007
James, Kathi, Isaac, and Erik Murphy	March 2, 2007
Deborah Shaner	March 2, 2007
Kayla Burton	March 5, 2007
Alan and Penny Davey	March 5, 2007
Nancy Wadsworth	March 5, 2007
Judy Scott	March 6, 2007
Joseph and Ann Basuino	March 6, 2007
Chuck and Shirley Bartok	March 6, 2007
Charles and Rose Waugh	March 6, 2007
Sandra Wineroth	March 6, 2007
Gene and Susan Williams	March 6, 2007
Bill and Jill Holmes	March 6, 2007
Dan and Shanean Tonick	March 6, 2007
Donald and Beth Murphy	March 6, 2007
Individual	March 13, 2007
Individual	March 13, 2007
Individual	March 13, 2007
Individual	March 13, 2007
Individual	March 13, 2007
David Tonick	March 13, 2007
Ben L. Wimple	March 13, 2007
J. Ronan	March 13, 2007
Mike and Sandy Hanbrough	March 14, 2007
Teresa Valle	March 14, 2007
Rita Cassiba	March 14, 2007
Stevie McAdam	March 14, 2007
Kennie Moore	March 14, 2007
California Equestrian Trails and Land Coalition	March 16, 2007
Jason Davis	March 20, 2007
Doug and Cheryl Smith	March 19, 2007
Susan Walker	March 19, 2007
Bill and Eve Fox	March 19, 2007
Al and Charlotte Johnson	March 19, 2007
Charlie and Margaret Ryan	March 20, 2007
Michael Walters, Harvey Walters, and John Mishella	March 20, 2007

<b>Commenting Entity</b>	<b>Filing Date</b>
Graham and Beverly Carter	March 22, 2007
Candi Fleming	March 22, 2007

In addition to the written comments, 57 people provided oral comments at the public meeting held on November 8, 2006, in Oroville, California. The written comments cover all of the issues raised during the oral testimony. Several entities filed comments in reply to comments made on the draft EIS, including the California Department of Water Resources (DWR) on December 19, 2006, the Pathfinder Quarter Horses on January 2, 2007, Butte County on January 10 and 18, 2007, and the State Water Contractors and Metropolitan Water District on February 2, 2007. DWR filed additional reply comments on February 8, 2007.

In this appendix, we summarize the comments received, provide responses to those comments, and indicate, where appropriate, how we modified the text of the final EIS. The comments are grouped by topic for convenience.

### **PROCEDURAL AND GENERAL**

**Comment 1:** Butte County strongly objects to the wording in the summary that states “Overall, the measures proposed by DWR under the terms of the Settlement Agreement, along with additional staff-recommended and revised measures, would protect and enhance existing water use, water quality . . . land use, aesthetics, recreational and cultural resources.” Butte County comments that these measures fall far short of what is required to eliminate or mitigate the serious adverse project effects on Butte County and on the natural environment. Butte County claims that the draft EIS accepts all project benefits claimed by DWR, even though many are not supported by any documentation or evidence. In addition, Butte County states the draft creates “phantom” project benefits that are attributed to Butte County – including water supply, flood control, and job creation benefits. Butte County comments that, overall, the project imposes far more costs on county residents than benefits, and the project is a net financial loss for the local community.

**Response:** We continue to conclude that the measures proposed by DWR under the terms of the Settlement Agreement, along with our staff-recommended measures, would protect and enhance the many environmental resources in the project area. Butte County’s general comment does not lead us to conclude otherwise. We address specific comments about the costs and benefits of the relicensing the project on Butte County in this appendix under *Socioeconomics*.

**Comment 2:** EPA comments that the Commission’s eLibrary accession number attached to the Settlement Agreement as referenced in the draft EIS is incorrect.

**Response:** The Commission’s eLibrary accession number is correctly cited in footnote 7 in the draft EIS.

**Comment 3:** EPA comments that additional documents and studies found on the relicensing web page should be summarized and referenced in the final EIS, specifically, they recommend documents found in the Environmental Work Group Reports.

**Response:** The studies that EPA refers to were filed with the license application, reviewed by staff and used, as appropriate, as supporting documentation for the EIS, and are referenced in the literature cited section of the EIS. We are not sure what additional studies you believe need to be summarized and referenced in the final EIS that have not already been considered by staff.

**Comment 4:** DWR provided an appendix containing “Technical Comments and Clarifications” to the draft EIS. In addition, DWR comments that negotiations of the Habitat Expansion Agreement have been

completed since the draft EIS was issued and it will be signed and filed with the Commission once coordination between DWR and PG&E, the licensee of the three upstream projects, is completed. DWR suggests that consideration of this document should be included in the final EIS.

**Response:** We note that the strictly editorial comments raised in the “Technical Comments and Clarifications” document will be incorporated into the final EIS and not addressed in this document. Those comments requiring a more substantive discussion will be included in this Appendix, and changes, as appropriate, will be incorporated into the final EIS. We look forward to receiving the final Habitat Expansion Agreement. In the meantime, as noted in our responses to comments 85 and 93, we included more information about the Habitat Expansion Agreement in the final EIS.

## **PURPOSE OF ACTION AND NEED FOR POWER**

**Comment 5:** DWR comments that footnote 8 incorrectly cites total federal, Bureau of Land Management (BLM), and Forest Service land acreages within the project. The correct acreages are 6,240, 4,620, and 1,620 acres, respectively.

**Response:** Thank you for clarifying the correct land acreages within the project boundary. We revised the EIS to reflect these corrections.

**Comment 6:** The Lake Oroville Bicyclist’s Organization comments that that although trail designations remain a contentious issue at the project, the decision as to “proper mix” (section 1.1, *Purpose of Action*) must be made by local regulatory agencies such as the California Department of Parks and Recreation (DPR). DPR has both the required experience and written policies on which to base such a decision. Further, it comments that the Commission has no written “trail policy” that would guide staff in determining trail designations or permit staff to make the appropriate determination between “preserving the quality and safety of recreational experiences and providing abundant trail access for the public.” With regard to the statement “Specifically, changing trails designated as equestrian/hiker-only to multiple-use trails would diminish the opportunity for equestrians to ride on trails where they would not encounter bicycles (section 1.1, *Purpose of Action*), the Lake Oroville Bicyclist’s Organization comments that while the Commission requires recreation as a condition for licensing at the project, there are no requirements that it provide opportunities for equestrians to ride on trails where they would not encounter bicycles.

**Response:** We agree the Commission does not have a formal written trail policy and that there is no requirement that equestrian-only trails be provided. However, section 2.7 of Chapter 1 of Title 18 of the Code of Federal Regulations states that the Commission will evaluate the recreational resources of all projects under Federal license or applications and will seek, within its authority, the ultimate development of these resources, consistent with the needs of the area to the extent that such development is not inconsistent with the primary purpose of the project. We consider the needs of a variety of recreationists and base our recommendation on the applicable state and local comprehensive recreation plans.

**Comment 7:** Butte County comments that the summary and section 1.1, *Purpose of Action*, of the final EIS should note that while the project occupies a total of 5,900 acres of federal land, the entire project occupies 41,100 acres of land and is wholly located within the unincorporated areas of Butte County. Butte County comments that, in addition, the 35,200 acres of previously private land are not subject to local taxes because DWR is a tax exempt entity under California law.

**Response:** In section 1.1 of the EIS, we state that the project is located in Butte County and occupies 6,200 acres of federal land and a total of 41,540 acres of land. In section 3.3.10.2, *Environmental Effects, Payments in Lieu of Taxes*, we state that DWR is not required to pay local, state, or federal taxes.

## AGENCY CONSULTATION AND PUBLIC INVOLVEMENT

**Comment 8:** In section 1.4.2, *Interventions and Comments*, the draft EIS lists the filing date of the U.S. Department of the Interior's intervention as April 4, 2006. Interior states that it filed its intervention on March 31, 2006, and that the final EIS should reflect this date.

**Response:** We modified the final EIS to show that Interior filed its intervention on March 31, 2006.

**Comment 9:** The text in section 1.4.3, *Settlement Agreement*, of the draft EIS, indicates that settlement discussions concluded in December 2005. SWC and Metropolitan comment that settlement negotiations continued through early March 2006, and concluded just prior to the March 21, 2006, signing ceremony.

**Response:** We revised the text in the final EIS to state that settlement negotiations continued into March 2006.

**Comment 10:** Butte County comments that section 1.4.3, *Settlement Agreement*, should specifically note that DWR negotiated the Settlement Agreement with interested parties of its own choosing and, chose to exclude Butte County. It comments that the listing of parties filing comments in opposition to the Settlement Agreement in section 1.4.3 is incomplete and that parties opposing the Settlement Agreement should specifically be listed.

**Response:** We summarize the comments made in opposition to the Settlement Agreement in sections 1.4.3.1 through 1.4.3.2 of the EIS.

**Comment 11:** With regard to the entities that filed comment letters in response to the Settlement Agreement filing in section 1.4.3, *Settlement Agreement*, the Lake Oroville Bicyclist's Organization comments that the draft EIS does not provide all relevant information by not disclosing the significant support for the agreement from equestrian commentators. The draft EIS also does not disclose comments supportive of the Settlement Agreement that addressed many of the comments made by those in opposition to the Settlement Agreement. The Lake Oroville Bicyclist's Organization notes that the draft EIS should differentiate between "equestrians" and "equestrians opposed to the Settlement Agreement" in both section 1.4.3 and 1.4.3.1. In addition, in section 1.4.3.1, *Comments by Equestrians in Opposition to the Settlement Agreement*, the Lake Oroville Bicyclist's Organization comments that the draft EIS should include specific information detailing the representation from each group at the focus groups. They note that Trails Focus Group attendance on November 9, 2004, was 18 percent cyclist and 39 percent equestrian.

**Response:** In section 1.4.3 we list those parties that signed the Settlement Agreement, including the California State Horsemen's Association, the Lake Oroville Bicyclist's Organization, the International Mountain Bicycling Association, and the Citizen's for Fair and Equitable Recreation. In sections 1.4.3.1 through 1.4.3.3 we discuss the opposing views filed in response to the Settlement Agreement. These views, as well as the views of those entities in support of the Settlement Agreement are discussed in the appropriate resource sections of the EIS.

## PROPOSED ACTION AND ALTERNATIVES

**Comment 12:** Kurt Flynn asks that the Commission describe the authority that would allow DWR to continue to operate the facilities under existing conditions, if a license were denied and to indicate the time period that DWR would be allowed to operate under this authority. Mr. Flynn also asks the

Commission to clarify why the retirement alternatives discussed in section 2.4.3, *Retiring the Project*, were not used as the No-action Alternative for the proposed project.

**Response:** No-action in this proceeding would be continuation of the project under annual licenses until such time that the Commission makes a decision on whether to relicense the project. We use the No-action Alternative as our baseline because that is how the project currently operates and it allows us to compare the other action alternative. We do not use any of the retirement alternatives as a No-action Alternative because the retirement scenarios would either require the licensee to file an application for surrender of license in a separate proceeding or would require either the federal government or another entity to take over the project. All of these would be proposed actions and would not constitute no-action alternatives.

**Comment 13:** EPA comments that the final EIS should provide additional information on the No-action Alternative to describe the environmental impacts of continuing to operate the project under the terms and conditions of the current license. The final EIS should provide a concise summary of the environmental analysis performed for section 3 that allows for a clear comparison of the impacts of all alternatives, including the No-action Alternative. EPA suggests providing a table with (1) the impacts of the hydroelectric project operation on each resource; (2) the PM&E measures that are proposed under each alternative; and (3) the impacts of the project after implementing the PM&E measures under each alternative.

**Response:** The EIS provides a clear definition of the No-action Alternative and the existing environment (baseline) is discussed in detail in each resource section. Table 6 presents the measures included in the Proposed Action (Settlement Agreement) and section 2.3.5, *Staff Alternative*, provides the additional staff-recommended measures. These are presented again in section 5.1, *Comprehensive Development and Staff Alternative*.

**Comment 14:** The Water Board comments that the final EIS should compare the current flow regime with pre-dam hydrology in order to understand the impact of the alternatives on beneficial uses affected by geomorphic processes, water quality, and fisheries.

**Response:** We recognize the continuing effects of the project and used pre-dam information to the extent that it was available and relevant to our analysis. However, we note that our baseline is existing project conditions and we analyze the Proposed Action and action alternatives against this baseline.

**Comment 15:** Plumas comments that the draft EIS defines the No-action (baseline) and the Proposed Action too narrowly and therefore, the draft EIS is overly focused on the reliability of downstream water supply deliveries. In addition, Plumas comments that the No-action Alternative is presented in a way that the reader is unable to verify the claims that the proposed operations of the project will be largely similar to historic operations. It points out that the assertion by DWR that water supply, flood control operations, and environmental conditions above and below the project will not change is not a legally sufficient basis for concluding the project impacts will not change during the term of a new license.

**Response:** The No-action Alternative we define in the draft EIS is not based on DWR's claims, but rather on how the project currently operates under the requirements of the Commission's license articles and subject to the agreements and conditions that affect DWR's operation—such as the conditions of the NMFS 2002 biological opinion. Our conclusion that water supply and flood control operations will not change under the staff recommended alternative during the term of a new license is based on our analysis of the conditions we recommend be included in any new license. The various resource sections in the draft EIS discuss how the recommended measures would affect the environmental conditions.

**Comment 16:** Plumas comments that baseline data are presented in a manner that makes it difficult to distinguish between the influence of controllable and uncontrollable factors. Specifically, Plumas comments that water inflows (hydrology) and reservoir operations (water deliveries, minimum flow releases for downstream fish habitat, and controlled flood releases) all affect water levels in Lake Oroville. These key baseline factors should be displayed as separable project effects to assist the Commission in the formulation of real alternatives to the project.

**Response:** These issues are addressed in the EIS. We present information about water flows and reservoirs operations in section 3.3.2.2, *Water Resources* and analyze the effect of project operations on the quantities of water deliveries, the current and proposed minimum flow releases for fisheries, and recreational boating separately in the relevant sections of the draft EIS. We conclude that future project operations under the Settlement Agreement would not affect water deliveries or flood control management. The Settlement Agreement represents several years of negotiations with stakeholders to arrive at a preferred alternative that addresses key issues identified during the scoping process and for which 34 technical studies were conducted. We see no reason or need to develop additional alternatives, beyond staff's minor modifications to several proposed measures, at this point in the relicensing process.

**Comment 17:** DWR comments that section 2.1.1, *Existing Project Facilities*, fails to include a description for the hatchery water supply pipeline from the Thermalito diversion dam or flow diverted to the hatchery. In addition, in table 1, the draft EIS defines the high flow channel as Thermalito afterbay outlet to confluence with Honcut Creek. For the purposes of the Settlement Agreement articles, the high flow channel should be defined as the Feather River from the afterbay outlet, downstream to the project boundary.

**Response:** We reviewed Exhibit F and determined that a 30-inch water supply pipeline provides flow to the fish hatchery and added information to the text of section 3.2.2.1. Flow diverted to the fish hatchery was described in the draft EIS. We changed the description of the high flow channel in table 1 in the final EIS to state that it extends to the downstream limit of the project boundary.

**Comment 18:** In section 2.1.1, *Existing Project Facilities*, the draft EIS includes a list of numerous trailheads and trails not located in Thermalito Complex. SWC and Metropolitan comment that the column headings "Lake Oroville" and "Thermalito Complex" should be replaced with "Recreational Facilities Located within Oroville Facility Project Boundaries."

**Response:** We agree that the current headings of the list of recreational facilities presented in section 2.1.1, *Existing Project Facilities* are misleading. Therefore, we changed the headings in the list of recreational facilities to more accurately reflect the facilities listed.

**Comment 19:** EPA comments that the description of existing project facilities provided in section 2.1.1 is inadequate and not enough detail is provided for the reader to understand how the system works as a functioning unit.

**Response:** We describe project operations in section 2.1.3 and include a review of overall project operations, as well as operations of the individual components of Lake Oroville, the Thermalito forebay, diversion pool and power canal, and the Thermalito afterbay. However, we added additional detail on the pump-back operations in section 2.1.3.4 in the final EIS. In addition, Figure 3 provides a schematic diagram of how flows pass through the project, including the pumped storage facility.

**Comment 20:** DWR comments that in section 2.1.2, *Project Boundary*, the project boundary does not follow the Oroville Wildlife Area (OWA) boundary in this area.

**Response:** We agree that the project boundary is not coterminus with the OWA boundary and state in the draft EIS that the project boundary includes only 11,200 of the 12,000-acre OWA. Therefore, we revised the text in section 2.1.2 to clarify that the project boundary generally follows the OWA boundary south of Thermalito afterbay.

**Comment 21:** The Water Board comments that the description of the pump back operations described in section 2.1.3.4, *Thermalito Afterbay*, is incomplete. It suggests that a more thorough description of pump back operations, including the timing, flow, and duration should be included.

**Response:** We include a description of the pump-back operations in section 2.1.3.2 and section 2.1.3.4 and describe the pump-back capabilities in section 2.1.1 of the draft EIS. However, we include a more detailed description in the final EIS.

**Comment 22:** DWR comments that table 2 in section 2.1.3.5, *Minimum Instream Flow and Water Temperature*, should note that additional reductions in the minimum flows shown are possible per the 1983 Agreement (which carries over to the Settlement Agreement), under the following conditions: If the April 1 runoff forecast in a given water year indicates that, under normal operation of the project, Oroville reservoir will be drawn to elevation 733 feet (approximately 1,500,000 acre-feet), minimum flows in the high flow channel may be diminished on a monthly average basis, in the same proportion as the respective monthly deficiencies imposed upon deliveries for agricultural use from the project; however, in no case shall the minimum flow releases be reduced by more than 25 percent.

**Response:** We added the language from Proposed Article 108.21b of the Settlement Agreement to footnote a of table 2, as requested.

**Comment 23:** DWR comments that table 4 in section 2.1.3.5 represents a weekly time-step of the ramping criteria outlined in a now defunct agreement between DWR and DFG. The weekly time step was calculated for consistency with the modeling tools used in the relicensing process. The actual ramping criteria in the agreement are:

<b>Feather River Low Flow Channel Releases (cfs)</b>	<b>Rate of Decrease (cfs)</b>
Less than 2,500	200 per 24 hours
2,500 to 3,500	500 per 24 hours
3,500 to 6,500	1,000 per 24 hours
Greater than 6,500	2,000 per 24 hours

**Response:** We revised the ramping rates shown in table 4 accordingly. Presenting this information on a daily basis does not affect our analysis.

**Comment 24:** Friends of the River, Sierra Club, and the South Yuba River Citizens League comment that the draft EIS does not demonstrate continued adequacy of the proposed project facilities as stated in section 2.1.5, *Project Safety*. These groups comment that the draft EIS includes none of the project-safety facilities or operational changes they or Sutter County proposed be included or any description of special articles. The exclusion of flood management functions from the draft EIS suggests to these organizations that the goals of project safety have not been met. They also comment that it is possible that the Commission and DWR staff concluded that the operational or emergency use of the unarmored spillway will not result in any risk of failure of crest control at the dam; however, since this information is not available to the public because of security concerns, they are unable to form an independent opinion. They also point out that under the current Corps manual, the first 10 feet of the ungated spillway should be characterized as an auxiliary spillway.

**Response:** Ensuring the safety of Commission-licensed hydroelectric projects is an on-going process with evaluations by Commission-approved independent consultants for high hazard dams such as Oroville every 5 years. Work on dam safety issues is critical energy infrastructure information (CEII) that, as you point out, is not available to the public. A memorandum dated July 27, 2006, that summarizes our responses to several of the parties' concerns about the safety of the Oroville dam is available to the public via eLibrary under docket P-2100. This memorandum, from the Commission's Division of Dam Safety and Inspections, concludes that the spillway is properly characterized as an emergency spillway and is structurally adequate. Congress has given the responsibility for flood management at the Oroville dam to the Corps; however, we added information to section 3.3.2.3, *Water Resources, Cumulative Effects* in the final EIS about the Corps' on-going studies that pertain to flood management and the need for DWR to coordinate with the Corps.

**Comment 25:** Butte County and Perry Reniff, Sheriff Coroner for Butte County, request that the Commission review the Security Assessment at Oroville Dam currently being prepared by the Regional Terrorism Task Force and make all recommendations made by the task force a condition of relicensing.

**Response:** As with dam safety, security is an ongoing effort. Commission staff will consider the findings of the regional task force report and what actions should be required of DWR at the Oroville Facilities under Part 12 of the Commission's regulations when the findings are made available to us.

**Comment 26:** DWR comments that in section 2.2.2, *Proposed Project Operations*, the draft EIS combines the low and high flow channel temperature tables and erroneously states that DWR would operate to them and that they eventually will become requirements. DWR will operate to table 1 in the low flow channel, which eventually will become a requirement. DWR will not operate to table 2 in the high flow channel; rather this table will be evaluated and eventually modified.

**Response:** The information on temperature objectives for the low and high flow channels and the temperature values for the low and high flow channels presented in section 2.2.2 of the draft EIS are consistent with the Settlement Agreement. However, we separated the data into two tables as requested and revised the text in section 2.2.2 of the final EIS to clarify that DWR will operate to the temperature objectives in the low flow channel and that the temperature objectives for the high flow channel will be evaluated and eventually modified.

**Comment 27:** SWC and Metropolitan comment that the draft EIS should include a reference in section 2.2.2, *Fish hatchery—temperature*, to Conference Years and Uncontrollable Forces, as a year when the temperature requirement may not be met 100 percent of the time.

**Response:** We revised the note to the table in section 2.2.2 to state that the temperature objectives also would be subject to the conference year and uncontrollable forces provisions in Proposed Articles 108.6 and 108.7.

**Comment 28:** SWC and Metropolitan comment that table 6 in section 2.2.3, *Proposed Environmental Measures*, indicates that Proposed Article A104 will be implemented between the fish barrier dam and Honcut Creek, which is an additional 10 miles of the Feather River and is outside of the project boundary. They request that this be clarified in the final EIS.

**Response:** DWR also pointed out this discrepancy in the description of the high flow channel. We revised the text in both tables 1 and 6 under Proposed Article A104 to clarify that the measure would be implemented between the fish barrier dam and the downstream limit of the project boundary in the Feather River.

**Comment 29:** Interior comments that the summary of Settlement Agreement measures described in section 2.2.3, *Proposed Environmental Measures*, should reflect the actual language found in the Settlement Agreement. Specifically, Interior comments that the description of Proposed Article A109 should indicate that it, along with NMFS, reserve its authority to prescribe fish passage at the Oroville Facilities, as provided in the Habitat Expansion Agreement. Interior also notes that the summations of proposed articles A117 through A121 do not necessarily reflect all relevant terms from the proposed license articles.

**Response:** We revised the description of Proposed Article A109 in table 6 to state that both NMFS and Interior reserved their authority to prescribe fishways. We acknowledge in footnote 21 that the concise descriptions of the measures included in table 6 are not verbatim from the Settlement Agreement.

**Comment 30:** DWR comments that on October 16, 2006, DWR withdrew its original application for section 410 water quality certification and re-applied for 401 certification with the State Water Resources Control Board (Water Board).

**Response:** We updated section 2.3.1, *Water Quality Certification*, in the final EIS to state that DWR withdrew and re-applied for water quality certification on October 16, 2006.

**Comment 31:** EPA comments that the final EIS should describe the status of the Clean Water Act section 401 water quality certification that DWR requested from the Water Board. The final EIS should discuss the application in detail and address any water-quality issues identified by the Water Board, including the following: (1) all Clean Water Act section 303(d) impaired waters and efforts to develop TMDLs in the project area, including existing restoration and enhancement efforts, how the proposed project will coordinate with other protection efforts, and any mitigation measures that will be implemented to avoid further degradation of impaired waters; and (2) detected concentrations of metals in water samples in the Feather River watershed.

**Response:** The status of DWR's application for water quality certification is described in section 2.3.1 of the draft EIS. We discuss the concerns and issues raised by the Water Board in the relevant sections of the EIS. We find that, currently, there is one waterbody upstream of Oroville dam listed as impaired under section 303(d) of the Clean Water Act. The North Fork Feather River below Lake Almanor is listed for temperature and mercury. The Feather River downstream of Oroville dam to its confluence with the Sacramento River is listed on the 303(d) list of waters as impaired by sources of mercury, certain pesticides, and unknown toxicity. A TMDL has been established for the pesticide Diazinon for the Feather River below Oroville dam to the confluence with the Sacramento River. We clarified this information in section 3.3.2.1 of the final EIS.

The presence of mercury in the waters is a problem for almost all reservoirs and rivers of the western slope of the Sierras, as historical gold mining practices unearthed vast amounts of soil and in the process utilized mercury in the ore mining processes, that is now distributed in sediments throughout the foothills and is working its way down river and becoming trapped in reservoirs like Oroville. Generally, plans to protect human health from mercury focus on monitoring and education as there are no easy or cost effective solutions to reduce mercury loading. As for pesticides within the lower Feather River, the source of these is likely related to the agricultural sector of the county and application of pesticides would occur after water had passed through the Project and been delivered to senior water rights holders.

As for detected concentrations of metals in water samples in the Feather River watershed, DWR collected data on metals from 57 sampling sites above, within, and below the project boundary. Our review of the

sampling summary in the water quality report (DWR, 2004g) suggests that elevated metal concentrations exist in some of the samples and we added additional language to section 3.3.2.1.

**Comment 32:** EPA comments that the final EIS should include a full discussion and summary of all items in the Settlement Agreement filed on March 24, 2006, including those referenced in Appendix B (of the Settlement Agreement). EPA comments that the final EIS should also include a summary of the results of the Reconnaissance Study for potential facility modifications for fish habitat temperature needs that was supposed to be submitted by October 31, 2006.

**Response:** We reviewed Appendix B and addressed those issues that are project-related under *Cumulative Impacts* in the EIS. Some measures, however, agreed upon among the settling parties do not affect project operations and therefore are beyond the scope of our EIS, which is to evaluate the effect of proposed project-related operations on environmental resources. Most of these measures pertain to funding mechanisms, permit requirements, and future studies for the feasibility of additional enhancements. DWR filed the reconnaissance study for potential facility modifications for fish habitat temperature needs in January 2007, indicating that it is for information purposes only. Settlement Agreement Proposed Article A108 calls for a study of options for facility modification to improve temperature conditions for anadromous fish in the low and high flow channels. DWR anticipates that a license condition (A108) would require a detailed investigation of the range of alternatives presented in the reconnaissance study and selection of a preferred alternative within 3 years of license issuance that would support a Commission decision.

**Comment 33:** Plumas comments that the draft EIS does not disclose or analyze the differences between pre- and post-1995 project operations as a result of the Monterey Amendment to DWR's contracts with its water customers. They suggest that new license conditions or additional environmental measures are needed to prevent or mitigate impacts from continuing post-1995 operations over the term of the new license. The draft EIS blends pre- and post-1995 operations, obscuring the actual environmental effects of the project.

**Response:** We disagree that we need to analyze the pre- and post-1995 operations in the EIS, and find that it is reasonable to treat the operations over the past decade as the current baseline for purposes of our analysis of the effects of the proposed and action alternatives on environmental resources. DWR used a consistent set of input parameters in modeling the facilities operations, rather than strictly rely on historic data. Additionally the Monterey Agreement (an agreement reached in 1994 among DWR and several of the State Water Project contractors on a set of principles to settle long-term water allocation disputes and establish a new water management strategy for the State Water Project) relates primarily to the water supply function, rather than the hydroelectric operations. For that reason, DWR agreed to prepare an Environmental Impact Report for the Monterey Amendment to the State Water Project Contracts.

**Comment 34:** Plumas comments that the draft EIS should include analysis of an additional alternative for licensing the operations of the Oroville Facilities that reflects project operations and environmental measures accommodating operational variability resulting from climate change impacts. The Planning and Conservation League (Conservation League) comments that the draft EIS does not adequately analyze proposed hydropower operations, given the estimated results of global climate change. The Conservation League suggests that the final EIS specifically analyze the degree to which the project will maintain the current level of flood protection for communities downstream of the project and impact the availability of cold water for fisheries under climate change. The Conservation League and California Sportfishing Protection Alliance also comment that the draft EIS does not analyze how foreseeable operational changes, in quantity or timing, related to demands on the State Water Project for water delivery or climate change, can be expected to affect the viability of the cold water pool in Lake Oroville or proposed temperature control measures for the reaches of the Feather River downstream of Lake

Oroville. NMFS also comments that the EIS should provide an analysis of the effect of future climate changes over the term of any new licenses on water temperature controls and flows downstream of the Oroville Facilities.

**Response:** Future climate change impacts on water resources and water temperatures in Lake Oroville and the downstream reaches of the Feather River are unknown, although some models may attempt to predict change in certain river basins. The Commission’s standard reopener article would be included in any license as the vehicle for making changes to the license should unforeseen and unanticipated adverse environmental impacts occur in the future.

**Comment 35:** DWR comments that the first bullet of section 2.4.3 is worded incorrectly. DWR comments that it should be modified to read: “Energy currently generated by the project would be lost. The project is estimated to produce an annual average of 2.4 million MWh of electrical power, providing about one-third of the electricity needed each year to operate the pumps that move water through the State Water Project.”

**Response:** We edited the first bullet in section 2.4.3 to clarify that the project provides about one-third of the electricity needed each year to operate the pumps.

**Comment 36:** EPA comments that the draft EIS lists numerous environmental measures that have the potential to impact air quality from construction or prescribed burning; however, impacts to air quality are not discussed. EPA suggests that the final EIS include a discussion of existing air quality and conformity with State and Federal guidelines. It should also describe and estimate air emissions from potential activities associated with the project and propose mitigation measures to minimize emissions.

**Response:** Relicensing of the Oroville Facilities would not involve any major new construction that could potentially affect air quality; however, the project would continue to operate and displace the need for other power plants, primarily fossil-fueled facilities, thereby avoiding some power plant emissions and creating an environmental benefit. We summarize the effect of project-related thermal and other generation facilities and the net effect on carbon emission reduction in table 74 in section 4.5 of the final EIS.

**Comment 37:** EPA recommends that DWR adopt a formal adaptive management plan to ensure implementation of environmental measures and provide flexibility to meet changing research needs.

**Response:** Proposed Article A101 provides for a comprehensive monitoring and adaptive management plan designed to assess the overall effectiveness of each of the seven program components (Proposed Articles A101-A108) of the Lower Feather River Habitat Improvement Program, as well as the comprehensive water quality monitoring program (Proposed Article A115) and the Oroville Wildlife Area Management Plan (Proposed Article A112). Through adaptive management, environmental measures such as temperature objectives or the gravel needed for spawning over supplementation, should be adjusted based on direct field observations, however, rather than research.

## **GENERAL SETTING**

**Comment 38:** DWR comments that in section 3.1, *General Setting*, the maximum pool elevation for Lake Oroville should be 899 feet msl; 900 feet is the absolute maximum, although water surface may actually be higher during a flood.

**Response:** On page A-5 of exhibit A in the final license application, DWR states in table A.2.1-1 that the normal maximum pool is 900 feet msl; we will continue to use this description.

**Comment 39:** Interior comments that the reference to U.S. Geological Survey datum in section 3.1, *General Setting* is incorrect. Interior suggests using National Geodetic Vertical Datum 1929 or North American Vertical Datum 1988.

**Response:** In exhibit F of the final license application, the applicant states that “Elevations shown refer to the U.S.C. and G.S. datum 1929 Adjustment,” which we understand is synonymous with National Geodetic Vertical Datum 1929. We clarified this with a footnote to our first use of feet msl. Please see the previous comment response for additional information about the datum.

## CUMULATIVE EFFECTS

**Comment 40:** Paul McIntosh, Chief Administrative Officer for Butte County, comments that the draft EIS does not address cumulative impacts, past, present, and future of the Oroville Facilities on Butte County. He finds that the draft EIS fails to adequately identify the operational and socioeconomic impacts that the project has on the County and therefore that it greatly overstates the projects’ benefits to the County. He comments that while the draft EIS acknowledges Butte County’s concerns and spends 25 pages discussing the socioeconomic impacts of the project on the County, the Commission relies on inadequate and unsubstantiated reports submitted by DWR and the Metropolitan Water District of Southern California to discount these impacts.

**Response:** The draft EIS addresses the project-specific socioeconomic impacts of the project on the County in the socioeconomic resource section, acknowledging negative economic effects such as the loss of tax revenue associated with original project construction, as well as ongoing effects associated with County expenditures related to providing police, fire, and other services to the project and project users. We revised the text of final EIS section 3.3.10.3, *Cumulative Effects on Socioeconomics*, to address this point as well.

**Comment 41:** Butte County comments that the draft EIS should consider the cumulative impacts of continued flood control at the chain of dams and diversions above the project, especially in light of flood control issues.

**Response:** We summarized the effects of storage in projects upstream of Lake Oroville on the North Fork Feather River in Figure 7 (section 3.1, *General Setting*) of the draft EIS. We reviewed reports such as the *Integrated Regional Water Management Plan for the Upper Feather River Watershed* (IWRMP) and final environmental documents for both Rock Creek Cresta (FERC Project No. 1962) and Upper North Fork Feather River Project (FERC Project No. 2105) for information on dedicated flood control storage. We determined that no dedicated flood control existed in these locations. However, typically hydroelectric projects will refill during the spring runoff period and may provide incidental flood control. The IRWMP does include flood control as one of seven strategy elements. We added this discussion to section 3.3.2.3, *Cumulative Effects, Water Quality*.

**Comment 42:** The Conservation League comments that the final EIS should fully analyze the impact of this project in light of the cumulative impacts of other projects currently being pursued by the Department of Water Resources, specifically, the South Delta Improvement Program, the California Aqueduct-Delta Mendota Canal Intertie, water acquisitions for the Environmental Water Account, projects proposed under the Operations Criteria and Plan, and similar projects that will affect the resources of the Feather and Sacramento rivers and the Delta Bay Estuary.

**Response:** The geographic scope for resource topics other than anadromous fish species and geomorphology consists of the following locations and nearby lands: Lake Oroville, the Feather River,

Thermalito forebay, Thermalito afterbay, and the OWA. The above cited projects are outside of our geographic scope.

**Comment 43:** EPA comments that the draft EIS does not evaluate the potential cumulative effects from the project of any activity in the surrounding area besides hydropower operations. It states that the draft EIS lacks information on projected growth, development, and other activities within the identified geographic and temporal scope of the project, and the cumulative impacts that may result from those actions. EPA suggests that the final EIS use the California Department of Transportation Indirect Cumulative Impacts Analysis.

**Response:** We provided a detailed analysis of the potential effects of relicensing the Oroville Facilities on the socioeconomics of the affected communities in section 3.3.10.2. Commission staff reviewed the *Guidance for Preparers of Growth-related, Indirect Impact Analyses* provided at the website recommended by EPA ([http://www.dot.ca.gov/ser/Growth-related\\_IndirectImpactAnalysis/gri\\_guidance.htm](http://www.dot.ca.gov/ser/Growth-related_IndirectImpactAnalysis/gri_guidance.htm)), but did not find the process described there to be applicable to this proceeding. That guidance specifically deals with the subset of indirect effects associated with highway projects that encourage or facilitate land use or development that changes the location, rate, type, or amount of growth—and are referred to in the guidance as “growth-related impacts.” According to that guidance, not every project will need a growth-related impact analysis; such an analysis typically will be needed in the environmental document for those highway projects that are built along a new alignment and/or provide new access. The guidance is specifically directed at evaluating projects that are expected to have growth-inducing impacts, rather than at something like a project relicensing, where the alternatives are to continue the project as currently managed (no action) or to continue the project managed in a different, but not dramatically different, way. Staff finds no reason to conclude that the various alternative measures being considered in this EIS would lead to any identifiable growth-inducing impacts, and we have not changed the text in response to this comment.

## **GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES**

**Comment 44:** Section 3.3.1.2, *Ecological Committee (Proposed Article A100)* states that the Ecological Committee “would be an appropriate entity to manage the adaptive ecological measures that may be included in the project license.” SWC and Metropolitan comment that the role of the Ecological Committee is to advise DWR and the role of DWR is to manage the project. Since DWR is ultimately legally responsible for the adaptive management and implementation of license articles, it cannot be put in a position where its compliance is at the mercy of a third party over which the Commission has no enforcement power.

**Response:** We agree that DWR would be responsible for compliance with license articles; however, the Ecological Committee could assist with the implementation of the ecological measures in cooperation with DWR. Our analysis in no way materially changes the intent of Proposed Article A100, does not usurp the responsibility of DWR to adhere to license articles, and is in compliance with Section 4.0 of Appendix C of the Settlement Agreement. Based on SWC and Metropolitan’s comment, we removed the word “manage” from the text in that section of the EIS.

**Comment 45:** DWR, SWC and Metropolitan comment that the staff recommendation to include in the Riparian and Floodplain Improvement Program a provision to implement 50 percent of the selected projects within 10 years and the remaining within 12 years of license issuance does not consider the Explanatory Statement from page 23 of the Settlement Agreement. This statement describes how the Settling Parties plan to take advantage of the gravel extraction operations and that this will influence the timing of the implementation of the Riparian and Floodplain Improvement Program. DWR suggests that

information be included in the final EIS and that staff adhere to the timelines in the Settlement Agreement.

In addition, DWR., SWC, and Metropolitan comment that the implementation schedule presented in the Settlement Agreement was developed in consideration of the entire Lower River Habitat Improvement Program and to require an earlier schedule would fail to take into account the experience gained during the early years of the program and also the contributions that are likely to be achieved under other components of the Lower Feather River Habitat Improvement Program. NMFS comments that the primary purpose of this measure is to create needed habitat for anadromous fishes and other wildlife. It notes, that while it continues to support the Settlement Agreement, including Article A106, the changes recommended to implementation of the Riparian and Floodplain Improvement Program in the draft EIS should provide positive effects on NMFS' trust resource species in the project area within a shorter timeline.

**Response:** We originally proposed an earlier implementation schedule for the riparian and floodplain improvement projects to provide improved habitat conditions for fish resources in the project area in a more-timely manner and to complement actions in other proposed articles. Specifically, the gravel excavated in Proposed Article A106 could be used for augmentation in Proposed Article A102, and the excavated floodplain areas could also be improved as side channel habitat as a part of Proposed Article A103. However, we agree with DWR that the parties to the Settlement Agreement (including NMFS) need to gain knowledge on these complex processes through an adaptive management approach. Therefore, we now recommend the implementation schedule as outlined in the Settlement Agreement.

**Comment 46:** DWR comments that page 59 of the draft EIS states that floodplain habitat “would remain at existing levels, or continue to decline, for up to 15 years...” DWR is not aware of any data that suggests the floodplain habitat is degrading and therefore, recommends that the final EIS adhere to the Riparian and Floodplain Improvement Program timetable presented in the Settlement Agreement.

**Response:** The existing condition of the Feather River floodplain in the project area is the result of disconnected riverine processes, including the interrupted supply and delivery of sediment and large woody debris (LWD) through the system and decreased channel and floodplain interactions because of the project-altered flow regime. These processes were described and analyzed thoroughly in the draft EIS, and the isolation of the floodplain continues to worsen as the channel simplifies, coarsens, and incises (as shown by DWR's FLUVIAL-12 modeling results). Further, page 23 of the Settlement Agreement's Explanatory Statement references several of the altered physical and ecological processes that continue to adversely affect floodplain and riparian habitat. Lack of any action, as is discussed in the analysis cited by DWR, would cause further interruption of geomorphic and hydrologic processes necessary for healthy riparian recruitment and growth, and the isolation of that floodplain habitat, which constitutes a continued decline in condition.

**Comment 47:** DWR, SWC, and Metropolitan comment that section 2.3.5, *Staff Alternative*, contains a recommendation regarding the Gravel Supplementation and Improvement Program that DWR monitor all 15 riffles, if the initial monitoring of 10 riffles reveals that gravel suitability objectives are not being met. DWR comments that the intent of the riffle monitoring plan, as proposed in the Settlement Agreement, was that there would be a rotation of surveys among all riffles receiving gravel supplementation and that sampling all riffles during every survey period would not be the best use of resources.

**Response:** As stated in Proposed Article A102, DWR proposes to “monitor and maintain a minimum of 10 riffle complexes in the low flow channel so that approximately 80 percent of the spawning gravels randomly sampled in riffle complexes would be in the median size range preferred by Chinook salmon or steelhead.” Previous supplementation projects indicate that gravel retention time in the low flow channel

is short due to high sediment transport and the degree of gravel retention and transport will be water year and site specific (e.g., side channels versus the main channel). For these reasons, we previously recommended monitoring all 15 riffles each year. However, we now recognize that the parties to the Settlement Agreement developed the proposed monitoring rotation, which would allow for some monitoring at all riffles, and we concur with the proposed monitoring schedule as the best use of resources. As stated in the draft EIS (page 171), there are a variety of definitions of the optimum particle size that would benefit Chinook salmon and steelhead. This measure would be most effective if a common definition of the “median size range” were developed to guide monitoring implementation and quantify effectiveness, as is proposed for the stockpiling of spawning gravel under this article [A102(e)(4)].

**Comment 48:** DWR, SWC, and Metropolitan comment that the statement in section 3.3.1.2, *Gravel Supplementation and Improvement Program (Proposed Article A102)* that “the average dimension of the riffle created by this treatment would be 100 feet by 50 feet which would be smaller than the dimensions of riffles recorded in DWR’s studies” is inaccurate. DWR comments that the treated area will cover active portions of the riffle itself and extend additionally at least 50 feet upstream and 50 feet downstream of the riffle.

In addition, DWR comments that the proposed gravel replenishment program is not intended to replace the estimated sediment deficit. It disagrees with staff’s conclusion that the gravel replenishment program would provide 0.15 percent of the estimated deficit and provides modeling results from Fluvial 12 (Study Plan, G2 Task 7 report) that estimate replenishment at 20 percent. While the Proposed Action would place at least 8,300 cubic yards of gravel within the first 5 years after license issuance, DWR comments that this is a minimum amount of gravel to be used. Finally, DWR suggests that a more appropriate comparison for this analysis is the post-dam bedload transport through the low flow reach using the correct existing conditions baseline as done in Study Plan G2.

**Response:** The discrepancy in riffle dimensions seems to be based on our mischaracterization of Proposed Article A102, section (e)(2), in the draft EIS. In fact, it is now our understanding that the riffle dimensions would be the existing riffle size *plus* an additional 100 feet. We corrected our riffle size calculations in the final EIS, and note that this revision resulted in different conclusions related to the potential for the 8,300 cubic yards to cover the existing riffles in the manner specified in the proposed measure. We agree that at least 8,300 cubic yards of gravel could replenish about 20 percent of the sediment transported downstream. However, we also maintain that this amount of gravel represents 0.15 percent of the overall sediment deficit in the system.

We do, however, agree with DWR’s comments that the total augmented quantity could be more than 8,300 cubic yards and that the spawning-sized gravel to be augmented represents only a portion of the total bed load, and we adjusted the final EIS text accordingly.

**Comment 49:** DWR suggests that the analysis in section 3.3.1.2, *Channel Improvement (Proposed Article A103) and Structural Habitat Supplementation Programs (Proposed Article A104)* may not be accurate. The draft EIS cites a study by Henderson (2003) that tracked tagged LWD on the Sacramento River using telemetry and found that over the course of approximately 1 year nearly all tagged pieces of LWD stayed within the river channel, but that downed trees traveled an average of 6 miles downstream. DWR refers to a relicensing study that indicates that channel forming flows on the Feather River occur at 5 to 7 year intervals on average and that these channel forming flows occur more frequently on the Sacramento River which indicates that it would be unlikely that LWD on the Feather River would migrate at the rate recorded on the Sacramento River.

DWR also comments that the analysis in the draft EIS ignores that LWD placement will target only habitats suitable for rearing juvenile salmonids. DWR suggests that using number of LWD per mile is a misleading metric, since there are typically only 1 to 4 riffles per mile in the lower Feather River. Details such as exact LWD placement and anchoring methods were not included in the Settlement Agreement because DWR considered it premature to do so prior to development of a comprehensive Lower Feather River Habitat Implementation Plan. DWR suggests that the final EIS be revised consistent with this information.

**Response:** We agree that the rate of LWD transport in the Feather River is probably less than the larger Sacramento River; however, the 2003 Henderson study suggests movement in the Feather River would still be significant, as indicated in the draft EIS. We recognize that the details of LWD placement and anchoring methods would be developed as part of Proposed Article A104 implementation plan; however, our reference to the Henderson study results highlights the need for developing effective anchoring methods. As stated in the Settlement Agreement, proposed LWD supplementation is at the rate of a minimum of two pieces of LWD, boulders, or other material *per riffle*, for a total of 50 to 500 pieces over the 13-mile augmented reach. DWR says that analyzing “[t]he number of LWD pieces per mile is a misleading metric since there are typically only 1-4 riffles per mile in the lower Feather River” and point out that “this is common among low gradient alluvial rivers.” We’ve used the pieces per mile metric in the draft EIS to calculate the total number of pieces to be added under the plan. If we assume there are one to four riffles per mile as DWR says in their comment, then DWR’s proposed rate of augmentation translates to a minimum range of two to eight pieces of LWD or habitat material per mile over the 13-mile reach. We continue to conclude that this minimum level of LWD augmentation would not substantially improve fisheries habitat over time without effective anchoring to limit LWD movement.

**Comment 50:** SWC and Metropolitan comment that Appendix B, Article A102, should reflect that the recommendation to complete the gravel budget within 2 years should be attributed to DWR, as defined in the Settlement Agreement.

**Response:** We made this edit in appendix B in the final EIS.

## WATER QUANTITY AND QUALITY

**Comment 51:** The Conservation League comments that the final EIS should analyze the effect of any changes to the operation of the upstream reservoirs that are needed to carry out the operation of the Oroville Facilities, as proposed. This analysis should also include the potential impacts of fluctuating lake levels and the availability of cold water. The EIS should also analyze whether the proposed project will exacerbate impacts associated with the recent changed operation of Oroville Facilities to help mitigate effects of the Bay Delta Estuary.

**Response:** As explained in the draft EIS under the cumulative effects analysis for water quantity, since the construction of the Oroville Facilities and other FERC-licensed projects upstream of the Oroville Facilities, project operations have affected water quantity throughout much of the Feather River Basin. The 2002 Biological Opinion is part of the existing conditions described in section 2.1.3. In section 3.3.2.2, we analyze the potential effect of the proposed operations on water temperature in project waters and conclude that the increased minimum flows to the low flow channel would result in cooler temperatures at Robinson’s riffle. We also conclude that water delivered to irrigators would be similar to existing conditions.

**Comment 52:** The Conservation League also comments that the draft EIS should include the impacts of the proposed project on Sacramento Valley water users, including any potential impacts on groundwater levels and groundwater replenishment.

**Response:** Impacts on groundwater in the Sacramento Valley and on Sacramento Valley water users was not identified as a project-related issue by stakeholders during scoping. DWR concluded in the final license application that no changes in water quality or water table elevations influencing agricultural resources are expected to occur. We agree with this conclusion and maintain that no major changes in water quality and water table elevations over existing conditions are anticipated as a result of implementing the provisions of the Settlement Agreement.

**Comment 53:** DWR comments that in section 3.3.2.1, *Water Quantity and Quality, Affected Environment*, there is a description of the contracts with all Feather River service area water users in general, but the 994,000 acre-feet of water commitment includes only contracts with Western Canal Water District and the Joint Districts Board. The draft EIS continues describing the diversion locations, but only describes the volume of diversion for the Thermalito Complex for the April through October period, and the Feather River and Thermalito afterbay diversions for the largest diversion volume on record. In addition, DWR suggests changing the sentence “The actual amount delivered varies from year to year and can exceed the above amount” by deleting “and can exceed the above amount” because water rights holders cannot divert more water than their water rights.

**Response:** Our information on Feather River service area water deliveries is based on the water use discussion in the preliminary draft environmental assessment (pages 5.4-3 and 5.4-46). We added a discussion of the full range of water deliveries (611,000 – 1,057,000 acre-feet) to the final EIS. DWR did not provide additional delivery information in its comments. Our figure of 150,000 acre-feet for the maximum monthly diversion during peak months is also consistent with DWR’s number on page 5.4-3 of the preliminary draft environmental assessment. We deleted the phrase “and can exceed the above amount” as suggested.

**Comment 54:** DWR comments that the flood control requirements for Lake Oroville in table 15 should be corrected. The full flood control storage space should be provided between October 15 and April 1 of each year. The full flood control storage space varies with the wetness index, 1 750,000 acre-feet of flood control space should be provided when the ground is wet (wetness index of 11 or greater) and 375,000 acre-feet should be provide under dry ground conditions (wetness index of 3.5 or less). Flood control space requirements prior to October 15 and subsequent to April 1 are determined by drawdown and filling rates, respectively. Prior to October 15, the reservoir can be drawn down at a rate of 25,000 acre-feet per day so that flood control operations effectively begin on September 15 of each year. Subsequent to April 1, the filling rate is 10,000 acre-feet per day so that the end of flood operations can be as early as May 8 or as late as June 15. Consequently, there are no flood control requirements from June 16 to September 14 of each year.

**Response:** We corrected table 15, as per DWR’s comments.

**Comment 55:** Friends of the River, Sierra Club, and the Citizens League note that the draft EIS states that Lake Oroville be operated to maintain up to 750,000 acre-feet of storage space to capture significant inflows for flood control (section 3.3.2.2). However, these three groups comment that this does not properly capture DWR’s flood-control space obligations and fails to recognize that operational floodwater management operations require a 900,000 acre-feet flood-space reservation to accomplish regulation of project-design outflows to no more than the project-design objective release.

**Response:** The license application states that the storage capacity is 750,000 acre-feet. We revised the text in section 3.3.2.2 of the final EIS to include the surcharge storage for a total of 900,000 acre-feet.

**Comment 56:** American Rivers, Sutter County, the California Sportfishing Protection Alliance, Friends of the River, Sierra Club, and the South Yuba River Citizens League disagree with the Commission’s decision not to address the impacts of flood control operations “because the Corps is primarily responsible for flood control operations.” American Rivers, Sutter County, Friends of the River, Sierra Club, and the South Yuba River Citizens League cite FPA section 10(a)(1) stating that it mandates flood control as one of the beneficial uses to be addressed in a comprehensive plan of development. While the Corps is responsible for flood control operations, commentors say that NEPA provides that the Commission will coordinate with other agencies that have regulatory jurisdiction over any impact of a project, prior to making its licensing decision. In addition, since the impacts of flood control, water supply, and power operation are cumulative, the Commission has an obligation to analyze the impacts of flood control operations and consider reasonable alternative measures to prevent or mitigate such impacts, even though it does not have direct authority to implement such measures. Friends of the River, Sierra Club, and the South Yuba River Citizens League also cite the Commission’s duties under Section 10(b) and 15(b) of the FPA, as well as the Commission’s Engineering Guidelines and 18CFR 4.51(g)(2).

American Rivers requests that the Commission affirmatively request the cooperation of the Corps, analyze the environmental impacts of existing flood control operations, consider reasonable alternative measures, and reserve its authority in the new license to require any necessary changes. Sutter County requests that the final EIS analyze the environmental consequences of flood control operations at Oroville, including the absence of the Marysville dam, the interim flood control rules that have been applied for the last 35 years, and the recent reports that address flood control issues (2002 Sacramento and San Joaquin River Basins Comprehensive Study; Yuba County Water Agency Technical Memoranda 2002a and 2002b; Yuba-Feather River Forecast-Coordinated Operations Program; and environmental review documents associated with the Yuba-Feather Supplemental Flood Control Project).

Sutter County also requests that the Commission issue several relicensing orders including: (1) make a formal request to the Corps for the Corps to immediately develop a revised operational plan for Oroville to establish flood-control management on the Feather River system that accounts for the absence of Marysville dam and full regulation of Yuba River, without the necessity for surcharge operations of or at the project above the ungated spillway; (2) direct the licensee to investigate the adequacy and structural integrity of Oroville dam’s ungated auxiliary spillway that may currently pose a risk to the project facilities and downstream levees in Sutter County and take all necessary actions to correct identified deficiencies; and (3) direct the licensee to investigate the adequacy and structural integrity of levees on Feather River, in the context of its hydroelectric, water supply and flood control operations and to repair, replace, and maintain those levees to provide appropriate levels of flood protection in light of license operations. Sutter County requests these license orders be issued in the event licensing action is delayed and annual licenses become necessary.

**Response:** In Congress’s original authorization of the project, the Corps acknowledged that the dam would provide considerable flood benefits by regulating a flood. In the original license, two existing articles address flood control. Article 50 states “The operation of the project in the interest of flood control as provided in Article 32 of the license shall be in accordance with the rules and regulations to be prescribed by the Secretary of the Army pursuant to Section 204 of the Flood Control Act of 1958 (Order amending license-major, Issued January 22, 1964).” Article 32 states “The licensee shall collaborate with the Department of the Army in formulating a program of operation for the project in the interest of flood control (Order issuing license-major, December 14, 1956).” As noted in our response to comment 24, we agree that DWR should continue to coordinate with the Corps and agree that an article similar to the existing article should be included in any new license issued for the project. As stated in the EIS, any dam safety issues associated with the emergency spillway are properly addressed through the Commission’s ongoing dam safety program, not the relicensing process.

**Comment 57:** DWR comments that the temperature objective in table 19 for the period from December 1 through March 30 should be listed as 55°F. In table 20, “hatchery pool” should be changed to “fish barrier pool.”

**Response:** The temperature objective for the period December 1, through March 31, is correctly stated as 55° F in table 19; however, we revised the period from December 1 through March 30 to read December 1, through March 31, and we changed “hatchery pool” to “fish barrier pool” in table 20.

**Comment 58:** DWR notes that, in section 3.3.2.1, *Pathogens*, Bedrock Park is not part of the Thermalito Complex. It is not a DWR facility, and is located outside of the project boundary.

**Response:** We revised the first paragraph on page 89 of the draft EIS to clarify that Bedrock Park is not part of the Thermalito Complex and is outside the project boundary.

**Comment 59:** Butte County comments that section 3.3.2.1, *Hazardous Materials*, is inaccurate with the statement “DWR reports there appear to be no significant hazardous materials or waste issues within in the FERC project boundary.” The County previously advised the Commission of illegal dumping, abandoned automobiles, and other hazardous materials illegally dumped or in use in the project area. In addition, the County cites several areas where the potential for a hazardous materials incident is high: Bidwell Canyon and Lake Oroville marinas, Foreman and Bloomer islands, the Hyatt Powerhouse, Thermalito Diversion dam, and the Thermalito Power Plant.

**Response:** We recognize that there is illegal dumping occurring within the project area, including the OWA, and address this issue in section 3.3.6, *Recreational Resources* and section 3.3.7, *Land Use and Management* of the final EIS. The statement quoted by Butte County in section 3.3.2.1, *Hazardous Materials*, refers specifically to hazardous waste and hazardous material associated with project operations.

**Comment 60:** DWR comments that footnote 43 should be reworded to reflect the fact that there are actually two sets of valves; one set for each of the two 72-inch diameter steel conduits. Each set of valves is comprised of a 72-inch spherical guard valve and a 54-inch fixed-cone dispersion valve. The discharge capacities vary with reservoir storage; the spherical valves and appurtenant structures were rated when installed at 2,700 cfs with 428 feet of head for a combined capacity of 5,400 cfs.

**Response:** We revised footnote 43 to clarify the description of the river valves.

**Comment 61:** Butte County comments the draft EIS should include the following improvements to the multi-jurisdictional Emergency Action Plan (EAP): (1) DWR should review the notification chart to identify who should be notified and by what method; (2) the EAP should identify and develop an installation plan for resources and equipment to allow for emergency notification; (3) DWR should provide a public education plan and public awareness program concerning the risks of the project; and (4) the costs borne by local agencies in carrying out the EAP should be recognized and appropriate resources provided.

**Response:** As explained in the draft EIS in section 3.3.10.2, *Early Warning Plan*, the appropriate vehicle for implementing an early warning plan and other improvements in early warning coordination and communication protocols is through the EAP required under Part 12 subpart C of the Commission’s regulations and not through a specific license article.

**Comment 62:** DWR comments that footnote 48 should be revised to reflect that a siren was installed at Oroville Dam as an Interim Project to alert recreationists and others in the diversion pool area downstream of Oroville dam that spillway releases are imminent.

**Response:** We revised the footnote to read that DWR installed a siren.

**Comment 63:** The Water Board comments that the conclusion drawn in the draft EIS that water temperatures generally meet the Basin Plan objectives in section 3.3.2.1, *Temperature* is not supported by evidence in the record. The Water Board cites 2 years of sampling data by DWR (2004 and 2005) that indicates water temperatures below the Thermalito outlet can be 11°F higher than that of incoming water. The Water Board notes DWR's conclusion that increased incidence of disease, developmental abnormalities, increased in-vivo egg mortality, and temporary cessation of migration (in adult Chinook salmon) could occur due to elevated water temperatures in some areas of the lower Feather River.

**Response:** We maintain that the temperature record supports our statement that the Basin Plan temperature objectives are generally met throughout the project. We do not dispute the fact that water is warmed in the Thermalito afterbay and subsequently released to Feather River, which can result in temperatures that exceed some Chinook salmon life stage index values; however, this only occurs in select areas of the river during part of the immigration and holding periods. We continue to conclude that temperatures downstream of the Thermalito afterbay outlet are typically below 68°F with only 9 percent of the temperature profiles in 10 pools exceeding 68°F, which is within the normal range for adult Chinook salmon during migration and holding period. Our statement is further supported by the fact that Chinook salmon are very abundant in the Feather River – an estimated 30,000 to 170,000 Chinook salmon spawn in the Feather River annually. Based on available evidence, therefore, this beneficial use of project-affected water is being met for coldwater fish migration.

**Comment 64:** The Water Board points out that the draft EIS incorrectly states that there is no current Office of Environmental Health Hazard Assessment (OEHHA) fish consumption advisory for the Feather River. OEHHA issued a draft health advisory including safe eating guidelines for fish from the Lower Feather River. EPA recommends that the final EIS disclose more exact information regarding the concentrations of metals (particularly mercury) detected in fish tissue, as well as the fish-tissue sampling study. They also comment that updated and detailed information about the status of Health Advisories (draft and final) in the Feather River watershed and the level of risk that bioaccumulation of mercury or PCBs in fish may present to human health and the health of other predators should be included in the final EIS. EPA requests that the Commission require DWR to release their data regarding Lake Oroville to the Water Board and the California/EPA Office of Environmental Health Hazard Assessment (OEHHA) so that it can be included in future Draft Health Advisories. Finally, EPA disagrees with the staff conclusion in the draft EIS that there is no evidence that operation of the Oroville Facilities has contributed to the elevated metals concentration in fish tissues.

**Response:** We added additional detail to the concentrations of mercury detected in fish tissue as well as the OEHHA draft fish consumption advisory to section 3.3.2.1 of the final EIS. Also, fish tissue sampling information is available from the license application on the Commission's website under docket P-2100\_052. Proposed Article A114 – Public Education Regarding Fish Contamination would require DWR to consult with EPA regarding this very issue as the Public Education article would be developed in consultation with EPA, the Water Board, Regional Board, and Butte County Health Department, all of who would have the opportunity to review any proposed sampling schedule, methodologies, and results. We clarify in the final EIS that although the project is not a source of metal contamination, there is evidence that metals concentrations in fish tissues from samples taken from hatchery coho are significantly lower than those from coho salmon samples taken in Lake Oroville.

**Comment 65:** DWR comments that in section 3.3.2.2, *Water Quantity, Flow/Temperature to Support Anadromous Fish (Proposed Article 108)*, the reference to replacement or refurbishment of the river valves needs to be clarified to say that “the total combined capacity of both river valves varies depending on reservoir storage; however, the river valves have been operated with a maximum capacity of about 1,500 cfs as an emergency outlet for downstream temperature management (solely for the Feather River Fish Hatchery) and water supply purposes. Under the provisions of Section B108(a) of the Settlement Agreement, DWR will investigate the necessary minimum repairs or refurbishment to assure their ability to continue to be used reliably up to the 1,500 cfs flow.

**Response:** We revised footnote 43 to clarify DWR’s intent. Also see our response to comment 62.

**Comment 66:** Friends of the River, the Sierra Club, and the South Yuba River Citizens League comment that the draft EIS states that under Proposed Article A130, Flood Control, DWR would operate the project in accordance with rules and regulation prescribed by the Corps pursuant to section 204 of the Flood Control Act of 1958 and that this is consistent with the existing license requirements. These groups state that this license requirement has already been violated; major downstream levee breaks have occurred and people have died. They comment that the existence of requirements to follow Corps and Commission rules will not solve the problem of operators exceeding design release objectives to avoid surcharge operations; the problem is that operators are demonstrably reluctant to conduct Corps and Commission-required flood control operations in the absence of a spillway on the auxiliary spillway. This is a matter that is the Commission’s principal responsibility to address.

The draft EIS does not address how the existing structural deficiencies of the Oroville Dam facilities that affect the willingness of its operators to conduct operations required by existing Corps regulations will be addressed and if the Commission will consider this operational impact of a structural deficiency to be properly addressed by the dam safety program, or whether only the risk of loss of crest control from such operations is properly addressed by the program.

**Response:** We contacted the Sacramento District Corps office to discuss flood management at the Oroville Facilities (see telephone report with Mr. Townsley on March 21, 2007). The Corps is satisfied that DWR is operating the project during flood events in accordance with the Corps Water Control Manual and Field Working Agreement. Further, there is no evidence in the public record that indicates levee failure or loss of life attributable to DWR project operations.

**Comment 67:** According to Friends of the River, Sierra Club, and the South Yuba River Citizens League, footnote 46 of the draft EIS assumes that the Work Group is a reference to one of the work groups established for relicensing. They indicate that this is a reference to the group members of the Yuba Feather Work Group (Work Group), a stakeholder-based collaborative formed to work on flood management and related environmental restoration issues in the Yuba and Feather River watersheds. The Work Group is composed of the South Yuba River Citizen’s League, Friends of the River, Nevada County, Sutter County, Sierra Club, Yuba County Water Agency, and state and federal agencies comprising Cal Fed.

**Response:** We clarified in footnote 51 (formerly footnote 46) that we are referring to the Yuba Feather Work Group.

**Comment 68:** In Section 3.3.2.2, *Water Quality*, of the draft EIS staff concludes that waters in the project area generally meet the water quality objectives for temperature, dissolved oxygen, nutrients, pH, and metals. The Water Board comments that this statement is not supported by documentation in the draft EIS or other available information and cite DWR study report *SPF-10, Final Report: Evaluation Of Oroville Facilities Operations On Water Temperature Related Effects On Pre-Spawning Adult Chinook*

*Salmon And Characterization Of Holding Habitat* as evidence that it is unlikely that adult Chinook salmon can use the Feather River below the Thermalito afterbay outlet except as a migration corridor.

**Response:** We stand by our initial statements that water quality objectives are generally met in that there are a small number of instances where numeric objectives are exceeded. As for the comment related to metals within the Project area, we do recognize the recent report on fish tissue sampling and updated the text in the final EIS to include mercury concentrations and the threat to human health posed by consumption of fish high in mercury.

We discuss suitability of the Feather River in terms of Chinook salmon needs for migration, spawning habitat, and rearing in section 3.3.3.1, *Aquatic Resources*. Also, in response to the NMFS (2004) statement that refers to the high flow channel as a migratory corridor, we discuss DWR's (2004) findings between 200 and 2003 of spawned-out carcasses in the high flow channel. We discuss temperature effects in the Feather River relative to aquatic resource needs in section 3.3.3.2, *Aquatic Resources*.

As for the Water Board's comment that DO is insufficient, we point to table 22 of the draft EIS, which shows that there were very few (3 of 90) DO samples taken in the Feather River that indicated DO concentrations less than the state objective of 8 mg/l. Of the three that were less than the objective, one of those was related to the decomposition of salmon carcasses in October and the other two missed the objective by less than 2.0 mg/l.

**Comment 69:** DWR comments that in section 3.3.2.2, *Water Quality, Flow/Temperature to Support Anadromous Fish (Proposed Article A108)* the draft EIS indicates only the river valve would be used to meet Feather River Fish Hatchery temperatures. The three methods actually available include: eliminating pump-back, removing stoplogs at the Hyatt intake structure, or potentially using the river valves.

**Response:** We added language to ensure that all three methods are outlined in the section in question on page 98.

**Comment 70:** DWR comments that the physical modifications suggested on page 101 of the draft EIS to improve water quality in the North forebay is above and beyond the scope of the proposed facility modification(s), which are related specifically only to efforts to improve temperatures in the lower Feather River. DWR states that physically modifying the opening of the forebay to enhance circulation should not necessarily be characterized as an improvement, because increased circulation will likely result in a reduction of the recreational use water temperature there.

**Response:** We agree that the facility modifications described in A108.4 of the Settlement Agreement pertain to the high flow and low flow channels and not to the North forebay. Therefore, we revised the text in the final EIS to delete references to the suggestion to study facility modifications for temperature in the North forebay.

**Comment 71:** DWR comments that staff's description and underlying analysis of the Flow/Temperature proposal in section 3.3.2.2 of the draft EIS appear to reflect a misunderstanding of the Settling Parties' intention. The Settlement Agreement does not propose to increase the water quantity in the high flow channel. Rather, the water quality objectives for the high flow channel will be analyzed in the reconnaissance and feasibility study phases of the measure and may be modified for the testing phase, and ultimately be modified to something that can be achieved with facilities modification(s) and under the *current* high flow channel flow levels. Furthermore, DWR is not proposing to make all the structural modifications as stated in the draft EIS in Flow/Temperature to Support Anadromous Fish (Proposed Article A108). Rather, DWR has committed to implementing one or more facility modifications or other

actions that the feasibility study suggests are most effective in terms of temperature control and cost. Lastly, DWR comments that only the Feather River Fish Hatchery temperatures become license requirements no later than the end of year 10, following license issuance, not the low flow channel objectives. The low flow channel objectives become mandatory requirements only after completion of construction of any future facility modification(s) and the High Flow Channel temperatures only become requirements to the extent the facilities modification(s) can achieve those temperatures.

**Response:** We corrected the text on page 92 and page 96 of the draft EIS to reflect the language in the Settlement Agreement that DWR will investigate facility modifications to meet low and high flow temperature objectives through the investigation of the feasibility of structural modifications and not increases in flows to the high flow channel. As for temperatures in the low flow channel becoming license requirements no later than year 10 as stated on page 96 of the draft EIS, we clarified the settlement language in the final EIS. Neither of these clarifications change our analysis or conclusions.

**Comment 72:** With respect to Proposed Article 108, the SWC and Metropolitan note that there is no commitment to undertake a series of facilities modifications in order to achieve Table 1 (low flow channel) temperature values. The proposal calls for the construction of one of the identified facilities modifications in order to address these temperature values. In addition, the Settlement Agreement provides that should there be excess funds available, and should a facilities modification be identified that has the ability to address the temperature targets of Table 2 (high flow channel), that such facility modification will be explored and potentially constructed. However, meeting the temperature targets of Table 2 is second priority to meeting the temperature requirements of Table 1.

**Response:** We modified the text on page 96 so that the commitment in Proposed Article 108 is for one or more (not necessarily all) of the facility modifications to meet the proposed temperature objectives in the low flow channel. We understand that should excess funds be available and potential facilities modifications be identified that have the ability to address temperature targets for the high flow channel, such modifications and the temperature objectives would be second priority to those identified for the low flow channel. Also see our response to comment 76.

**Comment 73:** DWR comments that staff's analysis of the Feather River Fish Hatchery requires additional clarification with regard to dissolved oxygen (DO) levels. Low DO water from the river valves would not be a problem for the hatchery since the releases mix with the Thermalito Diversion Pool. The final EIS should note that there have been no DO-related problems at the hatchery reported during the life of the project.

**Response:** To put the current DO conditions into historical context we added language to the analysis that there have been no-DO related problems at the hatchery during the life of the project.

**Comment 74:** Western Canal Water District, Richvale Irrigation District, Butte Water District, Biggs-West Gridley Water District, and Sutter Extension Water District (the Districts) comment that the draft EIS contains no discussion of the project's current impacts on agricultural water diversions from the Thermalito afterbay. In section 3.3.2.2, the text describes the use of the water, but does not describe the ongoing impact on such use. The Districts suggest that the final EIS include a discussion of the current project impacts on such withdrawals and on rice yields. The Water Board and the Districts comment that the final EIS should discuss the impact of reduced water temperature on rice production and the physical changes that may be required at the Thermalito afterbay to control temperature for rice production. The impacts and benefits of alternatives to improve water temperature for rice production should be evaluated and included in the final EIS.

**Response:** The current operation of the Oroville Facilities has been addressed in many separate proceedings since the project was built, both with water rights holders and with other federal and state agencies to protect threatened and endangered species. To honor senior water rights, DWR distributes water according to a number of settlements and agreements as discussed in section 3.3.2.1. The amount of water DWR is committed to provide the water agencies is about 994,000 acre-feet per year, subject to provisions for reduction in supply under certain specific low-inflow conditions. Some of this diverted water is used for agricultural purposes within Butte County. Under the Proposed Action, DWR would continue to honor their settlement agreements with the senior water rights holders. Any issue between DWR and parties bound to the water diversion settlements related to the water would fall outside of the Commission's jurisdiction in this proceeding.

**Comment 75:** With regard to the impact of cold water on rice growers, DWR comments that the reference to specific temperatures and period of time included in discussion under the heading *Flow/Temperature to Support Anadromous Fish (Proposed Article A108)* of the draft EIS: "... (equal to or greater than 65°F during the 4-week planting season, and warmer than 59°F during the rest of the season until harvest or October 31)..." be deleted since the impacts of cold water on rice depend on the total hours of exposure of rice to cold water than on the temperature itself. Also, DWR comments that the sensitive time period for rice growth is from about May 1 to July 31 and that there are no impacts after July 1.

DWR also comments that although base flows in the low flow channel would increase by approximately 17 percent during the rice growing period, this would not correspond to an equivalent decrease in the Thermalito afterbay. Since the flow in the low flow channel is much less than the flow in the Power Canal, the 17 percent change results in less than 1 percent change in the Thermalito afterbay. DWR expects that the small changes of inflow would minimally affect the storage time of water in the afterbay.

**Response:** With respect to the suggested sentence for deletion, this is taken directly from the Feather River Diverters February 13, 2006, letter to the Commission, and as such, is part of their recommendation. However, we conclude that temperatures of water delivered to irrigators would be similar to existing conditions. As for the amount of flow increase to the low flow channel and corresponding loss to Thermalito afterbay we revised the text on page 98 of the final EIS to include the information.

**Comment 76:** DWR comments that a qualitative assessment of pump-back operations provided to the Commission in DWR's *Technical Response to Intervention of the Water and Irrigation Districts, Butte County, California* concludes that the potential for pump-back operations to affect water temperatures at the agricultural diversion is small. Furthermore, DWR comments there is no linear relationship between the temperature changes of incoming water to the temperature changes at the agricultural diversions. Furthermore, DWR comments that staff's conclusion that "any effects would be most pronounced during drought years when DWR's ability to make release above the minimum flows would be compromised" is incorrect. DWR states that the temperature of water released from Oroville reservoir during droughts would be increased when measured against normal and wetter conditions and therefore, it is likely, the temperature of water entering the Thermalito afterbay would be warmer, which would decrease the magnitude of impacts on rice farming with respect to water temperature.

**Response:** We considered DWR's comments regarding potential temperatures within Thermalito afterbay and at the agricultural diversions and agree that temperatures within the afterbay are non-linear. As for staff's analysis of effects during drought years we clarified the text in the final EIS that any positive effects (warmer temperature) would be most pronounced during drought.

**Comment 77:** The Water Board also suggests that the final EIS include the impact on water quality and recreation of large algae blooms in Lake Oroville.

**Response:** Review of the license application and supporting resource studies (water quality and recreation) did not uncover any issues or comments regarding large algae or any blooms in Lake Oroville. As for the perceptions of algae in Lake Oroville, the recreation study (Recreation Surveys R-13, December 2004) conducted on-site interviews with 2,583 people and only one comment (collected at the Feather River Fish Hatchery) was related to algae (*The water looks to have too much algae in it*). As such, there is not enough evidence on the record to justify an algal bloom problem and subsequent discussion of impacts to water quality and recreation from large algae blooms at Lake Oroville.

**Comment 78:** The Water Board comments that the final EIS should include impacts to water quality from the construction of the weir that is described in Article A105 of the Settlement Agreement.

**Response:** In the final EIS, we recommend that DWR use best management practices during the construction of the fish weir to minimize potential effects to water quality. Final construction plans would be reviewed by Ecological Committee and would require Commission approval. The Commission would revise, and if necessary modify, the measures designed to minimize any risks to water quality during construction.

## AQUATIC RESOURCES

**Comment 79:** DWR and NMFS comment that, in section 3.3.3.1, *Aquatic Resources*, the draft EIS indicates status listing for green sturgeon as California ESA or federal ESA. DWR notes that this species was listed in 2006 under FESA as threatened. This change should also be made to table 25. In addition, NMFS comments that table 25 should cite the final listing rule 71, FR 17757, April 6, 2006. The final EIS should also include corrections to pages 123 and 376 with regard to the listing of green sturgeon.

NMFS also comments that DWR and the Commission should work together to provide an analysis of possible impacts on green sturgeon; an ESA determination for green sturgeon; an analysis of the effects of the modified Staff Alternative for the Gravel Supplementation and Habit Improvement Programs with respect to green sturgeon; and an analysis of the effects of Thermalito afterbay discharge into the lower river (high flow section) on water temperatures for green sturgeon holding and spawning.

**Response:** We modified the final EIS to show the 2006 ESA listing of green sturgeon, and included an ESA determination for this species. We provide an independent analysis of project effects in the final EIS, including the effects on green sturgeon. We will send NMFS a letter adding this information to our Biological Assessment and ask NMFS to consult on it.

**Comment 80:** DWR requests that the final EIS revise references to upstream habitats to reflect the very real uncertainty about sustainable suitability of historic habitat for steelhead and spring-run Chinook salmon upstream of Lake Oroville. Specifically they refer to a statement in section 3.3.3.1, *Tributaries of Lake Oroville* that reads “the four major tributaries generally provide suitable habitat for all life stages of Chinook salmon and steelhead.” DWR comments that this statement is a generalization which implies an undeserved level of certainty about the quality of habitat above Lake Oroville. In addition, in section 3.3.3.1, *Feather River*, DWR comments that the draft EIS implies that the project is solely responsible for blocking upstream migration into historic spawning habitat in the upper Feather River. DWR suggests that all statements regarding Lake Oroville’s role in blocking upstream habitat should be revised to provide a more accurate historical context. DWR comments that the project has contributed to loss of upstream habitat, but is not the sole or even primary source for loss of historic habitat.

**Response:** We agree that the Oroville Facilities are not responsible for the loss of all potential upstream anadromous habitat; however, the fish barrier dam does prevent access to a significant amount of potential tributary habitat. We added a new figure 15 to the final EIS to show the fish passage barrier to habitat upstream of the fish barrier dam.

**Comment 81:** DWR comments that on page 112, the statement that "...The estimated potential losses of nutrients and organic matter were found to be substantial, but the significance of the losses was difficult to evaluate because of limitations in the available information, including imprecision of the estimates for potential spawning densities and insufficiently low detection levels of measured nutrient concentrations in the upstream tributaries." is not entirely accurate. DWR states that additional data collection for nutrient concentration at lower detection levels was presented in SP-W1. It indicated that the upstream tributaries were not nutrient deprived.

**Response:** We have added the additional nutrient study results from SP-W1 to section 3.3.3.1 of final EIS. However, this clarification does not affect our conclusions in the final EIS.

**Comment 82:** DWR, SWC, and Metropolitan comment that section 3.3.3.1, *Low Flow Channel and High Flow Channel* contains a statement that may not be entirely accurate. The draft EIS states that the high flow channel is considered a migratory corridor for adult spring-run Chinook salmon, and few, if any, of these fish are thought to hold or spawn there (NMFS, 2004). DWR's studies indicate that about one-third of the spawning is taking place in the high flow channel (Final Report Evaluation of Potential Effects of Oroville Facilities Operations on Spawning Chinook Salmon SP-F10, Task 2B). However, it is difficult to separate the spring run and fall-run Chinook salmon.

**Response:** We reviewed both the NMFS information and the DWR information in SP-F10, Task 2B in response to your comment. The study plan shows 16 to 26 percent of the spent Chinook salmon carcasses are found in the high flow channel, and we incorporated that information into the final EIS.

**Comment 83:** DWR comments that the draft EIS states that after a flood event in 1997, DWR repaired a levee in the OWA with a culvert that connects directly to the Feather River into the OWA, which has resulted in areas of the OWA being permanently inundated. DWR comments that this is an inaccurate description. DWR installed a levee notch which allowed flood flows to access the OWA "D" area. Apparently, the culvert was used during construction and not removed upon project completion, but has little to do with water levels in the OWA "D" area. Further, these wetlands are not permanent. The levee repair does not provide any direct surface water connection as the description implies. In 2006, high flows altered the pond outlet channel and water elevations in the OWA have dropped correspondingly. The final EIS should clarify that there is no direct, surface water connection at this upstream portion of the OWA and that the pond elevations within this portion of the OWA are in dynamic transition (as a result of both physical and biological events), not a fixed state.

DWR also comments that the water draining out of the OWA at this area functions essentially as a very small tributary and, unlike a diversion canal or pump, such discharge inputs are not screened. Salmonids could volitionally enter the OWA ponds through this culvert, but there is no evidence to suggest that this actually occurs or that it is a significant problem. Salmonids only enter the OWA during extreme flow events that overtop levees separating the OWA from the river. During extreme flow events, salmonid stranding and mortality in the OWA undoubtedly does occur, but this is beyond the control of the Licensee. The final EIS should clarify that surface waters of the Feather River do not flow into the OWA and that there is no evidence that a significant OWA salmonid mortality problem could exist under normal (i.e. non-flood) conditions.

**Response:** Thank you for clarifying the current situation in the OWA. We corrected references to surface water connections between the Feather River and the OWA in sections 3.3.3.1 and 3.3.3.2 of the final EIS.

**Comment 84:** DWR comments that in the Fish Species Overview, the text should be corrected to reflect that brook trout have not been stocked in the forebay since 2004. In addition, the draft EIS states that “Chinook salmon are discussed in Section 3.3.5, Threatened and Endangered Species.” However, that section only discusses spring-run Chinook salmon. DWR, SWR, and Metropolitan suggest that an account of fall-run Chinook salmon within the study area should be included in Fish Species Overview section. Spring-run Chinook salmon are listed under the ESA, but fall-run Chinook salmon are a species of primary management concern for economic and recreational reasons.

**Response:** We revised the discussion of brook trout stocking in section 3.3.3.1 *Affected Environment, Fish Species Overview* and include fall-run Chinook salmon in the final EIS.

**Comment 85:** On page 135, the draft EIS states that rainbow and lake trout are caught periodically and brown trout are commonly caught. DWR comments that none of these fish are commonly caught; rainbows are periodically caught, lake trout and brown are rarely caught.

**Response:** The information in our draft EIS is from DWR’s preliminary draft environmental assessment ( page 5.5-5) that says, “Lake Oroville’s coldwater fishery is primarily composed of coho salmon and brown trout, although rainbow trout and lake trout are periodically caught” with reference to Appendix G-AQUA1, *Aquatic Resources Affected Environment*. However, Appendix G-AQUA1.3.2.1, *Lake Oroville Fish Species and Potential Effects on Coldwater Pool Availability and Water Surface Elevation Fluctuations* (SP-F3.1, Task 2A, 3A) states brown trout and rainbow trout are observed infrequently and lake trout are uncommon in creel census and electrofishing surveys. The Study Report is probably a more reliable source of information since it is a primary source, and the DWR preliminary draft environmental assessment is an extrapolation from that report, and therefore we made that change in the final EIS.

**Comment 86:** DWR comments on a statement on page 136 that states that water disinfection at the Feather River Fish Hatchery would help prevent disease transmission to ESA-listed salmonids which may result from a coldwater fish stocking problem. Despite intensive efforts DWR’s studies found no evidence that diseases originating at the Feather River Fish Hatchery negatively affect ESA-listed salmonids or any other fish species (DWR, 2004s). The purpose of water treatment at the hatchery is to protect hatchery production from disease catastrophic loss, not to protect wild salmonids. The final EIS should be corrected. The Water Board also comments that the final EIS should include a discussion of the impacts of Ceratomyxosis on anadromous fish in the Feather River and other fish in Lake Oroville.

**Response:** We agree with DWR that the proposed disinfection system would protect hatchery production from catastrophic disease loss and revised the final EIS to reflect this conclusion. However, we also expanded our discussion of ceratomyxosis on anadromous fish in the final EIS.

**Comment 87:** DWR comments that the description of Proposed License Article A111 in the draft EIS is incorrect relative to the provision to provide a stocking program for Lake Oroville. No reference is made in the proposed article to stocking the Thermalito forebay. As such, analysis of genetic introgression associated with rainbow trout escaping the forebay should be moved to another area of the document. DWR does not stock rainbow trout in the forebay; this is done by DFG.

**Response:** We revised the discussion of genetic introgression to delete any reference to DWR stocking rainbow trout in Thermalito forebay as part of Proposed License Article A111.

**Comment 88:** Mr. Flynn asks that the Commission describe the procedures that would be used for consideration and potential approval of an anadromous habitat expansion agreement.

**Response:** DWR states in its comments on the draft EIS that the final Habitat Expansion Agreement negotiations were completed after issuance of the draft EIS and the agreement will be signed and filed with the Commission after DWR coordination with PG&E, licensee of the three upstream project is completed. The Commission may consider the final agreement as part of its licensing decision. If you would like more information regarding the Habitat Expansion Agreement, the draft document is part of the Settlement Agreement available on-line at: [www.ferc.gov](http://www.ferc.gov).

**Comment 89:** DWR comments that the proposed minimum flows in the high flow channel are identical to those in the 1983 agreement between DWR and DFG and that no changes to the minimum flows in the high flow channel are proposed. This is contrary to the statement in section 3.3.4.2 on page 177 on the draft EIS that states the proposed minimum flow increases in the high flow channel would be based on the preceding April to July unimpaired runoff in the discussion of Flow/Temperature to Support Anadromous Fish in section (Proposed Article A108).

**Response:** We deleted the word “increases” in the discussion of *Flow/Temperature to Support Anadromous Fish (Proposed Article 108)* in section 3.3.5.2 of the final EIS and expanded our description of this measure.

**Comment 90:** DWR comments that the language used in section 5.1.1, *Staff Alternative (DWR’s Proposal with Staff Modifications)* to describe Proposed Article A108 should be revised to be more consistent with the Settlement Agreement language.

**Response:** We corrected the first bullet for Proposed Article A108 to read from September 9 to March 31 to be consistent with the settlement.

**Comment 91:** In section 5.1.2.3, *Feather River Fish Hatchery Improvement Program (Proposed Article A107)*, DWR disagrees with the conclusion that Coho salmon are an unsuitable replacement for the coldwater fishery in Lake Oroville because they are not a “native” species. DWR comments that since Lake Oroville is a non-natural feature and the cold water stocking program is an artificial stocking program, the emphasis on “native” species is not warranted. Furthermore, DWR notes that the warmwater fishery in Lake Oroville is based entirely on non-native fishes. DWR also comments that comparison of current hatchery water temperature requirements and those included in the Settlement Agreement indicates that the hatchery water temperature targets in the Proposed Action are not cooler than those currently provided to the hatchery. However, table 1 (not table 1 in the draft EIS) targets would be cooler than the current water temperature requirements at Robinson Riffle, which would result in decreased water temperatures at the hatchery prior to the implementation of the facilities modification(s).

When discussing the Feather River Fish Hatchery Improvement Program, the DWR comments that draft EIS says the new Feather River Hatchery temperature requirements would provide cooler water for the inland fish stocked in Lake Oroville (recreational angling) and the anadromous fish stocked in the river (simulating natural production). This is not an accurate statement for recreational fish stocking in the reservoir. The current Coho salmon are not raised at the main Feather River Hatchery grounds; rather they are raised at the Feather River Hatchery Thermalito Annex facility on Hwy 99. The warmer water at this location is more protective for these fish, which are susceptible to certain diseases that are more virulent at cooler temperatures. This points out a major fallacy about water temperatures at the FRH that colder is always better.

DWR comments that the draft EIS further makes the statement that Coho salmon do not appropriately address the project effects because Coho salmon are not native to this river system. This is misleading because the reservoir fishery is not intended to address the project effects; these effects are addressed by the anadromous hatchery production. The reservoir fishery is actually a recreational enhancement to the project rather than an environmental mitigation. The species used in the recreational fishery are selected based on their recreational value, cost, and in a manner which minimizes potential environmental impacts. The reason Chinook salmon were used in the past was because they best met the previously mentioned criteria.

Also, DWR is not clear on how staff determined the \$371,000 annualized budget for this measure. The annual budget to produce fish at the Feather River Hatchery is closer to \$1.5 million per year, and this does not include monitoring, which will cost at least an additional \$600,000 per year.

**Response:** We acknowledge the self-sustaining warmwater fishery in Lake Oroville area consists of non-native species. Within the project waters the highest diversity of fish species occurs in the lower Feather River (40 species) followed by Lake Oroville (28 species). A majority of the species overlaps between these two waterbodies, with a larger number of riverine and anadromous species in the lower Feather River (e.g., steelhead, shad) and mostly introduced game species in Lake Oroville (e.g., lake trout, coho salmon, bass). Although we expressed some reservations in the draft EIS about stocking non-native coho salmon, we understand the circumstances related to disease concerns that led to this decision. We revised the final EIS to reflect this and to state that if fish diseases are controlled in the future, DWR's stocking objective is to return to stocking native salmonids in Lake Oroville.

We added your statement regarding the effects of measure A108 on hatchery water temperatures to the *Flow/Temperature to Support Anadromous Fish* (Proposed Article A108) discussions on draft EIS pages 177 and 354. The draft EIS statement you reference from page 353, does not say the new hatchery temperature requirements in A107 would provide cooler water to Lake Oroville; it says that cooler hatchery water would reduce risk of disease and produce healthy fish for stocking (recreational angling) and releasing (simulating natural production). The cost of this measure has been resummarized, and includes capital, levelized O&M, and annualized costs. These costs are strictly for a new measure; any existing costs to produce fish would be in the No Action alternative. We estimated O&M costs as \$1,043,250 (65% of \$1,605,000) per year over the four year period which should adequately include the monitoring costs. The levelized cost of O&M is \$262,600 as shown in appendix B. Combining this with our corrected annualized capital cost, results in a total annual cost of \$566,100.

**Comment 92:** DWR comments that with respect to item 20 in section 5.1.1, *Staff Alternative (DWR's Proposal with Staff Modifications)*, that the OWA plan will include both terrestrial and aquatic resources.

**Response:** We revised item 20 in section 5.1.1 to include aquatic resources.

## TERRESTRIAL RESOURCES

**Comment 93:** Interior comments that the reference to black-tailed deer as an important big-game species in section 3.3.4, *Wildlife Species*, should be changed to state that it is an important recreational harvest species. They also comment the reference to waterfowl as the most important (both commercial and recreational) group of wildlife should be changed to the most productive.

**Response:** We revised section 3.3.4 in the final EIS to state that the black-tailed deer is an important recreational harvest species and that waterfowl are the most productive group of wildlife as suggested.

**Comment 94:** DWR comments that on page 155 the draft EIS states that the proposed continued enforcement of a 5-mile-per-hour boating speed limit on the Thermalito afterbay north of Highway 162 would limit the potential effects of recreational boating on grebes. The potential impact from recreational boating is to nesting birds, and no nest colonies exist north of Highway 162. Thus, there will be little or no benefit to nesting grebes north of Highway 162.

**Response:** We revised the final EIS to state that the 5-mile-per-hour boating speed limit on the Thermalito afterbay would benefit nesting waterfowl as opposed to grebes.

**Comment 95:** DWR comments in section 3.3.4.2, *Oroville Wildlife Area Management Plan (Proposed Article A115)* that DPR does not do any maintenance within the OWA and that no transmission line rights-of way exist within the OWA. In addition, North Thermalito forebay is not in the OWA.

**Response:** We revised section 3.3.4.2 to clarify that the DPR does not provide maintenance within the OWA, that there are no transmission lines within the OWA, and that the proposed RV campground at North Thermalito forebay is not within the OWA.

**Comment 96:** Butte County comments that the staff suggestion in section 3.3.4.1, *Oroville Wildlife Management Plan (Proposed Article A115)*, that the County would have the opportunity to provide input on the OWA Management Plan, and therefore does not need to be a separately consulted party is ill-conceived. The County comments that this separates from the planning process the very individuals who have full knowledge of the area and of its needs. In addition, the County notes that DWR and the state agencies it relies upon to manage the OWA have failed in their responsibilities and the OWA has become a site of increased dumping and criminal activity.

**Response:** We revised section 5.1.2.4 to include Butte County as a consulted party.

**Comment 97:** DWR disagrees with the reference to poor management in section 5.1.2.4, *Oroville Wildlife Management Plan (Proposed Article A115)*. It suggests that overlapping land management jurisdictions for the OWA have resulted in difficulties at times, but not poor management.

**Response:** We appreciate your comment; however, staff's position is that a licensee has responsibility to properly manage the resources.

**Comment 98:** In section 5.1.2.4, *Invasive Plant Management (Proposed Article A126 and Forest Service 4(e) Condition No. 18)*, DWR comments that Lake Oroville should not be included in the statement "We determined that fluctuating water levels in the Thermalito Complex, Lake Oroville and in the Low Flow Channel promote proliferation of noxious plant species along the wetland margins, river banks, and adjacent floodplain." DWR notes that its studies did not find that noxious weeds were a problem in the Lake's fluctuation zone.

**Response:** The relicensing study, "SP-T7 Noxious Terrestrial and Aquatic Plant Species Draft Final Report" dated June 2004 states that fluctuating water levels in the Thermalito Complex and in Lake Oroville...encourage the proliferation of non-native noxious weed species along the wetland margins, river banks, and in the adjacent floodplain. Although we agree that noxious weeds are less plentiful in the Lake Oroville fluctuation zone than within the Thermalito Complex, based upon this relicensing study we conclude that we have not mischaracterized project effects on noxious weeds.

## THREATENED AND ENDANGERED SPECIES

**Comment 99:** In section 3.3.5.1, *Fish Species*, DWR comments that there are 4 ESUs of Central Valley Chinook salmon, not three as indicated in the draft EIS.

**Response:** There are four runs and three ESUs of Central Valley Chinook salmon. The fall-run/late-fall-run ESU was explained in draft EIS table 25 footnote g. More detail on the relationship of all four runs to the three ESUs has been added to the final EIS in section 3.3.3.1, *Aquatic Resources, Affected Environment*. Also see our response to comment 89.

**Comment 100:** In section 3.3.5.1, *Wildlife Species*, Interior comments that since species lists are provided upon initiation of consultation, (which has just occurred), it recommends updating the species list. EPA and Mr. Flynn comment that the final EIS should include a discussion of the project's compliance with Section 7 of the ESA. They suggest that the document should provide an update of the status of consultation with FWS regarding impacts to the species discussed in the draft EIS. The final EIS should include the Biological Opinion, if it has been issued by FWS.

**Response:** We requested formal consultation with FWS on October 24, 2006. On January 25, 2007, FWS filed a request for additional information in order to initiate formal consultation. This letter did not indicate any additional species in the project area. A discussion of compliance with section 7 of the ESA was included in section 5.5.2, *Endangered Species Act* in the draft EIS and has been updated in the final EIS. The final EIS has been updated reflecting the most recent information in the consultation process, including the Biological Opinion issued by FWS on April 9, 2007.

**Comment 101:** In section 3.3.5.1, *Vernal Pool Invertebrates*, the draft EIS states that DWR is going to abandon and then revegetate, by December 2006, all roads that DWR determines are no longer necessary and needed to facilitate project operations or management. DWR comments that it has since completed this task. Oroville Field Division, Civil Maintenance abandoned one road segment near vernal pools and it is fully vegetated.

**Response:** We revised section 3.3.5.1 of the final EIS to state the DWR has determined which roads are no longer necessary and one road segment has been abandoned and revegetated; however, this information does not affect our conclusions in the final EIS.

**Comment 102:** In section 3.3.5.2, *Gravel Supplementation and Improvement Program* (Proposed ArticleA102), DWR comments that the draft EIS states that most steelhead spawning occurs in the low flow channel because it provides the coldest and therefore most suitable temperatures. DWR comments that this is inaccurate and inconsistent with study results (SP-F10 Task 3A). Steelhead spawn in winter when temperatures are suitably cold everywhere in the lower Feather River. The best explanation for the distribution of steelhead spawning appears to be an affinity for the Feather River Fish Hatchery itself, or for upstream most in general (SP-F10 Task 3A).

In addition, later in the same analysis, the draft EIS states gravel supplementation would have no beneficial effect on spatial segregation of spring- and fall-run Chinook salmon. DWR comments that this is a non sequitur, since segregation of salmon spawning is not the goal of gravel supplementation. Rather, the fish segregation weir and the habitat expansion program are intended to correct this problem. However, gravel supplementation will benefit spring-run Chinook salmon once the segregation weir is in place by improving the quality and quantity of available habitat.

**Response:** The order of the text has been changed in the final EIS to reflect that the lower water temperatures are beneficial to Chinook salmon, not steelhead and that steelhead spawn when temperature

is not an issue. Other factors that influence steelhead spawning and rearing habitat selection were added to this section. We agree with the statement that the gravel supplementation is not intended to correct spatial segregation. Please also see our response to comment 116.

**Comment 103:** SWC and Metropolitan comment that in section 3.3.5.2, *Gravel Supplementation and Improvement Program (Proposed Article A102)*, the draft EIS states that the Hatchery ditch may be the best location for long-term supplementation benefits. Yet the next sentence states that gravel supplementation would be more likely to have long-term, beneficial effects between RM 53.5 and 64.0 which is 0.8 miles below the project boundary. Later in the analysis the draft EIS makes comparisons between the 8,300 cubic yards to be placed in the first 5 years and pre-project levels and states that an allocation of 550 cubic yards per riffle makes smaller riffles than existing conditions. They comment that no quantitative information is provided to assess the accuracy of these statements. The final EIS should provide additional data to show how these calculations were made, as well as noting that no gravel supplementation is planned for outside the project boundary. Also, the effects of betterments should be compared to current conditions, not pre-project conditions.

**Response:** We revised the discussion in section 3.3.5.2 to clarify the location where gravel supplementation would provide benefits. Our calculations for gravel supplementation are included in our response to comment 51. Please also see response to baseline conditions comments 125.

**Comment 104:** In section 3.3.5.2, *Fish Weir Program (Proposed Article A105)* DWR makes several comments:

1. Habitat access should be revised to more accurately reflect the historic impacts to the river. Hydroelectric development was preceded in the 1800s by aggressive mining techniques that included complete diversion of the North Fork Feather River through a pipeline so that the miners could access the riverbed. This quite effectively blocked fish passage and access to habitat above Oroville for many years prior to hydro development. Moreover, PG&E maintained a seasonal flashboard dam downstream of the current Highway 162 bridge until DWR built the Oroville Facilities.
2. The fish-monitoring weir will not be used for segregation of Chinook salmon spawning runs, rather segregation of spring-run will require a new structure and an egg taking station for fall-run.
3. In the staff analysis section for the Fish Weir Program, the phrase “fish that return between September 1 and 15” should be replaced with “fish that arrive in May and June” and that the word “untagged” should be used to before the word Chinook in the sentence “Chinook salmon returning after September 15 are considered to be fall-run fish.”
4. In this section, the Feather River Fish Hatchery spring-run Chinook salmon are not included in the ESU. This is incorrect. Natural and hatchery-origin Feather River spring-run Chinook salmon are both listed in the Central Valley spring-run ESU. This fact is characterized correctly in other parts of the draft EIS.
5. Replace the word “small” in the sentence “Recent results indicate a small percentage of the early run Feather River fish hatchery fish spawn naturally in the low flow channel” with “significant”. According to DWR, the number of salmon (apparent spring-run) spawning in the Feather River far exceeds the number that enter the Feather River Fish Hatchery.
6. Replace the first sentence of the last paragraph on page 173 with “Currently in the Central Valley, spring-run Chinook salmon are threatened and fall-run Chinook salmon populations are

significantly depressed from historical levels. However, the Feather River contains robust populations of both species which will exceed pre-project levels.” Staff’s first statement in the staff analysis for this section that “Historically the Feather River fish hatchery did not reproductively isolate or maintain the genetic integrity of the spring- and fall-run Chinook salmon stocks” is not accurate. DFG did attempt to maintain the genetic integrity of the spring- and fall-run, and many of their spawning protocols were based on this.

7. The purpose of the egg-taking station is to allow continued artificial propagation of fall-run Chinook salmon by the Feather River Fish Hatchery, not to provide “genetic material.” The egg taking station would only be necessary after the segregation weir is deployed.

**Response:** The historic information in your first comment has been included in the final EIS. Please also see our response to comment 80.

The Settlement Agreement Explanatory Statement states that if appropriate and agreed to by NMFS, the counting [monitoring] weir may be used for partial temporal and/or spatial segregation of the spawning fish prior to construction of the second phase [segregation] weir, as noted in the draft EIS on page 173.

The Settlement Agreement ((f) page A-11) states that Phase 2 Plan will also evaluate the installation of an egg-taking station, if appropriate, to collect fall-run Chinook salmon eggs for transport to the Feather River fish hatchery. In the draft EIS (page 173), we stated that an egg-taking station would provide genetic material, if needed (i.e. if appropriate), to perpetuate Feather River fall-run Chinook salmon stock. The need for an egg taking station will be determined based on the results of the A105 Phase 1 Plan, and the genetic study in the Feather River Hatchery Improvement Program (A107), as stated in our analysis on draft EIS page 173.

We made your suggested word changes, the connection to the composition of the spring-run Chinook salmon ESU, and revised the text in the final EIS to state that DFG did attempt to maintain the genetic integrity of the spring- and fall-run Chinook salmon.

We replaced the first sentence of the last paragraph on page 173 with a statement similar to your suggestion; however, until the genetic analyses are completed we cannot conclusively state that the Feather River contains robust populations of both spring and fall runs of Chinook salmon.

**Comment 105:** In the *Staff Analysis* of section 3.3.5.2, *Hatchery Water Temperature*, DWR suggests replacing the words “cooler water” with “water temperature”. Both warmer and colder waters are useful for managing disease. Mortality resulting from IHN is reduced at temperatures in excess of 59°F, which is why the Feather River Fish Hatchery has often moved its fish to its annex facility during IHN outbreaks. This change should also be reflected in section 5.1.2.3. In addition, DWR comments that the statement that cooler temperatures are also correlated with better growth and survival rates of coldwater species due to improved physiological conditions makes an inaccurate generalization about growth and survival benefits associated colder waters. DWR comments that it is true that in excess of some maximum temperature (e.g., 68°F) growth and survival will decline rapidly, but generally growth and survival is enhanced at warmer temperatures which lie below this critical threshold.

**Response:** We changed the identified text from “cooler water” to “water temperature” in the final EIS and added information about maximum temperature threshold information.

**Comment 106:** In section 3.3.5.2, *Chinook Salmon and Steelhead*, SWC and Metropolitan comment that while spring-run Chinook salmon historically sought out cooler water higher in the watershed prior to the construction of the fish barrier dam, they could not migrate much further upstream of Lake Oroville

because of the pre-existing blockage to cooler water habitat by man-made or natural blockages that pre-date the construction of the Oroville Facilities.

**Response:** See response to comment 80.

**Comment 107:** DWR comments that the draft EIS is incorrect on page 177 in *Flow/Temperature to Support Anadromous Fish*, when it states that Oroville dam, other project facilities, and associated operations have altered instream flow and water temperature, adversely affecting anadromous salmonids in the Feather River and that elevated water temperatures in the low and high flow channels have had adverse effects on anadromous salmonids and other coldwater fish. DWR cites a DFG report that shows there are more fish in the river now than before the project was built and concludes that, if anything, the facilities have had a beneficial impact on the fisheries.

**Response:** The Settlement Agreement states that, during the study plan process, the water temperatures in the low flow channel and the high flow channel were identified as potential contributing stressors for anadromous salmonids, and references SP-F10, tasks, 3B, 4B, 2C, and 1D. We concur with the study plan findings that elevated water temperatures and altered flows in both channels have adversely affected anadromous salmonids by causing thermal stress, increased redd superimposition, increased risk of disease, and loss of juvenile rearing habitat.

We also agree that there are higher numbers of anadromous fish in this section of the river as a direct result of hatchery mitigation production at the Feather River fish hatchery and the fish barrier dam that were built as part of the Oroville Facilities and these points are addressed in more detail under Proposed Article A108 in the final EIS (also see our response to comment 117). However, this production also causes over-crowding, increased stress, and pre-spawning mortality in the naturally spawning fish due to limited spawning habitat in the river. Those are the reasons Settlement Agreement Proposed Article A108 was developed, to decrease the current adverse effects associated with altered flows and increased water temperatures in the low flow channel.

**Comment 108:** In section 3.3.5.2, *Chinook Salmon and Steelhead*, DWR comments while it is true that some potentially stressful temperatures were observed, it needs to be clarified that was not a typical condition in the high flow channel and especially not in the low flow channel. In addition, angling pressure and over-crowding should be identified as contributors to observed high pre-spawn mortality.

**Response:** We added more complete information from SP-F10, Task E, regarding low flow and high flow channel temperatures to the final EIS. Angling pressure and over-crowding have also been added to the final EIS text as contributors to high pre-spawn mortality.

**Comment 109:** DWR notes that on page 179 of the draft EIS the staff incorrectly references DWR's report, SP-F10 Task 3A. According to DWR, the report makes it clear that the absence of significant steelhead rearing downstream of Thermalito afterbay outlet is a direct result of the unsuitable temperatures often found there. DWR comments that it is incorrect to say that the report concludes that because there is little or no steelhead rearing downstream of the outlet, it is unlikely that high temperatures substantially adversely affect steelhead rearing.

**Response:** The draft EIS is referring to a quote from the SP-F10, Task 3B, report conclusions in G-AQUA1.8.3.2 that states, "Because snorkel surveys on the Feather River indicate that there is little or no steelhead rearing below the Thermalito afterbay outlet (DWR and USBR, 2000), it is unlikely that high water temperatures that occur below the outlet would have significant adverse effects on steelhead rearing in the Feather River." However, The SP-F10, Task 3B Interim Report (DWR, 2003) states that because daily summer water temperatures often exceed 70°F (21.1°C) below the Thermalito afterbay outlet, it is

unlikely that steelhead would rear in High Flow Channel if suitable rearing habitat was available with cooler water temperatures. Thus, current knowledge regarding juvenile steelhead rearing locations suggests that most steelhead rearing appears to be concentrated between the fish barrier dam and the Thermalito afterbay outlet, and specifically in the upper section of this reach. Snorkel surveys confirmed that the area below the Thermalito afterbay outlet harbors little to no rearing steelhead (DWR et al., 2000). We corrected our text to reflect the Interim Report conclusions.

**Comment 110:** DWR comments that the draft EIS appears to comment negatively on the “protracted timeline” for implementing the proposed measures in the Flow/Temperature to Support Anadromous Fish Program and indicates there may be an unmitigated impact on ESA listed salmonids. DWR states that upon license issuance, immediate positive benefits will accrue in the form of Proposed License Articles A108.1(a) and A108.1(b). Furthermore, the complexity of the hydraulic interactions between DWR’s facilities, those of South Feather Water and Power Agency, and the DWR’s obligations to make water deliveries to agricultural interests in the area require significant study prior to implementation of any facility constructed to improve temperature conditions for fish. The facilities modification timeline in the Settlement Agreement reflects the best judgment of the scientific and engineering communities and premature implementation of facilities modifications could result in less than optimum performance. SWC and Metropolitan echo these comments. Lastly, DWR comments that there are no unmitigated impacts to salmonids measured against the baseline conditions or the no project condition. They request that the final EIS reflect these clarifications.

**Response:** We agree that some immediate benefits would be realized from the proposed measures, including increased minimum flows (A108), upon license issuance. However, many of the proposed enhancements would not be implemented until years after license. The proposed timeline for implementation of facilities modifications and the testing period after license issuance (up to 10 years and at least 15 years, respectively) lead us to conclude that measure A108 may not provide timely or complete protection of ESA-listed Chinook salmon and steelhead in the high flow and low flow channels. Also see our response to comment 125.

**Comment 111:** The Conservation League comments that the final EIS should include an analysis of whether proposed project operations will inhibit the restoration and full recovery of salmon, steelhead, and Delta smelt, as well as the ecosystem of the Feather River, Yuba River, Sacramento River, and the Delta. In addition, the Conservation League notes that the EIS must disclose whether the proposed project will prevent achievement of restoration goals established in Central Valley Project Improvement Act and the CALFED Bay-Delta Program’s 2000 Ecosystem Restoration Plan and Multi-species Conservation Program.

**Response:** The measures proposed in the Settlement Agreement and the Habitat Expansion Agreement are intended to maintain hatchery productivity, expand and improve aquatic, riparian, and floodplain habitats over baseline conditions, reduce straying, maintain the genetics of Feather river Chinook salmon stocks, reduce the risk of potential disease transmission from hatchery to wild stocks. The Settlement Agreement would increase the minimum flows included in the 1983 agreement between DWR and DFG; the other terms of the 1983 agreement would not be changed.

Flows through the Delta are maintained to meet Bay-Delta water quality standards arising from DWR’s water rights permits (DWR, 2004s). These standards are designed to meet several water quality objectives such as salinity, Delta outflow, river flows, and export limits. The purpose of these objectives to attain the highest water quality is reasonable, considering all demands being made on the Bay-Delta waters. In particular, they protect a wide range of fish and wildlife including Chinook salmon, Delta smelt, striped bass, and the habitat of estuarine-dependent species. Therefore, we conclude that as proposed, the measures in the Settlement Agreement and Habitat Expansion Agreement would not inhibit,

and are expected to enhance, the overall the restoration and full recovery of salmon, steelhead, and Delta smelt, as well as the ecosystem of the Feather River, Yuba River, Sacramento River, and the Delta. See also our responses to comments 117 and 123.

**Comment 112:** The Water Board comments that the draft EIS does not adequately describe the impacts of the current project on spring-run Chinook salmon. While Article A105 of the Settlement Agreement requires DWR to develop a weir construction and operations plan consistent with the project biological opinion(s), actual construction of the weir is not required until 12 years after license issuance. The Water Board suggests that the final EIS include the impact of waiting 12 years to install the weir and the potential impact of the weir on all species of fish in the Feather River.

**Response:** The weir program is intended to segregate Feather River spring-run and fall-run Chinook salmon only if there is sufficient reason to do so, based on the results of the genetic testing in Hatchery Management Improvement Program (A107) and monitoring the Phase I Plan of the Fish Weir Program (A105). In the interim, the monitoring weir that would be installed within three years of license issuance may be used to segregate the Chinook salmon runs, as needed to protect and conserve spring-run stock. The weir would operate during the Chinook salmon spawning season (late summer/fall), and would not be expected to affect other species. This information has been added to the final EIS. Also see our responses to comment 104.

**Comment 113:** Although the draft EIS concludes that the proposed measures to support anadromous fish will improve water quality, except under the most extreme conditions, the Water Board comments that it is impossible to analyze the water temperature impact of potential facility modifications being developed by DWR on anadromous fish. The final EIS should disclose that the impact of the proposed project on anadromous fish is unknown.

**Response:** Our analysis indicates that the proposed measures could improve water quality under most conditions. Any unanticipated impacts of the proposed measures would be revealed through long-term monitoring and evaluation, as proposed in the Settlement Agreement.

**Comment 114:** DWR comments that the draft EIS alternates between applying the incorrect pre-project baseline and the applying the correct existing conditions baseline in its analyses. Specifically, DWR points to the statement on page 171 of the draft EIS that says “Gravel supplementation would have no beneficial effect on the spatial segregation of the naturally spawning spring-run and fall-run Chinook salmon because the dam blocks upstream migration and concentrates spawning in the low flow channel.” DWR comments that this statement implies comparison of the Proposed Action to pre-project conditions. In addition, DWR comments that this statement is misleading because the Gravel Supplementation and Improvement Program addresses other aspects of anadromous salmonid spawning habitat restoration and enhancement. DWR points to another example of alternating between applying the incorrect pre-project baseline on page 190 wherein the draft EIS cites unavoidable adverse impacts on anadromous fish of the dams remaining in place. DWR comments that this is an inappropriate without dam or pre-project frame of reference.

DWR comments that comparison of the Proposed Action to the appropriate baseline condition would indicate a beneficial effect on spring-run Chinook salmon and steelhead in the Feather River and Central Valley and that if existing conditions were the baseline, then any enhancements DWR provides could not, by definition, adversely affect the species.

**Response:** As indicated in the draft EIS, our baseline for comparison of alternatives is existing conditions. However, under NEPA cumulative effects analysis, we must also consider the continuing impacts of the project (e.g., the dam blocks fish passage). We agree that the gravel supplementation

would benefit spring- and fall-run Chinook salmon by providing more habitat than the baseline condition because the runs are not spatially segregated and are utilizing the same spawning habitat in the low flow channel. We edited the final EIS to clarify this issue.

**Comment 115:** DWR comments that the draft EIS fails to acknowledge how successful the Feather River Fish Hatchery has been in meeting its mitigation goals. In addition, the draft EIS claims that hatchery operations introduced and spread diseases that affected stocked or native salmonids. DWR comments that this was a one-time occurrence and that the current stocking program is designed to prevent this occurrence in the future. Furthermore, DWR states that the draft EIS fails to fully acknowledge the various improvements and enhancements identified in the Settlement Agreement. DWR suggests that the final EIS should also acknowledge the strong collaborative relationship between DWR and DFG in all aspects of the hatchery operations.

**Response:** We agree that the Feather River Fish Hatchery has been successful in meeting fisheries production mitigation goals (see also our response to comment 109), and we state this point more clearly in the final EIS.

In section 3.3.3.1 we stated that there was a severe outbreak of IHN at the hatchery in 1998, 2000, and 2001, and that problem has not occurred since changes in the anadromous stocking program were made. We reiterated that point in the draft EIS under the Settlement Agreement Proposed Articles A107 (section 3.3.5.2) and A111 (section 3.3.3.2).

The hatchery facilities improvements and management changes proposed in Settlement Agreement Articles A105 Weir Program and A107 Hatchery Improvement Program are addressed in section 3.3.5.2 of the final EIS and in responses to comments 50, 106, 107, 114, DWR-A26, and 104. The collaborative relationship between DWR and DFG is noted in the final EIS.

**Comment 116:** In section 3.3.5.2, *Other Coldwater Fishes*, DWR would like the final EIS to reflect that minimum flow requirements in the high flow channel would not change with implementation of the Proposed Action. Additionally, operations are not expected to change the frequency and magnitude of flow fluctuations. Therefore, the frequency with which green or white sturgeon could ascend Shanghai Bench would not be altered under the Proposed Action.

**Response:** The high flow channel minimum flow requirements are addressed in comment 89, above, and have been corrected throughout the final EIS. We agree that the frequency with which green or white sturgeon could ascend Shanghai Bench would not change under the Proposed Action.

**Comment 117:** In section 3.3.5.2 (page 180), of the draft EIS, Mr. Flynn questions the statement that if any future actions could affect federally listed plant species, DWR would consult with FWS prior to implementing these actions. Mr. Flynn would like to know why the Commission would not be required to initiate consultation under section 7(a)(2) of the ESA under this circumstance. In addition, he comments that DWR's proposal to conduct additional surveys prior to any future activities that could affect federally listed plant species and its subsequent consultation with FWS to consider appropriate protection activities may not serve as adequate protection for the continued existence of these species. He would like to know how DWR's consultation with FWS would eliminate the Commission's responsibility to ensure compliance with the ESA.

**Response:** Formal consultation under section 7(a)(2) of the ESA may in fact be required after licensing, should future actions not approved in the license have the potential to adversely affect listed plant species. DWR's consultation with FWS on the need for protection measures may avoid effects on listed species and thus the need for section 7 consultation.

**Comment 118:** In section 3.3.5.2, *Bald Eagle*, Interior comments the phrase “and then consulted on by FWS” should be added at the end of the sentence “Within the primary zones at all five nesting territories, all proposed activities would have to be reviewed by FWS, DFG, DPR, BLM, and PG&E.” In addition DWR comments that neither informal consultation nor the draft biological assessment stipulated any time limits on construction-related activities related to wintering bald eagles and none are required for the highly mobile wintering population. Therefore, the statement that construction-related activities would be scheduled after nesting season and before wintering bald eagles arrive, should be deleted from the final EIS.

**Response:** We agree with DWR and revised section 3.3.5.2 of the final EIS to add the need to consult with FWS and to delete the reference to wintering bald eagles.

**Comment 119:** Commenting on section 3.3.5.2, *Giant Garter Snake*, DWR states that neither FWS, nor DWR in the Biological Assessment, suggest that herbicides cannot be used within giant garter snake habitat. DWR comments that herbicide use will be essential to control purple loosestrife. Within the draft biological assessment, rodenticide use is limited, but no restrictions are placed on other pesticides. The final EIS should reflect this.

**Response:** Both the draft biological assessment and the Settlement Agreement indicate that rodent control activities would be avoided except in certain circumstances. Additionally, the draft biological assessment states that invasive species removal within giant garter snake habitat would be limited to manual removal and individual treatment with appropriate herbicides. We revised the final EIS to clarify the pesticide and herbicide restrictions within giant garter snake habitat.

**Comment 120:** Plumas comments that the draft EIS fails to adequately address the potential impact of changes in operations of the Oroville Facilities and the State Water Project that may be mandated as a result of federal and California laws protecting endangered species. Plumas County also suggests that any license issued should include conditions related to doubling the State Water Project exports from the San Francisco Bay/Sacramento-San Joaquin Delta from the historic average of two million acre-feet per year to four million acre-feet per year. The Conservation League comments that the draft EIS does not address the degree to which the project will contribute to reduced freshwater flows and changes in the timing and temperature of flows to the lower Feather River, the Sacramento River, and the Bay Delta Estuary. It suggests that lake level fluctuations that facilitate changed conditions in the Delta during winter and summer should be analyzed. The State Water Contractors and the Metropolitan Water District comment the Bay-Delta impacts of State Water Project Operations are beyond the scope of the Proposed Action to relicense the Oroville Facilities.

**Response:** We concur with the State Water Contractors and the Metropolitan Water District that because the Oroville Facilities do not alter flows in the Feather River below Thermalito afterbay, the operations have no impact on Bay-Delta issues being addressed by CALFED process and other means, and that the FERC relicensing is not the appropriate forum for addressing these issues. Federal actions addressing the Bay-Delta issue are being handled by CALFED and other processes, and the operation of Oroville Facilities are included in the Operating Criteria and Plan (OCAP) Biological Opinions being prepared under ESA section 7 to address the combined impacts of operations of the Central Valley Water Project and State Water Project on listed species in the Bay-Delta. Under all the alternatives, we would expect average annual Feather River service area deliveries under existing conditions and year 2020 conditions<sup>1</sup>

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<sup>1</sup> This value is higher than calculated using historical USGS records because it reflects the current level of demand. DWR estimates the range as 613,000 acre-feet per year to 1,057,000 acre-feet per year

to remain 994,000 acre-feet, and average annual South Delta deliveries to increase from the existing 3,051,000 acre-feet to 3,247,000 acre-feet in year 2020. Although annual flows in the Feather River downstream of Thermalito afterbay would remain similar over time, there is a seasonal change in flow distribution with higher flows from May through August and lower flows from September through April under year 2020 conditions as compared to existing conditions.

**Comment 121:** The Conservation League comments that since the Oroville Facilities are operated by DWR as part of the State Water Project and its compliance with the California Endangered Species Act is currently under consideration by the Alameda Superior Court, the analysis of the project should be delayed until the court decides whether the operation of the State Water Project is in compliance with California law. The Conservation League also notes that both FWS and NMFS re-initiated consultation on the Biological Opinions for the OCAP and since operation of the Oroville Facilities are included in the OCAP Biological Opinions, further analysis of the proposed project and preparation of subsequent drafts of the EIS should be delayed until these Biological Opinions are complete and the findings are incorporated into the environmental analysis.

**Response:** The continued operation of the Oroville Facilities as a whole may be the subject of a California state legal proceeding, but we do not agree that we should delay our NEPA analysis of the hydroelectric portion of these facilities. If the OCAP should be modified either as a result of the re-initiated consultation on Biological Opinions or an outcome of the court proceeding, the hydroelectric portion of the facility operation could be adjusted accordingly, as long as such modifications are consistent with the license condition. If not, reopener clauses in the license would enable the license to be amended, as appropriate.

**Comment 122:** Sections 3.3.5.2 and 5.5.2 of the draft EIS state that the project, with the terrestrial habitat protection and enhancement measures proposed in the Settlement Agreement and recommended under the Staff Alternative would likely have a beneficial effect on the bald eagle, giant garter snake, California red-legged frog, Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, and valley elderberry longhorn beetle. Yet the draft EIS concludes that the project may be likely to adversely affect these same species. DWR, EPA, and Mr. Flynn ask that the Commission clarify these statements.

**Response:** As discussed in sections 3.3.5.2 and 5.5.2, although the recommended protection and enhancement measures would likely be beneficial to the federally listed species discussed, various recommended aquatic and recreation protection and enhancement measures could potentially adversely affect the same species. Under the ESA, even if the overall effect of relicensing the project is expected to be beneficial, if all adverse effects cannot be avoided, even if minor or minimal, the proper determination is “likely to adversely affect.” For example, giant garter snake habitat would potentially be adversely affected by several aquatic and recreation protection and enhancement measures, such as the channel improvement program, gravel supplementation and improvement program, fish weir program, and development of recreation facilities; however, implementing the recommended protection and enhancement measures would be beneficial to giant garter snakes by prohibiting or restricting habitat disturbing activities. Section 5.5.2 has been revised to clarify our findings for all the discussed species.

**Comment 123:** Mr. Flynn notes that the draft EIS omits staff’s conclusions regarding the impacts on the valley elderberry longhorn beetle and instead, repeats the conclusions regarding the impacts on vernal pool invertebrates. He asks that the final EIS include the missing conclusions.

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under current conditions and clarifies that the 994,000 acre-feet per year applies to contracts with Western Canal Water District and the Joint Districts Board.

**Response:** We included our conclusions regarding the valley elderberry longhorn beetle in the final EIS.

**Comment 124:** With regard to the reservation of section 18 authority (Proposed Article A109) as discussed in section 3.3.5.3, *Cumulative Effects on Threatened and Endangered Species*, Interior comments that the purpose of the Habitat Expansion Agreement is to identify, evaluate, select, and implement actions to expand spawning, rearing and adult holding habitat for anadromous populations in the Sacramento River Basin as an alternative to the resource agencies of other parties seeking fish passage on the Feather River or its tributaries. The exercise of the reservation of authority expressed in Proposed Article A109 must be consistent with the terms of the Habitat Expansion Agreement, which limits that exercise to certain situations. Furthermore, Interior comments that the agreement between DWR and PG&E is an underlying agreement, not the Habitat Expansion Agreement itself.

**Response:** We have not received the final Habitat Expansion Agreement; however, the pertinent information from the draft Habitat Expansion Agreement (DWR, 2006a) has been added to the final EIS in response to your comment.

**Comment 125:** Section 3.3.5.4 of the draft EIS addressed the impact of the project on Chinook salmon and steelhead populations in the Feather River and concludes that the Settlement Agreement and other staff recommendations “would ameliorate many of these unavoidable adverse impacts as compared to current conditions.” The California Sportfishing Protection Alliance comments that the “Habitat Expansion Agreement for Central Valley Spring-Run Chinook Salmon and Central Valley Steelhead (Appendix F of the Settlement Agreement) does not adequately mitigate the impacts to anadromous fish from the hydroelectric projects on the Feather and North Fork Feather Rivers.” The California Sportfishing Protection Alliance comments that the \$15,000,000 cap on mitigation is not enough and the cap, as proposed, violates the fish passage requirements of the FPA, as well as the recently issued the Commission’s Settlement Guidelines. The California Sportfishing Protection Alliance proposes that the licensee fund an endangered salmonid restoration program, centered on the north end of the Sacramento Valley.

**Response:** We understand that the Habitat Expansion Agreement is intended to fully mitigate for any presently unmitigated impacts due to the blockage of fish passage of all fish species caused by the Feather River hydroelectric projects (DWR, 2006a, Appendix F, 12A.) However, as discussed in the EIS, this agreement has not been filed with the Commission and is not included in the scope of our analysis in the final EIS.

The Commission is not compelled under the FPA to mitigate for the original construction of the Oroville Facilities. We find that the measures included in the Settlement Agreement as modified by staff would enhance anadromous fisheries over current conditions.

## RECREATIONAL RESOURCES

**Comment 126:** In section 3.3.6.1, *Other Areas of Recreational Importance in the Project Vicinity*, DWR comments that the draft EIS notes there are several miles of dirt roads, logging roads, and four-wheel drive tracks and trails in the Plumas National Forest. DWR comments that the Plumas National Forest Plan reports “3,700 miles of system roads and 1,200 to 2,000 miles of un-inventoried low standard roads.”

**Response:** We appreciate the additional information on the miles of system roads and un-inventoried standard roads in the Plumas National Forest and revised the final EIS to state that there are many miles of dirt roads, logging roads, and four-wheel drive tracts and trails in the Plumas National Forest.

**Comment 127:** Butte County comments that under *Access to the Oroville Facilities* in section 3.3.6.1 of the draft EIS, staff does not include a discussion of the project's burden on local access roads, county roads, and local highways, particularly related to serious traffic problems and road overcrowding. Butte County states that this topic is not substantively addressed or analyzed anywhere in the draft EIS and no measures are proposed to address either the current traffic problems experienced in Butte County or to estimate the future burden on these access roads as a result of the project. Butte County contends that the final EIS should recognize that, as project visitation increases over the term of a new license, so too will adverse effects on local roads.

**Response:** In section 3.3.7.1 under *Vehicular Access and Roads*, the draft EIS provides a discussion of roads used to access the project, including road conditions. In section 3.3.10.2 under *Road Construction and Maintenance Plan*, the draft EIS addresses the economic effects of the project with respect to roads and road maintenance. According to DWR's September 2003 final study report on Vehicular Access (R-1), traffic congestion on busy weekends was considered to be a temporary constraint to vehicular access, and the Recreation Work Group did not recommend any access road improvements as part of DWR's proposal. In section 5.1.2.5, *Recreation*, of the draft EIS, we recommend approval and implementation of DWR's proposed Recreation Management Plan. The plan includes a recreation monitoring program, which provides opportunities for assessing the effects of recreational use on the project area's resources and reporting those effects on interested parties as well as the Commission. However, DWR's responsibilities for access road improvements would continue to be limited to roads within the project boundary; if used solely for project access.

**Comment 128:** DWR comments that, under the heading *Recreation within the Project Boundary*, in section 3.3.6.1 of the draft EIS, the average drawdown of Lake Oroville averages more than 50 feet. It averaged 112 feet from 1990 to 2002. Although it ranges from 50 to 75 feet during peak recreation season, the top of this annual range is not always from a "full" (900 feet) pool elevation, so the resultant drawdowns can seem to be of greater footage.

**Response:** We modified our discussion of Lake Oroville in section 3.3.6.1 of the final EIS to more accurately describe the annual average drawdown of the reservoir and the reservoir drawdown during the peak recreation season.

**Comment 129:** DWR makes several comments regarding table 42: the Lime Saddle group campground will accommodate 48 people (8 people at one time/site), only the boat-ramp portion of the Enterprise Area is closed when water elevation falls below 830 feet; the Feather River Nature Center is outside of the project boundary and DWR has no responsibility or significant affiliation with it; however, the Sewim Bo trail does emanate/terminate near the Center; only 8 of the 10 picnic sites at the South forebay day-use area are accessible; and DWR has provided an information/interpretive panel at the Model Aircraft Flying facility. DWR notes similar errors in the measures listed in the Staff Alternative in section 5.1.1 of the draft EIS: the name of the visitor center is the Lake Oroville Visitor Center; DWR is not responsible for the Feather River Nature Center; and the South Thermalito forebay is missing from the list.

**Response:** We appreciate the clarifications and made the appropriate modifications to table 42 and the measures listed in the Staff Alternative in section 5.1.1 of the final EIS.

**Comment 130:** DWR requests that Camp Area G be deleted from figure 16. DWR notes that camping was prohibited from this area in 2003, due to safety and access concerns.

**Response:** We appreciate DWR's clarification and modified figure 16 to remove Camp Area G.

**Comment 131:** DWR comments that the reference to Enterprise as a car-top boat ramp should be corrected in section 3.3.6.1 of the draft EIS, under the heading, *Project Recreation Facilities at Lake Oroville*. DWR points out that access there is free, but only the other five launches names are actually termed “car-top boat ramps.”

**Response:** We appreciate the information and modified our description of the Enterprise boat launch in section 3.3.6.1 of this final EIS to clarify that it is not considered a car-top boat launch.

**Comment 132:** DWR points out that in section 3.3.6.1 of the draft EIS, under the heading *Thermalito Forebay*, the “sunset to sunrise” speed limit mentioned is for Lake Oroville, not Thermalito forebay. DWR states that the South forebay recreation area and the water surface are open for day-use only.

**Response:** The information on speed limits on the South forebay was taken directly from page 5-5 of the March 2004, final study report on Reservoir Boating (R-7). However, we updated our discussion of the Thermalito forebay in section 3.3.6.1 of the final EIS to state that the water surface of the Thermalito forebay is only open for day-use.

**Comment 133:** DWR comments that undeveloped camping, not dispersed camping, is available in the vicinity of the Thermalito afterbay outlet because the area available for camping is delineated by signs.

**Response:** We modified the text referring to the camping area near the Thermalito afterbay outlet to clarify that it is delineated by signs.

**Comment 134:** DWR comments on staff’s discussion of the OWA in the draft EIS including the scope of DFG’s responsibility at the Oroville Facilities. DWR notes that user fees are currently not charged there and points out that hunting for all species is allowed in the OWA.

**Response:** We revised section 3.3.7.2 in the final EIS to indicate that DFG coordinates with DWR and other agencies to ensure that regulations are enforced in the OWA. We also revised the text to state that user fees are currently not collected and that hunting of all species is allowed in the OWA.

**Comment 135:** Butte County questions the statement in section 3.3.6.1, *Oroville Wildlife Area* that DFG is responsible for operating and maintaining recreational facilities, posting and maintaining boundary signage and fencing, enforcing codes, and patrolling for illegal uses. Butte County comments that this statement is inaccurate because DFG curtailed its patrol of the OWA in April 2004 and ceased wildlife and recreation management at the project due to lack of funding. Butte County also comments that DFG, to Butte County’s knowledge, does not coordinate with other management agencies in the OWA to ensure that regulations are enforced. The only consistent law enforcement presence in the OWA is provided by the Butte County’s Sheriff’s Office. The county comments that the Settlement Agreement would not adequately address these problems and that the proposed addition of 5.5 DFG positions is completely inadequate to police this 11,870-acre area because the proposed new staffing would not provide for 24/7 law enforcement patrol operations and would not eliminate the need for Butte County law enforcement services. Under the heading *Protection of Vernal Pools (Proposed Article A117)* in section 3.3.6.2, staff states that DWR would protect vernal pools by increasing patrols and/or enforcement related to OHV use. Butte County comments that staff does not explain how DWR would do this.

**Response:** We discuss DWR’s proposed management plan for the OWA in the draft EIS and note that, among other things, the plan would identify roles and responsibilities for area management, including visitor safety and law enforcement. In section 5.1.1, *Staff Alternative*, of the draft EIS, we recommend including development of the OWA management plan in any license issued for the project. This plan would be approved, and its implementation would be monitored, by the Commission. Any inadequacies

identified during the implementation of the plan would be addressed in a timely fashion. In section 3.3.4.2, *Terrestrial Resources*, of the draft EIS, we discuss DWR's intention to coordinate with DFG to patrol and enforce vehicular closures as part of its proposal to protect vernal pools. Vernal pools included in the OWA should be addressed by the OWA management plan.

**Comment 136:** Cathy Hodges takes issue with the statement in the draft EIS that horses are not allowed in the OWA except during special permitted events and points out that Section 551(j)(33)(E) of DFG's state and federal area regulations for waterfowl and upland game hunting indicate that horses are allowed in the OWA but are restricted to roads open to vehicles and within 25 feet of exterior boundary fences and that bicycles and horse-drawn carriages are restricted to roads open to vehicles. DWR also provides this information.

**Response:** The statement in the draft EIS that horses are not allowed in the OWA except during permitted special events was taken directly from page 5-84 of the June 2004, final study report on the Assessment of Recreation Areas Management (R-5). However, we appreciate the clarification and modified our discussion under *Oroville Wildlife Area* in section 3.3.7.1 of the final EIS to specify where horses are allowed in the OWA.

**Comment 137:** DWR states that our description of that portion of the low flow channel within the project boundary is incorrect and offers suggested text to correct the description: the sentence that states that the last 1.25 miles of the low flow channel, before it enters the OWA, are within the FERC project boundary should be changed to read "the last 1.25 miles of the low flow channel before it joins the Thermalito afterbay outlet, are within the FERC boundary." DWR asserts that the sentence as stated in the draft EIS does not accurately reflect the relationship between the river and the project boundary.

**Response:** We modified the description in our final EIS so that the sentence describing the relationship between the low flow channel and the project boundary is correct.

**Comment 138:** DWR points out that the Sewim Bo trail does not include the word "river" as part of its name and also notes that the Feather River Nature Center is not part of the Oroville Facilities.

**Response:** We appreciate the clarifications and made the appropriate modifications to our references to both the Sewim Bo trail and the Feather River Nature Center in the final EIS.

**Comment 139:** DWR suggests replacing the phrase "Thermalito Complex" with "Thermalito forebay and afterbay" under the heading *Trail and Trailheads* in section 3.3.6.1 in the draft EIS.

**Response:** Page 16 of the draft EIS includes a list of commonly used terminology used in the EIS to describe project-related geographic areas. Thermalito Complex is defined in this list as the project features and lands associated with the Thermalito forebay and Thermalito afterbay.

**Comment 140:** Cathy Hodges comments that the trail use information in the draft EIS is inaccurate and confusing. Specifically she mentions:

1. Staff's discussion of the Sewim Bo trail under the heading *Project Recreation Facilities at the Feather River* in section 3.3.6.1 states that the Sewim Bo trail is hiking only but table 43 lists the trail as multi-use; Ms. Hodges states that the trail use designation may be further complicated if hiking/equestrian grant money was used to construct the trail. Ms. Hodges also notes that the trail is not depicted on figure 17.

2. Some of the hiking/equestrian trails appear to be shown with some small portions combined with multi use designation, which was not approved under the current Recreation Plan.
3. Two sections of parallel trail from the north side of Oroville dam to Burma Road are both identified as “Freeman trail.” Ms. Hodges notes that one of these sections is a mountain bike downhill race course.
4. Figure 17 identifies several sections of trail as “other trails” which do not appear to have identified use designations and were never approved under the current Recreation Plan.
5. Table 43 indicates that the Brad Freeman trail has a bicycle/hiking use designation, when, in fact, certain sections of the Freeman trail are overlayed on top of gravel or dirt roadways which were also commonly used by other trail users for many years.
6. The proposed improvements at the Lakeland Boulevard trailhead do not appear to be listed. Ms. Hodges notes that the parking area there can accommodate at least 30, and probably more, vehicles with trailers, rather than the 15 trailer parking capacity listed in the draft EIS.
7. The multiple-use loop trail around the Thermalito diversion pool that was discussed by the 2001 trails task force is not mentioned in the EIS.
8. The reasonableness of conducting trail studies during the winter in addition to the spring, summer, and fall seasons, particularly if the winter weather is mild.

**Response:**

1. We modified our discussion under the heading *Project Recreation Facilities at the Feather River* in section 3.3.6.1 of the final EIS to indicate that the Sewim Bo trail is primarily used by hikers but is also used by equestrians and bicyclists; we do not have any information on the funding used to construct the trail. We also modified figure 17 in the final EIS to include this multiple-use trail.
2. We note that about 1,700 feet of the Dan Beebe and Brad Freeman trails follow the same alignment for a short distance on the south side of the Thermalito diversion pool. It is our understanding that a portion of the Brad Freeman trail was washed out down to bare bedrock in 1998, necessitating the shared use of these two trails for a short distance. We recognize that this use may not have been formally approved by the Commission but DWR informed the Commission of this situation in a September 10, 2001, filing, and it has been in place for some time.
3. We have not obtained any other information on a mountain bicycle downhill race course at the Oroville Facilities so we are unsure which of the parallel sections of trail shown on figure 17 is actually the Brad Freeman trail. However, both sections of trail should be designated bicycling/hiking use.
4. We recognize that some of the trails shown on figure 17 were not included in the approved project Recreation Management Plan and not formally approved by the Commission. In a letter filed on March 9, 2002, DWR informed the Commission that DPR planned to begin trail construction in 2003 in the then-undeveloped Potter’s Ravine area northeast of Oroville dam spillway. We can find no other documentation on the Commission’s record of the other

trails at the Oroville Facilities. However, the trails are currently in existence and should be described in the EIS so that we may have a clear understanding of what exists at the project.

5. We realize that portions of the Brad Freeman trail were previously available for equestrian use and note that in its April 2003 request for an amendment to its approved recreation plan, DWR acknowledged that the Brad Freeman trail had been shared use since its development. However, that was not its approved use according to the project recreation plan, and upon issuance of the Commission's August 17, 2004, order denying DWR's request for amendment, DWR is implementing the terms of the approved recreation plan.
6. Table 43 of the draft EIS indicates that about 10 vehicles with trailers may park at the Lakeland Boulevard trailhead access site. Proposed improvements to the Lakeland Boulevard trailhead access site are listed in table 47. Other recommendations for the Saddle Dam and Lakeland Boulevard trailhead access sites, including those made by Ms. Hodges, are discussed under the headings *Proposed Recreation Facilities and Improvements at Lake Oroville (Within 10 Years of License Issuance)* and *Proposed Recreation Facilities and Improvements at Thermalito Diversion Pool (Within 10 Years of License Issuance)* in section 3.3.6.2 of the EIS.
7. A multiple-use loop trail around the Thermalito diversion pool was not proposed by DWR or recommended by any other entity and is therefore not discussed in the draft EIS. However, table 47 in section 3.3.6.2 of the draft EIS lists DWR's proposed demonstration mountain bike trail. Also, table 48 lists DWR's proposal to evaluate the feasibility of providing two new multiple-use trails around the south side of the North forebay and around the north side of the South forebay, creating a loop around the entire forebay and connecting to the Brad B. Freeman trail.
8. In section 5.1.2.5, *Recreation*, of the draft EIS, we recommend that DWR conduct additional surveys and collect additional data within the first 2 years of license issuance during the high use seasons of spring, summer, and fall. We also recommend that DWR develop information with public input representing the various user groups.

**Comment 141:** DWR comments that figure 17 (page 3 of 3) should list the Bidwell Canyon trail specifically rather than include it as an "other trail" because it is significant enough in its own right.

**Response:** Figure D-1 in appendix D of DWR's Settlement Agreement Recreation Management Plan did not list the Bidwell Canyon trail specifically but included it as an "other trail," and we duplicated that approach in figure 17.

**Comment 142:** DWR provides the following comments on table 43: DWR proposes allowing equestrians on all of the Bidwell Canyon trail; there are about 25 parking spaces (2 ADA), 0 restrooms, and 0 trash receptacles available at the Sewim Bo trail; 0 restrooms and 0 trash receptacles are available at the OWA trails; and 1 portable toilet is available at the Lakeland Boulevard trailhead.

**Response:** We appreciate the clarifications and made the appropriate modifications to table 43 in the final EIS.

**Comment 143:** DWR states that our characterization of attributing some of the recorded trail use to animals because of improper instrument height in section 3.3.6.1 of the draft EIS under the heading *2002-2003 Estimated Annual Use, Trail Use*, gives the impression that the instruments were installed

incorrectly. DWR points out that, in some cases, specific field conditions required installing the instruments close to the ground.

**Response:** We appreciate DWR's explanation of the reason why instruments may have been installed closer to the ground and modified our discussion of annual trail use to reflect this explanation.

**Comment 144:** DWR disagrees with staff's recommendation to delay implementation of the proposed non-motorized trails program in the recreation plan pending a new user and conditions survey of the trails. DWR points to a misinterpretation of user data, indicates that the comprehensive non-motorized trails program does not propose to convert all project trail designations to multiple-use trails, and suggests that language be added to the EIS that the Commission denied DWR's application for an amendment to formal changes in trail designations made by DPR in 2002, pending the results of the Alternative Licensing Procedure. DWR requests that staff reconsider and withdraw its recommendation for additional surveys prior to implementation of the non-motorized trails program.

**Response:** We revised the final EIS to state that DPR changed trail designations for portions of the Brad Freeman Trail and Bidwell Trail to multiple use in 2002. We also revised section 5.2.1.5, *Recreation*, to clarify that the non-motorized trails program does not propose to modify all of the current project trail designations to multiple use. Regarding the interpretation of use data, we reviewed the user data provided in the survey reports and determined that the data did not represent existing conditions and was not a reliable basis on which to make any final decision on the change of use designations. We continue to recommend that DWR perform additional surveys before making any changes in the existing trail designations. Finally, we agree that the Commission's order of August 17, 2004, stated that a change in designations would be premature given the ongoing relicensing procedure. However, in its order of January 21, 2005, the Commission clearly noted that its August 17, 2004, decision was not meant to prejudge the merits of any future proposals for shared use of project trails resulting from the relicensing.

**Comment 145:** DWR suggests mentioning that most campers are engaged in other activities, like boating, fishing, and trail use under the heading *2002-2003 Estimated Annual Use, Camping and Other Overnight Use*, in section 3.3.6.1 of the EIS.

**Response:** We disagree with the need to discuss day-use activities at the Oroville Facilities in a section of the document devoted to overnight use. Other recreational activities noted by DWR are captured under those specific headings.

**Comment 146:** DWR points out that recreational use surveys were not conducted in the remote areas of the Lake Oroville State Recreation Area where hunting is permitted. DWR also notes that there is very little land available for hunting around the lake within the Lake Oroville State Recreation Area, and most hunting likely occurs on adjacent public and private land.

**Response:** We appreciate DWR's clarification of hunting opportunities at the Lake Oroville State Recreation Area and modified our discussion of hunting in this area.

**Comment 147:** Vicki Hittson Weir and George Weir of Pathfinder Quarter Horses submitted two American Horse Council Foundation reports: "The Economic Impact of the Horse Industry on the United States" and "The Economic Impact of the California Horse Industry." The Weirs also submitted the results of the Resource Action (PM&E) Identification Form for the Lake Oroville Recreation Area Trails System for the record. They strongly support the need for separate-use trails at Lake Oroville and do not support the Settlement Agreement Recreation Management Plan.

In addition, Pathfinders supports the Commission's recommendation for 3 years of study prior to any conversion of trails beyond the 1994 Recreation Plan. It also supports the Commission's request for a trails condition inventory and trails maintenance plans. Its requests that all documentation of evidence of trail use, trails maintenance schedules, and all user comments be presented to the Oroville Recreation Advisory Committee and representatives of the equestrian community when requested.

The California Equestrian Trails & Land Coalition supports the need for hiking/equestrian only trails and submitted its June 2005 Safety Considerations for Multi-use Trails. William O. Davis, on behalf of the Action Coalition for Equestrians, Equestrian Trail Riders, and Oroville Pageant Riders, also supports the need for separate-use trails. He comments that not every trail is suitable to multi-use and there is real value in preserving special experiences for each user group. Several of the equestrian groups appreciate the recommendation that further trail user studies be conducted prior to making any conversion decisions.

**Response:** We appreciate all of the information that has been filed and added the location of your recommended equestrian facility to the final EIS. We note that other entities previously provided the Commission with the California Equestrian Trails and Land Coalition Safety Guidelines and we discuss them in section 3.3.6.2 of the draft EIS under the heading *Trails and Trails Management*. As discussed in section 5.1.1, *Staff Alternative*, we recommend additional trail user studies prior to changing the current trail uses.

**Comment 148:** The California State Horsemen's Association, Region 2, states that it supports the Recreation Management Plan as included in the Settlement Agreement and notes that the draft EIS appears to ignore the decisions made by the Trail Focus Group that formed the basis of the Recreation Management Plan. The California State Horsemen's Association, Region 2, believes there should be a firm attempt to provide safe and unbiased use of the trails in and around the Oroville Facilities and notes that any changes to the trails should include adequate renovation to ensure the safety of all users. With regard to trail use, the Lake Oroville Bicyclist's Organization comments that, after the agencies have taken reasonable steps to reduce hazardous conditions, they should not be held accountable for the actions of potentially irresponsible trail users.

**Response:** We did not ignore the recommendations made by the Trails Focus Group as section 3.3.6.2 of the draft EIS shows. We concluded that it would be premature to change all trail designations to multiple use as outlined in DWR's draft Comprehensive Non-Motorized Trails Program included in its proposed Recreation Management Plan. We find insufficient recreational data on which to base any final decision to change trail designations to multiple use based on the concerns of commentors, our 2004 finding that the current recreation plan provides for a unique equestrian experience, the absence of a trail condition inventory, and the apparent existence of trail maintenance problems. We agree with the need to provide safe trails and in our draft EIS recommend that DWR provide information on the condition of the project trails and include monitoring trail conditions in its Recreation Management Plan. Monitoring trail conditions would ensure that project trails are suitable for their designated uses (e.g., sufficient trail width and clearing). We also recommend surveying both the existing trail users and potential trail users.

**Comment 149:** Tony Rushing comments that recreational opportunities that do not require motorized crafts at Lake Oroville should be enhanced. Mr. Rushing suggests further developing all current access points, including Enterprise and Stringtown boat launches, Bidwell Marina, Loafer Creek, and the Spillway boat launch. Mr. Rushing notes that Foreman Creek is ideal for day use and should be the first area to be further developed rather than limiting access there.

**Response:** In the draft EIS, we recommend some recreational enhancements at Lake Oroville that do not require the use of motorized crafts including installing picnic tables and pole stoves/grills, providing parking areas, and replacing or providing restrooms. We also recommend conducting a study to

determine the feasibility of providing a swimming lagoon or pool at Lake Oroville to address times when the reservoir level is below elevation 850 feet msl. Please see table 46 in the draft EIS for a detailed list of all of the improvements proposed at Lake Oroville. Note also that we recommend implementation of DWR's proposed Recreation Monitoring Program, as described in section 3.3.6.2 of the draft EIS, which provides a framework for assessing project recreational facilities and provides the opportunity for consulting with interested parties and adjusting recreational facility development. We recommend closing Foreman Creek to recreational use until DWR develops a plan to protect cultural resources and install recreational facilities, including picnic tables and restrooms.

**Comment 150:** Cathy Hodges comments that the final EIS should include a study of the potential economic benefit to the local community from the availability and development of equestrian trails.

**Response:** Commission staff does not generally prepare economic analyses of particular recreational activities at a project. Specifically for this project, we do not see the need for a full economic study to help us decide whether changes need to be made to the trail designations. Rather, the relevant criteria include factors such as the activity's relationship to project purposes, whether there is an unmet demand for the activity, and whether the activity can be accommodated at a reasonable cost and without undue conflict with other resources, including plants, animals, soils, water, and other recreational resources.

**Comment 151:** Cathy Hodges comments that no mitigation is proposed in the draft EIS for the potential future loss of hiking/equestrian trails. Ms. Hodges notes that there is also no mention of mitigation for an additional campground in the Loafer Creek area that was proposed during relicensing, and would affect trails in the area.

**Response:** There is no information in DWR's draft Recreation Management Plan on a proposed additional campground in the Loafer Creek area; two new group RV campsites have been proposed near the existing Loafer Creek group campground and their construction would not affect any trails in that area. However, DWR proposes constructing a new campground loop (30 to 38 campsites) at the Bidwell Canyon campground adjacent to the existing loop. If this improvement is approved, we realize that the Bidwell Canyon trail may need to be relocated. Any modifications to trail locations would be addressed by DWR in its Comprehensive Non-Motorized Trails Program. If DWR determines that it cannot locate the new campground loop in the Bidwell Canyon campground, it proposed providing 15 new RV/tent campsites between the north and south loops of the Loafer Creek campground. It does not appear that construction of these sites would affect any trails in the area. Additionally, we recommend that DWR include monitoring trail conditions in its Recreation Management Plan to ensure that project trails are suitable for their designated uses. If trail designations are modified in the future, it would be as a result of monitoring.

**Comment 152:** The Water Board and Butte County note that our discussions of the *Comprehensive Water Quality Monitoring Program (Proposed Article A112)* and *Public Education Regarding Risks of Fish Contamination (Proposed Article A114)* in sections 3.3.2.2 and 3.3.6.2 of the draft EIS conclude that several swimming areas at the Oroville Facilities are contaminated by pathogens with concentrations often exceeding water quality objectives. The Water Board and Butte County comment that the draft EIS does not identify or mandate effective mitigation measures. Butte County comments that the final EIS should specify that DWR should not only monitor water quality and provide warnings, but should take immediate corrective actions to remedy water quality problems.

Butte County comments that the recommendations supported by staff are inconsistent with each other because Section 5.1, *Comprehensive Development and Staff Alternative*, of the draft EIS states that the alternative recommended measures "would improve socioeconomic conditions and recreational opportunities at the project." Butte County suggests that the need to post signs warning of contamination

of the water on a continuous basis, with no mandate to improve water quality, will not improve recreational opportunities. Butte County also suggests that DWR should develop more swimming areas with easy access and appropriate amenities in other parts of the project.

**Response:** As discussed in section 5.1.1, *Staff Alternative*, of the draft EIS we recommend that DWR develop a comprehensive water quality monitoring program to monitor organic and inorganic constituents and physical parameter levels that may affect beneficial uses for surface waters (Proposed Article A112). We also recommend that DWR monitor bacteria levels at eight public swimming areas and provide public notice and/or education (Proposed Article A113). We discuss how public education and deterring waterfowl presence at the swim area could reduce bacteria loading. Through regular monitoring, as required by a pathogen monitoring plan, bacterial contamination at the swim areas would be identified and the appropriate warnings be provided; however, due to the location of the swimming area, it may not be possible to eliminate the need to post public notices at the swim areas. We note in table 46 in the draft EIS that DWR proposes to conduct a swimming and day-use feasibility study (swimming lagoon or pool onsite or at an alternative location) to address times when the reservoir level is below 850 feet msl.

**Comment 153:** DWR notes that the January 2005 Recreation Management Plan was largely based on the work of the Recreation and Socioeconomics Work Group, and then was further developed through settlement negotiations resulting in the March 2006 Settlement Agreement Recreation Management Plan.

**Response:** We appreciate DWR's clarification of the development of the Recreation Management Plan and modified our discussion of it to reflect the information provided.

**Comment 154:** Under the heading *Recreation Management Plan Programs* in section 3.3.6.2 of the draft EIS, staff notes that the Commission's regulations (18 CFR §2.7) allow licensees and operators of recreational facilities to charge reasonable fees to users of such facilities, thus proposing that the current DPR boat launch fees are "reasonable." Butte County comments that the draft EIS does not provide information upon which to base this conclusion. In addition, Butte County comments that the draft EIS lacks a discussion of the totality of the circumstances under which the project is managed and fails to explain why such grossly disparate management of the Oroville Facilities is reasonable.

**Response:** We obtained additional information on user fees from the California state parks and Shasta Lake websites and include this information in the final EIS. The annual user pass for Lake Oroville may be used at 96 other state parks besides Lake Oroville, but the Shasta Lake annual pass may only be used at Shasta Lake. Additionally, the annual user pass for Lake Oroville is good for one year from the date it is purchased, and the annual user pass for Shasta Lake is only valid for the calendar year. For these reasons, the cost of an annual pass needed to launch a boat at Lake Oroville is reasonable. We also note that the one time day-use fees for these two areas are similar: \$9.00 at Lake Oroville and \$8.00 at Shasta Lake.

In sections 3.3.6.1, 3.3.7.1, and 3.3.9.1 of the draft EIS, we describe the responsibilities of the various agencies managing portions of the Oroville Facilities. However, as licensee of the Oroville Facilities, DWR is ultimately responsible for maintaining the project facilities according to the current project license.

**Comment 155:** DWR notes that DPR sets fees in the Lake Oroville State Recreation Area and suggests listing DPR as the entity who would review and assess fees consistent with day-use and camping fees at other, comparable units of the State Park System under the heading *Recreation Operations and Maintenance Programs* in section 3.3.6.2 of the draft EIS. DWR also notes that the annual pass for launching/parking at Lake Oroville (with similar privileges at about 95 other state park units) was lowered to \$165.00 in January 2006 from \$200.00. DWR contends that an annual user pass at Shasta

Lake is not “similar” in that it does not allow access to other reservoirs, lands, and facilities. DWR also notes that footnote 77 should reflect that the new MOU will not be finalized until the terms of license issuance are clear; it is proposed to be added as an appendix to the Final Recreation Management Plan.

**Response:** We recognize that DPR sets the fees at the Lake Oroville State Recreation Area. However, as the licensee for the Oroville Facilities, DWR is ultimately responsible for managing the project facilities and in that capacity provides oversight of any actions taken by any other agencies in the project area, including setting user fees. We appreciate DWR’s correction of the cost of the annual pass for Lake Oroville and its explanation that the pass may be used at other state park facilities. We modified our discussion of annual passes in the final EIS to reflect this information, as well as additional information we obtained from the California state parks and Shasta Lake websites. We also appreciate DWR’s clarification of the status of the Memorandum of Understanding between it and DPR.

**Comment 156:** DWR comments that the references to annual reporting under the heading *Recreation Monitoring Program* in section 3.3.6.2 and under the heading *Recreation Monitoring* in section 5.1.2.5 of the draft EIS, are incorrect. DWR points out that the Settlement Agreement Recreation Management Plan proposes biennial reporting to the Commission and the Recreation Advisory Committee, the same frequency established by the Commission in 1994 and followed currently.

**Response:** We appreciate the clarification and modified our discussion of the proposed reporting frequency in DWR’s proposed Settlement Agreement Recreation Management Plan in the final EIS.

**Comment 157:** The California Sportfishing Protection Alliance comments that requiring the members of the Recreation Advisory and Ecological Committees to sign the Oroville Settlement Agreement to participate is unacceptable. Under the heading *Recreation Management Plan Review and Revision Program* in section 3.3.6.2 of the final EIS, DWR suggests acknowledging that Butte County would need to sign the Settlement Agreement to become a member of the Recreation Advisory Committee. DWR makes a similar suggestion for footnote 88.

**Response:** We will consider the issue of membership of advisory committees established under the Settlement Agreement in any order issued for the project.

**Comment 158:** DWR suggests adding the Roy Rogers trail to table 46 since it has proposed changing the use designation on a short reach of this trail to allow bicycles to access the Loafer Creek Campground from the Saddle Dam trailhead, without encroaching in the vicinity of the Loafer Creek Equestrian Campground.

**Response:** We included all of the proposed trail modifications in table 50, *Current and proposed trail designations for project trails*. A footnote to the table indicates that a portion of the Roy Rogers trail would be opened to bicycle use. However, we also added the Roy Rogers trail to table 46 in the final EIS, so that all of the proposed recreational improvements actions at Lake Oroville are listed there.

**Comment 159:** DWR notes that the Lakeland Boulevard and Saddle Dam trailheads are day-use areas that are open from dawn to dusk, so use after dark is discouraged; overnight use and parking are not appropriate at these locations. DWR points out that it has already improved the sites with hitching posts for horses and explains that tying horses to trees in these areas is prohibited by California Public Resources Code Section 4359(b). DWR believes that the existing restrooms, which are typical of non-beach type day-use areas, are adequate for current and projected future use. DWR also notes that the statement that no restrooms are available at the Lakeland Boulevard trailhead is inaccurate because it maintains a portable restroom there. DWR notes that a new and accessible vault restroom is proposed for the nearby new Diversion Pool day-use area in the Settlement Agreement Recreation Management Plan.

Finally, DWR states that its use data from 2001-2004 do not indicate that equestrian use is higher in the off-season but points out that the Settlement Agreement Recreation Management Plan includes monitoring protocols and triggers that reflect off-season use.

**Response:** We recognize that the Saddle dam and Lakeland Boulevard trailhead access sites are day-use areas. However, equestrians are more likely to use these access sites in the cooler months when there are fewer hours of daylight and may need to load their horses and gear in the late afternoon as the sun is going down. Therefore, we continue to see a benefit to providing lighting in the parking lots of these locations. We appreciate DWR's clarification regarding the portable restroom at the Lakeland Boulevard trailhead access; we modified our discussion of this site to include this information. We also appreciate the information DWR provided from the California Public Resources Code and include this citation in our discussion of these trailhead access sites. We recognize that table 7.3-1 in DWR's Settlement Agreement Recreation Management Plan defines the recreation season for trailheads as April and May in the spring and September and October in the fall. We do not have access to the 2001-2004 use data that DWR cites because it has not been filed in the public record. We were unable to differentiate equestrian trail users from other trail users during our review of DWR's February 2004, final study report on Existing Recreation Use (R-9).

**Comment 160:** DWR provides the following comments on table 50: Potters Ravine trail is currently designated as multiple-use with the exception of a short pedestrian-only segment near Spillway Cove, and the service road bicycle access to Saddle dam is currently closed to the public (not proposed, but not yet constructed, as indicated in the table).

**Response:** We appreciate the clarifications and made the appropriate modifications to table 50 in the final EIS.

**Comment 161:** The Lake Oroville Bicyclist's Organization comments that, under the heading *Trails and Trail Management* in section 3.3.6.2 of the draft EIS, it is not accurate to imply that all multi-use trails are wider than single-use trails. The group also comments that the language in footnote 82 suggests a recommendation of a 6-foot minimum for multi-use designation.

**Response:** In the chapter on mountain bike trails in its 1991 Trail Handbook, DPR states that "mountain bike trail standards should accommodate multiple-use or in some cases be limited to mountain bicyclists and restricted to other use (i.e., hiking). In general, trails need to be wider, have greater sight distance, have more passing room between users, and have less slope." In another paragraph, DPR states that "trail tread widths of 60 inches allow for passing of two user groups on the trail surface." The guidelines cited in footnote 82 are from the California Equestrian Trails and Lands Coalition and recommend a trail width of a minimum of 6 feet to allow equestrians and bicyclists to safely pass.

**Comment 162:** The Lake Oroville Bicyclist's Organization comments that the staff analysis in section 3.3.6.2, *Environmental Effects: Trails and Trail Management* excluded relevant information and failed to meet the National Environmental Policy Act's requirements for thorough, objective analysis. The Lake Oroville Bicyclist's Organization further comments that staff is incorrect in its assertion that some recreational data used by DWR in the preliminary draft environmental assessment may be inaccurate because data were collected when trails were managed for multiple use instead of their approved designation. They argue that project trails were being operated as permitted by the Commission during the study period.

**Response:** The analysis of trail management is based on the best available information from recreational trail studies conducted by DPR and DWR and was updated as new information became available. Analysis in the final EIS has been modified to include updated information on trail mileages and

conditions provided in DWR's year 2 progress report on Recreational Facilities and Operations Effects on Water Quality – Recreational Trails (SP-W3) filed with the Commission on January 26, 2007. In response to 2002-2003 study data, we do not argue that trails were operated outside of permitted designation, but that trail use estimates may not reflect the estimated use at the project as it is currently licensed. Further, DWR states in its report that the data, as collected, did not permit accurate estimation of proportional trail use presented in the preliminary draft environmental assessment. We continue to recommend further monitoring of trail use under the Recreation Management Plan and an additional trail condition inventory prior to changing trail use designations.

**Comment 163:** The Lake Oroville Bicyclist's Organization comments that the trail condition inventory recommended in section 5.1.2.5, *Recreation: Trail Condition Inventory* is unwarranted. They argue that Proposed Trail Maintenance Changes in Appendix D of the Recreation Management Plan propose monitoring trail conditions and need for special maintenance per the draft RMP Recreation Monitoring Program.

**Response:** We agree that monitoring of trail conditions per the Recreation Monitoring Plan is recommended in Appendix D of the Recreation Management Plan. However, the final EIS section 5.1.2.5, *Recreation: Trail Condition Inventory* states that although recreation monitoring indicators and standards listed in table 7.3-1 of the Recreation Management Plan include monitoring trail *use*, they do not include monitoring trail *conditions*. We continue to recommend incorporating trail condition inventories similar to reporting on visitor use and capacity into the Recreation Management Plan.

**Comment 164:** DWR notes that staff mentions both 37 and 27 comment letters filed in opposition to the proposed trails plan and supposes that one of the numbers is a typographical error.

**Response:** We acknowledge our error in mentioning 27 filings; the Commission received 37 filings in opposition to the proposed trails plan.

**Comment 165:** DWR states that the Bidwell Canyon trail (from Saddle dam trailhead north several miles) is proposed to be multiple use (i.e., opened to equestrians) even though it is currently open to hiking and bicycling only. DWR is not sure that this is conveyed correctly in figure 18. DWR also comments that the Dan Beebe trail may have been constructed as a narrow, single-track trail where two horses could not travel side by side due to circumstances and constraints at the time but thinks that it is misleading to state that the trail was "designed" this way. The Lake Oroville Bicyclist's Organization points out that in his August 31, 2001, letter to the Commission, Raymond D. Hart, Deputy Director at DWR states that the Dan Beebe trail was originally designed as a four-foot-wide trail and that trail users have become accustomed to a narrower trail due to sporadic trail maintenance. DWR also contends that it is more appropriate to use the guidelines developed by DPR than the ones draft by the California State Horsemen's Association.

**Response:** We modified page 2 of figure 18 of the final EIS to clearly indicate that the Bidwell Canyon trail is proposed to be multiple use. Since we have been unable to locate any other historical information on the design and/or the construction of the Dan Beebe trail other than the information cited, we propose that using either "design" or "construct" is equally correct in this case and it is unnecessary to modify the text. We agree with DWR that incorporating DPR's updated guidelines into the recreation management plan is appropriate, and we revised the text in section 3.3.8.2 to clarify this.

**Comment 166:** DWR points out that the section of the Bidwell Canyon loop trail accessible to bicyclists is also available to hikers and that we should add that user group to our discussion of this trail under the heading *Trails and Trail Management* included in section 3.3.6.2 of the EIS. DWR believes this is necessary to provide a more accurate comparison of the sections of the loop trail.

**Response:** We modified our discussion of the Bidwell Canyon trail under the heading *Trails and Trail Management* in section 3.3.6.2 of the final EIS to clearly indicate that hikers are allowed on the entire trail.

**Comment 167:** DWR comments that it is incorrect and misleading to state that equestrians and bicyclists do not share trails and states that they do so successfully in many places throughout the United States. DWR also notes that the majority of hiking/biking trails at the Oroville Facilities are not flat, paved trails, rather they are often unpaved, gravel roads such as around Thermalito afterbay.

**Response:** Staff's statement that equestrians and bicyclists do not share trails was intended to be specific to the Oroville Facilities. We modified our discussion in the final EIS to make that more clear. We also had an opportunity to review DWR's year 2 progress report on Recreational Facilities and Operations Effects on Water Quality – Recreational Trails (SP-W3), which DWR filed with the Commission on January 26, 2007. In this report, DWR provides detailed information on the locations of the trails throughout the project area and the composition of the surfaces of those trails. We modified our discussion of the trail surfaces in the final EIS, based on the information provided in this report.

**Comment 168:** DWR comments that the demonstration mountain bicycle trail nominated as an interim project was dismissed by the Interim Projects Task Force because of its complexity. DWR notes that it needs to acquire rights-of-way outside of the project boundary for the demonstration mountain bicycle trail, which may affect the timing of its development. DWR also points out that it has proposed investigating the feasibility of constructing a new 2- to 4-mile trail. If feasible, construction of the trail may occur with some supplemental benefits funds for trail segments outside the project boundary, but is contingent upon topographic, jurisdictional, and ownership/easement constraints. DWR also notes that this trail may not be feasible at all. DWR also comments that staff has overstated the possibility of physical changes to the Dan Beebe trail. DWR states that most changes to trails are hardly permanent, which is why trails and adjacent vegetation need to be maintained. The Lake Oroville Bicyclist's Organization comments that DWR never proposed to construct the demonstration mountain bicycle trail, only to further investigate its feasibility. The group also notes the preponderance of documentation showing that the Dan Beebe trail has been maintained to local multiple-use trail standards since 2001 and that this level of maintenance will continue regardless of user designations. The group comments that bicycle use on project trails has only been restricted from 1989 to 2002 and from 2004 to the present, not "historically" as stated in the draft EIS.

**Response:** We appreciate DWR explaining the reason why the demonstration mountain bicycle trail was not completed as an interim project and realize that DWR proposes exploring the feasibility of completing such a trail in its Recreation Management Plan. We also realize that in March 2001, DPR modified the Dan Beebe trail so that it is consistent with the standards for Class I trails in the 1991 DPR Trail Handbook and DPR's 1996 "Vegetation Management Guidelines for Trails and Roads." These standards address safety issues, aesthetic considerations, and accessibility for various types of skill levels and activities. According to DPR's standards, the Dan Beebe trail tread would need to be widened and the lines of sight increased to meet multiple use trail standards. We continue to conclude that these changes would be undesirable to equestrians and may be unnecessary if the trail proposed by DWR is completed.

We are not sure why the Lake Oroville Bicyclist's Organization asserts that bicycle use on project trails has only been restricted from 1989 to 2002 and from 2004 to the present. In DWR's Recreation Plan, which the Commission approved in 1994, DWR notes that the existing project trails were used primarily by horseback riders. In its August 31, 2001, filing with the Commission DWR notes that the Dan Beebe trail was built in the 1960s and is intended for equestrians and hikers.

**Comment 169:** DWR comments that the regional data that were available at the time of the relicensing studies had several major limitations in terms of its geographic basis and activity definitions and therefore, staff was unable to adequately express the regional recreation demand data germane to trails in the project area in the draft EIS. DWR discusses more recent data provided by the National Survey of Recreation and the Environment (NSRE) indicating that 28.3 percent of all people 16 years of age and older participate in mountain bicycling, as compared to 8.6 percent of people 16 years of age and older who participate in horseback riding on trails. DWR believes that this information is much more representative of the project area and provides a much stronger basis for demand conclusions.

DWR also suggests that staff's conclusion that there may be only slightly greater demand for more bicycle trails than equestrian trails is based on an incomplete interpretation and understanding of the survey results presented in table 51. DWR notes that even though the survey data appear to indicate a moderate level of demand for additional unpaved bicycle trails and equestrian trails throughout the project area, this demand level is greater than actual demand because less than 10 percent of the survey respondents were participating in mountain biking or horseback riding.

Furthermore, DWR comments that it is incorrect to state that most equestrian-only trail elimination would occur in the vicinity of the Thermalito diversion pool. DWR notes that it has proposed converting only about 4 to 5 miles of trails to multiple-use there. DWR asserts that the Commission's conclusion that "there is almost equivalent demand for equestrian and bicycle trails at the project" is not supported by available data (including the NSRE data that it referenced). DWR also states that the number of equestrian riders deterred from using the trails when the designations were changed is negligible, and the claims perhaps even false. With regard to its data collection, DWR notes that most data errors tend to overstate visitation and the Commission's assumption that use might have been measurably different during the study period is unreasonable. DWR notes that its "proportional trail use data" were, in part, based on survey responses, not infrared trail counters.

**Response:** We reviewed the August 2006, *Recreation & Tourism Statistics Update* available through NSRE's website ([www.srs.fs.fed.us/trends/RECUPDATES/recupdates.html](http://www.srs.fs.fed.us/trends/RECUPDATES/recupdates.html)) and note that in the vicinity of the Plumas National Forest, of the individuals aged 16 and older who were surveyed from 2000 and 2004, 28.3 percent participated in mountain bicycling and 8.6 percent participated in horseback riding on trails. NSRE notes that this participation could have occurred in any outdoor setting (national forest, park, private land, etc.). NSRE also reported national trends in outdoor activity participation from September 1999 to February 2004 and while it found that in general, participation in outdoor recreation activities had increased in that time period, participation in mountain bicycling and horseback riding on trails remained steady during that time period with neither activity increasing or decreasing. We note that the percentage of the population participating in mountain bicycling was higher (21 percent) than the percentage of the population participating in horseback riding on trails (8 percent), which would reflect the regional information provided by NSRE. This information shows that regionally and nationally, more people participate in mountain bicycling than participate in horseback riding on trails. However, based on information on the record for this licensing proceeding, we surmise that both mountain bicycling and horseback riding trails at the Oroville Facilities are in demand and we continue to conclude that there is an equivalent demand for equestrian and bicycle trails in the project area.

With regard to DWR's concern with the information presented in table 51, we can assume that the information reported by DWR in its study report R-13 was equally inflated for all locations cited (sub-areas). Therefore, even though the numbers appear to show a moderate demand for all trails, the actual demand also may be low for all trails.

We realize that only about half of the Dan Beebe trail, which is currently designated for hiking and equestrian use, is located at the Thermalito diversion pool and modified our discussion of demand for

trails at the Thermalito diversion pool to indicate that only about half of the trails there are designated for equestrian use. DWR notes that it proposes to open the Burma Road/Brad Freeman trail to equestrians at the Thermalito diversion pool. It appears that means that DWR will reopen this section to equestrian use since it indicated in its April 2003 amendment request application that this section of trail was shared use, allowing hikers, bicyclists, and equestrians.

We are not sure why DWR suggests that equestrians may have actually used trails that bicycles were using when they filed letters with the Commission indicating that they did not. We have no other information except for the information on the record for this proceeding. We recognize that DWR's proportional trail use data were not related to the infrared trail counters; in the draft EIS we clearly state that DWR reported that the data, as collected, did not allow it to accurately determine the proportion of each type of trail use, which led us to question the proportional trail use estimates.

**Comment 170:** DWR states that it convened various trail users groups to discuss trail designations because both bicyclists and equestrians wanted more access, not just bicyclists as staff suggests. DWR also notes that it is incorrect to deduce that "appeal to bicyclists" is the rationale it used when crafting proposed trail designations. DWR states that stakeholder advocates and the settling parties included equestrians who seek more loop-travel opportunities and a greater selection of project trails to access, as well as thoughtful non-users who advocate the best use of the project's recreational resources. The Lake Oroville Bicyclist's Organization comments that the need or demand for improved access to existing project trails is documented in the January 2005, Oroville Facilities Relicensing Recreation and Socioeconomics Study Reports Addenda and Errata.

**Response:** In its February 26, 2002, letter to the Commission, DWR points out that the 41-mile long loop mountain bicycle trail at the Oroville Facilities is fairly flat and is located on fire roads and the gravel levee roads adjacent to the Thermalito forebay and afterbay, which are located in grasslands with little shade during the summer. DWR states that DPR had been approached numerous times by mountain bicyclist organizations requesting access to the rest of the existing trail system, where the trails are more scenic and technically more challenging. DWR also cited DPR policy that all new trails would be built to multiple use standards. We recognize that there may be loop travel opportunities at the Oroville Facilities but also note that many equestrians informed us that they are not willing to place their horses in an environment where they could contact asphalt or other hard surface. We continue to recommend that before making changes to the existing trail designations, DWR revise the Recreation Management Plan and the draft Comprehensive Non-Motorized Trails Program to allow for the inclusion of trail maintenance standards and data collection that reflects existing trail designations, including: (1) a trail condition inventory relative to the trail maintenance standards within the first year of the license; (2) visitor use surveys (on-site and mail-back, including methodology to focus on multiple use and user conflicts); (3) additional trail use data; (4) surveys of users who are not using the trails to determine latent demand; (5) trail feasibility investigations (as proposed); and (6) use all of this information to make final recommendations regarding a need to change the trail designations.

**Comment 171:** DWR contends that the shared-use trails connecting the three disconnected sections of equestrian/hiker-only trail sections in its proposal are short, not unlike a section of shared trails that exists here under current conditions. DWR also points out that the short, paved sections of trail are available to equestrians and that it retained equestrian access over the paved Oroville dam at the equestrians' request. DWR realizes that paved areas are not ideal for equestrians but believes that they are tolerable and are currently used in short lengths. DWR also states that equestrians would not need to travel over the spillway for a loop opportunity even though they are allowed to; they could use the Freeman and Beebe trails on the south side of the diversion pool. DWR states that its Proposed Action would increase loop trail opportunities for equestrians and notes that a loop trail opportunity would be created by opening Burma Road (Freeman trail) to equestrian use in this part of the Lake Oroville State Recreation Area.

**Response:** Under DWR's proposal, the 4.0 mile-long Roy Rogers trail would remain the primary hiking/equestrian trail. A short section of this trail would be opened to bicycle use, which must be the short connecting segment described by DWR in its comments. The only other section of trail available only to hikers and equestrians is the Sycamore Hill section of the Dan Beebe trail which is quite a distance from any other hiker/equestrian only trails. We recognize that paved sections of trail would be available to equestrians under the Proposed Action, and we modified our discussion of trails to clarify that those sections would not be desirable to many equestrians. Again, as stated in the draft EIS, we cannot determine at this time, what, if any, changes to make in trail designation.

**Comment 172:** DWR comments that it has completed Study Plan W3 (Phase 2) that evaluates erosion and trail conditions and that monitoring of trails and erosion will continue as proposed. DWR notes that the report was finalized after the license application was submitted and will be filed prior to issuances of the final EIS. DWR also notes that DPR reviewed the condition of all of the trails in the Lake Oroville State Recreation Area in 2006 for maintenance needs. DWR comments that the case histories provided by equestrians opposed to the proposed trail designations and cited in the draft EIS are exaggerated and not relevant to project trails. The Lake Oroville Bicyclist's Organization comments that staff is disingenuous to imply that the Settlement Agreement Recreation Management Plan lacks either maintenance standards or a trail condition inventory. DWR states that the project has a documented, safe history with respect to trail user safety and it disputes any assertion that its data are inadequate. DWR is not aware of equestrians with disabilities encountering problems on project trails, and believes that the implementation of the Settlement Agreement Recreation Management Plan will provide ample resources for this user group.

**Response:** DWR filed its year 2 progress report on Recreational Facilities and Operations Effects on Water Quality – Recreational Trails (SP-W3) with the Commission on January 26, 2007. We modified our discussion of the condition of the project trails in the final EIS to include the information provided by DWR. DWR has not provided DPR's list of maintenance needs for the project trails. In the draft EIS, we stated that we would not debate whether user conflicts on the trails would or would not occur, but concluded that the proposed trail designations, at a minimum, could create the potential for conflicts. We also are not aware of any equestrians with disabilities encountering problems on the project trails, but note that a safe environment should be provided for that user group.

**Comment 173:** In response to staff's recommendation that DWR revise the Settlement Agreement Recreation Management Plan to establish standards for maintaining developed recreation facilities, including trails, DWR notes that maintenance standards, including trail maintenance standards, exist and will be a component of the Final Recreation Management Plan by reference. DWR comments that trail maintenance standards are included in DPR's Trails Handbook and are already included in the Settlement Agreement Recreation Management Plan in section 8.0, *References*. Under the heading, *Maintenance*, in section 3.3.6.2 of the draft EIS, DWR comments that the current DPR Trails Handbook and related guidelines provide a reasonable "consistent measure" for managing project trails. DWR notes that it would be appropriate to follow these standards when and if they are superseded, but doesn't think that waiting for their uncertain development is warranted or reasonable.

**Response:** We modified our discussion of the trail maintenance standards in the final EIS to note that the current Trails Handbook is incorporated into the Recreation Management Plan by reference. However, we continue to conclude that any updated guidelines should be made available as part of the Recreation Management Plan or as an appendix to the plan.

**Comment 174:** DWR notes that the 1944 legislation, staff cites, which established the California Riding and Hiking Trails Project, was repealed in 1974. DWR notes that the citation makes no mention of the

Beebe trail. Based on a personal communication, DWR points out that the Dan Beebe trail was surveyed for development by DPR employees in 1960 or 1961. Finally, with regard to the statement that staff can find no evidence on record to support historic designation of particular trails, DWR comments that it would be helpful to clarify that the Commission could neither find evidence that the trail exists from or was constructed because of 1944-era legislation.

**Response:** DWR correctly notes that the Equestrian Land Conservation Resource did not mention the Dan Beebe trail specifically in its discussion of the California Riding and Hiking Trail, which we found on its website ([www.elcr.org](http://www.elcr.org)). In fact, the Equestrian Land Conservation Resource does not mention any specific segments of the California Riding and Hiking Trail. However, based on several filings with the Commission, including one from George Cardinet, who was one of the framers of the California Riding and Hiking Trail laws, we are comfortable connecting the Dan Beebe trail to the California Hiking and Riding Trail.

**Comment 175:** Under the heading *Fish Weir Program (Proposed Article A105)* in section 3.3.6.2 of the draft EIS, DWR notes that angling closures may result from seasonal operation of the weirs also, as well as from their installation. The expectation of improved angling opportunities is contingent upon future angling regulations and DWR notes that the temporary adverse effect described in the draft EIS could be locally permanent, also depending on future angling regulations.

**Response:** We modified our discussion of the Fish Weir Program in section 3.3.6.2 of the final EIS to note that future angling regulations and implementation of the fish weir program may negatively affect angling opportunities in the Feather River channel.

**Comment 176:** Under the heading *Flow/Temperature to Support Anadromous Fish (Proposed Article A108)* in section 3.3.6.2 of the draft EIS, DWR disagrees that the proposed flow increases (i.e. an additional 100 cfs baseline, an additional 200 cfs during spawning periods and potentially up to 900 cfs for temperature control purposes) are minimal. In addition, for geographic name consistency, DWR notes that Mile Long Pond and One Mile Pond are the same. DWR points out that the name One Mile Pond is more conventional and suggests that it be used in this instance.

**Response:** We agree that the proposed increases in minimum flow release are significant relative to fisheries habitat, but continue to find the increases minimal relative to the effects on recreational boating. We revised the final EIS to refer to One Mile Pond.

**Comment 177:** Under the heading *Oroville Wildlife Area Management Plan (Proposed Article A115)* in section 3.3.6.2 of the draft EIS, staff suggests that it would be more efficient to re-evaluate the OWA plan every 6 years. DWR notes it may be more practical to coordinate the schedule with DFG updates. DFG has a 2-3 year cycle for regulation changes, and DWR suggests using this shorter recurring period which could coincide with the 6-year period recommended in the draft EIS.

**Response:** We agree that it would be more practical to coordinate the re-evaluation of the OWA plan with DFG updates. Providing DFG updates every 2 or 3 years would still allow the Recreation Advisory Committee to synchronize its updates of the Recreation Management Plan with the OWA plan and we recommend this update in the final EIS.

**Comment 178:** In section 3.3.6.2, *Minimization of Disturbance to Nesting Bald Eagles*, DWR comments that other bald eagle territories are partially within the project boundary and that Potter Ravine bald eagle nest territory has been abandoned during the last two nest seasons.

**Response:** According to the Draft National Bald Eagle Management Guidelines (FWS 2006), over most of the United States, after 5 years of disuse, the probability of an alternate bald eagle nest becoming active is considered remote enough that protection from disturbance is no longer necessary. Therefore, although the Potter Ravine nest territory has not been used for the last two nest seasons, the EIS continues to consider it an active nest territory. Section 3.3.6.2 has been revised to include mention of the other bald eagle territories.

**Comment 179:** DWR notes that dog trials may still occasionally be allowed in certain locations of the project under Special Use Permit and suggests changing “eliminating” this recreational opportunity to “reducing” this recreational opportunity under the heading *Protection of Giant Garter Snake (Proposed Article A119)* in section 3.3.6.2 of the draft EIS.

**Response:** We appreciate DWR’s additional information and modified our discussion of the effects of protecting giant garter snake habitat on recreation.

**Comment 180:** Butte County and several Butte County residents comment about the need to maintain recreational access to Foreman Creek. Mary Keiser comments that, while she understands the need to protect sensitive cultural sites at Foreman Creek, a complete closure of the community park should not be considered. She comments that the maintenance of Foreman Creek has been minimal, at best, and suggests that the state has not devoted resources to Foreman Creek because it is not a revenue-producing public area. Butte County and others comment that there is little “no cost” access to Oroville Lake and that one of the only free access sites is at Foreman Creek. Its closure would further reduce the “no cost” options to access recreation at the project. Several Butte County residents expressed similar concerns; adding that sensitive cultural areas should be segregated, while maintaining public access to Foreman Creek. Butte County suggests that DWR be required to provide another access road into the Foreman Creek area or be required to develop other recreational facilities on Lake Oroville which provide shallow water opportunities similar to those currently provided at Foreman Creek.

**Response:** We understand that the Foreman Creek access affords inexpensive access to Lake Oroville and is important to residents in the immediate vicinity. DWR proposes to develop a plan to improve the recreational facilities at Foreman Creek and confine usage to designated areas. While the draft plan is very specific relative to the recreational upgrades, it is vague relative to how cultural sensitive areas would be protected. We continue to recommend a short-term closure of the Foreman Creek access to allow the development of a plan that would detail how cultural resources would be protected. We indicate in our discussion in section 5.1.2.7 that the plan should consider whether development of comparable recreational opportunities elsewhere in the vicinity of Foreman Creek would be warranted.

**Comment 181:** DWR requests that staff reconsider its recommendation to close Foreman Creek to recreation while a plan to protect cultural resources is developed. DWR cites actions that have already been taken, with the Commission’s approval, to minimize the impacts on cultural resources, including the restriction of vehicle access to designated areas and roads which relieve the vast majority of recreation disturbances to sites in the fluctuation zone. SWC and Metropolitan also comment that staff should reconsider its recommendation to close Foreman Creek to recreation while a plan is developed. SWC and Metropolitan support DWR’s proposal for improvements to Foreman Creek. Berry Creek Rancheria of Maidu Indians comments that DWR’s proposal for continued recreation at Foreman Creek would not adequately protect cultural resources. Specifically the Tribe points to the fact that cultural resources are concentrated along the car-top boat ramp and that restricting use of the boat ramp or rerouting access would not prevent damage to these resources. The Tribe supports the closure of the boat launch at Foreman Creek, but comments that this should not be a temporary measure, but a permanent one. In light of these comments, the Tribe suggests that the issue moving forward is whether or not another boat launch is needed in light of existing recreational facilities. If an additional boat launch is needed, it

should be placed west or north of the Foreman Creek campground so as not to affect cultural resources. Berry Creek Rancheria, Mooretown Rancheria, and Enterprise Rancheria also comment that the recreational facilities at Foreman Creek are one of 35 in the project area. Viewed in light of the project area as a whole, the recreational amenities at Foreman Creek are hardly noteworthy and their closure would have a minimal impact on recreation in the project area.

**Response:** As discussed in section 5.1.2.7 of the draft EIS, we would prefer to see the recreational capacity at Foreman Creek maintained but not at the expense of further degradation of cultural resources. Whether the site should be closed permanently would depend on whether DWR and the consulting parties can develop a plan for Commission approval that would allow implementation of recreational improvements while protecting or segregating cultural sites. As noted in our response to comment 180, our recommended plan should consider whether development of comparable recreational opportunities elsewhere in the vicinity of Foreman Creek would be warranted.

**Comment 182:** DWR comments that contrary to the statement in section 3.3.6.3, *Unavoidable Adverse Effects*, planting activities do not usually interfere with recreational activities. DWR suggests adding a paragraph identifying brood pond construction as an unavoidable short-term adverse impact on afterbay recreation, as the afterbay water surface elevation would need to be drawn to allow construction for an extended period.

**Response:** We added discussions of brood pond construction to sections 3.3.6.2 and 3.3.6.3 of the final EIS.

**Comment 183:** DWR notes that group overnight capacity at the Oroville Facilities is 273 people, not 115 as listed in section 5.1.2.5 *Recreation*, of the draft EIS. DWR asserts that OHV use does not occur on project lands and also notes that target shooting is limited to contracting public agencies and is not available to general recreational visitors.

**Response:** We appreciate DWR's clarification of the capacity for group overnight camping at the Oroville Facilities and modified our discussion in the final EIS to reflect the correct number. We realize that OHV use is officially prohibited in the OWA but based on information from DWR's January 2004 Assessment of the Impact of Recreation and Public Use (R-11) note that it occurs at all OWA dispersed use areas and the Old Nelson Bar Road dispersed site. Furthermore, DWR's year 2 progress report on Recreational Facilities and Operations Effects on Water Quality – Recreational Trails (SP-W3), noted off-road vehicle damage at the Thermalito afterbay and damage to trails at Potters Ravine and the Thermalito diversion pool due to ATVs. We are aware of opportunities outside of the project area for both OHV enthusiasts (the Clay Pit State Vehicle Recreation Area) and target shooters (the Rabe Road shooting range) and note them in our final EIS.

## LAND USE AND MANAGEMENT

**Comment 184:** Butte County comments that the analysis in section 3.3.7.2, *Effects on Land Ownership, Management, and Use*, regarding Proposed Article B111 that supports the Proposal for OWA Funding, but does not require it to be included in the project license, will likely lead to business as usual whereby OWA is left without funding for wildlife management staff. In addition, Butte County comments that the draft EIS does not address the environmental and public health threats created in the OWA by illegal dumping which in turn harbors vectors (rats, mosquitoes, etc.).

**Response:** The staff's position, consistent with statements in the draft EIS in section 3.3.7.2, *Effects on Land Ownership*, and section 3.3.10.2, *Law Enforcement, Criminal Justice, and Crucial Asset Protection*

*Expenses*, is that OWA funding under Proposed Article B111 would provide for wildlife management staff funding, which would be an improvement over the current condition.

**Comment 185:** DWR comments that table 53 should be updated in the final EIS to note that the term of the lease with John Campbell has been renewed.

**Response:** We revised table 53 in section 3.3.10.2 in the final EIS to indicate that John Campbell's cattle grazing lease has been renewed.

**Comment 186:** DWR comments that in section 3.3.7.1, *California Department of Fish and Game*, it should be clarified that DFG has never managed fish and wildlife habitat of the Lake Oroville State Recreation Area. Furthermore, DFG has done no habitat management of the OWA for several years.

**Response:** We clarified DFG's role in the management of fish and wildlife habitat in section 3.3.7.1 of the final EIS.

**Comment 187:** DWR comments that in section 3.3.7.1, *Gravel Harvesting*, it should be noted that DFG does not regulate gravel harvesting in the OWA. They are DWR leases regulated by DWR.

**Response:** We corrected this information in the final EIS.

**Comment 188:** DWR comments that Proposed Measure B102, discussed in section 3.3.7.2, *Fuel Load Management*, would include Forest Service lands consistent with the Forest Service's 4(e) condition.

**Response:** We clarified in the final EIS that the fuel load management plan would include Forest Service lands consistent with Forest Service 4(e) condition 19.

## CULTURAL RESOURCES

**Comment 189:** DWR makes several comments about the treatment of ethnographic resources in section 3.3.8. DWR asks that the final EIS mention the ethnographic inventory prepared by Far Western Anthropological Group and that the final EIS should clarify what is meant by a more temporally cultural chronology as described in the section Southern Cascades. DWR also requests that the final EIS note that the Round Valley Reservation is in Mendocino County to give the reader some perspective about how far the American Indians were forced to walk. Finally, DWR comments that the reference to the "Konkow Tribal groups" may be misconstrued as the Konkow Valley Band of Maidu. DWR indicates that it would be more accurate to say "local Konkow Maidu Tribal groups." In addition, the accurate reference for the Mechoopda Tribe is Mechoopda Indian Tribe of Chico Rancheria.

**Response:** In section 3.3.8.1 under the heading *Investigations Related to DWR's Relicensing Effort* we do include and cite the ethnography inventory prepared by the Far Western American Group as DWR 2004n. The word "limited" was omitted from the phrase "temporally limited cultural chronology" and we corrected this in the final EIS. We added the location of the Round Valley Reservation in Mendocino County. We revised the reference to the local Konkow Maidu Tribal groups and to the Mechoopda Indian Tribe of Chico Rancheria in the final EIS as suggested.

**Comment 190:** DWR comments that in *Historic Background*, the reference to "Lava Beds District" should be reworded because mining districts were formally established in the region, as were certain community districts; the Lava Beds did not match either of these concepts. It was simply a geographical area south of Oroville.

**Response:** We agree that the current text suggests a formal place name or a formal district designation. We revised the text to clarify that the mining camps were in an area known locally as the lava beds area.

**Comment 191:** DWR asks that in the section, *Cultural Resources Identified within the Project's Area of Potential Effects*, of the final EIS, it should be noted that DWR is committed to the establishment of a curation facility in the Oroville area. DWR is supportive of and is encouraging management with or by the Tribes, but the latter is not required, as implied in the text.

**Response:** We agree and revised the final EIS to clarify that it is preferred but not required that the curation of the artifacts be managed by the Tribes.

**Comment 192:** On page 290, DWR comments that the paragraph that references the inventory strategy lists many areas that currently are used for recreation and maintenance, etc. that were included in the archaeological survey. Two areas of considerable cultural importance that were surveyed, but are not listed, are Enterprise boat ramp and the Foreman Creek recreation area. Both locations should be identified here. The list also identifies the Bloomer boat-in campground but not the other boat-in campgrounds at Foreman Creek, Craig Saddle and Goat Ranch, all of which were surveyed. It would be better to list them all or simply include "all boat-in campgrounds."

**Response:** The list of management-specific parcels included in the inventory strategy was taken verbatim from the survey report (DWR, 2005f). The significance of the Foreman Creek and Enterprise boat ramps areas is discussed under the same section of the draft EIS under the heading *Ethnographic Resources*. We added a footnote to the discussion to explain that the Enterprise boat ramp and Foreman Creek recreation area were also inventoried along with other boat-in campgrounds associated with the project and are discussed in greater detail under *Ethnographic Resources*.

**Comment 193:** DWR comments that section 3.3.8.2, *Historic Properties Management Plan*, contains two errors. First, although the three federally recognized tribes in Oroville were invited to be involved in the development of the HPMP; the Tribal Unity Council was not involved. Second, Mechoopda is a federally recognized Tribe. The final EIS should reflect these corrections.

**Response:** We revised section 3.3.8.2 of the final EIS to clarify which tribes participated in the development of the HPMP. The draft EIS clearly identifies the Mechoopda is a federally recognized tribe in the second paragraph under the heading *Historic Properties Management Plan*.

**Comment 194:** DWR notes that consistent with page 4-3 of the draft HPMP members of the California Archaeological Site Stewardship Program will assist DWR with the monitoring sites, but they will not be doing all of that work as indicated in section 3.3.8.2, *Historic Properties Management Plan*.

**Response:** We understand that the members of the California Archaeological Site Stewardship Program would be assisting DWR in routine monitoring and that DWR would do the non-routine monitoring, as stated in the draft EIS. However, we revised the final EIS to emphasize this point.

**Comment 195:** DWR disagrees with the statement in the draft EIS that DWR is subject to the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA). Archaeological studies conducted prior to and during dam construction were completed under the auspices of DPR. All human remains and items of cultural patrimony removed from within the project boundary at that time have been and are currently curated with DPR. DPR has full responsibility for these NAGPRA issues and has abided by the regulations for NAGPRA. DWR has worked to assist the Tribes with repatriation of remains and materials taken from sites during dam construction. Other elements of NAGPRA apply to the discovery of human remains specifically on federal and tribal lands.

Federal land holdings within the project limits are under the jurisdiction of BLM and the Forest Service. Those agencies, however, have not delegated NAGPRA responsibilities for those properties to DWR. There are no tribal lands within the project APE.

**Response:** We revised the text to clarify that DWR is not subject to NAGPRA relative to reburials from the original construction of the dam.

**Comment 196:** Berry Creek Rancheria, Mooretown Rancheria, and Enterprise Rancheria comment that the draft EIS properly recognizes the importance of Foreman Creek to the Tribes and how the cultural resources at the Creek are threatened by public access and recreational use. The Tribes comment that the only way to protect these resources is through permanent closure of Foreman Creek for the following reasons: (1) Foreman Creek is sacred to the Tribes, and not appropriate for recreation; (2) cultural resources cannot be protected by mere “restrictions” or “regulations” imposed on recreation or by additional study; (3) impact avoidance is the preferred, and legally required, method to protect cultural resources; and (4) closing Foreman Creek would have a minimal impact on recreation. The Tribes propose creating a cultural easement for the Foreman Creek area that would allow access to cultural sites without interfering with the operation or maintenance of the project. The draft EIS fails to analyze this recommendation that was included as Exhibit C to Berry Creek’s Motion to Intervene and Comments, dated January 30, 2006. The cultural resource protection easement would grant certain rights to Berry Creek, with all remaining rights retained by DWR.

**Response:** As discussed in section 5.1.2.7 of the draft EIS, we would prefer to see the recreational capacity at Foreman Creek maintained but not at the expense of further degradation of cultural resources. Whether the site should be closed permanently would depend on whether DWR and the consulting parties can develop a plan that would allow implementation of recreational improvements while protecting or segregating cultural sites. Our recommended plan should consider whether development of comparable recreational opportunities elsewhere in the vicinity of Foreman Creek would be warranted. We continue to conclude that DWR’s land management decisions developed as part of the plan could provide adequate resource protection for this area. Regarding Berry Creek Rancheria’s recommendation of a cultural easement, the final EIS analysis concludes that it would be premature to conclude that a cultural easement would be warranted.

**Comment 197:** EPA comments that the draft EIS does not address the comments from the four federally recognized Tribes that request DWR pay the costs associated with restoring and re-burying artifacts and remains previously removed from the area.

**Response:** We respectfully disagree with EPA that we did not address this issue and point to the last paragraph under the *Staff Analysis* of the HPMP where we discuss that fact the DWR is currently working with the Tribes to identify lands for reburial. DWR would be responsible for paying for implementation of the HPMP, including the costs associated with curation of any artifacts obtained during relicensing studies or implementation of approved environmental enhancements. DWR would also be responsible for paying for any reburials resulting from relicensing the project. The reburials associated with the original construction of the project would be the responsibility of DPR.

**Comment 198:** EPA comments that the final EIS should provide information on how DWR plans to protect cultural resources, particularly when public access is encouraged in close vicinity to cultural and historic sites. Specifically, the final EIS should identify specific measures for protecting Foreman Creek, including restricting public access and off-highway vehicle use. Tribal members who spoke at the public meeting indicated that they do not advocate closing the Foreman Creek access area. They want to preserve the access, but also protect the cultural sites affected by continued use of the access area.

**Response:** The draft EIS discusses DWR's proposal to develop a plan to improve the recreational facilities at Foreman Creek and notes that the plan does not provide specifics on how DWR intends to protect cultural resources. In the draft EIS, staff recommends restricting public access and off-highway vehicle use near culturally sensitive sites and recommends that the site be closed until a plan that provides the specifics on the protective measures is completed. The plan would include consideration of more specific alternative locations for access in the vicinity of Foreman Creek.

**Comment 199:** EPA comments that the final EIS should reference the HPMP and summarize measures that would cumulatively reduce the threat of destruction of cultural resources. The final EIS should discuss the development of site-specific treatment plans for areas of known concern and include a timeline for resolving conflicts.

**Response:** The draft EIS provides a detailed discussion of measures proposed in the draft HPMP that are designed to avoid or mitigate any effects on cultural properties. The draft HPMP describes the procedures for the development of site-specific treatment plans for priority areas.

**Comment 200:** Section 3.3.8.3 includes language that states that the measures included in the HPMP for the Oroville Facilities would cumulatively reduce the rate of destruction of cultural resources. EPA comments that specific examples of the measures included in the HPMP are not discussed in the draft EIS. EPA comments that the final EIS should provide a discussion of the cumulative effects of the project when considered with other past, present, or reasonably foreseeable projects. The document should also propose mitigation for all cumulative impacts and clearly state the lead agency's mitigation responsibilities, as well as the mitigation responsibilities of other entities.

**Response:** The draft EIS provides a detailed description of the measures included in the HPMP that are reasonable given the site-specific needs and that are consistent with the Advisory Council on Historic Preservation and the Commission's guidelines for the development of HPMPs. The coincidence of the relicensing of several hydroelectric projects on the Feather River at about the same time provides an opportunity for the implementation of measures to protect and enhance cultural properties in the larger region. We discuss the cumulative effects on cultural resources in section 5.2 of the EIS and state that the measures included in the upstream projects, along with those proposed at the Oroville Facilities, would cumulatively reduce the rate of destruction of cultural resources.

**Comment 201:** Enterprise Rancheria requests that the Commission impose a license condition on DWR that requires it to work with the Tribe and BLM for the purpose of restoring and adding lands, while providing an economically viable Rancheria. (BLM owns large quantities of lands contiguous to the project area and the remaining trust lands of Enterprise Rancheria.)

**Response:** The existing baseline for analysis is current environmental conditions, rather than tribal pre-project conditions, and the loss of land associated with the original construction is not subject to further analysis at this time.

**Comment 202:** Section 5.1.2.7, Historic Properties Management Plan provides several staff recommendations with regard to DWR's proposed HPMP. SWC and Metropolitan comment that it would seem appropriate to defer review of evaluation protocols and revision of the HPMP in light of the fact that the Programmatic Agreement will involve consultation with the State Historic Preservation Officer, Advisory Council on Historic Preservation, and others regarding the appropriate level of evaluation to mitigate project impacts.

**Response:** We agree and note that the Programmatic Agreement would be executed prior to any license issuance and would stipulate the development and implementation of a final HPMP.

## AESTHETIC RESOURCES

**Comment 203:** DWR requests that staff reconsider and delete its recommendation to reseed the face of the Oroville dam with poppies. DWR notes that it has made previous, unsuccessful attempts to reseed the face of the dam at a cost of approximately \$10,000. Based on that experience, DWR has concluded that California poppies are not adequately self-sustaining in this location to produce the desired effect. Furthermore, based on previous experience with this endeavor, the \$900 estimated cost in the draft EIS is unrealistic.

**Response:** In section 5.1.4, *Additional Measures Recommended by Staff*, of the draft EIS, we recommend DWR develop a plan to continue reseeding the Oroville dam with wildflowers or other plantings. We realize that the initial cost was higher than our estimated cost, but our recommendation is for occasional supplementation of bare areas on the dam on an as-needed basis to continue providing the aesthetic benefit. Therefore, we continue to recommend seeding the face of the dam with self-sustaining plants and increased the capital cost to \$11,000 in the final EIS.

## SOCIOECONOMICS

**Comment 204:** Butte County comments that the draft EIS displays a clear and systematic bias toward the data submitted by DWR, while ignoring a series of studies submitted by Butte County, including the following:

- Butte County, California's Response to the May 2006 Reports of CH2M HILL and TCW Economics (June 26, 2006)
- Comments of FMY Associates, Inc. on Filings Submitted by California Department of Water Resources and State Water Contractors (June 2006)
- Memo from Dr. Jon Ebeling to Paul McIntosh, Butte County Chief Administrative Officer (June 20, 2006)

The County incorporates by reference its June 26, 2006, filings into its comment letter and comments that the draft EIS is deficient in not addressing this previous filing. On the whole, Butte County comments that the draft EIS largely ignores the socioeconomic impacts of the project on Butte County, systematically underestimates the costs the County incurs in providing governmental services to the project, and overstates the positive benefits of the project to the County. Butte County comments that the licensee should be required to pay its fair share of the costs of providing governmental services to the project, as well as attempt to mitigate the ongoing adverse impacts of the project on the County's socio-economic health by providing a low cost power allocation and payment in lieu of taxes.

**Response:** We address specific comments made by Butte County concerning the socioeconomic analysis in specific responses below. We revised the language in the final EIS to correct factual errors. However, we do not agree that the staff's analysis reflects a bias in favor of data submitted by DWR.

With respect to the three documents noted by Butte County, staff did review the studies while preparing the draft EIS, and considered the information that was relevant to our analysis. Much of the information in the three documents involved critiques of information in other parties' submittals. Where the original information was not relevant to the draft EIS analysis, the critique was not used either. In some cases, where the draft EIS reflects the information provided in the three documents but we failed to provide the citation; we added the appropriate citations in the final EIS. Additionally, we reviewed the three documents again in light of the County's comments on the draft EIS, and in several cases revised the text

of the final EIS to reflect the position of the County and its consultants. Those cases are discussed below in response to specific comments.

As stated in the draft EIS, section 5.1.2.8, *Socioeconomics*, both payments in lieu of taxes and the potential distribution of low cost power are issues beyond the scope of this EIS.

**Comment 205:** Butte County comments that in section 3.3.10.1, *Population*, the draft EIS does not include adequate consideration of the impact of population growth in the Sacramento Valley on Butte County over the next 40 to 50 years. In addition, the EIS should consider increases in the downstream population and the impact of this growth on demand for water for both irrigation and consumption, which could affect the way the Oroville Facilities are used.

**Response:** Draft EIS section 3.3.10.1, *Population*, does note expected population growth in the Sacramento Valley, and notes an expected doubling of the Butte County population in the next 40 years. In response to this comment, we added an additional statement to the section concerning the expected absolute growth in the Sacramento Valley population.

**Comment 206:** Butte County comments that draft EIS section 3.3.10.1, under the headings *Employment and Economic Base* and *Income*, does not include consideration of employment and income information provided to the Commission by the County in pages 6 through 15 of its submittal *Socio-Economic Impacts of the Oroville Facilities Project on Butte County, California* and pages 6 through 12 of FMY Associates' *Socio-Economic Impacts of the Oroville County, California Facilities Project on Butte County, California*.

**Response:** The draft EIS does not include every fact submitted by the County in various filings. However, the draft EIS clearly reflects the same information provided by the County in the two referenced reports: average incomes in the county are lower than regional, state, and national averages; the percentage of the population living below the poverty level is well above average; and the population ranks high in terms of income from government transfer payments, including public assistance. We see no need to revise the text of the final EIS to elaborate further on these points.

**Comment 207:** Butte County comments that section 3.3.10.1, *Fiscal Condition of Local Jurisdictions*, deals primarily with the allocation of sales tax revenues while ignoring the other aspects of Butte County's poor fiscal health. In addition, Butte County comments that this section fails to address the lack of property tax revenues accruing to the County. Butte County also comments that the draft EIS does not include information provided by the County in the form of reports from the California Commission on State Mandates

**Response:** We changed the heading of section 3.3.10.1, *Fiscal Condition of Local Jurisdictions* to *Sales Tax Revenue of Local Jurisdictions* to more accurately reflect the topic discussed in that section. We added to section 3.3.10.1 *Fiscal Condition of Butte County*, to include more information about the poor fiscal health of Butte County.

**Comment 208:** Butte County comments that it agrees with the findings presented in table 63, and suggests that these findings should be better reflected in the rest of the EIS. Similarly, Butte County states that the findings in table 64 with regard to the lack of any measurable spending by recreation users in the unincorporated areas of Butte County do not appear to inform the rest of the EIS.

**Response:** As noted in the County's comment, tables 63 and 64 in the draft EIS clearly show that most agency and recreation-related spending at the project accrues to the city of Oroville and other jurisdictions

rather than to Butte County. We revised the text in section 5.1.2.8, *Socioeconomics*, to reiterate this point in our conclusions.

**Comment 209:** In section 3.3.10.1, *Recreation and O&M Related Employment and Earnings*, the draft EIS reports that project-related spending annually supports about 1,053 jobs and \$25.8 million in earnings in the County. Butte County strongly challenges the accuracy of this claim and comments that no evidence or data is supplied in the draft EIS to support it. Furthermore, Butte County comments that the evidence it provided in the studies filed with the Commission refutes this fact. Butte County also comments that the draft EIS does not address jobs and income lost due to the project, including those at Big Bend Power Plant, logging industry jobs, commercial/retail jobs associated with the community of Las Plumas, and other jobs that were lost due to the inundation of local land to create Lake Oroville.

**Response:** In the draft EIS, DWR cites study report R-18 as the source of project-related jobs and earnings estimates, and the study report supplies ample documentation of how the estimates were arrived at; it is not necessary to repeat that documentation in the EIS. The study was based on a study plan agreed to by the Recreation and Socioeconomic Work Group, and our review of the work group meeting minutes, while noting a few questions and comments that arose during the draft study review period, does not indicate objections to the study plan or study report. With respect to jobs lost when the project was constructed. Given the Commission's policy that the baseline for analysis is current environmental conditions, rather than pre-project conditions, the loss of jobs associated with original project construction is not subject to further analysis at this time.

**Comment 210:** Butte County disagrees with the statement in the draft EIS that project-related public services provided by local government are primarily the responsibility of the city of Oroville and Butte County. Butte County indicates that the city of Oroville has no primary responsibility for any of the public services provided to the project and is too small to lend support to the County.

Paul McIntosh, Chief Administrative Officer for Butte County; and Perry Reniff, Sheriff-Coroner of Butte County, the Harvey M. Rose Accounting Corporation, and Butte County comment that the draft EIS erroneously states that DPR is the primary provider of law enforcement and emergency response services in the project area. Butte County states that, in the state of California, the Sheriff is a constitutional officer and the chief law enforcement officer for the county in which he or she is elected, although the California Highway Patrol, DFG, DPR, and the Butte County Sheriff's Office share law enforcement responsibilities within the project boundary. DPR comments that DPR has the lead law enforcement responsibility on state park lands, including the Lake Oroville State Recreation Area. DWR comments that the California Highway Patrol has the duty and responsibility of providing protection to state property, including Oroville dam, and that the California Highway Patrol provides regular patrols of the dam and other critical project facilities.

Butte County states that the South County Interagency Fire Protection Agreement does not cover the project area, and that the County has primary responsibility for fire protection and emergency services to the project area. DWR comments that in practice the Butte County Fire Department, CDF, and Oroville Fire-Rescue Department cooperatively respond to calls within the project area, including the Lake Oroville State Recreation Area, and that primary responsibility for fire protection and emergency service calls in the area is divided among the agencies depending on the location of the incident and the availability of fire units to respond to the call, regardless of primary jurisdictional responsibilities

Butte County, Mr. McIntosh, and Mr. Reniff comment that, in actuality, the true responsibilities for law enforcement and emergency response for providing public safety at the Oroville Facilities falls to Butte County. In addition, the County, Mr. McIntosh, and Mr. Reniff comment that Butte County bears the overwhelming cost of providing these services, while DWR comments that it pays the county \$191,000

annually to patrol the water surface of Thermalito afterbay. Mr. McIntosh requests that the Commission consider this information in the final EIS and require the licensee to pay its share of the costs required to keep visitors to the project safe.

**Response:** We revised the text of section 3.3.10.1, *Public Services*, to clarify the responsibilities of various parties as we understand them. However, this did not alter our analysis or conclusions. With respect to requiring the licensee to pay a share of the County's costs of providing services to project users, we revised the text in section 5.1.2.8, *Socioeconomics*, to clarify that state and local tax law does not fall under the Commission's jurisdiction, and that payments in lieu of taxes are beyond the scope of this EIS.

**Comment 211:** Butte County comments that although the city of Oroville, Butte County Fire, and El Medio Fire District do work cooperatively through the South County Interagency Fire Protection Agreement, the Planned Response Areas of that Agreement do not cover the project area. Furthermore, Butte County states that CDF is not a party to that Agreement as noted in the draft EIS. Primary responsibility for fire protection and emergency services to the project area is provided by Butte County. CDF has primary responsibility for wildland fires in the areas within the State Recreation Area surrounding Lake Oroville. The final EIS should reflect this.

**Response:** We revised the text of section 3.3.10.1, *Public Services*, in the final EIS to reflect these corrections. However, this did not alter our analysis or conclusions.

**Comment 212:** In their comments on the draft EIS, SWC and Metropolitan submitted a study prepared by CH2M Hill that presented an analysis of income support payments to residents of Butte County. Butte County submitted a response to that report, noting that some of the data were incorrect and that the analysis was flawed. Additionally, Butte County included in its comments information concerning the County's position that the low-cost housing vacated by construction workers following project construction led to an increase in the demand for health and human service programs in the County. In its response, DWR cited other information and noted that the County's analysis was flawed.

**Response:** We reviewed the report submitted by SWC and Metropolitan and the critique submitted by Butte County, as well as the analysis of health and human services impacts submitted by the County and the critique submitted by DWR, but do not find that any of these documents are relevant to this relicensing proceeding. We did not revise the text of the EIS to reflect any of these submittals.

**Comment 213:** Michael L. Ramsey, the District Attorney for Butte County comments that the draft EIS has dramatically underestimated the resources expended on criminal justice that arise from referrals to his office from various law enforcement agencies for criminal activities which arise within the Oroville facilities. Mr. Ramsey states that the 150 referrals from DPR alone cost the district attorney's office nearly \$100,000. This is only a small portion of the cases referred out of the project area and does not include the cases referred by other agencies or the costs to other agencies. He also comments that a lack of adequate law enforcement patrol resources within the project boundaries lead to less crime prevention and more prosecution. Mr. Reniff, the Sheriff Coroner of Butte County, also comments on this topic and suggests that, in order for the Butte County sheriff's office to provide a minimum level of security for the Lake Oroville Dam Operations Center, it would be necessary to provide a staff of 12 deputy sheriffs and 2 sergeants. He provides an annualized cost for these services of \$1,565,853, with additional startup expenses of approximately \$30,000.

**Response:** In response to these comments, we refer the commentor to section 3.3.10.2 of the draft EIS, *Law Enforcement, Criminal Justice, and Crucial Asset Protection Expenses*, where all of these topics are discussed. We note that the staff's estimate of \$216,400 in project-related criminal justice expenses,

while not as large as the County's estimate of \$664,585 (see draft EIS table 67), does recognize that the County incurs significant expenses in providing criminal justice services related to project visitors. Even the staff's lower estimate would be sufficient to cover the \$100,000 in cost noted by Mr. Ramsey. As noted in the same section of the draft EIS, DWR retains a private security contractor to patrol Lake Oroville dam.

**Comment 214:** Curt Josiassen, Chairman of the Butte County Board of Supervisors, cites the need for recognition of the fiscal impacts of the project on Butte County and acceptable methods to address and relieve these impacts.

**Response:** The draft EIS addresses the fiscal impacts associated with Butte County's services in section 3.3.10.2, *Butte County Recommendations*, and the staff conclusions are presented in section 5.1.2.8, *Socioeconomics*.

**Comment 215:** Butte County comments that the draft EIS undercounts the number of road miles used by project visitors and personnel, ignores the County's June 26, 2006, response concerning road costs incurred by the County, undercounts the County's costs of maintaining roads, fails to account for the incremental toll that project-related vehicles take on county roads, ignores the environmental benefits of paving or sealing substandard roads, and ignores traffic problems caused by the project.

**Response:** We reviewed the County's position, expressed in several filings, including the June 26, 2006 filing, and respectfully disagree with the County's position with respect to the entity that is responsible for paying for construction and maintenance of roads outside the project area that are used both by project visitors and by county residents and others not visiting the project. It is long-standing Commission practice to recognize the local government's responsibility for non-project use of roads outside the project boundary, and not to address maintenance of those roads in the project license. With that in mind, the staff does not see the need to include the County's additional information to the EIS.

**Comment 216:** Butte County comments that the draft EIS gives improper weight to project benefits that the draft EIS itself refers to as being "conjectural," "rough," and "speculative," including benefits related to flood protection, water supply, and increased property values. Butte County and its consultants, including FMY Associates, Inc. and Harvey M. Rose Accountancy Corporation, comment that the draft EIS does not use much of the information provided by those parties in the County's June 26, 2006, submittal to the Commission, but relies instead on flawed studies prepared by CH2M HILL and TRW. FMY Associates comments that the draft EIS seems to have accepted DWR and its consultants' reports that property values increased in Butte County because of the existence of the Oroville Facilities, and that this is not correct.

**Response:** We continue to maintain that the discussion of flood protection, water supply and property values in draft EIS section 3.3.10.2, *Payments in Lieu of Taxes*, is of sufficient interest to be included in the final EIS, but also continue to refer to these estimates as being based on less rigorous study than other information on the record. We revised the final EIS to reflect more of the information provided by the county and its consultants concerning the estimates, and also revised the text of section 5.1.2.8, *Socioeconomics*, to be consistent with the analysis. We revised our concluding statements to clarify our position that the project likely has a negative fiscal impact on the county.

**Comment 217:** Butte County comments that in section 3.3.10.2, *Emergency Operations Center* of the draft EIS staff concludes that Butte County's Emergency Operations Center does not face a flood risk from dam failure or the operations of the Oroville Facility. Butte County comments that this is not true, while Friends of the River, Sierra Club, and the South Yuba River Citizens League express concern with the conclusion that "even during the 1997 flood, a low probability event, the Emergency Operations

Center was not damaged.” Assuming that the Center is downstream of Oroville dam, the commentors state that they find this draft EIS statement troubling because: (1) the release from Oroville dam was only 10,000 cfs more than the 150,000 cfs objective release and the city of Oroville had been notified to expect pass-through releases of up to 300,000 cfs. The commentors suggest that this is likely a consequence of the reluctance of Oroville’s operators to conduct regulated surcharge operations. They comment that having the Emergency Operations Center in a location where it could be inundated by pass-through releases can adversely affect operations even if such a facility is not flooded. They also comment that deciding the true probability of the 1997 event is at best an exercise in speculation. They comment that federal recommendations (including executive orders) for siting critical infrastructure such as emergency operations centers are to avoid areas subject to even low probability flooding—and certainly avoiding susceptibility to standard project floods (the Oroville design flood), which could not be successfully regulated by Oroville dam without the operational use of the ungated spillway according the Corps Reservoir Regulation Manual, something that DWR’s operators appeared to be unwilling to do in 1997.

**Response:** We note that the draft EIS does not say that the Emergency Operations Center faces no risk from dam failure, rather that it faces “no appreciable risk.” While the consequences of dam failure would be catastrophic, the likelihood of dam failure is itself quite remote (see draft EIS section 3.3.10.2, *Emergency Operations Center*). Although the County indicated in earlier filings that DWR advised the County of the potential need for an evacuation of the Emergency Operations Center during the 1997 flood event, the rationale for such an evacuation alert is not clear to us. The risk of conventional flooding appears minimal because the Emergency Operations Center is located well away from the river, and its elevation is well above the power canal.

Operation of the Oroville Facilities provides considerable flood regulation relative to the pre-dam condition. According to the Corps’ *Post Flood Assessment for 1983, 1986, 1995, and 1997*, Central Valley California (Corps, 1999) flood control operations at the Oroville Facilities reduced the 1997 flow from 302,000 cfs to 160,000 cfs at the dam. The dam and Feather River levees are credited with preventing \$1,058,440 in damages.

**Comment 218:** The Community Action Agency of Butte County, Inc. comments that the staff overstates the benefits of the project to tourism and local residents in the draft EIS. Furthermore, it comments that the staff’s estimate made in section 3.3.10.2, *Net Fiscal Effects*, of \$732,900 net fiscal effect to the County budget is misleading. The Agency comments that the impact will be much larger due to the fact that the majority of the County’s budget is restricted. The General Fund is used for critical safety and law enforcement needs of the county for which resources have been inadequate for many years. The Agency also comments that while it is commendable that the project proposes to establish a Supplemental Benefit Fund (section 3.3.10.3) to be administered within the city of Oroville, it is insufficient to address even some of the impacts created by the project.

**Response:** In addition to this comment, we also have information from the Commission on State Mandates (2005), submitted with the comments of Paul McIntosh, Chief Administrative Officer for Butte County; indicating that the County has limited flexibility with respect to discretionary spending. Citing the County’s application to the Commission on State Mandates, the Commission notes that the County’s discretionary spending for FY 2004-05 equaled about 65 percent of general purpose revenue, or about 14 percent of total revenue. We amended table 67 and the text of section 3.3.10.2, *Net Fiscal Effects*, to put the project-related deficit in the context of the General Fund as well as the total County budget. However, this did not alter our analysis or conclusions.

**Comment 219:** Drs. Jon Ebeling and Frederica Shockley of Regional and Economic Sciences comment that the calculation of O&M-related sales taxes estimated by the IMPLAN model overstate the tax revenue to the County, and they provide the mathematical backup for a corrected calculation.

Response: We adjusted the O&M sales tax revenue estimate given in table 67 of the draft EIS downward, from \$32,900 to \$1,000 annually. This adjustment is reflected in our conclusion that the project likely has a net negative fiscal effect on the county.

**Comment 220:** Drs. Jon S. Ebeling and Frederica Shockley of Regional and Economic Sciences provide several comments regarding the socioeconomic models used in the draft EIS. They point out that the visitor spending data compiled by DWR was collected using a “convenience sample,” not a probability sample and that this data collection method does not provide a representative sample. Furthermore, they comment that the 37.5 percent return rate is low compared to the 60 percent response rate from professional surveys using mail response. In addition, Drs. Ebeling and Shockley observe that no mention is made of how the visitor spending data were “cleaned” and that DWR has indicated that they made up responses in some cases where responses were missing or garbled. While the draft EIS acknowledges it is important to understand how the data were “cleaned,” it does not include this information. The Harvey M. Rose Accountancy Groups offer similar comments on the socioeconomic model data and assumptions.

**Response:** In their comments, Drs. Ebeling and Shockley are raising the same points that Dr. Ebeling has raised previously in this proceeding, some of which the staff addressed in appendix A of the draft EIS. With respect to DWR’s use of a convenience sample, we note that the same sampling method is commonly used by licensees and their consultants in relicensing proceedings, and we consider the method acceptable. DWR collected expenditure data via a mail-in survey where potential respondents were intercepted at the site(s) over a period of months, interviewed about the recreational facilities and subsequently asked if they would be willing to participate in a follow-up expenditure survey to be mailed to them at a later date. There is no indication that the interviewers chose respondents based on anything other than good practice.

The 37.5 percent response rate, while not ideal, does not appear to the staff to be abnormally low. In any case, the response rate of a survey is not the only means by which to judge the adequacy of the sample. If the number of responses (n) is sufficient to satisfy some standard measure of statistical confidence, and the sample is demographically representative of the population, then one can conclude that the survey results are valid. In the case of the expenditure data, 480 residents of the County and 484 non-residents responded, which results in a margin of error of 4.5 percent for both the resident and non-resident populations. We consider that sufficient for this purpose.

Regarding the data cleaning method, as was stated in the draft EIS, cleaning the data is not an unusual process. Staff finds that the explanation of the data cleaning methods on pages B-2 and B-3 of the R-18 report (DWR, 2004p) is consistent with good practice.

**Comment 221:** Drs. Ebeling and Shockley remark that the draft EIS states that the DWR survey data are unavailable but that the draft EIS does not indicate why the data were not obtained. In addition, the draft EIS concludes that there is no evidence that the study data are biased. Drs. Ebeling and Shockley point out that the opposite conclusion could just as easily be made.

**Response:** The survey data were not part of the record submitted to the Commission, although we note that the data were made available to members of the Recreation and Socioeconomic Work Group in 2003 (DWR, 2003g). With regard to bias, the staff finds the work group’s selection of a reputable consultant, acceptance of the study plan, and acceptance of the final study report R-18 (DWR, 2004p) to be acceptable demonstrations of good practice.

**Comment 222:** Drs. Ebeling and Shockley comment that the artificial analysis using the Monte Carlo data is irrelevant and that the draft EIS should include real survey data from real visitors.

**Response:** Staff performed the Monte Carlo simulations to address Dr. Ebeling's original objection to the use of point estimates of visitor expenditures calculated from the mail-in survey data to derive IMPLAN model outputs. We continue to find the simulations useful.

**Comment 223:** Drs. Ebeling and Shockley point out that on page 333 of the draft EIS staff says that the net impact is about 0.3 percent of Butte County's fiscal year 2002-2003 budget. On page A-10 of the draft EIS staff states that in all cases, the level of project-related fiscal deficit is in the range of 2 to 3 percent of the County's total budget. They request clarification. In addition, Drs. Ebeling and Shockley comment that DWR uses one year of budget data to forecast county spending for the next 50 years. They suggest that this is inadequate and that DWR should use data from over a 10 to 15 year time period.

**Response:** The staff estimate in the draft EIS was of a fiscal deficit of, -\$732,900 representing 0.266 percent of the County's budget of \$275 million. The reference to 2 to 3 percent was a typographical error; in preparing the final EIS, we removed that entire paragraph from appendix A. With respect to the use of one year of budget data, DWR used Butte County's FY 2001-2002 and FY 2002-2003 budgets to derive its cost and revenue translators for the IMPLAN model. DWR reviewed budget data over time but found inconsistencies that precluded the development of a representative time series. DWR explains its rationale on page 4-4 of study report R-19 (DWR, 2004x). Further, beginning on page 4-5 of R-19, DWR explains its assumptions for forecasted visitor fiscal impacts on the County in the year 2020. Staff finds these assumptions reasonable.

**Comment 224:** Drs. Ebeling and Shockley comment that the draft EIS concludes that the project provides a net fiscal benefit overall because the net benefits to Oroville and other communities exceed Butte County's overall deficit. They suggest that this conclusion does not make sense. The cities reap the benefits of sales tax revenues because most of the businesses are located in the cities; however, the County provides most of the services in the project area. Drs. Ebeling and Shockley also comment that the draft EIS claims (as an assumption of the IMPLAN model) that the population due to the impact of the dam imposes no net cost on the county because that group pays enough taxes to offset their demand for services. Harvey M. Rose Accountancy Corporation states that, although many of the economic benefits of the project occur within the unincorporated areas of Butte County, it does not follow that these benefits translate into net fiscal gains for the Butte County government entity. They note that the construction jobs associated with new environmental measures would not necessarily go to county residents, and that the draft EIS does not account for the fact that many higher-paying jobs were lost when the Big Bend hydro project had to cease operations.

**Response:** We find that the text referred to by Dr. Ebeling and Dr. Shockley is self-explanatory; the communities' gains exceed the county's loss, which yields a net benefit overall. This statement does not contradict Dr. Ebeling and Dr. Shockley's point that the cities receive the benefits of sales tax revenues because most of the businesses are located in the cities, while the County provides most of the services in the project area. However, to remove any ambiguity associated with the statement, we removed it from final EIS section 3.3.10.2, *Butte County Recommendations*.

DWR does not dispute that Butte County will experience a net fiscal deficit associated with the project, and indeed this is clearly stated in the draft EIS in section 3.3.10.2, *Butte County Recommendations*, in the first paragraph. Dr. Ebeling and Dr. Shockley are incorrect in commenting that the draft EIS characterizes the IMPLAN model as being based on an assumption that the population due to the impact of the dam imposes no net cost on the County because that group pays enough taxes to offset their demand for services. The draft EIS does not make such a statement and appendix A clearly states that the

opposite is true (see page A-14, which states “... the model predicts that Butte County’s costs of serving the additional population would be greater than the revenue associated with those people...”). Additionally, one of the study reports on which the draft EIS is based (R-19 [DWR, 2004x]) indicates that the cost to the County of serving both the recreational population and the population indirectly attributable to the project exceeds the expected revenue associated with those populations (for example, see R-19, tables 5.1-1 and 5.1-2). However, we revised the text of appendix A, *IMPLAN Model Output and Model Estimation of Indirect Impacts*, as well as section 3.3.10.2, *Butte County Recommendations*, to make this point more prominently.

With respect to jobs associated with new environmental measures, we agree that not all jobs would be filled by County residents; however, some undoubtedly would, which is what is stated in the EIS. Because the loss of jobs from the Big Bend Project was associated with project construction, it is considered part of the baseline and is not subject to further evaluation in this relicensing.

**Comment 225:** Drs. Ebeling and Shockley comment that DWR reports to the Commission indicate that visitation to the project in 2003 and 2004 (the last two years in which visitation survey data were reported) was more than double the project visitation in 2002. They state that the draft EIS cites DWR claims that the rate of visitation to the project is declining which is contrary to these survey results.

**Response:** Following its review of DWR’s fifth biennial recreation report (2005) to the Commission, the Oroville Recreational Advisory Committee noted the vast difference in use figures from the fourth biennial report (2003) and asked DWR to explain the reason for the difference. DWR responded that the differences were due to the fifth biennial report’s relying almost entirely on traffic counter data and using persons-per-vehicle multipliers that are site specific and higher than the multipliers used in previous years. DWR considers the 2005 figures to more closely represent the actual number of visitors to the project than the numbers presented for earlier years. Thus, the 2005 figures represent an improved method of reporting as well as, likely, an increase in actual visitors.

We note that the draft EIS makes no claim that the rate of visitation to the project is declining. Instead, it reported the results of an econometric investigation of project visitation to the project showing that *holding all other variables in the model constant*, the trend in long-term visitation to the project is in decline. The results were presented on pages B16 and B17 of appendix B of DWR’s final study report on Projected Recreation Use (R-12). To illustrate, consider the Lake Oroville model on page B-16. Visitation to Lake Oroville was hypothesized to be a function of water elevation at the lake and a time trend. If, from one year to the next, there is no change in water elevation, the model predicts that visitation during that period will decrease. Drs. Ebeling and Shockley point to data that indicates a doubling of recreation use at the project in the years 2003 and 2004 compared to 2002 and suggest that such an increase invalidates the econometric model. However, Dr. Ebeling and Dr. Shockley are describing a short-term, positive fluctuation in visitation that is not inconsistent with a long-term downward sloping trend. In other words, had the estimated impact of trend on visitation been positive, the positive fluctuation described by Dr. Ebeling and Dr. Shockley would have been even higher than what the 2003 and 2004 data reveal.

**Comment 226:** Drs. Ebeling and Shockley comment that DWR’s data indicate that average income per job of indirect population added because of the dam is \$19,000. Drs. Ebeling and Shockley observe that people at that income level pay little taxes to the county, but do require welfare services from the county. Hence, they are likely to impose a net cost to the county.

**Response:** Based on a work week of 40 hours, an average wage of \$19,000 annually amounts to approximately \$9.13 per hour, which is above the national minimum wage (\$5.15/hour) and also above the state of California minimum wage (\$7.50/hour). Even if these workers do not own property and pay

property taxes to the County, it is likely that they contribute to Butte County sales tax revenue by spending some of their earnings in unincorporated Butte County. It is not clear that workers necessarily require public assistance. Further, it is not clear that workers who fill jobs created by recreational spending at the project would not be receiving social assistance but for the project. Although the IMPLAN model is based on a simplifying assumption of full employment, so that any new jobs require new workers from outside the area, we know that is not actually the case in most economies. Drs. Ebeling and Shockley imply that the jobs created by recreational spending at the project draw workers exclusively from outside labor markets who subsequently require social assistance from Butte County to augment the wages paid by project-related employment. In reality, it is at least as likely that some workers would be sourced from within the County, and some of these workers would require less public assistance than they received when they were unemployed.

**Comment 227:** The socioeconomic analysis summarized in table 67 of the draft EIS is based on estimates contained in DWR's report R-19, Fiscal Impacts. The R-19 analysis includes the estimated fiscal impacts on Butte County attributable to the resident population indirectly supported by visitor spending and project O&M activities. Of the net \$732,900 deficit to Butte County estimated by staff and summarized in table 67, \$354,300 is attributable to these indirect effects. DWR comments that estimates of population-driven, indirect effects of recreation and O&M activity associated with the project could not be reliably derived in report R-19, since that model held intergovernmental revenues constant in the analysis of current and project indirect (growth-related) fiscal effects of the project, which had the effect of understating population driven revenues and overstating the population-driven, indirect net fiscal effect. DWR comments that because of the fiscal model's inability to capture all indirect fiscal effects, the \$354,300 deficit related to indirect population growth is deemed to be unreliable by the R-19 model's developers and that conclusions concerning the severity of fiscal impacts on Butte County should be based only on the Commission's estimated direct visitor-driven deficit of \$378,600 rather than on the estimated total deficit of \$732,900 that includes indirect effects.

**Response:** We presume that the commentor is referring to the following statement found on page RS-3 in DWR's Fiscal Impacts Final R-19 report: "This estimated deficit, however, likely overstates the actual deficit for the County because intergovernmental revenues associated with the population supported by visitor spending and O&M of the Oroville Facilities are underestimated in the analysis." In contrast to DWR's comment, Butte County, in earlier filings, has stated that the IMPLAN model tends to understate the actual deficit, and that the study does not describe the supposed "intergovernmental revenues" that would offset the estimated deficit.

Were the indirect fiscal effects to be dismissed as suggested by DWR, the fiscal deficit attributable to the Oroville Facilities would be cut by nearly half. Such a drastic change in the outcome of the IMPLAN model would require substantially more evidence to support it. Given that DWR does not provide any quantitative or qualitative analysis in support of its comment, and given that the R-19 study was reviewed and accepted by the Recreation and Socioeconomics Work Group, we find no compelling reason to reject the indirect fiscal deficit calculation included in the R-19 report, and made no change to the draft EIS text.

**Comment 228:** DWR comments that in section 3.3.10.2, *Payments in Lieu of Taxes*, the Commission should conclude that the development of the project has resulted in negligible net impacts on Butte County's annual property tax revenues. DWR comments that a large portion of project lands would have been developed in residential uses if the project had not been constructed and that ongoing public services costs generated by this development would have likely outweighed public revenues. DWR states that since Butte County has not attempted to quantify public services costs potentially generated by development of project lands, it cannot support the assertion that private development of lands would have created less of a fiscal burden on the County than project uses do.

**Response:** The preponderance of evidence, based on DWR’s studies and the County’s filings, indicate that overall, the project has a negative impact on the County’s fiscal position. This is reflected in the draft EIS and final EIS.

**Comment 229:** FMY Associates comment that the TCW report cited in the draft EIS with respect to the increased value of rice production does not account for inflation. FMY Associates states that adjusting for inflation would account for most of the increase in value from 1964-68 to 1996-2000, and that a growth in productivity could easily account for the remainder.

**Response:** We note FMY Associates’ points concerning inflation and potential increases in productivity. Because we did not use TCW’s estimates of the increased value of rice production in the draft EIS, we did not change the text in response to this comment.

**Comment 230:** FMY Associates comment that the draft EIS references the CH2M HILL report concerning the availability of low cost power and the fact that on average, electricity costs account for 0.64 percent to 2.64 percent of total cost for various industries, not significant enough to provide an impact on the local economy. FMY Associates states that there are many industries for which electricity accounts for 10 to 50 percent of production costs, and such industries would have had a compelling reason to locate in Butte County if low cost power had been available from the project.

**Response:** While it is true that some industries use much more power than the average cited in the draft EIS, it is entirely speculative that any of those industries would have located in Butte County if lower cost power had been available. Additionally, as noted in the draft EIS, the allocation of project power is a matter beyond the scope of the EIS.

**Comment 231:** FMY Associates comments that the draft EIS perpetuates an error in the TCW Report by indicating that the County’s growth rate was 3.2 percent between 1980 and 2000. FMY Associates states that the actual growth rate was 2.2 percent annually, which was lower than the growth rate in neighboring counties and the state.

**Response:** In contrast to FMY Associates’ comment, draft EIS section 3.3.10.1, *Affected Environment, Population*, clearly states that the growth rate in the county from 1980 to 2000 was “about 2.1 percent annually”, the same as the rate shown in figure 20 of the draft EIS. The draft EIS does not attribute the County’s growth, or lack of growth, to the project, and we did not change the text of the final EIS in this regard.

**Comment 232:** Harvey M. Rose Accountancy Corporation, consultants to Butte County, comment that the County’s use of peak rather than average recreation days is a reasonable basis for estimating the costs of the project for the County, because although visitor numbers drop during non-peak periods, the County must respond to a higher percentage of the total number of calls for assistance and emergencies at the project during that time.

**Response:** On page 32 of its detailed comments on the draft EIS, Butte County provides emergency call statistics that demonstrate at least a 2:1 ratio of peak emergency response calls to off-peak calls to Lake Oroville from 2004 to October of 2006. The data indicate that calls per month during the peak period (May 15 to September 15 each year) equaled 8.8 to 13.5 calls per month, compared to 0.6 to 2.0 calls per month in the off-peak period. This supports the County’s position that peak visitation periods at the project generate a higher number of emergency calls than off-peak visitation periods. We revised appendix A of the EIS to reflect this new information. However, it is still not clear to the staff that the additional labor resources required for peak-season visitation could not be augmented on a seasonal basis to handle the small number of calls in question.

**Comment 233:** Harvey M. Rose Accountancy Corporation states that the draft EIS “argues that the County inappropriately uses recreation days rather than visitor days to calculate visitor population,” and offers reasons why the use of recreation days is appropriate.

**Response:** The commentator misinterpreted the draft EIS text, which does not argue that the County’s use of recreation days is inappropriate. Instead, the draft EIS merely cites the fact that the CH2M HILL report (2006) argues that point.

**Comment 234:** Based on the statement in section 5.1.2.8 regarding other economic benefits to Butte County that the project provides, but are not quantified in the fiscal analysis in the draft EIS, DWR provides a list of some of these benefits, including (1) funding under Measure B111, Oroville Wildlife Area Funding; (2) the Project Supplemental Benefit Fund to be established and maintained under the Settlement Agreement; and (3) direct and indirect assistance with law enforcement funding.

**Response:** The draft EIS in section 3.3.10.3, *Cumulative Effects on Socioeconomics*, acknowledges the potential benefit of Measure B111 in terms of reducing Butte County’s costs of providing law enforcement services at the project, and the benefits associated with the Project Supplemental Benefits Fund. We revised table 67 and the text of section 3.3.10.2, *Net Fiscal Effects*, to include DWR’s annual payments to Butte County for patrolling Thermalito afterbay. We also revised section 5.1.2.8, *Socioeconomics*, to include these items.

## DEVELOPMENTAL ANALYSIS

**Comment 235:** DWR makes several comments on the developmental analysis in the draft EIS. DWR comments that the analysis presented in table 68 appears to have been calculated using 500 MW for dependable project capacity. DWR notes that a lower value for MW would more appropriately reflect power the project could make regularly available to CALISO. In addition, this analysis overstates the net project benefits because the ancillary service benefit is also counted in the Commission leveled benefit analysis. DWR also questions the value of dependable capacity in MW and dollar value of ancillary benefits we used based upon the limitations of how the project can operate and the criteria they used to meet system load. SWC and Metropolitan make a similar comment. Specifically they note that the ancillary services value may be overstated in table 71 and that the Commission should rely on the historic value of ancillary services supplied by DWR in estimating future value. DWR also comments that Table 70 shows only \$11,830,000 for Annualized Cost of PM&Es for the Settlement Agreement Alternative. DWR notes that this is above the amount stated for the No-action Alternative, which was \$10,016,000, so the total PM&E's under the Settlement Agreement Alternative would presumably be \$11,380,000 + \$10,016,000 = \$21,846,000). By comparison, DWR notes that it cited a total of \$25,327k in its June 28, 2006, cost table submittal to the Commission.

**Response:** We revised our analysis to use 300 MW. We will maintain the \$5,218,000 in ancillary benefits as they do not appear to be redundant. The difference between the \$25,237,000 cost of the proposed measures in the Settlement Agreement and the \$21,846k for the PM&Es in the cost table in the draft EIS is based on our assumptions given in appendix B on cashflow associated with various individual measures. DWR assumed that all cash flow would occur upfront, but measures like the low flow channel facility modifications are not operational until year 10. We did make some corrections to our annualized costs based on other DWR comments.