2009-2010 Fiscal Year

Lower Owens River Project

Workplan and Budget

FINAL
Prepared by Inyo County Water Department
and
Los Angeles Department of Water and Power
March 30, 2009

2009 – 2010 Fiscal Year Lower Owens River Project Workplan

This 2009-2010 Fiscal Year (July 1 to June 30) Lower Owens River Project Workplan was jointly prepared by staff of the Inyo County Water Department and the Los Angeles Department of Water and Power. This workplan was adopted by the Inyo County/Los Angeles Technical Group on March 30, 2008. The Technical Group recommends that the 2009-2010 Fiscal Year Lower Owens River Project Workplan be approved by the Inyo County Board of Supervisors and the City of Los Angeles Board of Water and Power of Commissioners.

Introduction

The Final Environmental Impact Report for the Lower Owens River Project Section 2.2.1 provides that in December of each year, the Long-Term Water Agreement (LTWA) Technical Group will develop and adopt an annual work program for the Lower Owen River Project (LORP) describing work regarding the LORP to be performed in the following fiscal year, including implementation of adaptive management measures. Each work program will identify who will perform or oversee tasks, a schedule, and a budget. Following adoption by the Technical Group, the work programs will be submitted to the County and LADWP governing board for approval. Before a work plan and budget can be implemented, it must be approved by each governing board. This document is the work plan for fiscal year July 2009 – June 2010.

The objectives of this work plan are to maintain compliance with the July 11, 2007 Superior Court Stipulation and Order in case no. S1CVCV01-29768, conduct monitoring necessary to achieve the LORP goals described in the 1998 Memorandum of Understanding, maintain infrastructure necessary to the operation of the LORP, and implement adaptive management measures. The following priorities are observed in this workplan:

1. Work and activities required to maintain required flows in the river and required water supplies to other LORP components.
2. Maintenance associated with flow compliance monitoring and reporting associated with the above referenced Stipulation and Order.
3. Habitat and water quality monitoring described in the *LORP Monitoring and Adaptive Management Plan* (ESI 2008), or required to comply with the requirements of the Lahontan Regional Water Quality Control Board.
4. The preparation of the LORP Annual Report as required by Section 2.10.4 of the LORP Final EIR and by Section L of the above referenced Stipulation and Order.
5. Other work or activities including the implementation of adaptive management measures.

Section 1 of this workplan covers maintenance, monitoring, mosquito abatement, weed management, salt cedar control, and operations. Section 2 of this workplan addresses adaptive management measures. Weed management and Saltcedar control activities are tasked and funded under separate agreements and not described in this work plan.

2009 – 2010 Fiscal Year Lower Owens River Project Workplan

Summary 2009- 2010 fiscal year Monitoring and Adaptive Management Budget.

Category	Total
Hydrologic monitoring	$255,953
Biologic and Water Quality	$77,989
Maintenance	$239,187
Mosquito Abatement	$127,000*
Adaptive Management	$45,304
Total	**$745,433**

* includes $67,000 contingency for aerial applications

The budget amount reflects the additional costs above equal sharing of work by the parties and does not include the costs of Inyo and LA staff times where they offset.

Section 1. Maintenance and Monitoring Tasks

The maintenance and monitoring portion of this work plan consists of seven categories of tasks: maintenance, hydrologic monitoring, biological/water quality monitoring, range monitoring, mosquito abatement, weed management, and salt cedar control .

Maintenance. Maintenance activities consist of cleaning sediment accumulations and other obstructions from water measurement facilities, cleaning sediment and aquatic vegetation from ditches, mowing ditch margins, fence repair, and adjustments to flow control structures. Estimates of the level of effort necessary for maintenance were based on the level of effort that was required during 2008 – 2009.

Hydrologic Monitoring. Hydrologic monitoring consists of monitoring, analyzing, and reporting river baseflows and seasonal habitat flows, the flooded extent of the Blackrock Waterfowl Management Area (BWMA), the levels of the Off-River Lakes and Ponds, and baseflows, pulse flows, and seasonal habitat flows to the Delta. Estimates of the level of effort required for hydrologic monitoring were based on the level of effort required during 2008 – 2009, with the exception that it was assumed that the number of measuring stations in the river corridor would be reduced to four, and that the temporary flow measurement stations in the delta will be discontinued. This assumption is based on the Standing Committee taking action on the permanent monitoring stations early in the 2009-2010 fiscal year.

Currently, the flooded acreage of the BWMA is being measured by walking the perimeter of the flooded area on foot with GPS every two weeks. Based on the measured flooded area, flows have been adjusted to maintain a fixed acreage. Two problems have arisen: (1) because the flows have been adjusted constantly, no relation has been apparent between water inputs and flooded acres, and (2) walking the perimeter of the flooded area has proven prohibitively costly due to the man-hours required. Discussion on changing the method of determining the flooded extent by, developing a relationship between applied water and flooded acreage by holding the inflow rate constant and allowing the flooded area to equilibrate to an approximately fixed acreage are ongoing. Under this proposed monitoring method, the acreage will be measured on foot twice per quarter (approximately every six weeks) with intermediate assessments of flooded acreage by using remote sensing. If this monitoring is utilized, the budget for hydrologic monitoring will be reduced by $72,524.

Biological/Water Quality Monitoring. Biological and water quality monitoring is related to the tasks indicated in the Table 4.01 of the LORP Monitoring and Adaptive Management Plan (MAMP). Note that baseflow compliance, BWMA flooded extent, and Off-River Lakes and Ponds flooded extent are considered under Hydrologic Monitoring above. It is assumed that most monitoring will be jointly conducted by Inyo and LA and that the hours of each agency spend during 09-10, will offset one another. Range trend work will be planned, budgeted, and conducted by LADWP and is not included in this work plan. Fish condition monitoring is incorporated into the budget for water quality measurements. Ecosystem Sciences Incorporated, the MOU Consultant, will be involved with the Rapid Assessment Surveys, Baseflow Water Quality, Seasonal Habitat Flow, Seasonal Habitat Flooding Extent, Seasonal Flow Water

Quality, Avian Census', Landscape Vegetation Mapping, and the Annual Report Preparation including adaptive management recommendations.

Range Monitoring. Range monitoring is related to the tasks described in section 4.6 of the MAMP. Three types of monitoring will take place that are directly related to the management of livestock grazing: irrigated pasture condition scoring, utilization and range trend. Irrigated pasture condition scoring is a tool used by managers to systematically track the condition of irrigated pastures. Utilization monitoring tracks the amount of biomass removed from non-irrigated fields and Range trend tracks the long-term effect of grazing and grazing management prescriptions on the grazing resource. Additionally, annual field inspections and evaluations will be conducted. Range monitoring will be conducted by LADWP and is not a shared cost, and therefore not budgeted in this work plan.

Mosquito Abatement. For the fiscal year 2009–2010, the Owens Valley Mosquito Abatement Program (OVMAP) plans to continue a comprehensive Integrated Mosquito Management Plan (IMMP) when addressing the new and developing sources within the LORP in accordance with its mission of protecting public health. This IMMP consists of an expansion of currently used materials and methods for the surveillance and control of mosquitoes across the OVMAP boundary as well as contingency planning for late season flushing flows. This budget anticipates field surveillance of potential larval habitat for mosquito production, larviciding, pupaciding, adult mosquito surveillance with light traps, mosquito borne disease surveillance, and treatment for adult mosquitoes.

The budgeted amount of $127,000 includes a contingency of $67,000 in the event that supplementary aerial treatments are necessary. The use of this contingency required concurrence by both the Inyo County Chief Administrative Officer and LADWP's Aqueduct Manager.

Weed Control. The Inyo/Mono Counties Agricultural Commissioner's Office receives funding from LADWP to control and eradicate several different invasive weed species both within the LORP boundaries, and in areas within the watershed that that may serve as a seed source that could impact the LORP area. These invasive weed species include: *Lepidium latifolium, Acroptilon repens, Cirsium arvense, Centaurea solstitialis, Centaurea maculosa,* and *Carderia draba*. These populations are managed using integrated pest management methods, including mechanical, chemical and biological controls. Currently, there are 98 separate sites, on LADWP lands, spread over an area of 29,755 gross acres that Agricultural Commissioner's Office manages. Of these sites, 12 are within the LORP boundaries.

Along with weed treatment activities, the Agricultural Commissioner's Office provides mapping and monitoring of these infestations from year to year. Information gathered includes net and gross acreage, species, location, and the date when the selected management activity was conducted. The Agricultural Commissioner's Office also provides outreach to the public that is specific to the weed issues threatening the LORP, through educational materials targeting recreationalists visiting the area, and responds to and interacts with the public regarding any new weed locations found within the LORP area. LORP weed control activities are funded through

agreements outside of the LORP Annual Work Plan, and are therefore not included in the budget presented here.

Saltcedar Control. The County Water Department's saltcedar control program will concentrate on the tributaries to the Lower Owens River channel. The purpose of working on the LORP is to reduce the likelihood of the creeks and streams spreading saltcedar throughout the Owens River re-watered channel. The current focus is to reduce the chance of infestation by treating areas in the river drainage basin. One permanent, one shared employee and six seasonal field assistants are expected to work on the control program during the treatment season (December-March). Monitoring and follow-up treatments by the Saltcedar Project Coordinator will occur during the balance of the year. LORP saltcedar control activities are funded through agreements outside of the LORP Annual Work Plan, and are therefore not included in the budget presented here.

Maintenance and Monitoring Tasks Budget

The attached spreadsheets provide the budgets for hydrologic monitoring, biologic/water quality monitoring, maintenance, and mosquito abatement. The following table summarizes the costs of the monitoring for the fiscal year July 1, 2009 through June 30, 2010 and specifies the costs incurred by Inyo County, Los Angeles and the cost of the MOU consultant.

Category	Inyo costs	LA costs	MOU Consultant	Total Cost
Hydrologic monitoring	$0	$255,953	$0	$255,953
Biologic and Water Quality	$6,779	$0	$71,210	$77,989
Maintenance and Operations	$0	$239,187	$0	$239,187
Mosquito control	$63,500	$63,500	$0	$127,000
Total	**$70,279**	**$558,640**	**$71,210**	**$700,129**

Generally, staff hours for the Inyo County and LADWP to conduct the biologic and water quality monitoring offset one another. There are 367 total people days necessary to complete the proposed biological and water quality monitoring, of which Inyo has 19 more people days allocated than LADWP. There is no offset for the Maintenance, Operations, or Hydrologic monitoring to be performed by LADWP. Additionally, LADWP has allocated 245 people days for Range Monitoring which is not a shared monitoring cost. Based on this budget, Inyo is required to compensate Los Angeles $279,786 for the differential in expenditures for Maintenance, Operations, and Hydrologic monitoring. This value is calculated by subtracting the dollars Inyo County will spend during the fiscal year from the amount spent by LADWP and dividing the difference in half and adding half of the cost of the MOU Consultant. If the alternative monitoring plan for the BWMA is approved, this cost would be reduced by $36,262 to $243,524. Inyo County's cost share of implementing the Adaptive Management Measures is an additional $22,652.

Section 2. Adaptive Management Measures

The Adaptive management recommendations made by the MOU consultant for inclusion in the LORP Annual Report to the Standing Committee have been copied in their entirety below. Recommendations for the Rapid Assessment Surveys, Water Quality, and Land Use are in progress at this time or will be incorporated in the upcoming field seasons monitoring efforts. The Workplan and Budget associated with the MOU consultant recommendations for the Blackrock Waterfowl Management Area are described in this section, and also above under the hydrologic monitoring section. The Workplan and Budget associated with the Delta Habitat Area follow below. Based on comments received on the River Flow recommendation from the LORP Annual Monitoring Report, Inyo County and LADWP believe that prior to the development of a workplan for that item, an MOU Group meeting must be held to discuss how to move forward.

Table of Adaptive Management Recommendations. LORP Annual Report 2008.

Management Area	Recommendation and/or Action
Rapid Assessment Survey (RAS)	• **Report Composition:** Develop consistent documentation and reporting template that will enable better comparison between years of data collection. • **Data Organization and Management:** Future RAS efforts should include a categorical data element. Annual data collection needs to be integrated in order to better analyze changes from year to year. • **Noxious Weeds:** Perennial pepperweed was detected at four different sites and appear(s) to have spread from previous years. Locations should be verified and treated multiple times to prevent further expansion. • **Exotic Weeds:** 2008 RAS noted dense stands of smartweed encompassing much or all of the floodplain over a roughly 10 mile section of the river. This presents an opportunity for adaptive management. Control methods including physical, biological control, and chemical control. We recommend developing a study design of one or more methods of control to be used to treat selected sections of the infestation and monitor results. • **Woody Recruitment:** Woody recruitment appears to be occurring throughout the floodplain. Future data collection efforts should include categorical data documenting the number of new sprouts per location. • **Grazing Management Issues:** Supplemental feeding sites within the floodplain Feeding/supplement areas are not permitted within the riparian and floodplain areas. Consultation with lessees and removal. • **Tamarisk:** Request more information and the spatial data on the specific locations where tamarisk eradication was performed. 2008 RAS documented 700 tamarisk points, but reporting issues confounded results. Using categorical data for tamarisk results would alleviate many reporting issues. Data confusion and tabulation makes it difficult to make adaptive management recommendations concerning tamarisk. • **Tamarisk Seedlings:** 2008 RAS seedling sites all need to be visited, verified and treated. • **Tamarisk Slash:** large slash piles should continue to be chipped, burned and/or removed from the streambanks. Pile new slash in appropriate areas, not on streambanks, where LADWP can dispose of them. • **Roads:** Data management and clarity of road abundance and impacts is needed. • **Trash:** removal and proper disposal of several large appliances dumped into the floodplain. • **Beaver:** No recommended action.
Water Quality	Recommend establishing a standard of 1.0 mg/l dissolved oxygen exhibiting a downward trend, as the threshold beyond which corrective action is taken.
River Flow	Adaptive management decisions on adjusting river flows to improve tule management and water quality should be based on careful analysis of various flow scenarios. Recommend a thorough analysis of possible flow changes using current river baseline conditions and high-resolution modeling to produce a detailed report for MOU parties on flow alternatives and scenarios.
Blackrock Waterfowl Management Area (BWMA	• Prepare Waggoner and Drew units for conversion. Burn non-forage, dense vegetation areas in Waggoner this winter. Temporarily fence Drew to graze off the forage rather than waste it by burning. Construct berms and two water control structures in Drew unit per plan specifications. • Initiate a partial draw down of the Winterton and Thibaut units as Waggoner and Drew are flooded beginning in the spring. Additional flooding can be performed at Thibaut, if acreage is needed. • Maintain the 28 acres of Thibaut ponds. • Develop a relationship between inflow and wetted area so that management is based on inflow with regular on-the-ground measurements of wetted area. • Manage wetted area with a continuous inflow so that natural, seasonal variations in water fluctuations will be emulated without extreme fluctuations. • Identify a method that is applicable to all the BWMA units for developing regression equations that relate wetted area to inflow volume by season. • During the dry phase in Thibaut, complete construction of the berm described in the project implementation plans at the southern end of the unit to confine flow and wetted perimeter.
Delta Habitat Area (DHA)	• Need to meet Brine Pool flow requirements of continuous minimum flow of 0.5cfs for one year. • Recommend evaluating the DHA to determine what changes may have occurred to vegetation resources (acreage and composition) prior to making any adaptive management decisions or modifications to seasonal pulse flows this spring, 2009.
Land Use	• No data tables that displayed all data collected were available to review. Ecosystem Sciences was not able to verify the conclusions reached for landuse compliance without examination of the data set. • Summarized data results reported for this year indicates that all irrigated pastures were monitored and all are in compliance. • Recommend that LADWP complete their transect placement in all pastures and fields and collect and report a complete set of utilization, irrigated pastures and range trend monitoring data for the 2009. • Recommend that all livestock grazing plans be reviewed and updated so they are compatible with the *LORP Monitoring, Adaptive Management and Reporting Plan*. • Lessee consultations as soon as possible. • Recommend that each grazing lease have its own monitoring sub-plan that includes the location of transects and utilization cages on each pasture and field. • Recommend that all fences necessary to manage grazing be completed as soon as possible – well before the end of 2009.

Modification of flow management and flooded area measurement in the BWMA

The 1997 MOU calls for "Approximately 500 acres of the habitat area will be flooded at any given time in a year when the runoff to the Owens River watershed is forecast to be average or above average. In years when the runoff is forecasted to be less than average, the water supply to the area will be reduced in general proportion to the forecasted runoff in the watershed." The relationship between Owens Valley runoff to flooded acreage is further described in Ecosystem Sciences August 2002 LORP Plan and Section 2.5.5 of the 2004 LORP EIR. Regulation of water delivery to maintain a set flooded acreage has proven difficult and the resulting relation between water supplied and flooded acreage has been erratic. Recognizing that the relationship between the amount of flooded acreage and water release to the habitat area is poorly known and will continue to be so, at least, until an adequate data base is developed, maintaining the required flooded acreage will be conducted according to a schedule fixing constant water delivery rates over fixed seasonal time periods. The purpose of this adaptive management measure is to develop an efficient method of monitoring and managing the Blackrock Waterfowl Management Area (BWMA), while still providing the desired benefits to wetlands and waterfowl. The adaptive management measure will be undertaken as an experiment to:

1. Determine the relationship between flooded acreage and water supplied for each BWMA unit, and to determine how that relationship changes seasonally.
2. Develop an efficient method of evaluating flooded acreage.
3. Develop a long-term protocol for managing the BWMA.

Seasonal water delivery flow rates will be set for each habitat area based on water use per acre flooded ratios developed from existing data. Using the available flooded acreage and water supplied data, an acre-foot per acre ratio of water used to acres flooded will be used to set flow rates. Flow will be set at the beginning of a season and held at that rate for the season. The length of each season is defined. At the midpoint and end of each seasonal time period the perimeter of the flooded acreage will be mapped to delineate the extent of flooding for the corresponding flow. This data will be used to establishing ratios for future seasonal flows.

The flooded acreage and flows will be based on the current runoff years forecast at the beginning of seasonal time period. Flooded acreage will be evaluated using GPS at the start/end of each season, and at each season's mid-point. Remote sensing will be investigated as a method for evaluating flooded acreage, using the GPS flooded perimeters for ground-truth and calibration. Accuracy of flow measurements will be assessed as the data accumulate.

Delta Habitat Area Flow Assessment

Background

Two separate management requirements exist for the Delta Habitat Area (DHA); a short-term requirement of providing a minimum flow of 0.5cfs to the Brine Pool for a full year following project implementation, and a long-term requirement of maintaining and enhancing the 2005 Delta acreage (1,160 ac). The Brine Pool requirements should be met in March 2009. Meeting the DHA habitat requirements are more problematic.

The long-term requirement of maintaining and enhancing the DHA requires further investigation. The only project objective that has been met is that an average annual flow of 6 to 9cfs passed the pumpback station to the DHA. In fact, data from the period of July 12th, 2007 to September 30th, 2008 indicates that an average annual flow of 11.6cfs flowed to the DHA. These data include the seasonal habitat flows and some additional high flows resulting from precipitation (natural variation) and pump station calibration and testing (which allowed river flows to bypass the station and flow into the DHA). If habitat flows are not included, the average annual flow passing the pumpback station to the DHA was 8.8 cfs.

LADWP's dust control project also affects the DHA. The dust control project brackets, or confines the DHA on both the east and west sides and, likely has raised shallow groundwater conditions which is effecting DHA water spreading and potentially infiltration rates. The prolonged effects of the seasonal habitat flows coupled with the above mentioned effects all have had an accumulated impact on the DHA.

The management of the DHA centers on providing the area an annual base flow of 6 to 9cfs, and supplementing that flow with four seasonal pulse flows designed to enhance habitat for waterfowl and encourage wetland development. Four pulse flows are scheduled to be implemented once the Brine Pool requirement is met in March 2009.

The important questions that require investigation relate to how the DHA has responded to a changed surrounding landscape (the dust control project) and a changed water regime since baseline conditions were measured. Dust control structures, levees and roads on the east and west side of the DHA have converted the area from an open ecosystem to a confined or closed ecosystem. Prior to this confinement, the DHA channels could naturally shift from time to time as vegetation developed and forced lateral movements thereby creating dynamic conditions for the enhancement of wetland areas and habitat.

During the seasonal habitat flow water broke out of the west channel at the upper end of the delta and flowed west along a dust control levee/cell and gravel area. Water coursed through a remnant channel to the west of the DHA. Prior to the seasonal habitat flow this remnant channel was dry. Rather than allow water to flow to the historic end point of the remnant channel it was diverted by a dust control project levee/road and flowed into a dust control cell. This water may have created additional wetland habitat had it been allowed to follow its historic course. It appears that this water did not enhance the DHA wetland or contribute to its maintenance, and may have had a deleterious effect on dust control measures.

Initial examination of remote imagery from the years 2000, 2005 and 2008 indicate that vegetation conditions in the DHA have changed. The amount of acreage (extent) and composition (species assemblage) change is not well quantified at this time. Yet, given the new physical conditions which will influence how water is transported through, beneath and around the DHA, and because the DHA's vegetation has changed since the initial planning and collection of baseline data, the use of the four pulse flows to enhance and maintain the wetlands need to be reevaluated; especially since there is some evidence that the wetlands are tending toward less diversity and more mono-culture.

Planned Work

The Lower Owens River Project Monitoring, Adaptive Management, and Reporting Plan (Table 4.01) describes monitoring efforts to determine wetland habitat development and vegetation mapping be conducted in year 3 of the project. Due to concerns described above it has been proposed to accelerate that monitoring by one year conducting it during the 2009-2010 fiscal year. Ecosystem Sciences will evaluate the DHA to determine what changes may have occurred to vegetation resources (acreage and composition) in winter/spring 2009. LADWP acquired a September 2008 Quickbird Satellite Image of the DHA that allows for in-depth study of the vegetation resources of the area. Current and past satellite imagery coupled with ground-truthing of vegetation, flow data, shallow groundwater, and comparisons to baseline conditions will provide insight to DHA changes and allow for adaptive management decisions related to modification of seasonal pulse flows as necessary.

The following tasks will be conducted to evaluate DHA conditions and develop recommendations for the DHA:

1. Evaluation of land cover change. This task will use remote sensing, vegetation transects, and channel cross-section surveys to evaluate change from pre-LORP conditions.
2. Evaluation of hydrologic changes in the DHA. This task will use groundwater data and flow data to evaluate hydrologic changes in the DHA from pre-LORP and pre-dust abatement hydrologic conditions.
3. Evaluation of linkage between hydrologic changes and vegetation changes. The results of tasks 1 and 2 will be assessed to determine the effects of hydrologic changes on vegetation cover.
4. Recommendations for DHA management. Based on the linkages identified in task 3, the consultant will develop recommendations will be made aimed at managing DHA flows to better achieve the DHA goals of maintaining and enhancing delta habitats.

Deliverables

Ecosystem Sciences will produce a report that evaluates the following questions in relation to the DHA and the appropriate flows to maintain the required habitat conditions:

How has vegetation cover and composition changed since the LORP began?
How has the LORP changed the hydrology of the DHA?
How have dust control measures changed the hydrology of the DHA?
What is the relation between hydrologic change and land cover change in the DHA?

The report will also include adaptive management recommendations aimed at better achieving the LORP goals for the DHA.

Schedule

Work will be performed in the winter and early spring of 2009.

2009 – 2010 Fiscal Year Lower Owens River Project Workplan

2009 – 2010 Fiscal Year Adaptive Management Measures Workplan Budget

	Organization/Class	Days	Daily rate	Equipment rate	Total	LA Costs	ESI Costs
Adaptive Management measures							
Delta Habitat Area Assessment	LADWP Survey	20	477	45	$10,440.00	$10,440.00	
	ESI Principal	20	1032		$20,640.00		
	ESI Senior	15	680		$10,200.00		
	ESI Admin	2	512		$1,024.00		
	ESI Expenses				$3,000.00		$34,864.00
Adaptive Management Total					**$45,304.00**		

Ecosystem Sciences Tasks

Ecosystem Sciences Inc.	Field Time (days)	Analysis and Reporting (days)	Daily rate	Expenses	
River					
Rapid Assessment Survey					
Principle		1	1032		$1,032.00
Associate	10	5	680	150	$11,700.00
Base Flow Water Quality					
Principle			1032	150	
Associate	0	1	680	150	$680.00
Seasonal Habitat Flow					
Principle	6	2	1032	150	$9,156.00
Associate			680	150	
Indicator Species Habitat					
Principle			1032	150	
Associate	1	2	680	150	$2,190.00
Habitat Flow Flooding extent					
Principle	3	3	1032	150	$6,642.00
Associate	3	2	680	150	$3,850.00
Habitat Flow Water Quality					
Principle		1	1032	150	$1,032.00
Associate			680	150	
Landscape Veg Mapping					
Principle		5	1032	150	$5,160.00
Associate	5		680	150	$4,150.00
Subtotal					**$45,592.00**
Blackrock					
Indicator Species Habitat					
Principle			1032	150	
Associate	1	2	680	150	$2,190.00
Landscape Veg Mapping					
Principle		2	1032	150	$2,064.00
Associate	2		680	150	$1,660.00
Subtotal					**$5,914.00**
Delta					
Indicator Species Habitat					
Principle			1032	150	
Associate	1	1	680	150	$1,510.00
Landscape Vegetation Mapping					
Principle		1	1032	150	$1,032.00
Associate	1		680	150	$830.00
Subtotal					**$3,372.00**
Off-River Lakes and Ponds					
Landscape Vegetation Mapping					
Principle		1	1032	150	$1,032.00
Associate	1		680	150	$830.00
Subtotal					**$1,862.00**
Annual Report Preparation					
Annual Report					
Principle		10	1032	150	$10,320.00
Associate	5		680	150	$4,150.00
Subtotal					**$14,470.00**
				Total	**$71,210.00**

Expenses are per diem and milage*

Biologic and Water Quality Monitoring

Biologic and Water Quality	Organization/Class	Days	Inyo Days	LA Days				
River								
Rapid Assessment Survey	LA/WRS-B	9						
	LA/WRS-C	18						
	IC/RESASST	18						
	IC/LORP	9	27	27				
Base Flow Water Quality	IC/HYDROL	15	15	0				
Seasonal Habitat Flow	LA/WRS-B	10	10	15				
	LA/WRS-C	5						
	IC/HYDROL	10						
Indicator Species Habitat	LA/WRS-B	4	4	4				
	IC/VEGSCI	4						
Habitat Flow Flooding extent	LA/WRS-B	10	10	15				
	LA/WRS-C	5						
	IC/GIS	10						
Habitat Flow Water Quality	IC/HYDROL	15	15	0				
Landscape Veg Mapping	IC/VEGSCI	12	24	24				
	IC/GIS	12						
	LA/WRS-B	12						
	LA/GIS	12						
Avian Census	LA/WRS-B	18	18	18				
	IC/GIS	18						
Analysis and Reporting	LA/WRS-B	9	9	9				
	IC/LORP	5						
	IC/GIS	4						
Total Days			**132**	**112**				
Blackrock								
Rapid Assessment Survey	LA/WRS-B	1	3	3				
	LA/WRS-C	2						
	IC/RESASST	3						
Indicator Species Habitat	LA/WRS-B	4	4	4				
	IC/VEGSCI	4						
Landscape Veg Mapping	IC/VEGSCI	4	8	8				
	IC/GIS	4						
	LA/WRS-B	4						
	LA/GIS	4						
Avian Census	LA/WRS-B	16	16	16				
	IC/GIS	16						
Data Analysis and Reporting	LA/WRS-B	4	4	4				
	LA/WRS-C	2						
	IC/LORP	2						
Total Days			**35**	**35**				
Delta								
Rapid Assessment Survey	LA/WRS-B	1	1	1				
	IC/RESASST	1						
Indicator Species Habitat	LA/WRS-B	1	1	1				
	IC/VEGSCI	1						
Landscape Vegetation Mapping	IC/VEGSCI	3	6	6				
	IC/GIS	3						
	LA/WRS-B	3						
	LA/GIS	3						
Avian Census	LA/WRS-B	7	7	7				
	IC/GIS	7						
Analysis and Reporting	LA/WRS-B	2	1	2				
	IC/LORP	1						
Total Days			**16**	**17**				
Off-River Lakes and Ponds								
Rapid Assessment Survey	LA/WRS-B	2	2	2				
	IC/RESASST	2						
Landscape Vegetation Mapping	IC/VEGSCI	4	8	8				
	IC/GIS	4						
	LA/WRS-B	4						
	LA/GIS	4						
Analysis and Reporting	LA/WRS-B	1	1	1				
	IC/LORP	1						
Total Days			11	11				
Annual Report Preparation								
Report preparation	LA/WRS-B	10	10	10				
	IC/LORP	10						
Total Days			**10**	**10**	Excess IC hours	Daily Rate	Equip Rate	IC Expense
			193	**174**	19	$332.64	24.15	$6,779.01

Hydrologic Monitoring

Hydrologic Monitoring	2009-2010 Predicted Person days	Predicted Labor Cost from July 1, 2009 through June 30, 2010	Predicted Equipment Cost July 1, 2009 through June 30,	Total Predicted Cost July 1, 2009 through June 30, 2010
RIVER				
Base Flow Compliance Monitoring				
Hydrographer "B"	65	$20,536.83	$2,587.20	$23,124.03
Hydrographer "A"	2	$754.38	$90.51	$844.89
Senior Hydrographer	22	$8,177.84	$897.60	$9,075.44
Seasonal Habitat Flow Monitoring				
Hydrographer "B"	20	$6,191.53	$780.00	$6,971.53
Hydrographer "A"	4	$1,333.49	$160.00	$1,493.49
Senior Hydrographer	9	$3,097.67	$340.00	$3,437.67
Data analysis				
Hydrographer "B"	10	$3,238.65	$0.00	$3,238.65
Hydrographer "A"	0	$0.00	$0.00	$0.00
Senior Hydrographer	42	$15,399.82	$0.00	$15,399.82
Reporting				
Hydrographer "B"	0	$0.00	$0.00	$0.00
Hydrographer "A"	0	$0.00	$0.00	$0.00
Senior Hydrographer	19	$6,814.86	$0.00	$6,814.86
CE Associate 1	51	$17,911.98	$0.00	$17,911.98
CE Associate 3	15	$6,599.34	$0.00	$6,599.34
BLACK ROCK WATERFOWL AREA				
Flooded Extent Monitoring				
Hydrographer "B"	122	$38,646.00	$4,869.00	$43,515.00
Hydrographer "A"	19	$6,334.10	$760.00	$7,094.10
Senior Hydrographer	21	$7,653.06	$840.00	$8,493.06
Maintenance and Construction Helper	146	$39,887.00	$0.00	$39,887.00
Data analysis				
Hydrographer "B"	0	$0.00	$0.00	$0.00
Hydrographer "A"	0	$0.00	$0.00	$0.00
Senior Hydrographer	31	$11,245.31	$0.00	$11,245.31
CE Associate 3	12	$5,434.75	$0.00	$5,434.75
Senior Draftsman	19	$6,929.76	$0.00	$6,929.76
GIS Analyst	20	$7,708.80	$0.00	$7,708.80
Reporting				
Hydrographer "B"	0	$0.00	$0.00	$0.00
Hydrographer "A"	0	$0.00	$0.00	$0.00
Senior Hydrographer	17	$6,247.39	$0.00	$6,247.39
CE Associate 1	20	$7,024.30	$0.00	$7,024.30
CE Associate 3	7	$3,170.27	$0.00	$3,170.27
GIS Analyst	5	$1,927.20	$0.00	$1,927.20
OFF RIVER LAKES AND PONDS				
Lake Level Monitoring				
Hydrographer "B"	9	$2,721.55	$342.86	$3,064.41
Hydrographer "A"	0	$0.00	$0.00	$0.00
Senior Hydrographer	4	$1,457.72	$160.00	$1,617.72
Data analysis				
Hydrographer "B"	0	$0.00	$0.00	$0.00
Hydrographer "A"	0	$0.00	$0.00	$0.00
Senior Hydrographer	7	$2,498.96	$0.00	$2,498.96
Reporting				
Hydrographer "B"	0	$0.00	$0.00	$0.00
Hydrographer "A"	0	$0.00	$0.00	$0.00
Senior Hydrographer	5	$1,874.22	$0.00	$1,874.22
CE Associate 1	5	$1,756.08	$0.00	$1,756.08
CE Associate 3	3	$1,552.79	$0.00	$1,552.79
DELTA				
Flow Monitoring				
Hydrographer "B"	0	$0.00	$0.00	$0.00
Hydrographer "A"	0	$0.00	$0.00	$0.00
Senior Hydrographer	0	$0.00	$0.00	$0.00
Data analysis				
Hydrographer "B"	0	$0.00	$0.00	$0.00
Hydrographer "A"	0	$0.00	$0.00	$0.00
Senior Hydrographer	0	$0.00	$0.00	$0.00
Reporting				
Hydrographer "B"	0	$0.00	$0.00	$0.00
Hydrographer "A"	0	$0.00	$0.00	$0.00
Senior Hydrographer	0	$0.00	$0.00	$0.00
CE Associate 1	0	$0.00	$0.00	$0.00
CE Associate 3	0	$0.00	$0.00	$0.00
			TOTAL =	**$255,953.00**

Adaptive Management

Adaptive Management measures	Organization/Clas	Days	Daily rate	Equipment rate	Total	LA Costs	ESI Costs
Delta Habitat Area Assessment	LADWP Survey	20	477	45	$10,440.00	$10,440.00	
	ESI Principle	20	1032		$20,640.00		
	ESI Senior	15	680		$10,200.00		
	ESI Admin	2	512		$1,024.00		
	ESI Expenses				$3,000.00		$34,864.00
Task Subtotal					**$45,304.00**		

Operations and Maintenance

	Labor type	Hours	Labor Rate	Total Labo	Equipment Type	Hours	Rate	Total Equipment
River								
Measuring Stations Maintenance (4 Stations)	Power Shovel Operator		153.12	11417.8	Mower	253.2	75.76	4196.24
	Truck Driver/MCH				3 axel dump trucks			
	Operator				Gradall			
	Building Repair Man				Backhoe and trailer			
Spillgates and Ditches					3/4 ton 4x4 pick- up			
Intake Spillgate Maintenance (3 days per year)								
	Building Repair Man	27	37.53	1013.31	3/4 ton 4x4 pick- up	27	5.77	155.79
	2 - Truck Driver/MCH	54	33.14	1789.56	3/4 ton 4x4 pick- up	27	5.77	155.79
Intake								
Mowing (3 days per year)	Operator	27	40.74	1099.98	Mower	225	10.71	2409.75
	1 - Truck Driver/MCH	36	33.14	1193.04	1 - 3 axel dump trucks	72	15.38	1107.36
Cleaning (3 days per year)	Power Shovel Operator	27	43.29	1168.83	Gradall	27	25.64	692.28
	2 - Truck Driver/MCH	54	33.14	1789.56	2 - 3 axel dump trucks	72	15.38	1107.36
Blackrock Ditch								
Mowing (25 days per year)	Operator	225	40.74	9166.5	Mower	225	10.71	2409.75
	2 - Truck Driver/MCH	450	33.14	14913	2 - 3 axel dump trucks	450	15.38	6921
Cleaning (10 days per year)	Power Shovel Operator	90	43.29	3896.1	Gradall	90	25.64	2307.6
	2 - Truck Driver/MCH	270	33.14	8947.8	2 - 3 axel dump trucks	270	15.38	4152.6
Goose Lake to River Ditch								
Cleaning (5 days per year)	Operator	45	40.74	1833.3	Backhoe and trailer	45	14.66	659.7
	1 - Truck Driver/MCH	45	33.14	1491.3	1 - 3 axel dump trucks	45	15.38	692.1
Thibaut Spillgate and Ditch								
Cleaning (4 days per year)	Power Shovel Operator	36	43.29	1558.44	Gradall	36	25.64	923.04
	2 - Truck Driver/MCH	72	33.14	2386.08	2 - 3 axel dump trucks	72	15.38	1107.36
Independence Spillgate and Ditch								
Cleaning (4 days per year)	Operator	135	40.74	5499.9	Backhoe and trailer	135	14.66	1979.1
	2 - Truck Driver/MCH	270	33.14	8947.8	2 - 3 axel dump trucks	270	15.38	4152.6
Locust Spillgate and Ditch								
Cleaning (5 days per year)	Power Shovel Operator	45	43.29	1948.05	Gradall	45	25.64	1153.8
	Operator	45	40.74	1833.3	Backhoe and trailer	45	14.66	659.7
	1 - Truck Driver/MCH	45	33.14	1491.3	1 - 3 axel dump trucks	45	15.38	692.1
Dean, Russell, Georges and Stevens								
Cleaning (20 days per year)	Operator	180	40.74	7333.2	Backhoe and trailer	180	14.66	2638.8
	1 - Truck Driver/MCH	45	33.14	1491.3	1 - 3 axel dump trucks	45	15.38	692.1
Alabama Spillgate								
Cleaning (6 days per year)	Power Shovel Operator	54	43.29	2337.66	Gradall	54	25.64	1384.56
	3 - Truck Driver/MCH	162	33.14	5368.68	3 - 3 axel dump trucks	162	15.38	2491.56
Delta Spillgate Maintenance (3 days per year)								
	Building Repair Man	27	37.53	1013.31	3/4 ton 4x4 pick- up	27	5.77	155.79
	2 - Truck Driver/MCH	54	33.14	1789.56	3/4 ton 4x4 pick- up	27	5.77	155.79
LORP Operations								
Patrol and Flow Changes (260 days per year)	Aqueduct and Reservoir K	2080	33.14	68931.2	3/4 ton 4x4 pick- up	2080	5.77	12001.6
Maitenance								
Fence (10 days per year)	Building Repair Man	90	37.53	3377.7	3/4 ton 4x4 pick- up	90	5.77	519.3
	2 - Truck Driver/MCH	180	33.14	5965.2	3/4 ton 4x4 pick- up	90	5.77	519.3
				$180,993				$58,194
Total	$239,187							

Range Monitoring	
Task	**People Days**
Utilization	40
Irrigated Pasture Condition	5
Range Trend	160
Annual Field Inspections (see 2-59 of EIR)	20
Field Evaluations (see 2-59 of EIR)	5
Analysis and Reporting	15
Total	**245**