Lower Owens River Project
Work Plan, Budget, and Schedule

2022-2023 Fiscal Year

Prepared by
Inyo County Water Department and
Los Angeles Department of Water and Power

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The Inyo County Water Department and the Los Angeles Department of Water and Power jointly prepared this 2022-2023 Fiscal Year Lower Owens River Project Work plan. The Inyo County/Los Angeles Technical Group adopted this work plan on June 23, 2022. The Technical Group recommends that the Inyo County Board of Supervisors and the City of Los Angeles Board of Water and Power Commissioners or their designee approve the 2022-2023 Fiscal Year Lower Owens River Project Work Plan.

Introduction

The Final Environmental Impact Report for the Lower Owens River Project (LORP) Section 2.2.1 provides that the Long-Term Water Agreement (LTWA) Technical Group will develop and adopt an annual work program for the LORP, which describes LORP work to be performed in the following fiscal year. This work program identifies who will perform or oversee tasks, a schedule, and a budget. This work plan and budget was prepared according to the Agreement between the County of Inyo and City of Los Angeles Department of Water and Power Concerning Funding of the Lower Owens River Project (Funding Agreement) sections D, E, and F. Following adoption by the Technical Group, the work program will be submitted to the County and LADWP governing board for approval. Each governing board must approve the plan before this work plan and budget can be implemented. This Work Plan, Budget, and Schedule is in effect from July 1, 2022 – June 30, 2023.

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 1997 Memorandum of Understanding, maintain infrastructure necessary to the operation of the LORP, and implement adaptive management measures. The following priorities are observed in this work plan:

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, 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 work plan covers the budget and schedule for operations and maintenance, monitoring, mosquito abatement, noxious species control, saltcedar control, and reporting activities.
Section 2 outlines Adaptive Management activities identified to be conducted in the 2022-2023 fiscal year.

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.

LORP Operations & Maintenance and Monitoring Budget

Table 1 summarizes the costs of operation, maintenance and monitoring for the fiscal year and specifies the costs incurred by Inyo County and Los Angeles for standard operations, maintenance, and monitoring, as well as for Adaptive Management. A summary of these activities follows in Sections 1 and 2 below.

In 2022-2023 a total of 32 people days will be required to complete standard biologic and water quality monitoring tasks. Inyo County and LADWP will each contribute 16 days. Additionally, vegetation mapping work will be contracted out and will be a shared cost between LADWP and Inyo County. Maintenance, Operations, and Hydrologic monitoring are tasks solely performed by LADWP, and are without offsetting costs. LADWP has allocated 120 days for Range Monitoring, which is a LADWP cost. Inyo County and LADWP will perform additional Adaptive Management tasks over 164 people days (Inyo County and LADWP each 82 days). There is no budget for the MOU Consultant in 2022-2023.

Based on this budget, total cost for the fiscal year is $597,161.35, with Inyo County contributing $123,144.88 and LADWP contributing $474.016.47. Inyo County's Post Implementation Credit will be decreased by $175,435.80. The credit deduction is calculated by subtracting the dollars LADWP will spend during the fiscal year from the amount spent by Inyo County, and dividing this figure by two.

Table 1. LORP Work Plan Summary Budget, FY 2022-2023

Inyo County	Budgeted Staff Work Days	Value of Additional Staff Time, Materials, and Equipment	Payment/Credit
Biologic and Water Quality	16	$16,800.00	
Mosquito Abatement	-	$30,000.00	
Noxious Species Control	-	$50,000.00	
Adaptive Management	82	$26,344.88	
Inyo County Totals	**98**	**$123,144.88**	**$175,435.80**
LADWP	**Budgeted Staff Work Days**	**Budgeted Value of Additional Staff Time, Materials, and Equipment**	
Hydrologic Monitoring	-	$71,460.00	
Biologic and Water Quality	16	$16,800.00	
Operations and Maintenance	-	$311,411.59	
Mosquito Abatement	-	$30,000.00	
Rodent Control	-	$18,000.00	
Adaptive Management	82	$26,344.88	
LADWP Totals	98	**$474,016.47**	
Combined Total	**196**	**$597,161.35**	
Inyo County Credit Adjustment (1/2 of the Difference in Expenditures between Inyo County and LADWP)		**$175,435.80**	

Footnote to Table 1. Post Implementation Credit and Trust Accounting

Original Post Implementation Credit		$2,253,033	$2,253,033
Increase Post Imp Credit by 2.9% based on the July 2007 price Index	2.9%	$65,338	$2,318,371
County's obligation for July 11, 2007 to June 30, 2008 period		$243,524	$2,074,847
Increase the remaining balance of the Post Implementation Credit by 5.7% based upon the July 2008 price index	5.7%	$118,266	$2,193,113
County's obligation for 2008-2009 fiscal year		$243,524	$1,949,589
Reduce the remaining balance of the Post Implementation Credit by 1.3% based upon the April 2009 price index	-1.3%	$25,345	$1,924,245
County's share of the costs for the 2009-2010 work plan and budget, including adaptive management.		$266,176	$1,658,069
Increase the remaining balance of the Post Implementation Credit by 1.9% based upon the April 2010 price index effective July 10, 2010	1.9%	$31,503	$1,689,572
County's share of the costs for the 2010-2011 work plan and budget, including adaptive management effective July 21, 2010.		$317,805	$1,371,767
Increase the remaining balance of the Post Implementation Credit by 3.3% based upon the April 2011 price index effective July 10, 2011.	3.3%	$45,268	$1,417,035
County's share of the costs for the 2011-2012 work plan and budget, including adaptive management effective July 21, 2011.		$48,278	$1,368,757
County's share of the costs for the Amended 2011-2012 work plan and budget, effective July 21, 2011.		$57,687	$1,311,070
Increase the remaining balance of the Post Implementation Credit by 1.5% based upon the April 2012 price index effective July 10, 2012.	1.5%	$19,666	$1,330,736
County's share of the costs for the 2012-2013 work plan and budget, including adaptive management effective July 23, 2012.		$14,084	$1,344,820
Increase the remaining balance of the Post Implementation Credit by 0.9% based upon the April 2013 price index effective July 10, 2013.	0.9%	$12,103	$1,356,924
County's share of the costs for the 2013-2014 work plan and budget, including adaptive management effective June 21, 2013.		$41,979	$1,398,903
Increase the remaining balance of the Post Implementation Credit by 1.4% based upon the April 2014 price index effective July 10, 2014.	1.4%	$19,585	$1,418,487
County's share of the costs for the 2014-2015 work plan and budget, including adaptive management effective June 21, 2014.		$78,483	$1,340,004
Increase the remaining balance of the Post Implementation Credit by 0.5% based upon the April 2015 consumer price index.	0.5%	$6,700	$1,346,704
County's share of the costs for the 2015-2016 work plan and budget, including adaptive management effective June 21, 2015.		$73,755	$1,272,949
Increase the remaining balance of the Post Implementation Credit by 2.0% based upon the April 2016 consumer price index.	2.0%	$25,459	$1,298,408
County's share of the costs for the 2016-2017 work plan and budget, including adaptive management effective June 21, 2016.		$84,704	$1,213,704
Increase the remaining balance of the Post Implementation Credit by 2.7% based upon the April 2017 consumer price index.	2.7%	$32,770	$1,246,474
County's share of the costs for the 2017-2018 work plan and budget, including adaptive management, effective October 31, 2018.		$114,857	$1,131,617
Increase the remaining balance of the Post Implementation Credit by 4.0% based upon the April 2018 consumer price index.	4.0%	$45,265	$1,176,882
County's share of the costs for the 2018-2019 work plan and budget, including adaptive management, effective October 31, 2019.		$139,493	$1,037,389
Increase the remaining balance of the Post Implementation Credit by 3.3% based upon the April 2019 consumer price index.	3.3%	$34,234	$1,071,623
County's share of the costs for the 2019-2020 work plan and budget, including adaptive management, effective October 31, 2020.		$132,558	$939,065
Increase the remaining balance of the Post Implementation Credit by 0.7% based upon the April 2020 consumer price index.	0.7%	$6,573	$945,639
County's share of the costs for the 2020-2021 work plan and budget, including adaptive management, effective October 31, 2021.		$252,481	$693,157
Increase the remaining balance of the Post Implementation Credit by 3.6% based upon the April 2021 consumer price index.	3.6%	$24,954	**$718,111**

The annual CPI adjustment will take place prior to deduction of a credit for County's annual share of the LORP post-implementation costs (PIA 8.4). The LORP Trust Account Balance as of June 13, 2022 is $2,184,481.16.

Section 1. Maintenance and Monitoring Tasks

LORP Tasks

The maintenance and monitoring portion of this work plan consists of four categories of tasks: operations and maintenance, hydrologic monitoring, biological monitoring, and range monitoring.

Operations and 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, adjustments to flow control structures, maintenance/replacement of existing structures, and necessary annual maintenance to spillgates, ditches, dikes, berms, ponds and other features in the BWMA. Operation activities consist of setting and checking flows and ensuring that necessary flows reach the river to maintain mandated base and seasonal habitat flows. Estimates of the level of effort necessary for maintenance are adjusted as required by section II.D of the Funding Agreement, and provides that costs for maintenance above the baseline costs for facilities in the river corridor and Blackrock Waterfowl Management Area (BWMA) shall be shared.

Budgeted Operations and Maintenance costs and associated material costs for 2022-2023 are included in Table 2. The estimated costs for River corridor and BWMA facilities are $216,759.40 and $264,257.49 respectively, for an overall 2022-2023 operations and maintenance expenditure of $481,016.89. This figure reduced by the combined CPI-adjusted baseline costs for the river corridor and BWMA facilities is $311,411.59 (Table 2).

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. Budgeted hydrologic monitoring costs for the 2022-2023 fiscal year are $71,460.00 (Table 3).

Biological/Water Quality Monitoring

Biological monitoring, analysis, reporting, and report preparation will be jointly conducted by Inyo and LADWP as identified in Table 4.01 of the LORP Monitoring and Adaptive Management Plan (MAMP) (Table 4). This year is the fifteenth year of monitoring in the LORP. Due to staff shortages, LADWP and Inyo County will contract vegetation mapping of the project to Formation Environmental, Inc. and will equally share those costs ($33,600 total, $16,800 each agency). The scope of work is provided in Appendix 1.

LADWP and Inyo County will conduct habitat indicator species modeling based on this mapping and riparian bird surveys conducted in spring 2022. LADWP and Inyo County Staff will continue to monitor the flooded extent of the BWMA as described in the BWMA Interim Management and Monitoring Plan. Inyo Staff and LADWP Staff will spend a total of 32 people days on these efforts. There will be no off-setting costs.

Adaptive management

Inyo County and LADWP have identified adaptive management tasks to complete in the 2022-2023 fiscal year. Refer to Section 2 for more information.

Table 2. LORP Operations and Maintenance Budget- 2022-2023 Fiscal Year								
Labor					Equipment			
Location/Activity	Labor type	Hours	Labor Rate	Total Labor	Equipment/Materials	Hours	Rate	Total Equip
River								
Measuring Station Maintenance								
	Power Shovel Operator	30	$52.06	$1,561.80	Excavator	30	$108.80	$3,264.00
	Truck Driver	30	$45.30	$1,359.00	3 axle dump truck	30	$56.50	$1,695.00
	Operator	10	$49.37	$493.70	Mower	10	$90.10	$901.00
	Building Repairman	10	$45.88	$458.80	3/4 ton 4x4 pick- up	100	$13.60	$1,360.00
	MCH	50	$40.16	$2,008.00				
Subtotal				**$5,881.30**				**$7,220.00**
Intake Spillgate								
Maintenance	Building Repairman	40	$45.88	$1,835.20	Bull Dozer	80	$61.65	$4,932.00
	MCH	340	$40.16	$13,654.40	3/4 ton 4x4 pick- up	620	$13.60	$8,432.00
	Operator	200	$49.37	$9,874.00	Mower	20	$90.10	$1,802.00
	Power Shovel Operator	40	$52.06	$2,082.40	Excavator	40	$108.80	$4,352.00
	Truck Driver	40	$45.30	$1,812.00	Versadrege	100	$200.00	$20,000.00
					3 axle dump truck	40	$48.03	$1,921.20
Subtotal				**$29,258.00**				**$41,439.20**
Thibaut Spillgate and Ditch								
Cleaning	Power Shovel Operator	40	$52.06	$2,082.40	Excavator	40	$108.80	$4,352.00
	Operator	80	$49.37	$3,949.60	Backhoe and trailer	40	$37.19	$1,487.60
	Truck Driver	20	$45.30	$906.00	Loader	40	$37.40	$1,496.00
	MCH	120	$40.16	$4,819.20	3 axel dump truck	40	$48.03	$1,921.20
					3/4 ton 4x4 pick- up	160	$13.60	$2,176.00
Subtotal				**$11,757.20**				**$11,432.80**
Independence Spillgate and Ditch								
Cleaning/Mowing	Power Shovel Operator	40	$52.06	$2,082.40	Excavator	40	$108.80	$4,352.00
	Operator	80	$49.37	$3,949.60	Loader	40	$37.40	$1,496.00
	Truck Driver	30	$45.30	$1,359.00	Side dump	10	$65.66	$656.60
	MCH	160	$40.16	$6,425.60	Mower	40	$90.10	$3,604.00
					3/4 ton 4x4 pick- up	280	$13.60	$3,808.00
					Water truck	40	$31.23	$1,249.20
Subtotal				**$13,816.60**				**$15,165.80**
Locust Spillgate and Ditch								
Cleaning	Power Shovel Operator	20	$52.06	$1,041.20	Excavator	20	$108.80	$2,176.00
	Operator	80	$49.37	$3,949.60	Backhoe and trailer	80	$37.19	$2,975.20
	MCH	100	$40.16	$4,016.00	3/4 ton 4x4 pick- up	200	$13.60	$2,720.00
	Truck Driver	40	$45.30	$1,812.00	3 axle dump truck	40	$48.03	$1,921.20
Subtotal				**$10,818.80**				**$9,792.40**
Georges Ditch								
Cleaning/Mowing	Operator	80	$49.37	$3,949.60	Mower	30	$90.10	$2,703.00
	Truck Driver	20	$45.30	$906.00	Backhoe and trailer	30	$37.19	$1,115.70
	Power Shovel Operator	40	$52.06	$2,082.40	Loader	20	$37.40	$748.00
	MCH	120	$40.16	$4,819.20	Excavator	40	$108.80	$4,352.00
					3/4 ton 4x4 pick-up	240	$13.60	$3,264.00
Subtotal				**$11,757.20**				**$12,182.70**

Alabama Spillgate								
Cleaning	Power Shovel Operator	60	$52.06	$3,123.60	Excavator	60	$108.80	$6,528.00
	Operator	40	$49.37	$1,974.80	Bull Dozer	40	$61.65	$2,466.00
	Truck Driver	180	$45.30	$8,154.00	3 axle dump truck	180	$48.03	$8,645.40
					3/4 ton 4x4 pick-up	100	$13.60	$1,360.00
Subtotal				**$13,252.40**				**$18,999.40**
Labor					Equipment			
Location/Activity	**Labor type**	**Hours**	**Labor Rate**	**Total Labor**	**Equipment/Materials**	**Hours**	**Rate**	**Total Equip**
Delta Spillgate								
	Building Repairman	40	$45.88	$1,835.20	3/4 ton 4x4 pick- up	40	$13.60	$544.00
	MCH	40	$40.16	$1,606.40				
Subtotal				**$3,441.60**				**$544.00**
River Subtotal				**$99,983.10**				**$116,776.30**
Blackrock Waterfowl Management Area								
Blackrock Ditch								
Maintenance	Operator	120	$49.37	$5,924.40	Mower	80	$90.10	$7,208.00
	Truck Driver	200	$45.30	$9,060.00	3 axle dump truck	120	$48.03	$5,763.60
	MCH	260	$40.16	$10,441.60	3/4 ton 4x4 pick- up	400	$13.60	$5,440.00
	Power Shovel Operator	140	$52.06	$7,288.40	Excavator	140	$108.80	$15,232.00
					Loader	40	$37.40	$1,496.00
					Water truck	60	$31.23	$1,873.80
					Side dump	60	$65.66	$3,939.60
Subtotal				**$32,714.40**				**$40,953.00**
Goose Lake Maintenance								
Discing Maintenance	Operator	50	$49.37	$2,468.50	Low bed	10	$65.66	$656.60
	MCH	50	$40.16	$2,008.00	Versadredge	50	$108.80	$5,440.00
	Truck Driver	10	$45.30	$453.00	3/4 ton 4x4 pick- up	50	$13.60	$680.00
Subtotal				**$4,929.50**				**$6,776.60**
Patrol & Flow Changes (River and BWMA)								
A&R data	A&R Keeper (1.5 FTE)	3089	$44.31	$136,873.59	3/4 ton 4x4 pick- up	3089	$13.60	$42,010.40
Subtotal				**$136,873.59**				**$42,010.40**
BWMA Subtotal				**$174,517.49**				**$89,740.00**

TOTALS	
River Total	**$216,759.40**
BWMA Total	**$264,257.49**
Total O and M	**$481,016.89**
CPI Adjusted O & M	**$311,411.59**

Baseline Costs (described in Post -Imp)		River	BWMA	Total CPI adjustment
CPI adjustment		$56,863.00	$62,798.00	$119,661.00
2006-2007	4.5%	$59,421.84	$65,623.91	$125,045.75
2007-2008	3.1%	$61,263.91	$67,658.25	$128,922.16
2008-2009	-1.3%	$60,467.48	$66,778.69	$127,246.17
2009-2010	0.9%	$61,011.69	$67,379.70	$128,391.39
2010-2011	0.7%	$61,438.77	$67,851.36	$129,290.13
2011-2012	3.0%	$63,281.93	$69,886.90	$133,168.83
2012-2013	2.1%	$64,610.85	$71,354.53	$135,965.38
2013-2014	0.4%	$64,869.30	$71,639.94	$136,509.24
2014-2015	1.3%	$65,712.60	$72,571.26	$138,283.86
2015-2016	1.6%	$66,764.00	$73,732.40	$140,496.40
2016-2017	1.8%	$67,965.75	$75,059.59	$143,025.34
2017-2018	3.6%	$70,412.52	$77,761.73	$148,174.25
2018-2019	3.6%	$72,947.37	$80,561.15	$153,508.52
2019-2020	3.2%	$75,281.69	$83,139.11	$158,420.80
2020-2021	1.0%	$76,034.50	$83,970.50	$160,005.00
2021-2022	6.0%	$80,596.57	$89,008.73	$169,605.30

Table 3. Hydrologic Monitoring Budget, FY 2022-2023

	Person days	Labor Costs	Equipment Cost	Total Predicted Cost July 1, 2022 through June 30, 2023
	HYDRO OPERATIONS AND MAINTENANCE			
River Stations	25	$ 13,750.00	$ 5,800.00	$ 19,550.00
Seasonal Habitat	6	$ 3,300.00	$ 240.00	$ 3,540.00
Off River Lakes & Ponds	7	$ 3,850.00	$ 280.00	$ 4,130.00
Flow to Delta	4	$ 2,200.00	$ 3,160.00	$ 5,360.00
Blackrock Waterfowl	7	$ 3,850.00	$ 3,280.00	$ 7,130.00
Reporting Compliance	5	$ 2,750.00	$ 200.00	$ 2,950.00
	ENGINEERING			
Reporting Compliance	60	$ 28,800.00	$ -	$ 28,800.00
			Total Hydro Budget	**$71,460.00**

Table 4. Biological Monitoring Budget, FY 2022-2023

Biological Monitoring	Days	Inyo Days	LA Days
Blackrock Waterfowl Management Area			
Waterfowl Area Wetted Acreage	16	8	8
LORP Habitat Indicator Species Modeling	16	8	8
Total Person Days on Project	**32**	**16**	**16**

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 monitoring. Range monitoring will be conducted by LADWP and is not a shared cost, and therefore is not budgeted for in this work plan (Table 5).

Table 5. Range Monitoring (LADWP only), FY 2022-2023

Task	People Days
Utilization	45
Irrigated Pasture Condition	5
Range Trend	50
Analysis and Reporting	20
Total	**120**

Mosquito Abatement
For fiscal year 2022-2023, the Owens Valley Mosquito Abatement Program (OVMAP) will 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. The $60,000 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.

Noxious Species Control
The Inyo/Mono Counties Agricultural Commissioner's Office conducts operations to control and eradicate several different invasive weed species within the LORP boundaries. These invasive weed species include perennial pepperweed (*Lepidium latifolium*), Russian knapweed (*Acroptilon repens*), Canada thistle (*Cirsium arvense*), yellow star thistle (*Centaurea solstitialis*), spotted knapweed (*Centaurea maculosa*), hairy whitetop (*Carderia pubescens*), and heart podded hoary cress (*Carderia draba*). These populations are managed using integrated pest management methods, including mechanical, chemical, and biological controls.

For fiscal year 2022-2023, Inyo County will be responsible for treating weeds in the LORP. The budget for noxious weed control is $50,000. An increase in perennial pepperweed in the LORP in recent years will require additional funding and efforts to contain the existing population and prevent spread. Additional funding for Inyo County will be sought from outside sources.

Additional weed treatment and surveillance by LADWP and ICWD is described in Section 2. Adaptive Management.

Saltcedar Control
Due to lack of enhanced funding, Inyo County's saltcedar control program has been scaled back. The effort will focus on surveying and the treatment of saltcedar resprouts along the Owens River in the LORP. Inyo County's LORP saltcedar control activities are funded through the Inyo/Los Angeles Water Agreement. LADWP and Inyo County programs will work cooperatively to treat saltcedar, which may include areas in the LORP as resources are available.

Schedule

Table 6. Schedule of Monitoring and Reporting Activities for FY 2022-2023

Period	Monitoring
July 1-August 31, 2022	BWMA waterfowl forage surveys
August 1-August 31, 2022	LORP Noxious Species Survey
September 1 – February 1, 2023	LADWP/Inyo Prepare Draft LORP Report
October 1 - October 31, 2022	Fiscal Year 2019-2020 Work Plan and Budget Reconciliation
October 31, 2022	Transmittal of LORP Accounting Report to Governing Boards
November 1-7, 2022	Measure BWMA Flooded Extent
February 10, 2023	Draft Report transmitted to MOU Parties
February 23, 2023	Public Meeting for Draft LORP Report
March 1-7, 2023	Measure BWMA Flooded Extent
March 6-31, 2023	Technical Group Meeting to Adopt LORP Annual Report
March 1 – April 30, 2023	Fiscal Year 2023-2024 Work Plan and Budget Development
May 1 – May 31, 2023	Transmittal of LORP Work Plan, Budget, and Schedule to governing boards for approval
March 15 - April 14, 2023	Noxious Species Survey
June 2023	Mid-year observational meeting regarding BWMA interim plan
June 1-July 1, 2023	BWMA waterfowl forage surveys
May 2 - June 15, 2023	Seasonal Habitat Flow

Section 2. Adaptive Management

Implementation costs of the Interim BWMA Plan are provided below. These costs are to be shared equally between LADWP and Inyo County. All other monitoring associated with adaptive management will be conducted by LADWP and ICWD staff with no offsetting costs.

Adaptive Management with Additional Costs

Implementation of the Interim BWMA Management and Monitoring Plan

LADWP and Inyo County implemented the first year of the 5-year Interim BWMA Management and Monitoring Plan (Interim Plan) in 2021-2022. Work to be performed in 2022-2023 includes berm repair in the waterfowl units, culvert installation and discing of the Winterton Unit. All work will be performed before reflooding the cells in September 2022. This work will be conducted by LADWP and is budgeted at $52,689.76 (Table 7). Costs will be shared equally by LADWP and Inyo County.

Table 7. BWMA Adaptive Management Costs

BWMA Adaptive Management Costs FY 2022-2023								
Labor type	**Hours**	**Labor Rate**	**Total Labor**		**Equipment Type**	**Hours**	**Rate**	**Total Equip**
Berm Repair -Thibaut (2), Winterton (1)								
Power Shovel Operator	40	$50.61	$2,024.40		Excavator	40	$108.80	$4,352.00
Operator	40	$48.89	$1,955.60		Water truck	20	$31.23	$624.60
Truck Driver	40	$45.30	$1,812.00		3 axle dump truck	60	$56.50	$3,390.00
Subtotal			**$5,792.00**					**$8,366.60**
Open Berm in NW Section of Thibaut								
Operator	10	$48.89	$488.90		Bulldozer	10	$61.65	$616.50
Truck Driver	5	$45.30	$226.50		Lowbed	5	$65.66	$328.30
					3/4 ton 4x4 pick- up	10	$13.60	$136.00
Subtotal			**$715.40**					**$1,080.80**
Winterton Discing								
Operator	160	$48.89	$7,822.40		Mower	160	$108.80	$17,408.00
MCH	160	$39.77	$6,363.20		3/4 ton 4x4 pick- up	160	$13.60	$2,176.00
Subtotal			**$14,185.60**					**$19,584.00**
East Winterton Culvert								
PSO	10	$48.89	$488.90		Excavator	10	$108.80	$1,088.00
Building Repairman	10	$45.07	$450.70		Lowbed	6	$65.66	$393.96
Truck Driver	6	$45.30	$271.80		3/4 ton 4x4 pick- up	20	$13.60	$272.00
Subtotal			**$1,211.40**					**$1,753.96**

TOTALS	
Berm Repair - Thibaut/Winterton	$14,158.60
Open Berm - Thibaut	$1,796.20
Winterton Discing	$33,769.60
East Winterton Culvert	$2,965.36
Proposed Project Total	**$52,689.76**

Adaptive Management without Additional Costs

1. Monitoring Associated with the Interim BWMA Plan

Per the Interim BWMA Plan, LADWP and the County will conduct additional monitoring concurrent with its implementation on flooded extent, vegetation, and water depths as well as avian monitoring to note response to the new flooding regime. Estimated staff commitments for these monitoring tasks are provided below for the 2022-2023 fiscal year.

- Flooded extent will continue to be measured both to confirm compliance with the Interim Plan and to help describe the effectiveness of seasonal filling and drawdown. Remote sensing will be used to take rough area estimates, and two on-the-ground surveys will be used to map more precisely the extent and location of flooding. Water releases will be monitored and reported annually. Staff time commitment for flooded extent monitoring in BWMA is outlined in Table 4, as this task is required under the MAMP also.
- Vegetation monitoring will consist of line-point vegetation transects and/or plots in areas expected to have the most potential to produce waterfowl foods. A second objective of monitoring is to evaluate the effectiveness of controlling the expansion of cattails and bulrush in active units. This can be mapped and quantified from a combination of satellite imagery, aerial imagery from UAV, and field training data. Evaluating the vegetative response following shallow flooding will help managers determine the following year's flooding schedule. This task is estimated to require 16 days of LADWP staff time.
- Avian monitoring will be conducted to evaluate the use of BWMA by the habitat indicator species during implementation of the 5-year interim program. Eight seasonal surveys will be conducted September-April in each active unit during implementation of the Interim Plan. Based on the 2021-2022 monitoring year, it is anticipated that each of these surveys will take 4-6 people days, depending on the extent of flooding during any particular survey. It is anticipated that avian monitoring will take up to 48 people days in 2022-2023 split equally between LADWP and ICWD.
- During 2022-2023, water depth in active units will be measured by Inyo County coinciding with avian surveys to better understand how water depth influences waterbird habitat use. Patterns of unit drydown will also be monitored to inform whether there are opportunities that could further benefit breeding waterfowl and their broods. Staff time for this task is included in avian monitoring requirements.

It is estimated that monitoring and reporting associated with the Interim Plan will require 64 total people days split between LADWP and ICWD staff in the 2022-2023 fiscal year.

2. DHA Flow Effectiveness monitoring

Flow effectiveness monitoring will consist of reviewing photos of the DHA taken from a helicopter during surveillance flights of the Owens Lake Dust Control Program to evaluate whether the three habitat criteria established in Year 1 were achieved. This effort is anticipated to take two person days and will be conducted by LADWP.

3. Noxious species survey and treatment

Additional noxious weed treatment and surveillance by LADWP and ICWD initiated in 2020-2021 will continue in 2022-2023. ICWD will continue survey work in the LORP (including BWMA) and LADWP will offset survey efforts with treatment of noxious weeds in the LORP area. Estimated staff time includes 15 days from ICWD and 48 days from LADWP.

4. Tree recruitment assessment

The environmental conditions which have permitted historic riparian tree establishment on the LORP during pre-project conditions (pre-watering) as well as conditions which have permitted the limited recruitment since project inception (post-watering) will be evaluated. Known locations with mature trees and prior recruitment locations will be assessed as described in the 2021-2022 work plan (LADWP and ICWD 2021) and the Type D Monitoring Plan (Appendix 1, ICWD 2021). In 2022-2023, these tasks will require 35 field days for sampling, data collection, analysis and reporting. Inyo County will carry out this task.

Table 8 shows a total of 164 people-days budgeted for four adaptive management tasks, with Inyo County contributing 82 people-days and Los Angeles contributing 82 days.

Table 8. Adaptive Management Monitoring 2022-2023

Task #	Biological Monitoring	Days	Inyo Days	LA Days
1	BWMA Interim Management and Monitoring Plan - Monitoring and Reporting	64	32	32
2	DHA Flow Effectiveness Monitoring	2	0	2
3	Noxious species survey/treatment	63	15	48
4	Tree recruitment assessment	35	35	0
	Total Person Days	**164**	**82**	**82**

References

Inyo County Water Department 2021. Type D Riparian Vegetation Monitoring Annual Status Report 2020. Accessed at: https://www.inyowater.org/wp-content/uploads/2021/08/TypeD_AnnualReport_2020_08242021_FINAL.pdf

Los Angeles Department of Water and Power and Inyo County Water Department. 2021. Lower Owens River Project Work Plan, Budget, and Schedule 2021-2022 Fiscal Year. Accessed at: https://www.inyowater.org/wp-content/uploads/2021/10/2021-22-LORP-Final-Work-Plan-Budget-Schedule.pdf

Appendix 1. LORP Mapping Scope of Work, Formation Environmental, Inc.

EASTERN SIERRA WATER RESOURCE SUPPORT FORMATION ENVIRONMENTAL

Project Understanding

The Lower Owens River Project (LORP) was implemented in late 2006 by Los Angeles Department of Water and Power (LADWP). The project entailed rewatering of about 62 river miles of the Owens River that had been depleted since about 1913. Rewatering entailed a continuous base flow and a seasonal habitat flow for years when seasonal runoff is at or above normal. The LORP Monitoring, Adaptive Management, and Reporting Plan (MAMP; Ecosystem Sciences 2008) established a fifteen-year monitoring program that included landscape vegetation mapping.

A baseline for landscape vegetation mapping of the LORP riparian area, 2000 conditions, was assembled by Sherman Jensen (White Horse Associates 2004). Subsequent landscape mapping was conducted for 2009, 2014, and 2017 conditions and included in LORP Annual Reports (LADWP and Inyo County Water Department (ICWD) 2011, 2016, 2019). The proposed LORP landscape mapping, 2022 conditions will be the final monitoring required specifically under the LORP MAMP.

Task 1

The purpose of this task is to conduct landscape vegetation mapping remotely for the LORP project area using digital orthophotography that will be acquired in summer 2022. The LORP project area (Figure 1) is 6252 acres and includes about 62 linear miles of the Owens River stream course. Water is released to the streambed at the LORP Intake and pumped back to the LADWP Aqueduct at the Pumpback Station.

The approach for the 2022 vegetation landscape mapping will be to identify changes relative to the 2017 mapping. Spectral classification, image segmentation and object-based classification, and heads-up mapping of a 2022, 4-band image will be applied to subsets of the 2017 mapping tailored to discrete vegetation types. Results of mapping for 2022 conditions will be compared with similar inventories for 2000, 2009, 2014, and 2017 conditions. We anticipate working with LADWP Watershed Resources staff to conduct ground verification and/or accuracy assessment, as needed. A detailed technical approach for this task is provided in Appendix A.