State Clearinghouse No. 2014071057

ADDENDUM TO ENVIRONMENTAL IMPACT REPORT

OWENS LAKE DUST MITIGATION PROGRAM – PHASE 9/10 PROJECT

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LIST OF ABBREVIATIONS AND ACRONYMS USED IN THIS DOCUMENT

#	2016 SIP	2016 Owens Valley Planning Area PM_{10} State Implementation Plan
B	BACM	Best Available Control Method (Gravel Cover, Shallow Flooding and Managed Vegetation)
C	CEQA	California Environmental Quality Act
D	DCA	Dust Control Area
	DEPM	Division of Environmental Planning and Management
	District	Great Basin Unified Air Pollution Control District
	DWM	Dynamic Water Management
E	EIR	Environmental Impact Report
G	GBUAPCD	Great Basin Unified Air Pollution Control District
H	HSM	Owens Lake Habitat Suitability Model
	HVA	Habitat Value Acre
L	LADWP	City of Los Angeles Department of Water and Power
O	OLDMP	Owens Lake Dust Mitigation Program
P	PM_{10}	Particulate matter less than or equal to 10 microns in diameter
S	SHW	Summer Habitat Water
	SIP	State Implementation Plan

1.0 INTRODUCTION

1.1 SUMMARY AND PROJECT OBJECTIVES

On June 14, 1999, the California State Lands Commission (Commission) authorized the issuance of Lease No. PRC 8079.9, a 20-year General Lease – Public Agency Use (Lease), to the City of Los Angeles Department of Water and Power (City or LADWP) for the Owens Lake South Sand Sheet Air Quality and Sand Fence Effectiveness Monitoring System on Owens Lake, which is located in southwest Inyo County, approximately 200 miles north of Los Angeles (Figure 1). Since that time, the Commission has authorized 17 amendments to the Lease for the construction, operation, and maintenance of additional components of dust control, including the use of Best Available Control Methods (BACM) to mitigate dust emissions on Owens Lake. Approved types of BACM include Shallow Flooding, Managed Vegetation, and Gravel Cover.

On June 2, 2015, the City, as lead agency under the California Environmental Quality Act (CEQA), certified an Environmental Impact Report (EIR) for the Owens Lake Dust Mitigation Program (OLDMP)—Phase 9/10 Project (Project; State Clearinghouse No. 2014071057). The City is proposing to implement the Phase 9/10 Project and expand and modify the existing system of dust control on the lake. As part of the OLDMP, the Project EIR contemplated implementation of Dynamic Water Management (DWM) to modify the dust season on approximately 12.07 square miles of Shallow Flood dust control areas (DCAs) on Owens Lake in order to conserve water. DWM uses delayed start dates and earlier end dates for Shallow Flooding in specific areas that have historically had low dust emissions during the modified time periods. The truncated dust control periods allow for water savings while achieving the required dust control. To help offset potential impacts to wildlife, LADWP would release water on the lake outside of dust mitigation periods for the benefit of birds; this is called Summer Habitat Water (SHW). While DWM is referenced in the City's certified EIR and included in the definition of Shallow Flooding BACM, this Addendum serves to clarify how DWM will be implemented.

1.2 ADDENDUM PURPOSE

The proposed DWM Plan requires Commission approval and therefore CEQA compliance. Pursuant to the State CEQA Guidelines section 15164, the lead agency or a responsible agency for a project shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but no special conditions requiring a subsequent EIR (described in State CEQA Guidelines, § 15162) are present. Pursuant to State CEQA Guidelines section 15162, a subsequent EIR is not required unless:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

A. The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

B. Significant effects previously examined will be substantially more severe than shown in the previous EIR;

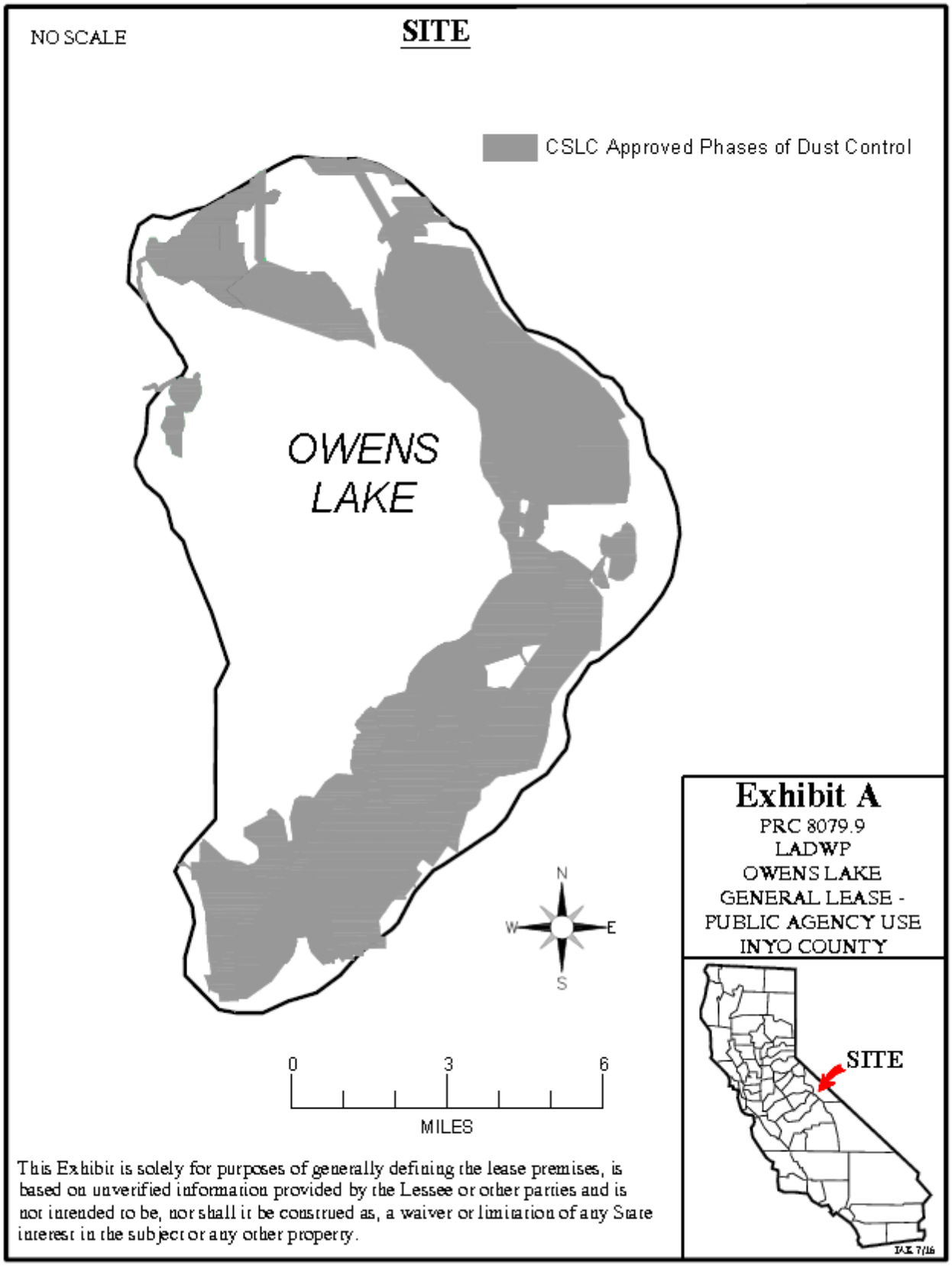
C. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

D. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

The City has submitted an application to the Commission to modify the dust control watering season for approximately 12.07 square miles of the Lake. Before approving such modification, the Commission must apply the standards outlined above to ensure that a subsequent EIR is not required. In reviewing the DWM plan, Commission staff identified two areas where there could be a potential for environmental impacts from the proposed actions: air quality and biological resources. After reviewing the existing environmental documents, application materials, and the DWM plan, and analyzing all relevant facts available, Commission staff has determined, on the basis of substantial evidence in light of the whole record, that:

- minor changes or additions to the previously certified EIR for the Owens Lake Dust Mitigation Program – Phase 9/10 Project are necessary;
- none of the conditions described in State CEQA Guidelines section 15162 calls for the preparation of a subsequent EIR; and
- an addendum is the appropriate CEQA document for analysis and consideration of the portion of the Project on lands under the jurisdiction of the Commission.

Figure 1. Project Location



Circulation of an addendum for public review is not required (State CEQA Guidelines, § 15164, subd. (c)); however, the decision-making body must consider the addendum in conjunction with the previously adopted EIR for the project (State CEQA Guidelines, § 15164, subd. (d)).

1.3 BACKGROUND

Owens Lake was a natural and navigable waterway at the time of California's statehood and is thus sovereign land of the State. Wildlife, waterfowl, and the nearby residents depended on and benefited from Owens Lake, which covered approximately 110 square miles and was 50 feet deep in places. Early settlers diverted water from the Owens River to grow crops and irrigate pasture for livestock, and steamboats carried cargo across the lake. In 1908, the City began construction of an aqueduct to divert water from the Owens River north of Owens Lake. After completion of the Los Angeles Aqueduct in 1913, the City began transporting river water to Los Angeles, causing Owens Lake water levels to rapidly decline. By 1930, the Lake was virtually dry with only a small brine pool remaining. Since then, dust storms have carried away as much as four million tons of dust from the lakebed annually, causing respiratory problems for residents in the Owens Valley.

The U.S. Environmental Protection Agency has designated the southern part of the Owens Valley as a Serious Non-Attainment Area for PM_{10} (suspended particulate matter [dust] less than or equal to 10 microns in mean aerodynamic diameter [about 1/10 the diameter of a human hair]). The Great Basin Unified Air Pollution Control District (GBUAPCD or District) subsequently designated the Non-Attainment area as the Owens Valley PM_{10} Planning Area. The District determined that dust emissions from the dry lakebed of Owens Lake cause air in the Owens Valley PM_{10} Planning Area to exceed the PM_{10} national ambient air quality standards, and that water diversions by the City caused Owens Lake to become dry and the lakebed to be in a condition that produces dust. The District has authority to issue Supplemental Control Requirements Determinations (Orders) to the City for dust control purposes and recently approved the 2016 Owens Valley Planning Area PM_{10} State Implementation Plan (2016 SIP) (GBUAPCD 2016a).

LADWP constructs and operates dust control measures (DCMs) on the lake in compliance with Orders from the District under the authority of California Health and Safety Code section 42316, legal settlement agreements with the District, lease agreements for use of state lands (administered by the Commission), and other regulatory approvals. LADWP has also developed, in coordination with Commission staff and other stakeholders, a Habitat Suitability Model (HSM) for the Lake that includes various physical parameters that can be objectively measured as a means of predicting and monitoring habitat suitability and ensuring maintenance of wildlife habitat and use on the Lake.

2.0 DESCRIPTION OF PROJECT MODIFICATION

As proposed by LADWP, DWM would modify the dust control season for some areas of Owens Lake in order to conserve water. DWM is referenced in the EIR and included in the definition of Shallow Flooding BACM defined by the GBUAPCD (2016a) in the 2016 Owens Valley Planning Area PM_{10} State Implementation Plan (2016 SIP). LADWP currently manages approximately 31 square miles of Shallow Flood on the Lake; of this, approximately 12.07 square miles is eligible for DWM.[1]

Shallow Flooding BACM consists of releasing fresh and/or recycled water into a DCA and allowing it to spread, wet the surface, and thereby suppress windborne dust. In order to meet GBUAPCD's goal of reducing dust emissions on the lake by 99 percent,[2] generally 72 percent of the surface must be wet or have saturated soil (75 percent wetness coverage is required for areas identified in the 2003 SIP).

Prior to the 2016 SIP, the coverage requirement for the 99 percent DCAs could be reduced progressively during the spring shoulder season (May 16 to June 30); 70 percent areal wetness cover from May 16 to May 31; 65 percent areal wetness cover from June 1 to June 15; and 60 percent areal wetness cover from June 15 through June 30. The fall shoulder season was defined as October 1 to October 15; prior to the 2016 SIP, full levels of dust control were not required until October 16. Under the 2016 SIP, DWM will modify the dust season for certain areas on Owens Lake. This was described in the EIR as:

> *An analysis of Owens Lake ambient air quality, meteorological and sand flux data along with lake bed field observations during the past 15 years has revealed that the Shallow Flood BACM dust season may be shortened for certain areas of the lake bed that have historically shown little dust activity in the early and/or late portions of the October through June dust season. In addition, wetness cover requirements to achieve the required Minimum Dust Control Efficiency may also vary depending on seasonal conditions that may affect salinity of the surface water and the formation of erosion-resistant brine crusts. Modifications to the dust season for certain areas are currently being considered by GBUAPCD and LADWP to address the commitment in the 2014 Stipulated Judgment to implement a Dynamic Water Management Plan in order to reduce water use on the lake bed. Dynamic Water Management could include modifications to the existing ramping schedules for flow operations and could apply to existing Shallow Flooding dust control areas (DCAs) as well as new areas of Shallow*

[1] The District's 2016 SIP and Board Order 160413-01 identify 44 DCAs or portions of DCAs totaling 13.15 square miles; however, several of these areas are Gravel Cover rather than Shallow Flood, and were removed from consideration by LADWP and the Commission for this analysis.

[2] The GBUAPCD requires the City to continuously operate and maintain any mix of approved BACM PM_{10} control measures to meet a 99 percent control efficiency level.

Flooding proposed under the Phase 9/10 Project (T10-1-L1, T37-2-L1, T37-2-L2, T37-2-L3, and T37-2-L4).[3]

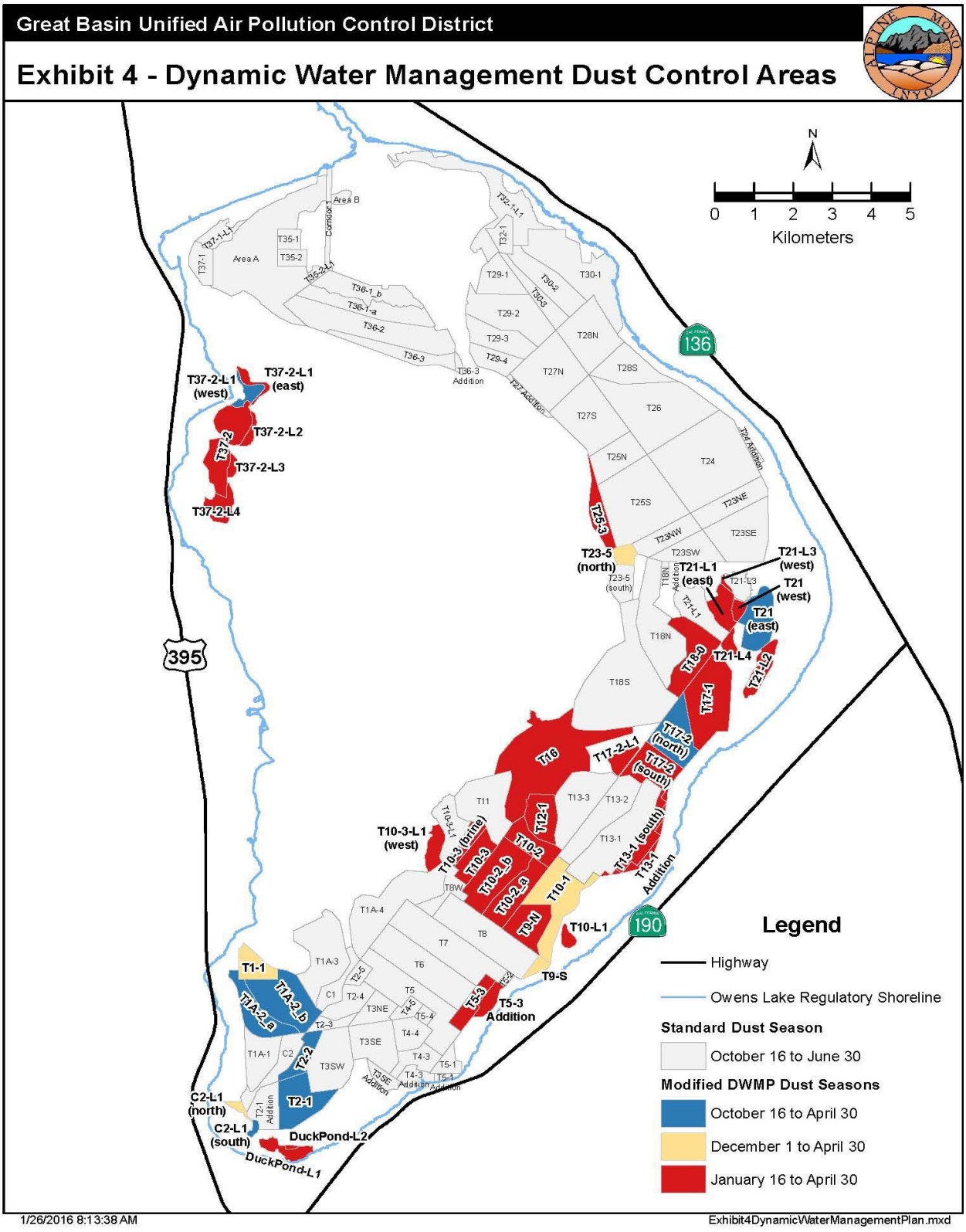
DWM is an operational modification to BACM Shallow Flooding that allows delayed start dates and/or earlier end dates required for Shallow Flooding in specific areas that have historically had low PM_{10} emissions with the modified time periods. The truncated dust control periods allow for water savings while achieving the required control efficiency level. If a DWM area becomes susceptible to wind erosion outside of the modified dust control period, the area will be flooded to meet the required control efficiency for that area. Following certification of the Phase 9/10 Project EIR and approval of the Project by the City in June 2015, the GBUAPCD (2016b) prepared a DWM Plan to define DWM with greater specificity.

Exhibit 4 of the DWM Plan (see Figure 2 below) depicts the recommended eligible DWM areas and notes the modified dust seasons for conventional pond and lateral Shallow Flooding areas. The dust season for DWM Plan areas irrigated with sprinklers would start 2 weeks earlier and end 1 month later than shown on Exhibit 4 of the DWM Plan. The standard dust season defined in the 2008 SIP was October 16 to June 30, with ramping of 99 percent control areas after May 15. Modified DWM Plan dust seasons are as follows (noted by DCA on Figure 2):

- October 16 to April 30;
- December 1 to April 30; and
- January 16 to April 30.

[3] Final EIR page 2-1, which expanded discussion of Draft EIR Section 3.1.8.4.

Figure 2. GBUAPCD Recommended Eligible DWM Areas



The following comparative analysis was undertaken to analyze whether DWM as proposed by the City would have any significant environmental impacts that were not addressed in the EIR certified by the City in 2015. The comparative analysis (1) discusses whether impacts are increased, decreased, or unchanged from the conclusions discussed in the EIR, and (2) addresses whether any changes to mitigation measures are required.

3.1 SUMMARY OF ENVIRONMENTAL ISSUE AREA ANALYSIS

Compared to the Project analyzed in the City-certified EIR, the use of DWM would result in minor modifications to the periods when water is applied to certain DCAs on Owens Lake. As discussed in this Addendum, the Commission finds that the proposed changes in water application, which are temporal only, would have no impacts to the environmental issue areas listed below; this determination is consistent with the analysis of the original project in the 2015 EIR.

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use/Planning
- Mineral Resources
- Noise
- Population/Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities/Service Systems

For example, with respect to aesthetics, Project modifications would not change the appearance of Owens Lake. Similarly, the Owens lakebed is openly accessible to the public for recreation; however, implementation of DWM will not alter the recreational amenities proposed as part of the Project or further impact public access to the lake during Project construction and operation. Because the proposed changes would have no effect on the above-listed issue areas, they are not discussed further in this document. Project changes would have the potential to affect two issue areas, air quality and biological resources; these were determined to have impacts that were less than significant under the EIR the City certified in 2015. As a result, Commission staff evaluated whether these effects would constitute a new significant impact, as required by CEQA (see generally Pub. Resources Code, § 21166; State CEQA Guidelines, § 15162). This evaluation and the Commission staff's conclusions are provided in detail below.

3.2 AIR QUALITY

Implementation of DWM will not result in additional construction activities and therefore will not increase air pollutant emissions related to project construction. Construction-

related emissions will remain less than significant. The specific change to the Project DWM contemplates is delaying the application of fall water and terminating early the application of water in the spring, thus shortening the time certain areas are wetted/flooded and potentially leading to dust emissions. Importantly, however, the DWM Plan incorporates the following conditions and restrictions:

- DWM will be implemented only in specific areas that have historically had low PM_{10} emissions within the modified time periods.
- DWM will be implemented in existing Shallow Flooding DCAs only if little dust activity in the early and/or late portions of the October through June dust season is observed.
- Re-flooding will be conducted when a DWM Plan area deteriorates such that the GBUAPCD determines it to be potentially emissive. When this determination has been made and a written re-flood order has been made by the Air Pollution Control Officer, then LADWP shall re-flood the DWM Plan area so as to re-establish fully compliant Shallow Flooding in accordance with the most current Shallow Flooding BACM requirements.

The above components of the DWM Plan ensure LADWP will continue to be compliant with its dust control responsibilities and that air quality will not be compromised. As such, this Project change does not involve a new significant impact not previously identified in the 2015 EIR and, therefore, a subsequent or supplemental EIR is not required.

3.3 BIOLOGICAL RESOURCES

Implementation of DWM will not result in additional construction activities and therefore will not increase the severity of impacts to biological resources related to construction, which the EIR identified as potentially significant and for which mitigation measures were incorporated. DWM modifies the original Project by delaying the application of water in the fall and terminating early the application of water in the spring in the Shallow Flooding DCAs identified in Figure 2, above (Exhibit 4 of the DWM Plan), thus shortening the time certain areas are wetted/flooded and potentially resulting in a loss of habitat value for one or more of the species guilds on the Lake. However, certain conditions and enhancements are also incorporated into the DWM Plan to ensure DWM will be implemented such that existing Lake wide habitat values will be enhanced or maintained overall within the OLDMP Area. DCAs constructed as part of Phase 7a (T1A-2, T37-2), Tillage with BACM-back-up (T2-2, T16), and Phase9/10 (T10-1a, T37-2[a-d]) will have water applied to meet habitat value goals in those projects (per Phase 7a FEIR, TWB2 EIR Addenda, Phase 9/10 FEIR). Therefore while implementing DWM in these DCAs habitat value will be maintained across these projects in their entirety. Other DCAs will have no impacts from DWM to habitat value in Spring due to the existing ponds remaining through the migration period in spring (e.g., T2-1) or currently being operated under Tillage with BACM-back-up (e.g., T12-1).

Changes in habitat value for each species guild (which includes the diving waterbird, breeding waterfowl, migrating waterfowl, breeding shorebird, migrating shorebird, and alkali meadow bird guilds) on Owens Lake during DWM were estimated using the Owens Lake HSM with draft recommendations from Point Blue Conservation Science incorporated. Habitat value was first estimated for 2016 assuming typical operations in DWM DCAs (Habitat Value Acre [HVA] ref). The most recently observed habitat parameter data available were for 2014 during normal operation. These were used for this estimate of habitat value prior to DWM studies in 2015.

Habitat value was then projected for each DWM DCA, or portions of DCAs, by estimating habitat parameters for implementation of DWM through the fall period as described in the 2016 SIP (HVA DWM). Most DCAs under DWM will have no water through the fall migration time period with full operation planned between December 1 and January 16 depending on the DCA. When possible, the habitat parameters observed during implementation of the DWM variance in 2015 were used to estimate habitat value through fall for water depth and monthly water availability. DCAs outside of DWM were assumed to have similar habitat value during the reference period due to typical operations. The resulting habitat value during DWM (HVA DWM) was then subtracted from habitat value estimates without DWM in each DCA (HVA ref), for each DCA. This was performed for habitat value for each guild (Table 1).

For spring DWM (turning off water supplied to DWM DCAs on April 30), most migrating birds have left Owens Lake, therefore only breeding shorebirds and waterfowl are potentially impacted. To maintain habitat value in that timeframe, DCAs with high numbers of snowy plover and high habitat value for breeding shorebirds would have water applied to wet the surface through sprinklers along lateral water pipelines that have been installed across each DCA (DCAs T17-1, T17-2, T13-1 and T10-1). These lateral sprinkler lines would operate as described in the EIR through the remainder of the dust season.

For fall DWM, two primary options to increase habitat value were explored: (1) in DWM DCAs, operate the pond portion of the DCA, potentially at a lower level than normal operations, while turning off lateral water pipelines through fall; and (2) in all DCAs, provide small amounts of water through the summer to provide perennial habitat for forage insects and shorebirds (referred to as Summer Habitat Water [SHW]). The former option provides habitat at a time when many migrating waterfowl and diving waterbirds are using Owens Lake. However, it assumes habitat is limiting which is unlikely given the observed variability in many DCAs. The latter option provides water at a time period when water is scarce and the amount of usable habitat during normal drydown is limited for shorebirds during their peak migration (August through September), but it also provides a refuge for forage insects to colonize the entire DCA once it is operational again in fall. This option helps to bolster the forage invertebrate population to make it through the normally dry summer to provide a greater food source for later in fall when diving waterbirds and waterfowl are most abundant on Owens Lake.

Table 1. Potential Habitat Value Lost

DCA	Habitat Value Lost (HVA)				
	Diving Waterbird	Migrating Waterfowl	Migrating Shorebird	Breeding Waterfowl	Breeding Shorebird
T10-1	98.0	106.1	167.8	14.6	27.1
T10-2N	38.8	63.6	81.9	6.2	15.6
T10-2S	100.4	350.9	431.6	28.9	55.9
T10-3E	4.8	21.0	45.8	2.4	8.0
T10-3W	0.1	0.0	0.7	0.0	0.0
T1-1	21.6	34.8	62.1	3.6	10.0
T13-1	141.7	191.0	125.1	19.8	16.1
T13-1 Add	0.0	0.3	4.5	0.6	1.1
T17-1	169.0	331.1	187.7	17.9	29.4
T17-2	226.0	47.3	114.9	33.1	33.4
T18-0	72.6	118.6	196.3	14.5	27.9
T21W	0.0	0.6	2.2	0.0	0.0
T25-3	0.0	0.3	2.9	0.0	0.0
T5-3	0.0	33.9	34.6	2.5	3.3
T5-3 Add	21.3	15.3	-5.8	0.0	0.0
T9	80.8	52.5	99.6	7.0	15.9
T1A-2	0.0	0.0	0.0	0.0	0.0
T2-1	0.0	0.0	0.0	0.0	0.0
T2-2	0.0	0.0	0.0	0.0	0.0
T10-1a	0.0	0.0	0.0	0.0	0.0
T12-1	0.0	0.0	0.0	0.0	0.0
T16	0.0	0.0	0.0	0.0	0.0
T21E	0.0	0.0	0.0	0.0	0.0
T23-5	0.0	0.0	0.0	0.0	0.0
T37-2	0.0	0.0	0.0	0.0	0.0
T37-2a	0.0	0.0	0.0	0.0	0.0
T37-2b	0.0	0.0	0.0	0.0	0.0
T37-2c	0.0	0.0	0.0	0.0	0.0
T37-2d	0.0	0.0	0.0	0.0	0.0
HVA needed	**975.1**	**1367.3**	**1551.9**	**151.1**	**243.7**

The presence of perennial water is second only to salinity in its importance to invertebrate abundance (Herbst 2001). Water persisting throughout the summer has historically been quite rare on Owens Lake in DCAs due to high evaporation rates and no requirement to apply water for dust control operation. This refuge for invertebrates has been shown to have a significant lag effect on habitat value where a little perennial water can produce significant increases in bird use in subsequent months in those cells.

This positive effect of SHW successfully demonstrated the increase in bird use during implementation of the DWM variance in 2015 (LADWP 2016) in DCAs T29-1, T29-2, T30-2, T36-2E. The effect was most obvious for the shorebird guild because they directly benefit from the addition of water during the August portion of their migration. For

example, 1.7 times the number of shorebirds were recorded in August 2015 during DWM in 2015 than under normal operations per the reference averages.

The diving waterbirds and waterfowl also responded to SHW. Bird counts in DCAs with SHW were higher than expected. Greater than expected bird numbers for both diving waterbirds and migrating waterfowl were encountered in 2015 in DWM DCAs with SHW applied compared to normally operated DCAs. In addition, many more birds were found in these DCAs than predicted by the HSM in 2015. The information on increases in actual bird use was incorporated into the habitat value predictions for summer water.

Summer Habitat Water Value Adjustment

To quantify the actual habitat value gained with application of SHW, the actual bird use data and modeled habitat value from 2015 (HVA2015) were used. HVA2015 was projected from estimates of 2015 environmental parameters which reflected when DCAs were operational. From linear regression analysis, a best-fit equation was generated to describe the relationship between habitat value in 2015 and observed bird counts in 2015. Using the linear equation, the habitat value needed to project the actual bird counts was calculated (HVASHW). The Value Adjustment multiplier was calculated as: HVASHW/HVA2015.

The effective multipliers are listed in Table 2 for each guild in DCAs that were shown to have actual bird increases during 2015 DWM SHW application (DCAs T29-1, T29-2, T30-2, T36-2E). The multipliers were applied to the habitat value projected by adding SHW in those four DCAs planned to have SHW in the future. For the remaining DCAs, the effective multipliers were not used in the habitat value outputs from the HSM with the management operations included.

Table 2. Effective Multipliers for Summer Habitat Water

Guild	Mean	Standard Error
Diving Waterbirds	1.34	0.04
Migrating Waterfowl	1.51	0.15
Migrating Shorebirds	1.85	0.1

Habitat value gained from various management options was calculated by adding different management operations until deficits were exceeded (HVA needed) from DWM implementation for migrating guilds (Table 3). The two breeding guilds have some modeled decreases in habitat value as part of DWM; however, these guilds have largely completed their breeding activity by October during fall DWM. Additionally, summer operation of Phase 7a is expected to result in Habitat Value gains above the amount required to achieve “maintenance” of habitat value under the Phase 7a transition project; this would likely result in a net gain (not reflected in Table 3) for breeding shorebirds and waterfowl.

Table 3. Habitat Value Gained by Operation of Various DCAs as Part of DWM

Operation	DCA	Habitat Value Gain (HVA)				
		Diving Waterbird	Migrating Waterfowl	Migrating Shorebird	Breeding Waterfowl	Breeding Shorebird
Plover Water	T13-1	27.8	109.7	90.4	19.8	16.1
SHW and Pond operation	T17-1	278.8	552.7	534.5	26.8	42.8
	T17-2	324.4	344.2	478.4	33.1	33.4
SHW	T25S	49.1	28.3	70.1	0.0	10.0
	T29-1	123.4	99.8	160.5	6.9	1.9
	T29-2	69.6	8.9	41.4	4.3	6.4
	T30-2	220.4	121.0	236.0	7.6	5.2
	T36-2E	146.8	66.3	194.2	5.0	5.2
	T5-3 Addition	27.1	66.7	94.0	0.0	0.0
GAIN		**1267.4**	**1397.7**	**1899.5**	**103.5**	**121.0**
LOSS (from Table 1)		**975.1**	**1367.3**	**1551.9**	**151.9**	**243.7**
BALANCE		**292.3**	**30.3**	**347.6**	**-48.4**	**-122.7**

Notes: DCA = Dust Control Area; DWM = Dynamic Water Management; HVA = Habitat Value Acre; SHW = Summer Habitat Water.

When compared with the overall availability of habitat on the Lake for these guilds, including Shallow Flood Areas not included in the DWM Plan, Commission staff believes that the small potential decrease in HVA for breeding waterfowl and breeding shorebirds (less than 1 percent of the available HVA for each guild) related to DWM implementation does not constitute a significant effect.

The impacts to habitat value incurred from DWM can be offset by adding water to high snowy plover use areas in T13-1 after the end of the dust season until the end of the snowy plover breeding season (Plover Water), operating the pond in T17-1 and T17-2 from October until the required startup in January, applying flow to eight DCAs (SHW), and maintaining the planned operations of Phase 7a DCAs. By employing these strategies, habitat value for all five species guilds on Owens Lake will be maintained or nearly maintained during implementation of DWM.

The above evaluation of the DWM Plan, including the application of plover and SHW, demonstrates that LADWP will continue to be compliant with its habitat value maintenance responsibilities. As such, this Project change does not involve a new significant impact not previously identified in the 2015 EIR, and therefore, a subsequent or supplemental EIR is not required.

4.0 CONCLUSION

Commission staff reviewed the changes proposed under the DWM Plan pursuant to Public Resources Code section 21166 and State CEQA Guidelines sections 15162 through 15164. As identified in Section 1, Introduction, pursuant to CEQA section 21166 and State CEQA Guidelines section 15162, a subsequent or supplemental CEQA document is not required unless one or more of the following three events occurs:

- Substantial changes proposed in the Project which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects (State CEQA Guidelines, § 15162, subd. (a)(1)); or
- Substantial changes that will occur with respect to the circumstances under which the Project is undertaken which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects (State CEQA Guidelines, § 15162, subd. (a)(2)); or
- New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified shows any of the following (State CEQA Guidelines, § 15162, subd. (a)(3)):
    - (A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration; or
    - (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR; or
    - (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
    - (D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

If the proposed changes do not involve a new or substantially increased significant impact resulting from a change in the project or a change in the circumstances under which a project will occur, but instead reflect minor modifications or additions, State CEQA Guidelines section 15164 directs lead or responsible agencies to prepare an addendum to the CEQA document. Pursuant to State CEQA Guidelines section 15164, subdivision (e), which states that lead or responsible agencies shall explain their decision not to prepare additional environmental analysis in a subsequent document, Commission staff

evaluated the operational changes to the identified DCAs proposed by LADWP and provides the required evaluation and explanation above.

As detailed in the analysis presented above, this Addendum to the EIR certified by the City on June 2, 2015, supports the conclusion that the changes to the overall OLDMP – Phase 9/10 Project due to implementation of the DWM Plan would not result in any new or substantially more severe significant environmental effects and do not represent a substantial change to the circumstances under which the Phase 9/10 Project is being carried out. In addition, Commission staff believes that no new information exists that would give rise to a new or substantially more severe significant environmental effect or that would affect the implementation or effectiveness of the previously adopted mitigation measures. In particular, the Project is consistent with State CEQA Guidelines section 15164 in that only minor changes have been made to the Project, and none of the conditions described in Public Resources Code section 21166 or State CEQA Guidelines section 15162 has occurred. Therefore, Commission staff recommends the Commission find that no subsequent or supplemental document is required.

5.0 ADDENDUM PREPARATION SOURCES AND REFERENCES

5.1 ADDENDUM PREPARERS

California State Lands Commission

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5.2 REFERENCES

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APPENDIX A

HABITAT VALUE ASSESSMENT
OWENS LAKE DUST MITIGATION PROGRAM
DYNAMIC WATER MANAGEMENT
2016

(July 2016)

HABITAT VALUE ASSESSMENT
OWENS LAKE DUST MITIGATION PROGRAM
DYNAMIC WATER MANAGEMENT
2016

Prepared by

Watershed Resources

Los Angeles Department of Water and Power

July 2016

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Dynamic Water Management Projected Habitat Value Assessment

BACKGROUND

The goal of this assessment is to estimate changes in habitat value due to the implementation of Dynamic Water Management (DWM) and develop management options that offset these impacts and maintain reference levels of habitat value. Based on observations from DWM in 2015, a portion of these management options includes a quantification of additional habitat value that arises from the application of water in summer.

METHODS

The projections of habitat value in this assessment were generated using the Owens Lake Habitat Suitability Model (HSM). This version of the model incorporates the draft recommendations from Point Blue Conservation Science (Point Blue Conservation Science 2016).

Estimating Habitat Value

Habitat value was estimated for 2016 assuming normal operations in DWM DCAs (HVA_{ref}). These estimates were generated using habitat parameter data from 2014, the most recently observed data available.

Habitat value was then projected for each DWM DCA by estimating habitat parameters for non-operation through the fall period (HVA_{DWM}) as described in the 2016 SIP (Great Basin Unified Air Pollution Control District 2016). Most DCAs under DWM will have no water during this time until full operation begins between December 1 and January 16. Some DCAs (e.g. T17-2) will have only a portion of the DCA operated; based on past history of emissions only a section of the DCA was permitted to be dry during the dust control season. In these DCAs the habitat parameters estimates were developed with knowledge of typical operations and the constraints of existing infrastructure within each DCA. Generally, wetness was assumed to be 0 and water availability assumed to be “not available” during the DWM months. However, for deep water DCAs (i.e. T5-3 Addition) or partially operated DCAs (T13-1, T17-1, T17-2, and T9), water depth parameters were estimated from summer 2015 images or 2014 data as available.

DCAs included in the Phase 7a and TwB2 projects were excluded from assessing impacts resulting from DWM operations. Their changes in habitat value were analyzed separately Phase 7a EIR (T1A-2, T37-2) and Addenda TWb2 (T16 and T2-2) per their operations to maintain habitat value. T16 and T37-2 will have water reduced to the minimum needed to maintain

habitat value if not needed for dust control. While water will be reduced in these DCAs, per the agreements, habitat value will be maintained across both projects in their entirety.

The resulting estimated habitat value during DWM (HVA_{DWM}) was then subtracted from habitat value estimates without dynamic water management in each DCA (HVA_{ref}), where n = the number of DCAs as follows. This was performed for habitat value for each guild (Table 1).

$$HVA\ needed = \sum_{i=1}^{n} (\text{HVA REF} - \text{HVA DWM})$$

Table 1. Estimated Habitat Value lost resulting from Dynamic Water Management

DCA	Diving Waterbird Lost (HVA)	Migrating Waterfowl Lost (HVA)	Migrating Shorebird Lost (HVA)	Breeding Waterfowl Lost (HVA)	Breeding Shorebird Lost (HVA)
T10-1	98.0	106.1	167.8	14.6	27.1
T10-2N	38.8	63.6	81.9	6.2	15.6
T10-2S	100.4	350.9	431.6	28.9	55.9
T10-3E	4.8	21.0	45.8	2.4	8.0
T10-3W	0.1	0.0	0.7	0.0	0.0
T1-1	21.6	34.8	62.1	3.6	10.0
T13-1	141.7	191.0	125.1	19.8	16.1
T13-1 Add	0.0	0.3	4.5	0.6	1.1
T17-1	169.0	331.1	187.7	17.9	29.4
T17-2	226.0	47.3	114.9	33.1	33.4
T18-0	72.6	118.6	196.3	14.5	27.9
T21W	0.0	0.6	2.2	0.0	0.0
T25-3	0.0	0.3	2.9	0.0	0.0
T5-3	0.0	33.9	34.6	2.5	3.3
T5-3 Add	21.3	15.3	-5.8	0.0	0.0
T9	80.8	52.5	99.6	7.0	15.9
HVA needed	**975.1**	**1367.3**	**1551.9**	**151.1**	**243.7**

Developing Offsets

To maintain lake-wide habitat value with DWM all DCAs within the Project area were examined for their potential to increase habitat value. Particular attention was paid to maintaining value for waterfowl because the majority of waterfowl are observed in fall, the time when the DWM DCAs will be offline.

For spring DWM (turning off water supplied to DWM DCAs on April 30) most migrating birds have left Owens Lake therefore only breeding shorebirds and waterfowl are potentially impacted. To maintain habitat value in that timeframe DCAs with high numbers of Snowy Plover and high habitat value for breeding shorebirds had lateral lines operated normally through the remainder of the dust season. These DCAs are T17-1, T17-2, T13-1 and T10-1.

For fall dynamic water management two primary options to increase habitat value were explored: 1) in DWM DCAs, operate the pond portion of the DCA, potentially at a lower level than normal operations, while turning off laterals through fall and 2) In any DCA, provide small amounts of water through the summer to provide perennial habitat for forage insects and shorebirds (referred to as Summer Habit Water or SHW).

The former option provides habitat at a time when many migrating waterfowl and diving waterbirds are using Owens Lake. However, this option assumes habitat is limiting in the fall for these guilds. Given the observed variability in many DCAs with appropriate habitat for these guilds this circumstance appears unlikely. The latter option provides water at a time period when water is scarce and the amount of usable habitat during normal drydown is limited for shorebirds during their peak migration (August –September) but it also provides a refuge for forage insects to colonize the entire DCA once it is operational again in fall. This option helps to bolster the forage invertebrate population through the normally dry summer and provide a greater food source later in fall when diving waterbirds and waterfowl are most abundant on Owens Lake. The presence of perennial water is second only to salinity in its importance to invertebrate abundance (Herbst, 2001). Water persisting throughout the summer has historically been quite rare on Owens Lake dust control due to high evaporation rates and no requirement to apply water for dust control operation. This refuge for invertebrates was shown to have a significant lag effect on habitat value use where a little perennial water can produce significant increases in bird use in subsequent months those cells (Point Blue Conservation Science 2016, LADWP 2016).

This positive effect of summer habitat water successfully demonstrated an increase in bird use during dynamic water management in 2015 (LADWP 2016). Four DCAs, T29-1, T29-2, T30-2, and T36-2E received SHW and had greater than expected bird use by all guilds. The effect was most obvious for the shorebird guild because they directly benefit from the addition of water

during August, the peak of their fall migration. Listed below in Table 2 are the shorebird numbers recorded in the 4 DCAs with SHW in August relative to reference averages for August. While T29-2 only had a slight increase (largely the same), the other 3 DCAs were proportionally higher than reference averages, and, T30-2 had an enormous increase, over 2200 birds where only 1 shorebird had been observed in August during all 3 years of the reference period (2012-2014).

Table 2. Shorebird counts in August in SHW DCAs relative to reference averages

DCA	Reference Average shorebirds observed (2012-2014)	2015 Shorebirds observed	Proportional Increase in bird numbers ((2015-Ref)/Ref)
T29-1	5.3	556	103.3
T29-2	159.3	365	1.3
T30-2	0.3	2204	6611
T36-2E	4.7	86	17.4

The diving waterbirds and waterfowl also responded to summer habitat water. While diving waterbirds and migrating waterfowl are not expected in August, a delayed effect, presumably due to the persistence of invertebrates through the late summer and early fall facilitating increased use was observed.

Actual bird use, when summer habitat water was applied, was greater than the expected use from modeling projections for all guilds (see Figures 1 -3). This information suggested that the model does not accurately weight the value of SHW. The actual increases in habitat value were quantified and incorporated into the habitat value predictions for 2016. These assessments, referred to as the Summer Habitat Water Value Adjustment are discussed below.

Summer Habitat Water Value Adjustment

A detailed example of this analysis is presented in Appendix 2.

To quantify the actual habitat value gained with application of summer habitat water, the actual bird use data and modeled Habitat Value from 2015 were used. Habitat Values (HVA_{2015}) were projected from estimates of 2015 environmental parameters. The input parameters incorporated offline DCAs included in the 2015 DWM by using water depth acreage value of 0 in the fall and water availability parameters to dry during fall months. From linear regression analysis a best-fit equation was generated to describe the relationship between habitat value in 2015 and observed bird counts in 2015. For all three guilds the DCAs with summer habitat

water strongly tended to have higher than projected bird counts which can be seen in Figures 1-3 by presence of the SHW DCAs (black dots) being most often above the best fit line.

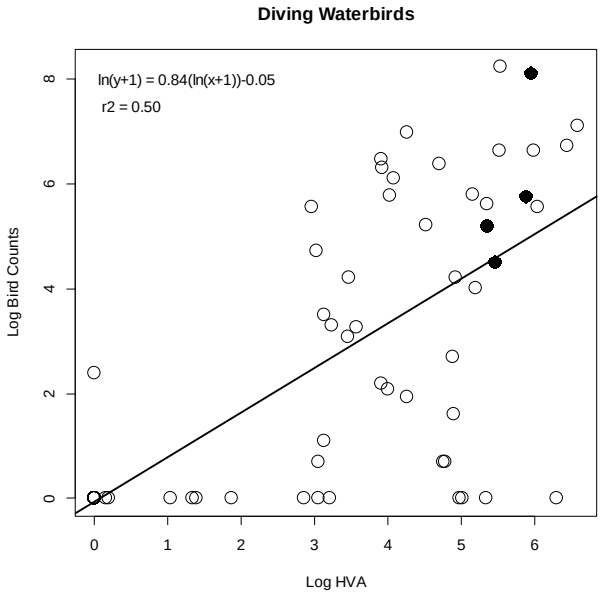

Figure 1. Regression analysis of Diving Waterbird HVA and observed diving waterbird counts in 2015. Filled circles (●) are DCAs with SHW, open circles (○) are DCAs without SHW.

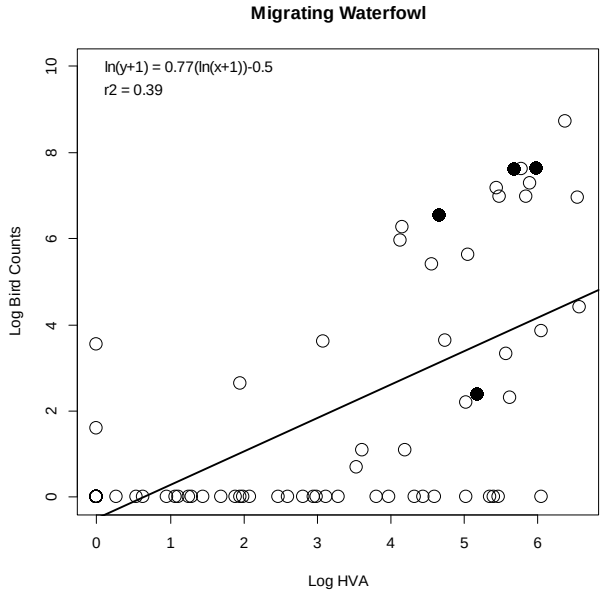

Figure 2. Regression analysis of Migrating Waterfowl HVA and observed migrating waterfowl counts in 2015. Filled circles (●) are DCAs with SHW, open circles (○) are DCAs without SHW.

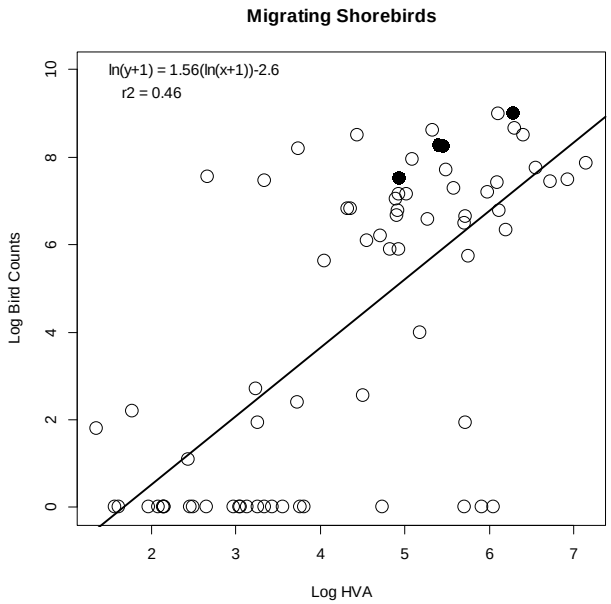

Figure 3. Regression analysis of Migrating Shorebirds HVA and observed migrating shorebird counts in 2015. Filled circles (●) are DCAs with SHW, open circles (○) are DCAs without SHW.

Using the linear equation, the habitat value needed to project the actual bird counts was calculated (HVA_{SHW}). The Value Adjustment multiplier was calculated as the following ratio, averaged across the DCAs with SHW:

$$HVA_{SHW}/HVA_{2015}$$

This ratio represents the degree to which the HVA calculated from the model (HVA_{2015}) needs to be multiplied by to project observed birds when summer habitat water is applied.

Several immediate concerns arose when assessing the accuracy of the Value Adjustment Multiplier:

1. The inherent variability of natural systems could lead to strongly over or underestimating the actual value of the multiplier.

2. If water presence was limiting bird use in 2015 the calculated Value Adjustment Multiplier may be inflated by a concentration of birds in wet areas.

Per the first concern, it was concluded that overestimating the multiplier would be more harmful to the ecology of the dust control area since this would result in the inadequate provision of actual habitat value; erring on the side of caution was deemed most sound. Per the second concern, from the analysis of 2015 bird data, no strong evidence of diving

waterbirds or waterfowl being exceptionally concentrated was found though the possibility was not ruled out. Shorebirds, however, historically have been water-limited on Owens Lake in August and a concentration effect likely does exist.

Given these issues an extremely conservative approach was taken with the following steps:

1. Outliers above the mean were removed
2. Multipliers were than capped within the constraints of the model such the habitat value predicted could not exceed the maximum value the model could predict (i.e., HSV must remain <= 1)
3. The multiplier was only applied to the fall data, effectively reducing the multiplier by half
4. To minimize overestimates due to the concentration effect, the multiplier was only applied to 6 DCAs assuming there would be diminishing returns of the benefits of SHW with more DCAs. Three additional DCAs, while receiving water in the summer, did not have the multiplier applied.

The 6 DCAs chosen to have the multiplier applied included 3 of the 4 DCAs that received SHW in 2015 (T29-1, T30-2, T36-2E). These DCAs have already demonstrated positive results across guilds. T29-2, a DCA with SHW in 2015, was not included because it is not well suited for waterfowl; it tends to have poor habitat for waterfowl which would not be augmented by SHW and indeed T29-2 waterfowl numbers were not above average in 2015 even with summer habitat water. Historically, bird density in T5-3 Addition has been extremely high when water was present in the summer. From 2012 to 2014 the average density was 23 birds/wet acre (± 3.1 SE), 25 birds/wet acre (± 10.2 SE), and 31 birds/wet acre (± 4.0 SE) for Diving Waterbirds, Migrating Waterfowl, and Migrating Shorebirds respectively or, the 1st, 3rd, and 7th highest density out of all DCAs. Since benefits beyond model projections are expected, the multiplier was also applied to this DCA. Finally, T17-1 and T17-2 also had the multiplier applied. In 2015 T17-1 was operated as pond-only with some application of summer water. All guilds were more abundant than expected. However, waterfowl were especially abundant in T17-1 in 2015 (6176 birds compared to the 85 expected). T17-2, an adjacent DCA, has similar habitat to T17-1 therefore it was assumed this DCA would perform similarly and, anticipated bird numbers are more accurately projected with the multiplier.

Since the degree of increase resulting from the multiplier depends on initial habitat suitability values, each SHW DCA has a slightly different effective multiplier. The mean value of the multipliers is listed below in Table 2.

Table 3. Effective Multipliers for Summer Habitat Water

Guild	Mean	se
Diving Waterbirds	1.34	0.04
Migrating Waterfowl	1.51	0.15
Migrating Shorebirds	1.85	0.10

RESULTS

To maintain Habitat Value, the habitat gained from various management options was calculated by adding different management options until deficits incurred from DWM for migrating guilds were exceeded (HVA_{needed}). The two breeding guilds have some modeled decreases in Habitat value as part of DWM. However the breeding guilds have largely completed their breeding activity by October during fall DWM. They also have substantial increases in Habitat Value as part of Phase 7a therefore these guilds will have more habitat available to them in 2016 than they did during the reference period of 2012-2014, prior to completion and operation of Phase 7a (Table 3).

Table 4. Habitat value (HVA) gained by operation of various DCAs as part of DWM

Operation	DCA	Diving Waterbird Gain (HVA)	Migrating Waterfowl Gain (HVA)	Migrating Shorebird Gain (HVA)	Breeding Waterfowl Gain (HVA)	Breeding Shorebird Gain (HVA)
Plover Water	T13-1	27.8	109.7	90.4	19.8	16.1
SHW and Pond operation	T17-1	278.8	552.7	534.5	26.8	42.8
SHW and Pond operation	T17-2	324.4	344.2	478.4	33.1	33.4
SHW	T25S	49.1	28.3	70.1	0.0	10.0
SHW	T29-1	123.4	99.8	160.5	6.9	1.9
SHW	T29-2	69.6	8.9	41.4	4.3	6.4
SHW	T30-2	220.4	121.0	236.0	7.6	5.2
SHW	T36-2E	146.8	66.3	194.2	5.0	5.2
SHW	T5-3 Addition	27.1	66.7	94.0	0.0	0.0
Current operations for summer water	Phase 7a				313.0	716.0
HVA Gain		**1267.4**	**1397.7**	**1899.5**	**416.5**	**837.0**
Balance		**292.3**	**30.3**	**347.6**	**265.4**	**593.3**

Plover water = operation of laterals in high Snowy Plover use area until the end of the nesting season; SHA = application of Summer Habitat Water through summer until the start of the dust season to maintain a refuge for forage invertebrates.

CONCLUSION

The impacts to Habitat Value incurred from DWM can be offset by adding water to high Plover use areas in T13-1 after the end of the dust season until the end of the Snowy Plover breeding season (Plover Water), operating the pond portions of both T17-1 and T17-2 from October until the required start-up in January, applying flow to eight DCAs (SHW), and maintaining the planned operations of Phase 7a DCAs. By employing these strategies, Habitat Value for all five species guilds on Owens Lake will be maintained during implementation of DWM.

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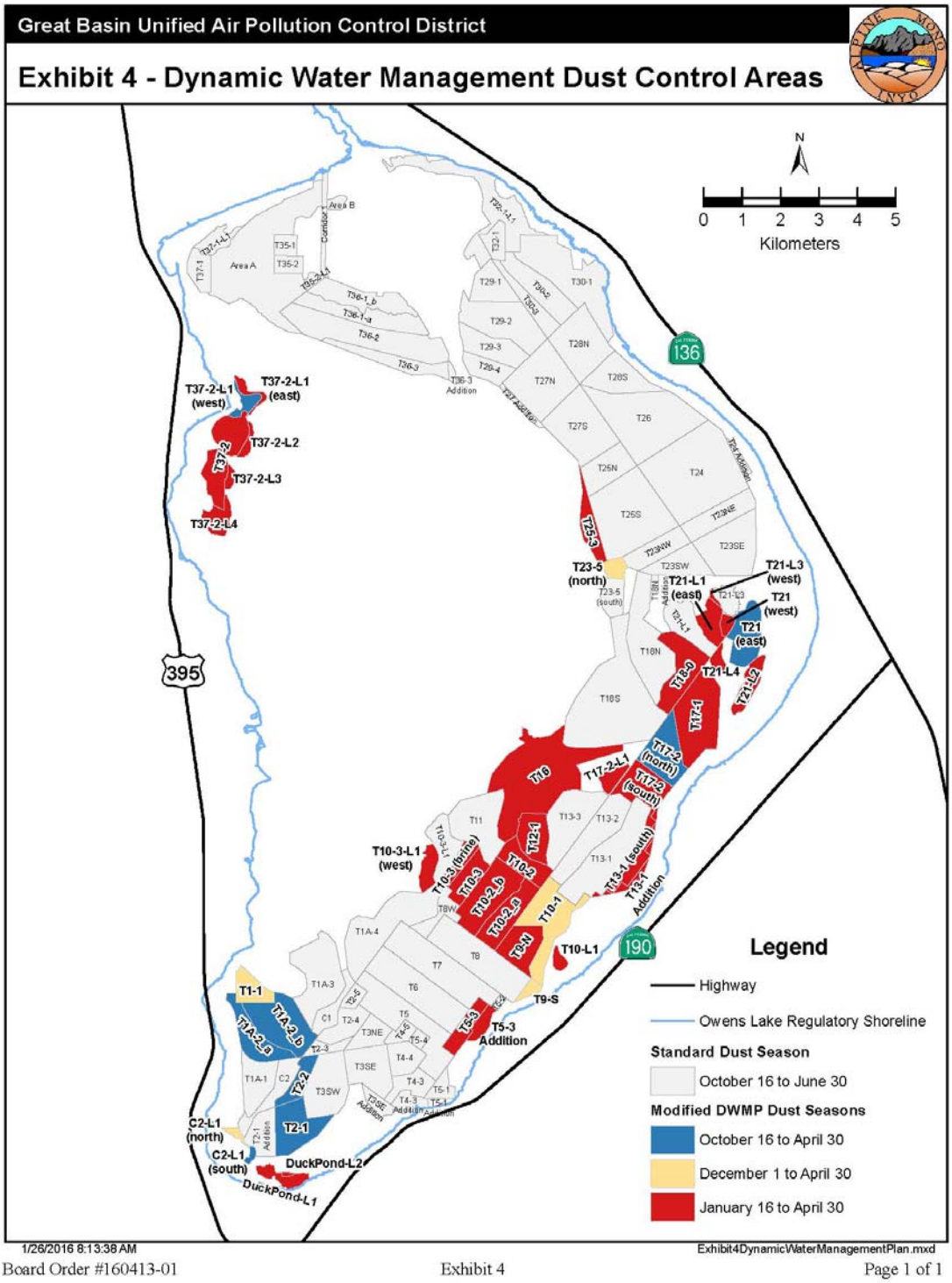
Appendix 1. Dust Control Areas in DWM



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Appendix 2- Example of the Summer Habitat Value Adjustment Analysis using T29-1 and Diving Waterbird counts.

Following regression analysis of Habitat Value Acres and Diving Waterbird, the following best-fit line was generated:

$$Ln(y+1) = 0.84(ln(x+1)) – 0.05$$

where x is the projected habitat value acres for 2015 (HVA_{2015}) and y is the bird counts from 2015. The habitat value required (HVA_{shw}) for the actual bird counts observed was calculated using this equation. For T36-2E, the actual bird count was 178 or following a log transformation 5.2 (see Fig. 4, blue arrow). Using the equation, HVA_{shw} for T29.1 is 482 or 6.2 after transformation (see Fig.4, red arrow). Therefore the ratio of HVA_{shw} /HVA_{2015} = 2.3. In other words, what the HSM predicts needs to multiplied by 2.3 in order to accurately predict the actual bird counts observed.

This was performed for all DCA's with SHW (filled circles) to get estimates of actual habitat value gained for each guild per description on page7.

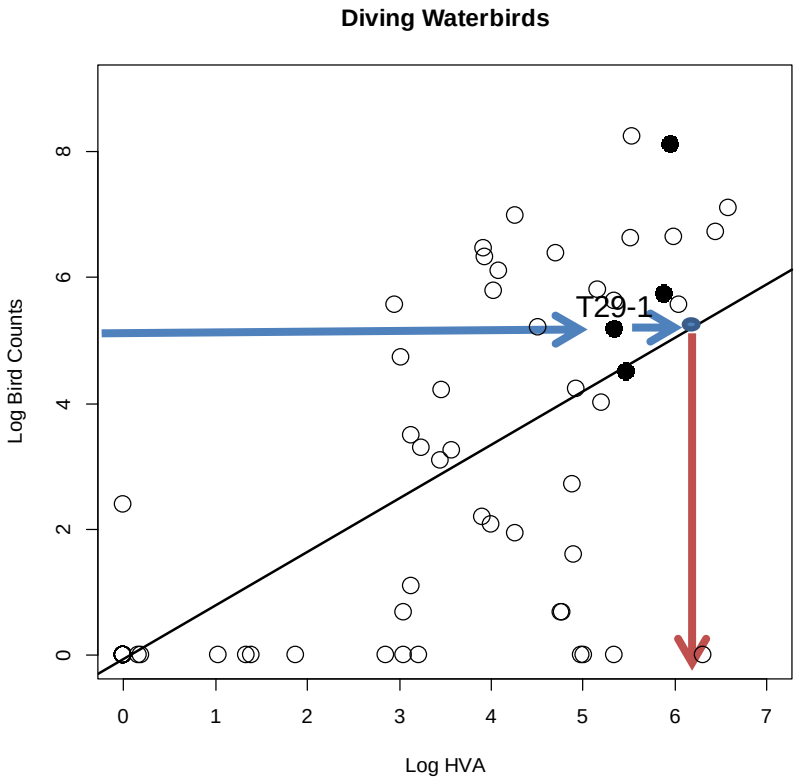

Figure 4. Regression analysis of Diving Waterbird HVA and observed Diving Waterbird counts in 2015. Filled circles (●) are DCAs with SHW, open circles (○) are DCAs without SHW. T29-1 labeled. Blue arrow indicates the actual bird counts and the red arrow indicates the habitat value required to predict the actual bird counts.