

LONG-TERM DUST CONTROL UNDER AN OWENS LAKE MASTER PLAN: FEASIBILITY-LEVEL MAPS AND IMPLICATIONS FOR HABITAT QUALITY AND WATER DEMAND

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Planning Committee Meeting, Bishop
January 28, 2013**

For OLMP Planning Committee



Nature of Study

- High-level feasibility study
- Any future projects that are implied require all normal approvals for funding, regulatory compliance, etc.
- Detailed map required to assess feasibility quantitatively, but flexibility is needed
- Analysis looks at two time frames: through Phase 7, and future potential, including explicit habitat features
- Detailed planning decisions should be based on the best knowledge available at the time

Goal of Analysis

- Determine feasibility of simultaneously achieving the following at Owens Lake:
 - Maintaining Lake-wide habitat value
 - Reducing water demand by 50 percent or more.

Starting Point

- Developed Habitat Suitability Model to relate surface conditions to habitat value
- Habitat value observed in 2010 habitat surveys
- Water use for dust control through Phase 7 with Channel Area vegetation enhancement

Elements of Habitat Suitability Model

6 wildlife guilds →

12 habitat variables



Water



Land



Vegetation

<i>Habitat Variables</i>	<i>Diving Waterbirds</i>	<i>Breeding Shorebird</i>	<i>Breeding Waterfowl</i>	<i>Meadow</i>	<i>Migrant Shorebird</i>	<i>Migrant Waterfowl</i>
Water extent	x	x	x		x	x
Water depth	x	x	x		x	x
Salinity	x	x	x		x	x
Seasonal water availability	x	x	x		x	x
Islands		x	x		x	x
Dry extent		x				
Relief		x		x		
Vegetation extent		x	x	x	x	
Vegetation structure			x	x		
Vegetation cover				x		
Vegetation richness				x		

Quantitative Goal

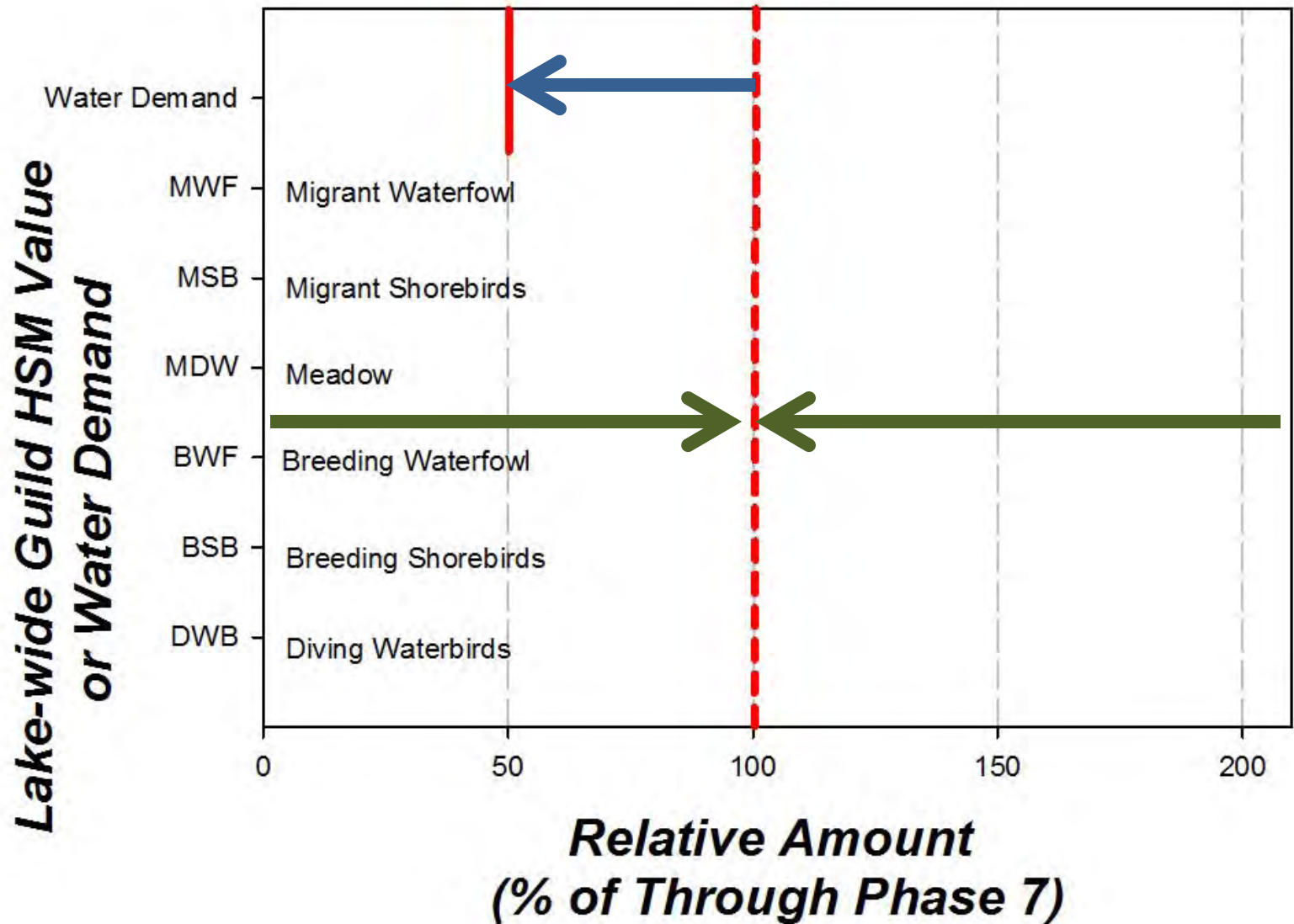
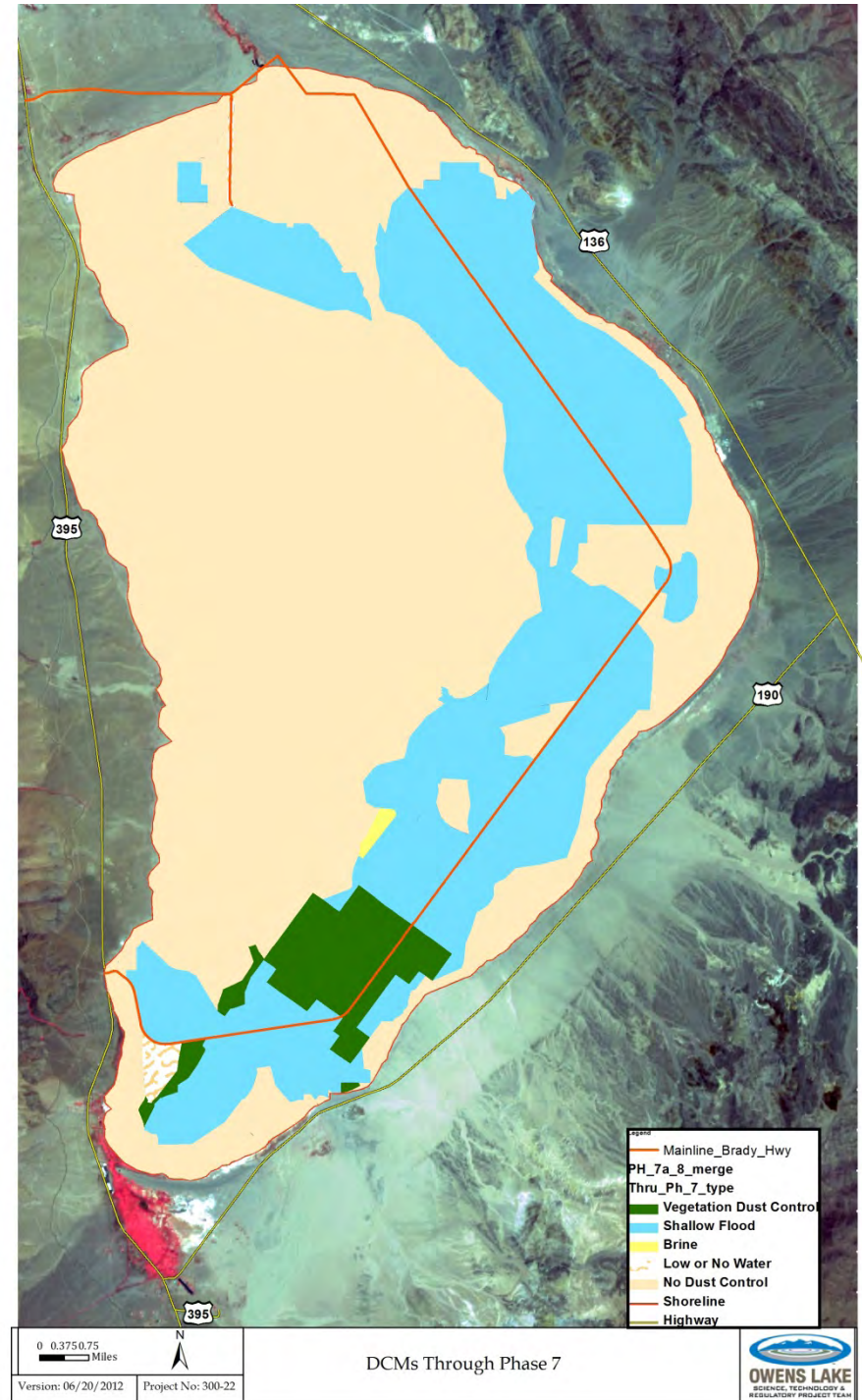
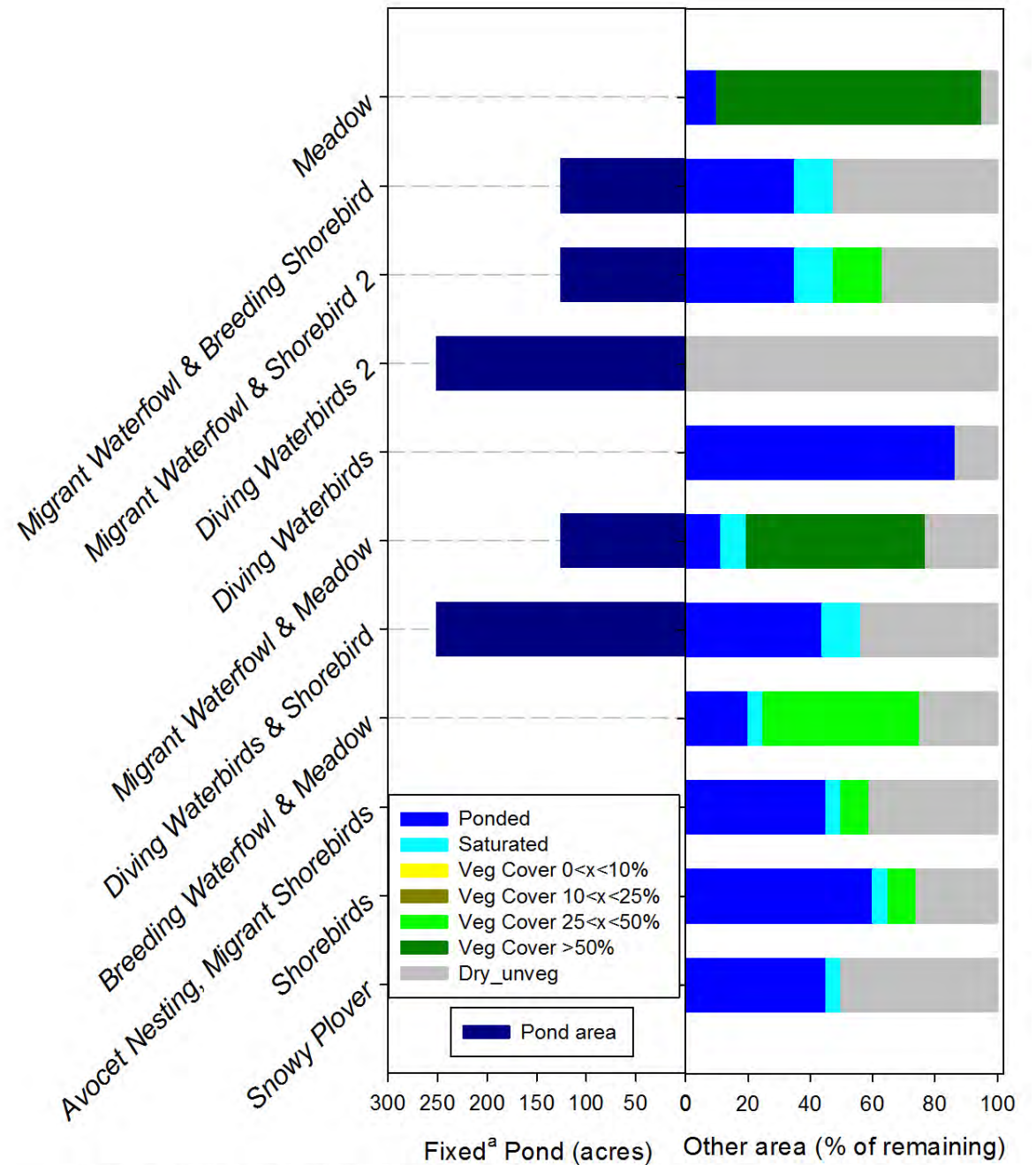


Figure 2. Dust Control through Phase 7.



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Figure 4a. Habitat Dust Control Measure Surface Types.



^aFixed pond areas are ponds that, regardless of the size of the dust control area into which they are placed, are the specified size. The area shown includes berms, and is about 13:7:80, dry:saturated:ponded within that area.

Figure 6. Dust Control Measure Layout:
Left Bookend¹ Buildout.

¹ The “Left Bookend” shows dust control implemented on areas designated through Phase 8.

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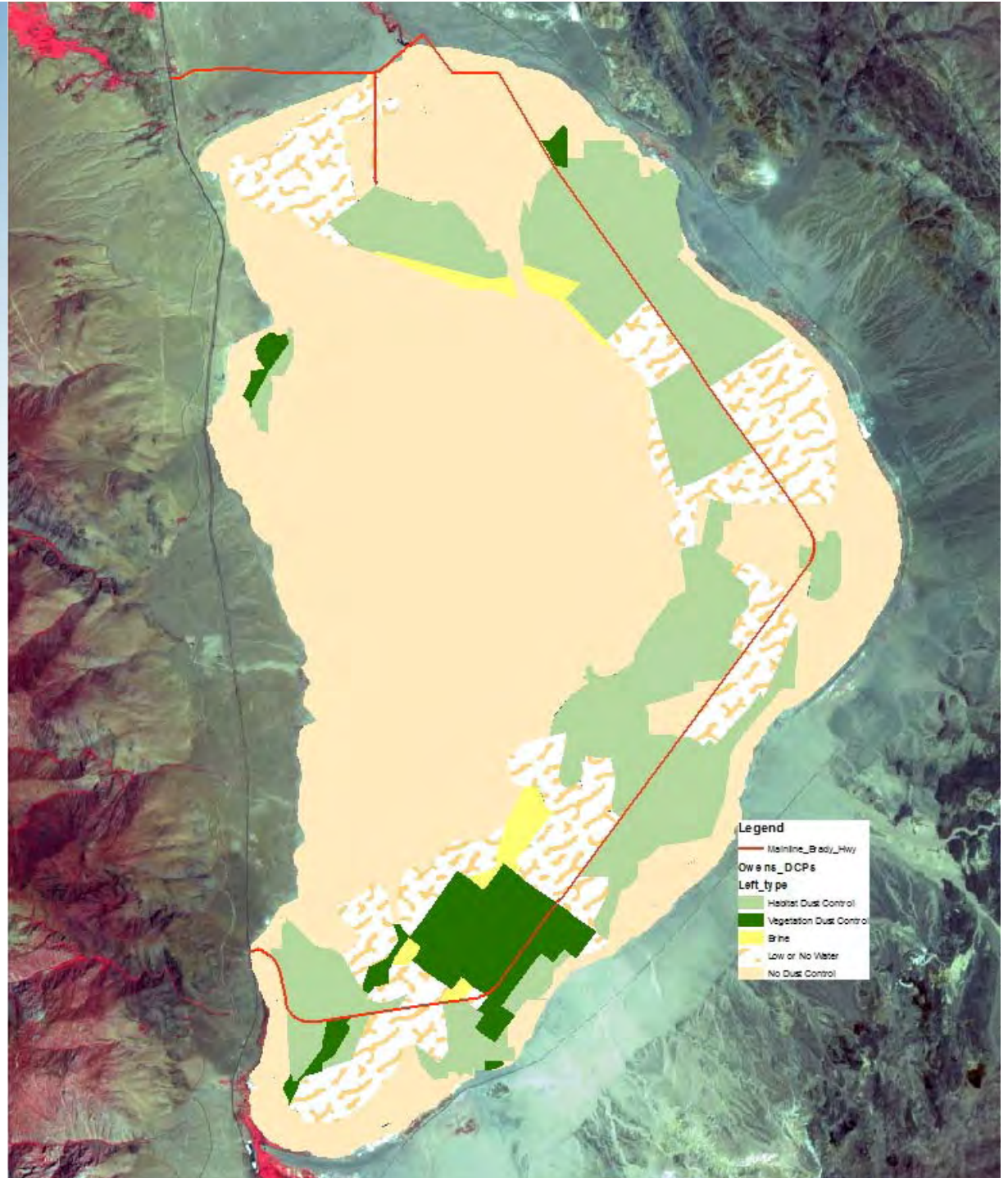


Figure 7. Dust Control Measure Layout:
Right Bookend¹ Buildout.

¹ The “Right Bookend” shows possible dust control on all potentially emissive areas of the playa (excluding naturally non-emissive areas such as the brine pool, springs, and dense vegetative cover)

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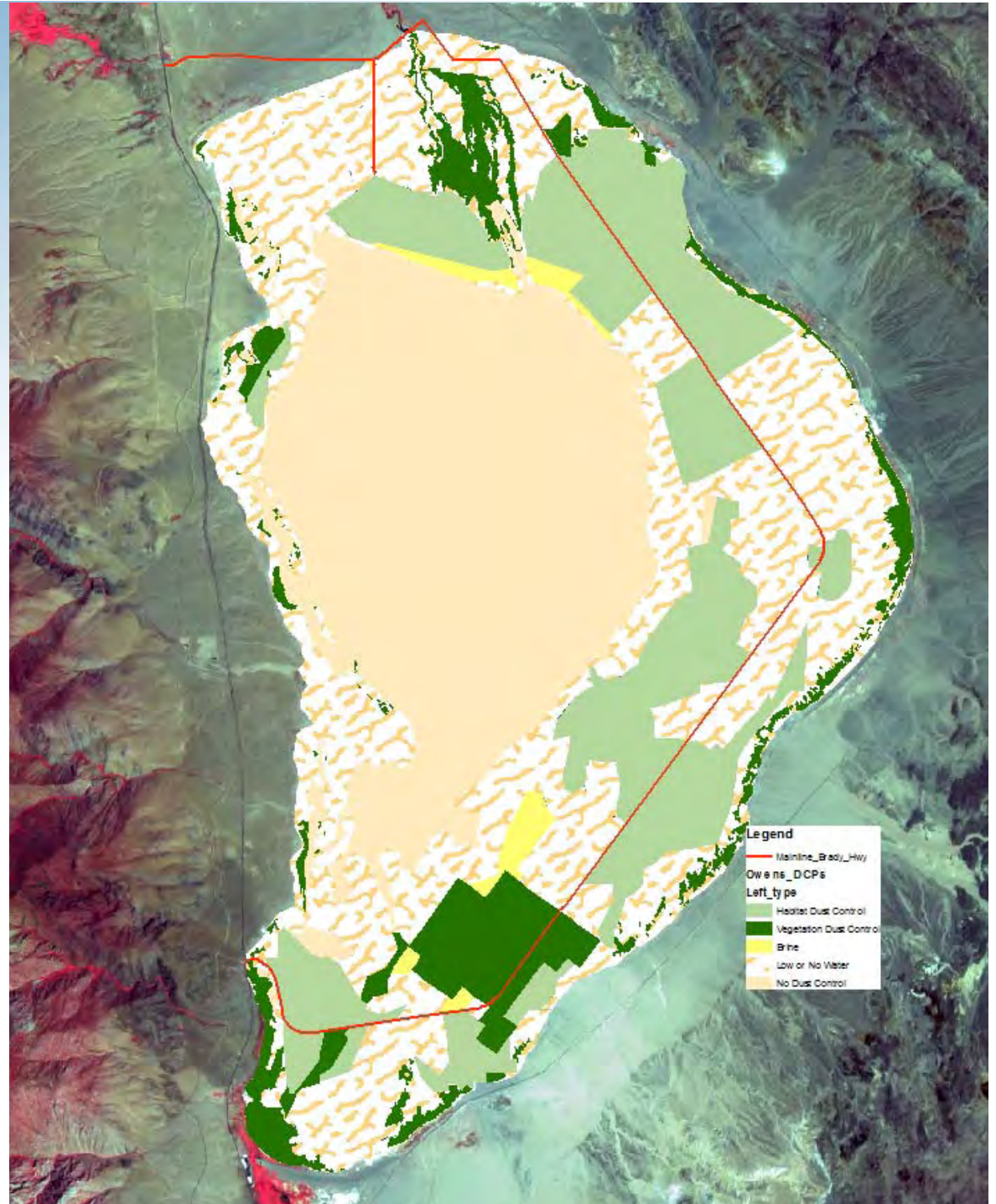


Figure 9. Through Phase 7 and Buildout Areas by Class of DCM.

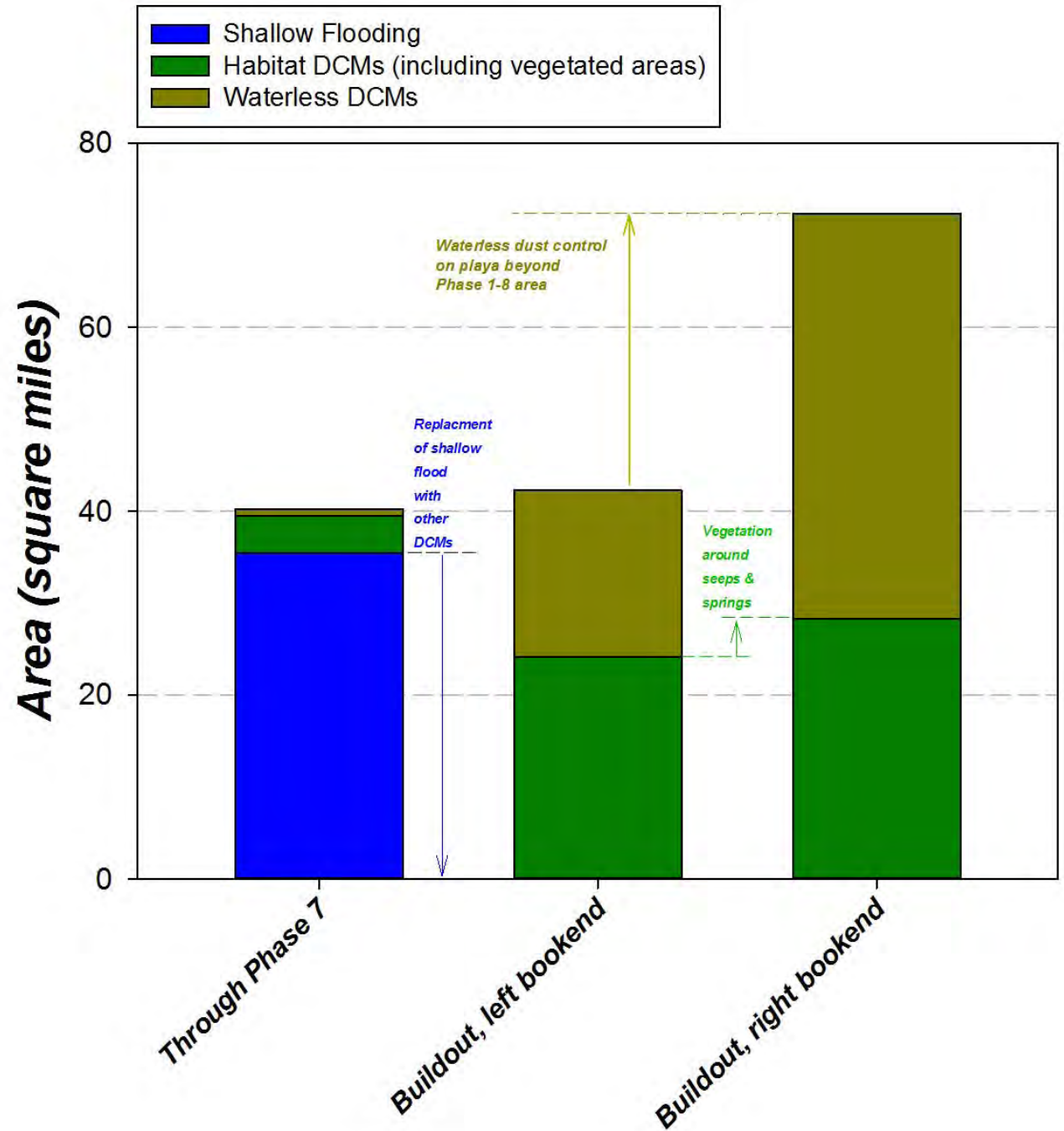
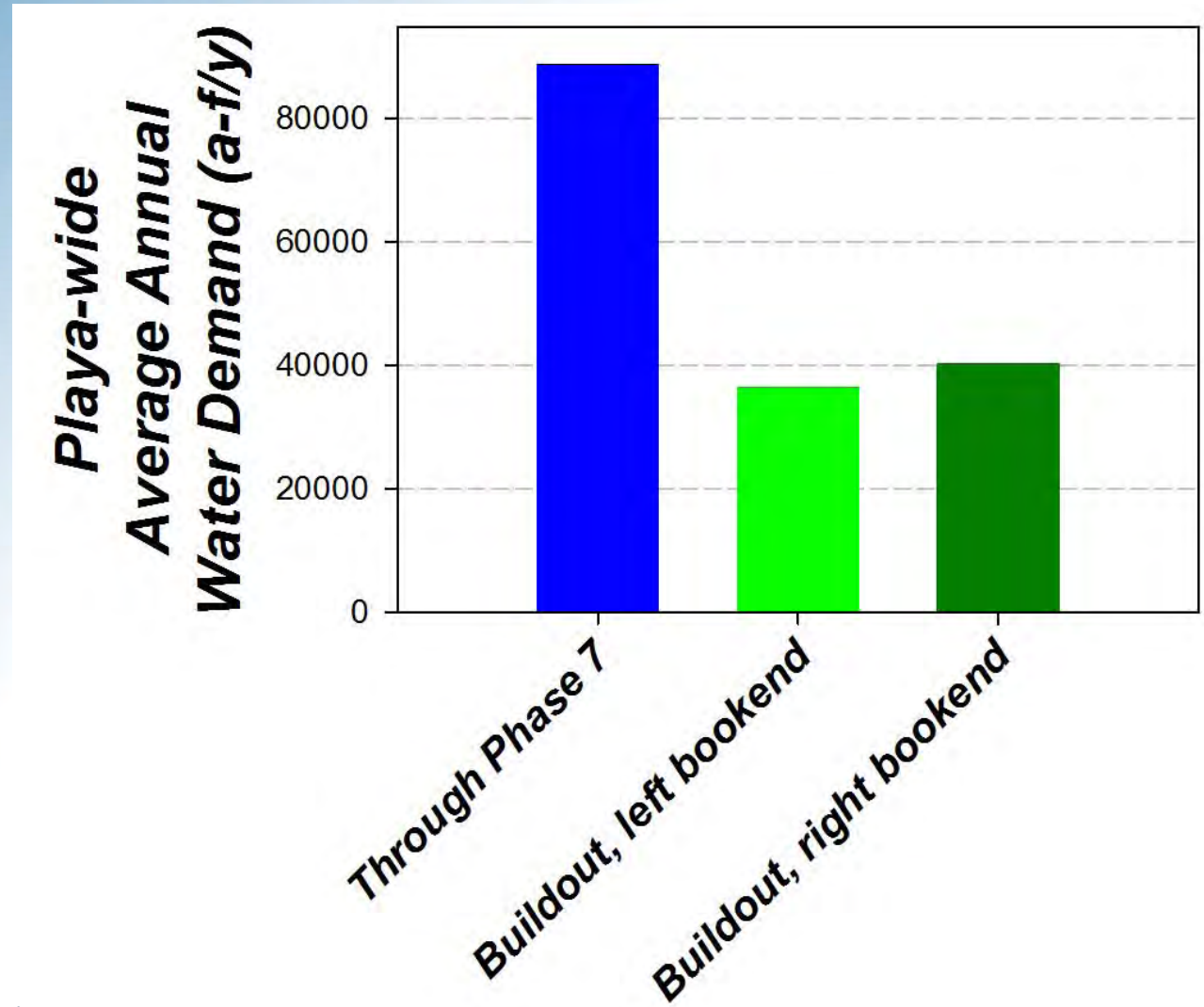
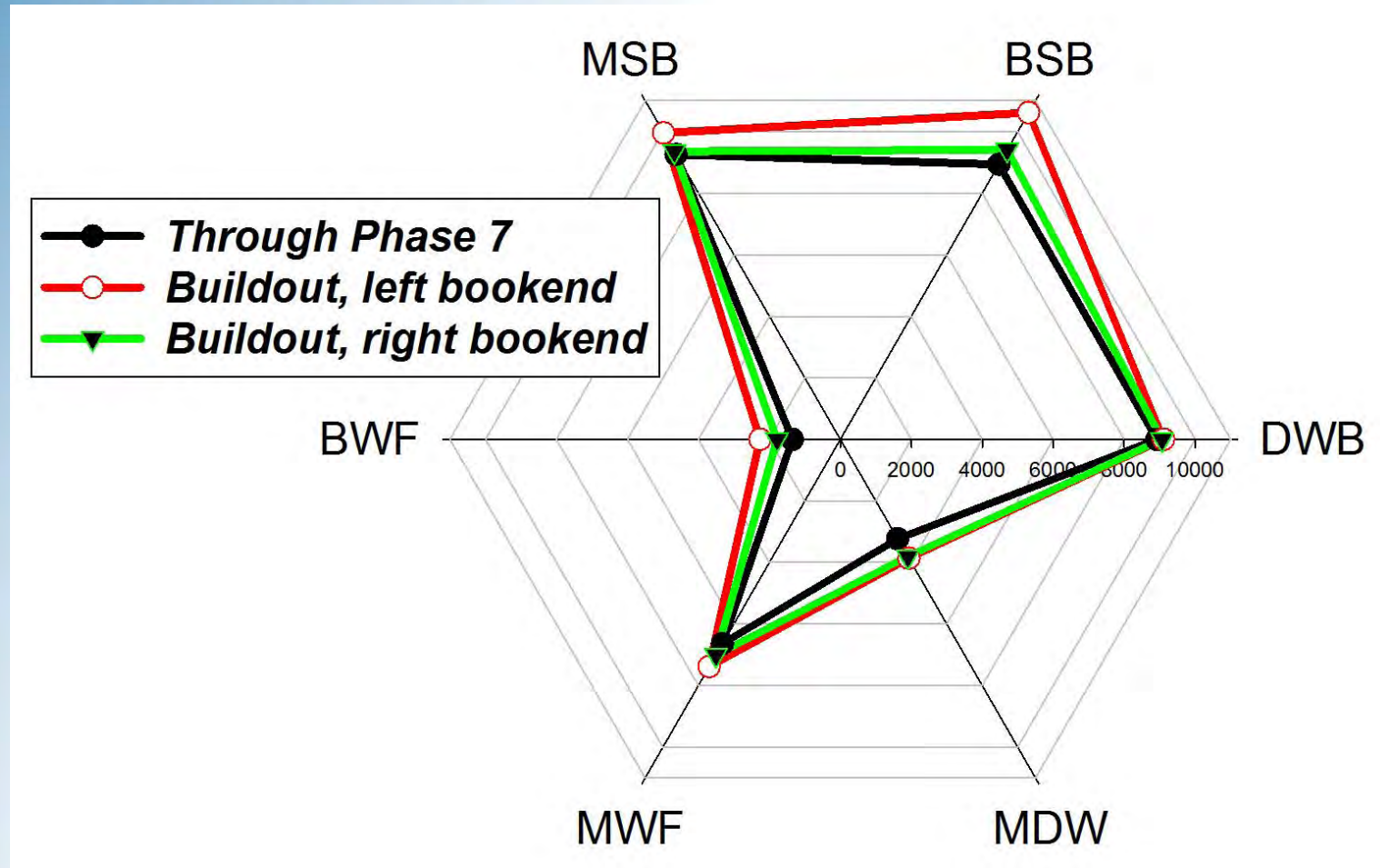


Figure 10. Playa-wide Water Demand¹.



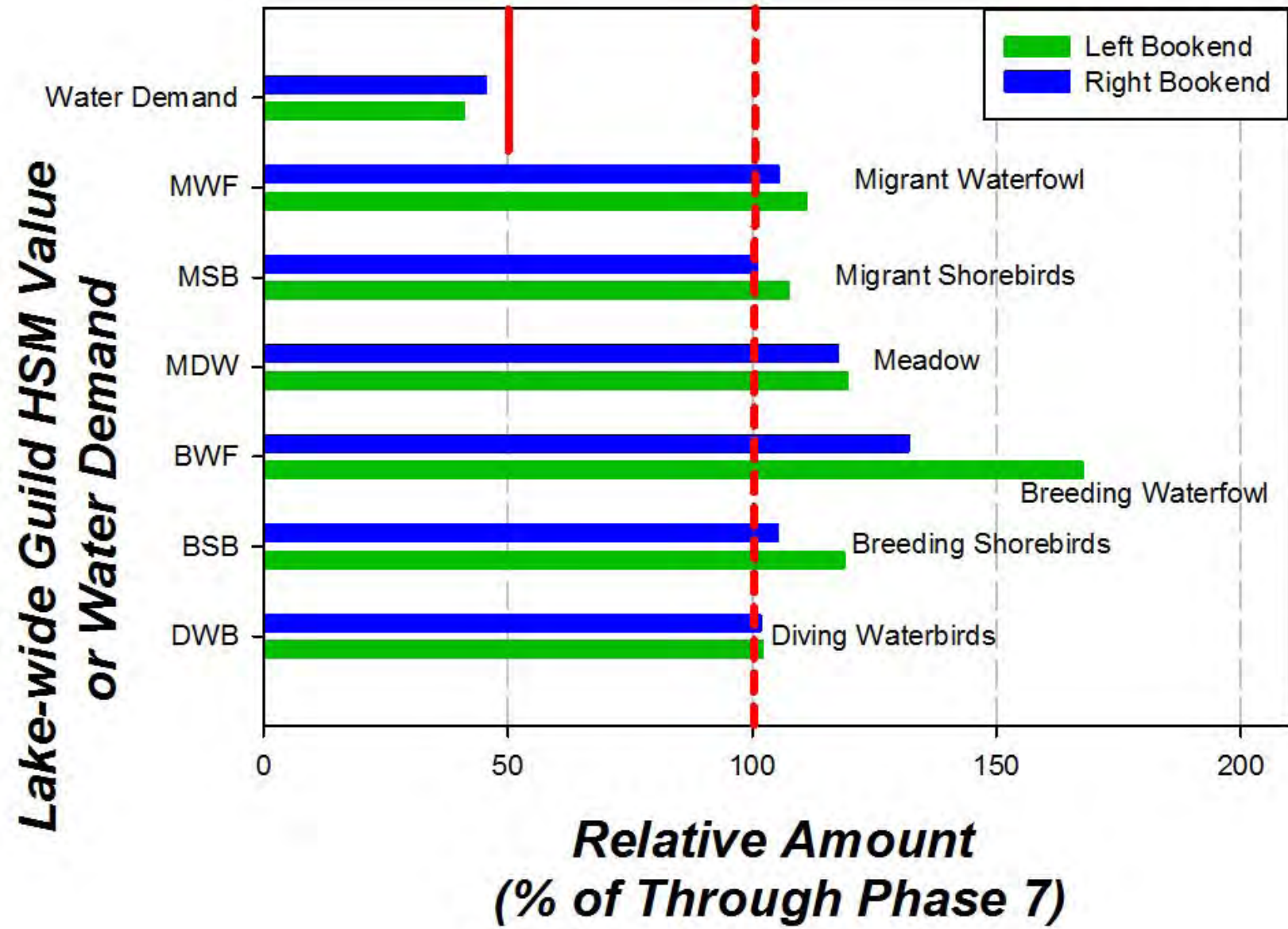
¹Water demand during dry years is about significantly greater

Figure 11. Lake-wide HSM Values for Through-Phase-7 and Potential Buildout Scenarios¹.



¹Note that when reading Figures 4 and 11, the distance from the center of the plot out any axis is the HSM value for the guild identified on that axis, for an acre of the DCM that is the subject of the plot being examined. Thus, the richer a DCM is with respect to a guild, the farther the point is out the axis for that guild. These plots, are a rapid, visual means to communicate the balance among habitat benefits to all six guilds for a DCM, and to compare aggregate habitat value between Baseline and potential future scenarios. The plots are included to promote readability and an understanding of the habitat values of each DCM.

Figure 11a. Relative amounts of lake-wide habitat value and water demand.



Findings

- Water savings and habitat value are not in conflict
- Water for dust control can be distributed in a manner favorable to wildlife, while Waterless DCM is focused in areas that are less favorable for habitat development.
- It is technically feasible to simultaneously maintain habitat value for the six identified guilds while conserving at least 50 percent of the water currently required for dust control.

Analytical Context

- This was demonstrated in an analysis:
 - Containing several conservative assumptions
 - Based on relationships derived from monitoring of native Playa and existing dust control areas.

End

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