Variation to Table 5.2.14 and 5.2.15 of the *Seasonal Watering Plan 2023-24*

Proposed additions are shown in red text

Table 5.2.14 Potential environmental watering actions, expected watering effects and associated environmental objectives for the lower Murray wetlands

Potential environmental watering action		Expected watering effects	Environmental objectives
Brickworks Billabong (Fill in spring/summer, top- ups as required over summer/autumn)		• Maintain water levels (the target water level is between 30.8 m AHD and 31.6 m AHD) to inundate ruppia beds, to provide nursery habitat for Murray hardyhead and provide high levels of aquatic productivity • Maintain water quality suitable for Murray hardyhead • Provide shallow-water habitat and exposed mudflats to support foraging and resting waterbirds, including migratory waterbirds	  
Bridge Creek (includes Bridge Creek Wetland) (Fill in autumn)		• Provide soil moisture to maintain and improve condition of riparian and floodplain vegetation, specifically river red gum, black box and lignum. • Increase dissolved organic matter, particulate matter and macroinvertebrate productivity. • Provide shallow-water habitat to provide refuge and feeding habitat for wetland-dependant species. • Stimulate aquatic vegetation growth • Provide conditions for semi-aquatic lakebed herbland to establish during drawdown.	 
Catfish Billabong (Fill in winter/spring)		• Fill to 33.5 m AHD to inundate fringing woodland vegetation to improve condition and recruitment • Allow water level to draw down over summer and autumn to: - promote the growth of a range of aquatic macrophytes that favour different water depth and inundation patterns - provide suitable foraging conditions for wading shorebirds • Maintain water levels above 30.8 m AHD to maintain permanent habitat for large-bodied and small-bodied native fish	  
Koorlong Lake (Top up in spring, top-ups as required)		• Increase and maintain the water level (the target water level is between 36.7 m AHD and 38.0 m AHD) to support the growth of saline aquatic vegetation, including ruppia, to provide nursery habitat for Murray hardyhead and provide high levels of aquatic productivity • Maintain water levels within a 1.3 m range to provide feeding resources for shorebirds and to maintain the Murray hardyhead population	  
Lake Carpul (fill in winter/spring 2024)[1] 	Part A: N/A Part B: July – Nov 2024	• Provide a range of open-water, shallow-water and emergent-vegetation habitats for water dependent birds to support breeding and feeding opportunities • Stimulate aquatic vegetation growth during inundation • Inundate and wet outer fringing river red gum, black box, lignum and vegetation communities (the target water level is 52.23 m AHD) to maintain and improve their condition • Provide conditions for semi-aquatic lakebed herbland to establish during drawdown.	  

		• Mobilise carbon and aid nutrient cycling within the wetland to support wetland processes and • Provide recreational opportunities for nearby communities including kayaking, birdwatching and bush walking.		
Lake Hawthorn (top ups in spring, top-ups as required over summer/autumn)		• Maintain water level between 33 m AHD and 33.3 m AHD to encourage the germination and growth of saline aquatic vegetation including ruppia, provide mudflat and shallow water feeding habitat for shorebirds		
Lake Powell (fill in autumn/ winter / spring 2024)[1] 	Part A: March – June 2024 Part B: July – Nov 2024	• Provide a range of open-water, shallow-water and emergent-vegetation habitats for water dependent birds to support breeding and feeding opportunities • Stimulate aquatic vegetation growth • Inundate and wet outer fringing river red gum, black box, lignum and vegetation communities (the target water level is 55.05 m AHD) to maintain and improve their condition • Provide conditions for semi-aquatic lakebed herbland to establish during drawdown. • Mobilise carbon and aid nutrient cycling within the wetland to support wetland processes and • Provide recreational opportunities for nearby communities including kayaking, birdwatching and bush walking.	 	
Musk Duck Wetland (Neds Corner East) (fill in autumn) 		• Provide shallow-water habitat to provide refuge and feeding habitat for wetland-dependant species • Stimulate aquatic vegetation growth • Provide soil moisture to maintain and improve condition of riparian and floodplain vegetation, specifically river red gum, black box and lignum. • Provide conditions for semi-aquatic lakebed herbland to establish during drawdown.		
Robertson Wetland (fill in spring)		• Wet fringing river red gum, black box, lignum and vegetation communities (the target water level is 28.4-28.8 m AHD) to improve their condition • Inundate cane grass beds to improve their condition and resilience • Provide a range of open-water, shallow-water and inundated lignum habitat to provide waterbird feeding opportunities		
Wakool Creek (fill in spring)		• Inundate and wet outer fringing lignum and vegetation communities (the target water level is 55.4 m AHD) to improve their condition • Inundate habitat to provide feeding and breeding opportunities for frogs and waterbirds	 	

1 This potential watering action is proposed to commence in autumn 2024 and conclude in spring 2024. Part A represents the component proposed to be delivered in the 2023-24 water year and Part B represents the component proposed to be delivered in the 2024-25 water year. If Part A is delivered, then Part B will be included in the Seasonal Watering Plan 2024-25.

Table 5.2.15 Potential environmental watering for the lower Murray wetlands in a range of planning scenarios

Planning scenario	Drought	Dry	Average	Wet
Expected conditions	• Natural flow in the Murray River is too low to connect to wetlands • Very low rainfall year-round and extremely hot and dry conditions in summer/autumn cause substantial wetland drying. • Wetlands rely on the delivery of water for the environment.	• Short periods of high flow in the Murray River are possible, but overbank flow to wetlands is unlikely; low rainfall and very warm summer/autumn • Wetlands rely on the delivery of water for the environment.	• Sustained periods of high flow in the Murray River in late winter and early spring may wet some low-lying wetlands, but most wetlands will rely on water for the environment • Local rainfall may be high and provide run-off to some wetlands	• Lengthy periods of high flow and floods with major spills from storages, resulting in widespread wetting of the floodplain and most wetlands • Some reliance on water for the environment to achieve target water levels • Local rainfall may be high and will provide run-off to most wetlands
Potential environmental watering – tier 1 (high priorities)[1]	• Brickworks Billabong • Catfish Billabong • Koorlong Lake • Lake Hawthorn	• Brickworks Billabong • Catfish Billabong • Koorlong Lake • Lake Hawthorn • Robertson Wetland • Wakool Creek	• Brickworks Billabong • Bridge Creek (includes Bridge Creek Wetland) • Catfish Billabong • Koorlong Lake • Lake Hawthorn • Lake Powell • Robertson Wetland • Musk Duck wetland (Neds Corner East) • Wakool Creek	• Brickworks Billabong • Bridge Creek (includes Bridge Creek Wetland) • Catfish Billabong • Koorlong Lake • Lake Hawthorn • Lake Powell • Robertson Wetland • Musk Duck wetland (Neds Corner East) • Wakool Creek
Possible volume of water for the environment required to achieve objectives[1]	• 2,800 ML (tier 1)	• 3,700 ML (tier 1)	• 3,700 ML (tier 1)	• 2,800 ML (tier 1)
Priority carryover requirements for 2024-25	• 1,900 ML			

1 Tier 1 potential environmental watering at the lower Murray wetlands is not classified as tier 1a or 1b because the water available for use is shared across various systems, and it is not possible to reliably determine the supply specifically available for the lower Murray wetlands.