**Variation to section 5.2.7 of the *Seasonal Watering Plan 2023-24***

Description of the proposed variation

The timing of fills at Bilgoes Billabong and Snake Lagoon extension has been changed from spring to autumn. See changes marked in red in tables 5.2.16 and 5.2.17 of the *Seasonal Watering Plan 2023-24* below.

**Table 5.2.16 Potential environmental watering actions, expected watering effects and associated environmental objectives for the Lindsay, Mulcra and Wallpolla islands**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Potential environmental watering action** | **Expected watering effects** | **Environmental objectives** | | |
| **Lindsay Island – Mullaroo Creek** | | | | |
| Year-round low flow (minimum of 600 ML/ day)1 | * Maintain fast-flowing habitat for native fish (such as Murray cod, silver perch and golden perch) * Maintain habitat for aquatic vegetation and soil moisture to maintain the condition of streamside vegetation | Icon indicating an environmental objective in this system benefits fish populations | | Icon indicating an environmental objective in this system benefits vegetation |
| Elevated spring flow (1,200 ML/day for three months during  September to November) | * Increase the extent and velocity of fast-flowing habitat to cue the movement and spawning and improve recruitment opportunities for native fish * Increase fish passage between Mullaroo Creek and the Murray River via the Mullaroo Creek regulator fishway | Icon indicating an environmental objective in this system benefits fish populations | | |
| **Lindsay Island – Lindsay River** | | | | |
| Winter/spring/summer low flow via the northern regulator (45 ML/day  for three months during August to December) | * Provide temporary flowing water to connect pools and support the dispersal and recruitment of small- and large-bodied native fish and the spawning of small-bodied native fish * Stimulate the release of carbon and nutrients from the sediment to increase the productivity of the floodplain food web * Maintain bank soil moisture to support the growth of streamside vegetation | Icon indicating an environmental objective in this system benefits fish populations | | Icon indicating an environmental objective in this system aims to maintain, increase, or enable carbon and nutrient cycling and connectivity. |
| Icon indicating an environmental objective in this system benefits vegetation | |  |
| Winter/spring/summer low flow via the southern regulator (5 ML/day for three months during August to December) |  | |  |
| **Lindsay Island wetlands** | | | | |
| Bilgoes Billabong (fill in ~~spring~~ autumn) | * Provide shallow and open-water habitat to create foraging and breeding opportunities for waterbirds and frogs * Stimulate the growth of aquatic vegetation * Increase soil moisture to maintain and improve the condition of streamside and floodplain vegetation, specifically river red gum, black box and lignum * Provide conditions for lake-bed herbaceous plants to grow as the wetland draws down during summer and autumn | Icon indicating an environmental objective in this system benefits waterbird populations. | Icon indicating an environmental objective in this system benefits frog populations. | |
| Icon indicating an environmental objective in this system benefits vegetation |  | |
| Bottom Island (fill in spring)  Icon indicating watering planned and/or delivered in partnership with Traditional Owners to support cultural values and uses. | * Provide shallow and open-water habitat to create foraging and breeding opportunities for waterbirds and frogs * Stimulate the growth of aquatic vegetation * Increase soil moisture to maintain and improve the condition of streamside and floodplain vegetation, specifically river red gum, black box and lignum * Increase soil moisture to stimulate germination of black box seed | Icon indicating an environmental objective in this system benefits waterbird populations. | Icon indicating an environmental objective in this system benefits frog populations. | |
| Icon indicating an environmental objective in this system benefits vegetation |  | |
| Stockyards (fill in spring or autumn) | * Provide shallow and open-water habitat to create foraging and breeding opportunities for waterbirds and frogs * Stimulate the growth of aquatic vegetation * Increase soil moisture to maintain and improve the condition of black box * Increase soil moisture to stimulate germination of black box seed | Icon indicating an environmental objective in this system benefits vegetation | Icon indicating an environmental objective in this system benefits waterbird populations. | |
| Icon indicating an environmental objective in this system benefits frog populations. |  | |
| West Lindsay Floodplain (fill in spring)  Icon indicating watering planned and/or delivered in partnership with Traditional Owners to support cultural values and uses. | * Provide shallow and open-water habitat to create foraging and breeding opportunities for waterbirds and frogs * Stimulate the growth of aquatic vegetation * Increase soil moisture to maintain and improve the condition black box * Increase soil moisture to stimulate germination of black box seed * Help protect the highly culturally significant site in the adjacent landscape | Icon indicating an environmental objective in this system benefits vegetation | Icon indicating an environmental objective in this system benefits frog populations. | |
| Icon indicating an environmental objective in this system benefits waterbird populations. |  | |
| Woodcutters (fill in spring) | * Provide shallow and open-water habitat to create foraging and breeding opportunities for waterbirds and frogs * Increase soil moisture to maintain and improve the condition of river red gums | Icon indicating an environmental objective in this system benefits waterbird populations. | Icon indicating an environmental objective in this system benefits frog populations. | |
| Icon indicating an environmental objective in this system benefits vegetation |  | |
| **Mulcra Island – Potterwalkagee Creek** | | | | |
| Spring low flow via the Stony Crossing regulator (35-115 ML/day for  three months during September to December) | * Provide temporary flowing water to connect pools and support the dispersal and recruitment of small- and large-bodied native fish, and the spawning of small-bodied native fish * Stimulate the release of carbon and nutrients from the sediment to increase the productivity of the floodplain food web * Maintain soil moisture to maintain the condition of streamside | Icon indicating an environmental objective in this system benefits fish populations | Icon indicating an environmental objective in this system aims to maintain, increase, or enable carbon and nutrient cycling and connectivity. | |
| Icon indicating an environmental objective in this system benefits vegetation |  | |
| Spring low flow via the upper Potterwalkagee Creek regulator (15 ML/ day for three months during September to December) |  |  | |
| **Mulcra Island wetlands** | | | | |
| Mulcra Horseshoe (fill in spring) | * Provide shallow and open-water habitat to create foraging and breeding opportunities for waterbirds * Provide shallow-water refuge habitat, if conditions are dry in the next 2-3 years, and feeding habitat for frogs * Stimulate the growth of emergent, aquatic and streamside vegetation * Provide conditions for lake-bed herbaceous plants to grow as the wetland draws down during summer and autumn | Icon indicating an environmental objective in this system benefits waterbird populations. | Icon indicating an environmental objective in this system benefits frog populations. | |
| Icon indicating an environmental objective in this system benefits vegetation |  | |
| Snake Lagoon extension (fill in ~~spring~~ autumn) | * Provide shallow and open-water habitat to create foraging and breeding opportunities for frogs and waterbirds * Increase soil moisture to maintain and improve the condition of streamside and floodplain vegetation, specifically river red gum, black box and lignum * Provide conditions for lake-bed herbaceous plants to grow as the wetland draws down during summer and autumn | Icon indicating an environmental objective in this system benefits waterbird populations. | | Icon indicating an environmental objective in this system benefits frog populations. |
| Icon indicating an environmental objective in this system benefits vegetation | |  |
| **Wallpolla Island** | | | | |
| * No watering activities are planned for Wallpolla Island in 2023-24 | | | | |

1 There may be a requirement to reduce the baseflow down to 400 ML per day to assist with construction activities as part of the Victorian Murray Floodplain Restoration Project from early 2024, but this is not expected to affect the quality of habitat provided by the flow.

**Table 5.2.17 Potential environmental watering for the Lindsay, Mulcra and Wallpolla islands in a range of planning scenarios**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Planning scenario** | **Drought** | **Dry** | **Average** | **Wet** |
| **Lindsay Island** | | | | |
| Potential environmental watering – tier 1 (high priorities)1 | * Year-round low flow (Mullaroo Creek) * Spring high-low flow (Mullaroo Creek) * Winter/spring/ summer low flow (Lindsay River via the north regulator) * Bottom Island (fill in spring) * West Lindsay Floodplain (fill in spring) | * Year-round low flow (Mullaroo Creek) * Spring high-low flow (Mullaroo Creek) * Winter/spring/ summer low flow (Lindsay River via the north and south regulator) * Bilgoes Billabong (fill in ~~spring~~ autumn) * Bottom Island Billabong (fill in spring) * West Lindsay Floodplain (fill in spring) * Woodcutters (fill in spring) | * Year-round low flow (Mullaroo Creek) * Spring high-low flow (Mullaroo Creek) * Winter/spring/ summer low flow (Lindsay River via the north and south regulator) * Bilgoes Billabong (fill in ~~spring~~ autumn) * Bottom Island Billabong (fill in spring) * Stockyards (fill in spring or autumn) * West Lindsay Floodplain (fill in spring) * Woodcutters (fill in spring) | * Year-round low flow (Mullaroo Creek) * Spring high-low flow (Mullaroo Creek) * Winter/spring/ summer low flow (Lindsay River via the north and south regulator) * Bilgoes Billabong (fill in ~~spring~~ autumn)1 * Bottom Island Billabong (fill in spring)2 * Stockyards (fill in spring or autumn) * West Lindsay Floodplain (fill in spring)2 * Woodcutters (fill in spring) |
| **Mulcra Island** | | | | |
| Potential environmental watering – tier 1 (high priorities)2 | * Spring low flow (Potterwalkagee Creek via Stony Crossing regulator) * Mulcra Horseshoe (fill in spring) * Snake Lagoon extension (fill in ~~spring~~ autumn) | * Spring low flow (Potterwalkagee Creek via Stony Crossing and upper Potterwalkagee regulators) * Mulcra Horseshoe (fill in spring) * Snake Lagoon extension (fill in ~~spring~~ autumn) | * Spring low flow (Potterwalkagee Creek via Stony Crossing and upper Potterwalkagee regulators) * Mulcra Horseshoe (fill in spring) * Snake Lagoon extension (fill in ~~spring~~ autumn) | * Spring low flow (Potterwalkagee Creek via Stony Crossing and upper Potterwalkagee regulators) * Mulcra Horseshoe (fill in spring) * Snake Lagoon extension (fill in ~~spring~~ autumn) |
| Possible volume of water for the  environment required to achieve objectives3 | * 1,690 ML | * 1,860 ML | * 2,660 ML | * 110 ML |

1. Bilgoes Billabong, Bottom Island and West Lindsay Floodplain each have a high commence-to-flow rate and may not be naturally inundated in the wet planning scenario. Water cannot be delivered in the wet planning scenario due to site inaccessibility.
2. Tier 1 environmental watering at Lindsay, Mulcra and Wallpolla islands is not classified as tier 1a or tier 1b because the water available to use is shared across various systems and it is not possible to reliably determine supply specifically available for the islands.
3. These estimates include the use of water for the environment at sites across Lindsay, Mulcra and Wallpolla islands and Murray River weir pools. Water for the environment used at these sites may be accounted for in Victoria and New South Wales.