

# Chowilla Floodplain Icon Site

## Summary of 2018 Environmental Water Operations

### Chowilla Environmental Regulator Operation

An 'in-channel rise' operation of the Chowilla Environmental Regulator was undertaken between August and December 2018 with the target height of 18.5 m Australian Height Datum (AHD) reached at the start of October and maintained for four weeks. Lock 6 weir pool was also raised by 20 cm in conjunction with the Chowilla Regulator operation.



The operation raised water levels in Chowilla Creek and through the anabranch by about 2.1 m above normal levels bringing water to near the top of the creek banks and pushing water along low level flow paths into Coppermine and Werta Wert wetlands and into Hancock Creek which fills Lake Limbra. The operation resulted in a total area of inundation over approximately 2,250 hectares.



Sentinel-2 satellite image captured 31/10/2018





While all lagoons in Werta Wert wetland didn't completely fill the shallow water across the most western lagoon (see left) provided wonderful feeding ground for a range of waterbird species including grey teal, great cormorants, black-fronted dotterel and yellow-billed spoonbills.

Large numbers of pink-eared ducks and avocets also enjoyed the conditions on Lake Limbra which filled during the operation.

At Coppermine Waterhole the surrounding trees, understorey and aquatic vegetation (including extensive stands of spiny mud grass – photo below) as well as a range of wildlife benefited from the watering.



Monitoring of birds, fish and frogs at sites that were inundated during the regulator operation such as Lake Limbra, Coppermine, White Cow and Werta Wert wetlands was undertaken during the environmental watering. While as anticipated large numbers of carp were detected (unfortunately carp always respond to natural floodplain flooding or managed inundation) there were also a small number of large golden perch with one exceeding 50 cm, and a small number of juveniles. A range of small bodied native fish were recorded including Australian smelt, Dwarf flat-headed gudgeon, Flat-headed gudgeon, Murray-Darling carp gudgeon, Un-specked hardyhead, as well as large numbers of shield shrimp and fairy shrimp, juvenile mussels and other macro invertebrates.



**Golden perch**



**Carnivorous diving beetle (top) and shield shrimp**

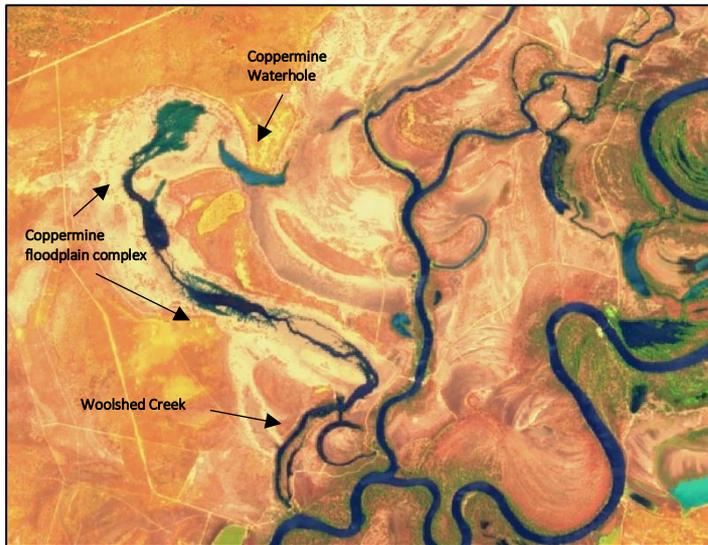


**Australian smelt (top) and juvenile Golden perch**



## Pumped delivery of water for the environment

To enhance the low level regulator operation, it was identified that some wetland sites would benefit from water delivered via pumping. Pumping was undertaken at Woolshed Creek and the Coppermine Complex in spring.



Brandy Bottle Waterhole and Twin Creeks Depression are also scheduled to receive water for the environment delivered via pumping during autumn.



Water for the environment delivered via pumping extended up from Woolshed Creek and through the Coppermine Complex linking up to the Coppermine Waterhole which had been filled as a result of the in-channel rise operation of the regulator.



A range of bird species including white faced herons, and pied stilts were observed along this flow path during site visits.

Frogs also responded well at these sites with all six species of frog that are reliably expected to be found in this region heard calling during night surveys. This included the Southern Bell Frog which is listed as a vulnerable species under the *EPBC Act 1999*. During one survey at Coppermine Complex, between 10-50 male Southern Bell Frog were recorded calling.

The water for the environment used to undertake the regulator operation and pumping was allocated from The Living Murray.



### Other observations and monitoring:

- Annual spring tree condition monitoring has been undertaken at established tree transects across the floodplain to track changes in the condition of River Red Gum, Black Box and River Cooba trees over time. This monitoring provides important information about the need for further watering. Tree condition for river red gum and some areas of black box has remained stable over the last couple of years however, cooba and black box in higher elevation areas are in poor condition and are likely to decline without further watering.
- Fish trapping at the vertical slot fishway on the Chowilla regulator was undertaken to determine effectiveness of the fishway and to capture a range of fish species to insert PIT tags so their movement can be tracked.
- Monitoring of birds, fish and frogs was conducted in the pool connected wetlands such as Pilby wetland complex; Lock 6 Depression and Pipeclay Billabong results included:
  - All the common frog species for this region were recorded including the Southern Bell Frog.
  - A range of small-bodied native fish were caught during monitoring in the Pilby wetland complex these included: Unspecked hardyhead, Carp gudgeon, Murray rainbowfish and Australian smelt.
  - 20 Eastern long-necked turtles (*Chelodonia longicollis*) were also caught during fish monitoring at Pilby. This is exciting given the turtle populations in the Murray-Darling Basin have declined significantly over the past 20 years.



Eastern long-necked turtles



Southern Bell Frog

- The surface water monitoring network maintained within the River Murray and the Chowilla creeks continues to provide valuable real-time data on flows, water levels and water quality. Water quality was watched closely throughout the operation and remained within management thresholds.
- Soil condition monitoring to detect changes in soil moisture availability and salinity was undertaken in early January 2019.
- The 2018/19 annual condition monitoring programs for understory floodplain vegetation, lignum and fish are being implemented during autumn 2019.
- The operation of the regulator in 2018 also enabled the completion of a two year research program being undertaken at Chowilla and on the River Murray through the Goyder Institute for Water Research titled *Ecological connectivity of the River Murray: managing ecological outcomes and water quality risks through integrated river management*. More information about this research program can be found here - <http://www.goyderinstitute.org/projects/view-project/70>



- Spring and summer bushbird condition monitoring surveys were undertaken as well as monthly bird monitoring at the sites that received water for the environment. Delivering water for the environment in dry years is particularly important to provide refuge areas for bird species to feed and breed. Four bird species not often seen were recorded during these surveys:
  - Seven Ground Cuckoo-Shrikes were sighted during summer bush bird monitoring. Ground Cuckoo-Shrikes are a rare, unpredictable and nomadic outback bird.
  - The highly secretive Lewin's Rail was heard calling in an area of flooded lignum near Lock 6. This bird is notoriously shy but can be identified by its unique call.
  - A juvenile White-bellied Sea-eagle was sighted at Pilby Lagoon in mid-January, this species is listed as Vulnerable in South Australia.
  - The rarely seen Baillon's Crake with its beautiful pale green bill and legs, and distinctive white and black barring on its undertail, was observed near Coppermine Waterhole in February.



Ground Cuckoo-Shrike (Photo: Helga Kieskamp)



Baillon's Crake (Photo: Peter Jacobs)

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## For more information

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