

# **WATERBIRDS OF CURL CURL LAGOON**

## **An analysis of 5 years of survey data**

### **Introduction**

In early 2017, Warringah Council initiated a monthly survey of birds in the lagoon and the riparian margins. The purpose of the surveys was to establish a data set, which over time might give an indication of improvements in lagoon water quality.

The first survey was carried out at the end of March 2017, by a Council officer and a small group of volunteers. Surveys have been conducted on the last Friday of the month, up to the present. (A few have been missed because of Covid restrictions or weather).

### **Survey design**

The surveys are conducted at six sites (eight originally, since consolidated to six). The sites were chosen to give more or less complete coverage of the lagoon. The sites are as follows:

Site 1 – the mouth of the lagoon

Site 2 – to the east of the Griffin Road bridge

Site 3 – to the west of the Griffin Road bridge

Site 4 – both sides of the Park Road bridge

Site 5 – both sides of the “metal” bridge, between Park Road and Harbord Road

Site 6 – the gross pollution trap at Harbord Road

All birds visible on each site are counted over a 20-minute period. Pre-printed survey sheets are used for recording bird numbers (Attachment 1). Data is entered into a spreadsheet, consolidated by species, not sites. This gives us a picture of the lagoon as a whole.

### **The birds**

While bush birds have been counted, the primary focus of the surveys has been on waterbird species, that is, those species that are more or less water dependent. A full list of the species that have been seen over the five years of the surveys is given in Attachment 2 (A few of the species shown in the Attachment were seen outside survey periods).

Of the common birds (those marked “C” in Attachment 2), some occur, or have occurred, in large numbers (up to 50 or more in one survey). All these species are in the waterfowl category in the table, except for the Australian White Ibis whose numbers can range from zero to hundreds. Other commonly seen species such as the White-faced Heron and the Cormorants are present on most surveys but in small numbers.

## Survey results

The following table summarises survey data for the five years 2017-2021. It gives results just for the five most common waterfowl species because it is only in the data for these species that we can discern useful information. For all other species, the numbers are low and highly variable with no readily discernible trends.

We know from observation that from 2020, there was a sudden drop in numbers of waterfowl, especially for Hardheads and Eurasian Coots. The defining event of early 2020 was the breaking of the drought across most of NSW with heavy rain in early February. Hardheads vanished almost immediately, with only a few sightings in 2020-21. For much of 2021 and into 2022, no Hardheads have been recorded. The story is similar for Coots – some stayed around but again, from late 2021 and into 2022, no Coots have been sighted. For the first three years of the survey, these two species were the most common. We believe the explanation for the sudden drop in numbers lies in the breaking of the drought when dams and swamps to the west of the Dividing Range filled, presumably providing good habitat for waterfowl, apparently more attractive than provided in our lagoons. (We have observed the same phenomenon in Manly Lagoon and I have been told by people in the birding community that it has been observed in other Sydney wetlands.)

SPECIES	Average numbers per survey			
	Drought 2017-2019		Post Drought 2020- 2021	
	Avg.	Range	Avg.	Range
Hardhead	14	0-88	1	0-13
Pacific Black Duck	19	0-48	11	2-29
Chestnut Teal	15	0-37	10	1-34
Eurasian Coot	27	10-66	11	1-23
Dusky Moorhen	11	2-52	11	1-26
<b>Avge. annual rainfall for NSW</b>	<b>346mm</b>		<b>677mm</b>	

There was also a significant drop in numbers of Pacific Black Ducks and Chestnut Teal, although Chestnut Teal have been seen recently in large numbers, up to 40 on one occasion. They seem to be one of the “stayers” (similar on Manly Lagoon). Dusky Moorhen is the only species that has maintained a stable population over the five survey years. It is no coincidence that Dusky Moorhen is also the only species that regularly breeds on the lagoon. Black Swan, Coot and Chestnut Teal have been seen with juveniles but only on one or two occasions. Manly Lagoon differs from Curl Curl in one obvious respect – Many supports breeding populations of Cormorants and Darters. Although these species visit Curl Curl, we have seen no evidence of breeding.

## **Discussion**

When the survey was started in 2017, it was hoped that we could establish a “baseline” characterising the waterbird population of the lagoon. It is now clear that the accumulated data contains far too much variability to provide a baseline against which to detect any future population trends that might be linked to changing water quality. Clearly, the biggest influence on numbers is the presence or absence of drought, making it meaningless to look at averaged numbers over an extended period. Should we look at changes from one period of drought to the next? But how does the severity of a particular drought event influence numbers?

We need another measure that might correlate with changes in water quality. One such measure could be the breeding success of the one breeding resident – the Dusky Moorhen. We do not know whether or not water quality might affect breeding success but there may be a correlation that we should look for. Also it is hoped that the planned floating islands will provide additional breeding habitat. For future surveys, we will continue to count all species, but we will pay particular attention to Dusky Moorhens. Data collection sheets will be modified to record Dusky Moorhens as adult, immature or juvenile – the three forms can be distinguished fairly readily.

As noted above, Cormorants and Darters breed on Manly Lagoon, building their nests in Casuarinas overhanging the water. Similar habitat is present at Curl Curl but we have not observed any breeding. We do not know the factors that support breeding in one of the lagoons but not the other. Manly is probably saltier than Curl Curl and may support a greater fish population but we can only speculate as to whether or not that has anything to do with breeding.

## **Recommendations** – where to from here

The survey should be continued in its current form, on the last Friday of the month. Numbers of all species to be recorded.

Particular focus should be given to the Dusky Moorhen, recording data for adult, juvenile and immature birds.

Evidence of breeding by any other species should be recorded.

ATTACHMENT 1

### CURL CURL LAGOON BIRD SURVEY

Lagoon: Open

Closed

Name: \_\_\_\_\_

Date: \_\_\_\_\_ / \_\_\_\_\_ /2022

Team A	Site 3	Site 2	Site 1
(Cross out other team)	Griffin West	Griffin East	Surf Rd
Team B	Site 4	Site 5	Site 6
	Duck Pond	Concrete Bridge	GPT
Time start:			

Team A	Site 3	Site 2	Site 1
	Griffin West	Griffin East	Surf Rd
Team B	Site 4	Site 5	Site 6
	Duck Pond	Concrete Bridge	GPT
Time start:			

**Water Bird Species**

Pelican			
Great Cormorant			
Little Black Cormorant			
Little Pied Cormorant			
Pied Cormorant			
Masked Lapwing			
Darter			
Silver Gull			
Black Swan			
Australian Wood Duck			
Chestnut Teal			
Grey Teal			
Hardhead			
Pacific Black Duck			
Australasian Grebe			
White-faced Heron			
White-necked Heron			
Great Egret			
Intermediate Egret			
Little Egret			
Nankeen Night Heron			
Royal Spoonbill			
Australian White Ibis			
Straw-necked Ibis			
Australasian Swamphen			
Eurasian Coot			
Dusky Moorhen			
Osprey			
Nankeen Kestrel			
Black-winged stilt			
Caspian tern			
Black shouldered kite			
Bar-tailed godwit			
Cattle egret			
Notes/other observations:			

**Bush Bird Species**

Yellow-tailed Black Cockatoo			
Galang			
Little Corella			
Sulphur-crested Cockatoo			
Rainbow Lorikeet			
Musk Lorikeet			
Eastern Rosella			
King Parrot			
Spotted Dove			
Rock Dove			
Crested Pigeon			
Eastern Koel			
Kookaburra			
Welcome Swallow			
White-browed Scrubwren			
Yellow Thornbill			
Superb Fairywren			
Variegated Fairywren			
Noisy Miner			
New Holland Honeyeater			
Red Wattlebird			
Little Wattlebird			
Eastern Whipbird			
Black-faced Cuckoo-Shrike			
Pied Currawong			
Grey Butcherbird			
Australian Magpie			
Australian Raven			
Magpie Lark			
Grey Fantail			
Willie Wagtail			
Red-whiskered Bulbul			
Olive-backed Oriole			
Figbird			
Silvereye			
Australian Reed-Warbler			
Spotted Pardalote			
Common Myna			
Common Starling			
House Sparrow			
Scaly breasted lorikeet			
Dollarbird			
Channel-billed cuckoo			
Sacred kingfisher			
Fork-tailed swift			
White-throated needletail			
Buff-banded rail			
Brown Goshawk			
Brown quail			

## **Attachment 2**

### **WATERBIRD SPECIES SEEN ON CURL CURL LAGOON 2017-2022**

C – common, seen in large numbers and/or most surveys

U – uncommon

R – Rare, seen on only one or two occasions

#### **Waterfowl – species that spend the majority of their time on the water**

Pacific Black Duck	( C )
Chestnut Teal	(C)
Grey Teal	(U)
Hardhead	(C)
Australasian Grebe	(R)
Eurasian Coot	(C)
Dusky Moorhen	(C)
Black Swan	(U)

#### **Waders – species that feed on mud flats and lagoon edges**

Masked Lapwing	(C)
White-faced Heron	(C)
White-necked Heron	(R)
Striated Heron	(R)
Great Egret	(U)
Little Egret	(U)
Nankeen Night-Heron	(R)
Australian White Ibis	( C )
Straw-necked Ibis	(R)
Royal Spoonbill	(U)
Australasian Swamphen	(C)
Black-winged Stilt	(R)
Bar-tailed Godwit	(R)

#### **Fish feeders**

Australian Pelican	(U)
Great Cormorant	(U)
Little Black Cormorant	(C)
Little Pied Cormorant	(C)
Australasian Darter	(U)

#### **Seabirds**