

# Did Australian Pied Oystercatchers on Lake Macquarie benefit from the 2021 lockdowns?

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Reports of the Australian Pied Oystercatcher *Haematopus longirostris* on Lake Macquarie were reviewed for breeding records. Although between 2006 and 2020 there were occasional reports of breeding attempts or of fledged juveniles, there were no confirmed successful local breeding events during that 15-year period. However, in late 2021 four pairs of oystercatchers were observed with unfledged young. Several subsequent sightings of juvenile birds during 2022-23 suggest the successful fledging and maturation of the 2021 nestlings. The reduction in human recreational activities around the lake during the COVID-19 lockdowns in 2021 may have been a factor in this unprecedented local breeding success.

## INTRODUCTION

The Australian Pied Oystercatcher *Haematopus longirostris* is present in small numbers in the Lake Macquarie estuary. Data from the Hunter Region Annual Bird Reports indicate its presence in low numbers (of up to five birds) in the Swansea area between 1993 and 2007 (Stuart 1994-2008). Since February 2008, members of the Hunter Bird Observers Club (HBOC) have conducted monthly surveys of shorebirds and waterbirds at Lake Macquarie. Australian Pied Oystercatchers have regularly been observed on the sandbanks and small mangrove islands at Marks Point, Pirrita (formerly Coon) Island, Swansea Channel, and Black Neds Bay (**Figure 1**). They also have been recorded elsewhere around the lake (e.g. Coal Point, Wangi Wangi, Murrays Beach, Green Point) and on the adjacent coastline (e.g. Nine Mile Beach and Catherine Hill Bay). The HBOC surveyors have recorded an average count of six Australian Pied Oystercatchers in summer and three individuals in winter.

Despite regular sightings around Lake Macquarie, breeding records have been circumstantial. The main breeding-related observations by the HBOC shorebird survey team prior to 2021 were of failed breeding attempts in 2015 and 2018, plus sporadic records of juvenile fledged birds originating from unknown nesting sites. There were concerns among the HBOC shorebird survey team that the longevity of individual birds was masking a lack of breeding success. Thus, reports of parents with unfledged young at four separate sites on the lake between October and November 2021 were noteworthy.

Those reports prompted me to review all the available records of Australian Pied Oystercatchers around Lake Macquarie and assess them for reports of breeding. This paper compiles all the suspected and confirmed breeding events in the Lake Macquarie estuary and documents all sightings of potentially nesting birds and records of unfledged young and juvenile birds. This study has also highlighted the negative effects on breeding success from near-relentless human disturbance.

## METHODS

### Location

Lake Macquarie is located in the Hunter Region of NSW. It is a large (110 square kilometre) estuarine lake with a narrow entrance to the ocean at Swansea. The lake's entrance, between the ocean and the "drop-over" to deeper waters within the lake, is characterised by a mixture of habitats including shifting sandbanks, seagrass meadows, mangroves, saltmarsh, artificial rock emplacements and sandy shorelines (see **Figure 1**). Pirrita, Spectacle and Elizabeth Islands support mangroves, saltmarsh and casuarinas. There are also several smaller unnamed islands and tidal sandbars, and a large expanse of mangrove and saltmarsh habitat east of Swansea Bridge at Black Neds Bay.

### Sourcing Australian Pied Oystercatcher records

Entries in the Hunter Region Annual Bird Reports were examined to determine the presence of any breeding records in Lake Macquarie. Records in Birddata (<https://birddata.birdlife.org.au>) with associated breeding activity including "adult(s) on nest", "young out of nest",

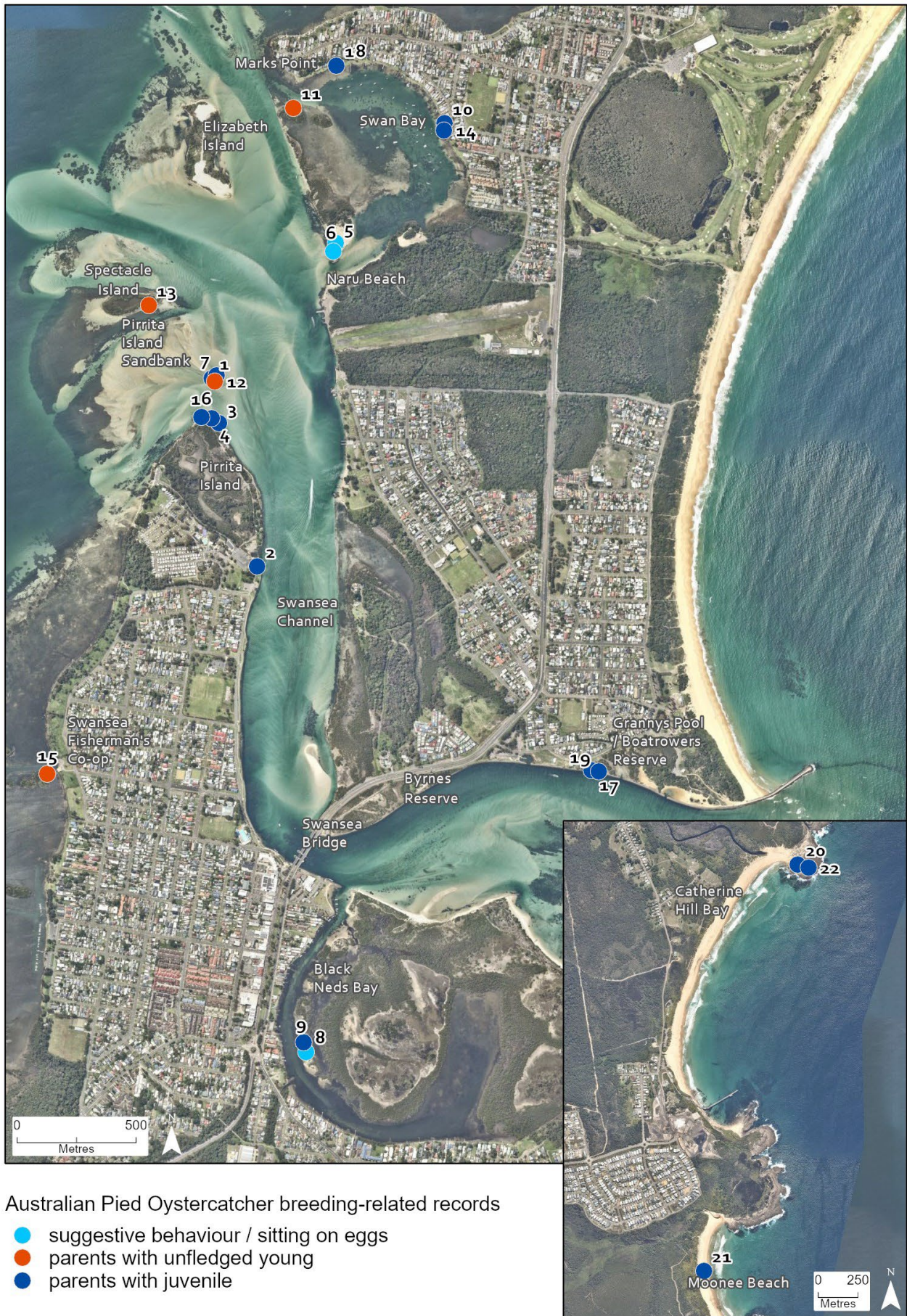


Figure 1. Map showing Australian Pied Oystercatcher breeding records on Lake Macquarie 2006-2023.

**Table 1.** Details of Australian Pied Oystercatcher breeding records on Lake Macquarie 2006-2023.

Date	Description	Type	Observer/s and source	Number on map
10/12/2006	A pair with young, on a small island directly north of Pirrita Island.	Juvenile	Frank Cosgrove (Stuart 2007)	1
13/12/2008	A juvenile bird begging from an adult at Swansea near Pirrita Island.	Juvenile	Maureen Goninan (Flickr)	2
19/12/2009	A juvenile bird with adult at Pirrita Island.	Juvenile	Greg Miles (Flickr)	3
12/01/2013	Two young birds with adults on Pirrita Island rock foreshore.	Juvenile	Jack Adams, Mandy McDonald (shorebird surveys)	4
14/09/2015	A breeding attempt at Marks Point, believed to have been unsuccessful.	Sitting on eggs	Anthony Marchment (pers. comm.)	5
8/09/2018 and 10/11/2018	An apparent breeding attempt in September through to November 2018, believed to have been unsuccessful.	Sitting on eggs	Jack Adams, Mandy McDonald (HBOC shorebird surveys)	6
7/12/2019	A young bird with two adults on the small mangrove island north of Pirrita Island.	Juvenile	Jack Adams, Mandy McDonald, David White (shorebird surveys)	7
7/12/2019	Pair displaying suggestive breeding behaviour in Black Neds Bay	Suggestive behaviour	John Craig (shorebird surveys)	8
22/02/2020	A juvenile bird with two adults at Black Neds Bay.	Juvenile	Mandy McDonald (shorebird surveys)	9
4/11/2020	Two adult birds with a young bird at Marks Point.	Juvenile	Dennis Neader (Birdata)	10
2/10/2021	Two adult birds with a fluffy chick on the northern mangrove island of Swan Bay, just south of Marks Point	Unfledged young	Geoff Coates (Birdata)	11
14/10/2021	Two adults plus two chicks on the small island directly north of Pirrita Island.	Unfledged young	Meryl Newton (Facebook)	12
6/11/2021	Two adults and one small fluffy chick on the southern side of Spectacle Island.	Unfledged young	Jack Adams, Mandy McDonald, David White (shorebird surveys)	13
6/11/2021	Two adult birds feeding a recently fledged young bird at Marks Point.	Juvenile	Dennis Neader	14
12/11/2021	Two adults and two unfledged chicks on a mangrove island behind Swansea Fishermen's Co-op.	Unfledged young	Meryl Newton (Facebook)	15
10/12/2021	Two adults plus two fledged juvenile birds at Pirrita Island.	Juvenile	Meryl Newton (Facebook)	16
2/01/2022	A sub-adult bird with an adult bird at Boatrowers Reserve, Blacksmiths	Juvenile	Jim Stone (eBird)	17
9/12/2022	A group of three birds including one sub-adult on the northern shoreline of Swan Bay.	Juvenile	Friend of Dennis Neader (pers. comm.)	18
24/02/2023	One maturing juvenile among a group of eight birds at Boatrowers Reserve, Blacksmiths.	Juvenile	Allan Johns (eBird)	19
10/03/2023	Nine birds including one maturing juvenile* at the north end of Catherine Hill Bay.	Juvenile	Allan Johns (eBird)	20
15/03/2023	Maturing juvenile* with seven adult birds at Moonee Beach.	Juvenile	Allan Johns (eBird)	21
02/06/2023	Seven birds including one maturing juvenile* at the north end of Catherine Hill Bay.	Juvenile	Allan Johns (eBird)	22

\* These juvenile birds had distinctive upturned bills and most likely they all were the same individual.

“recently fledged young”, and “suggestive behaviour” were selected and investigated. The “Explore” function in eBird was used to search for breeding records in Lake Macquarie (<https://ebird.org/species/pieoys1/au-nsw-lak>). Although it was technically possible to filter photos by age (e.g. “immature”, “juvenile”), behaviour (“feeding young”, “courtship”), and tags (“nest”), the photos were not always tagged with all relevant information, so each photo was checked for the exact location of the record and the presence of sub-adult birds.

The Birds of the Hunter and Central Coast Facebook photography page ([www.facebook.com/groups/465610836974827](http://www.facebook.com/groups/465610836974827)) provided several records of shorebirds in the Lake Macquarie area, including two of the recent (2021) records of nesting oystercatchers, which were also reported to the HBOC records officer by the photographer.

A search of the photo sharing application Flickr ([www.flickr.com](http://www.flickr.com)) yielded two photographs of juveniles with their parents in the Lake Macquarie area. Tags such as “Coon Island”, “near Coon Island”, “Swansea, NSW”, and “Lake Macquarie” confirmed the location of the photographs.

Observers were contacted, where possible, to verify their reports and clarify record details.

## Age of birds

When photographs were available, assessment of juvenile/immature bird age was made based on “Bird in the Hand” field information sheets produced by the Australian Bird Study Association (2019). Birds with a fluffy, downy appearance were recorded as unfledged young. Fledged juvenile birds (of less than four years of age) were differentiated from adult birds by their brown rather than black feathers, and the darker/duller colours of their bill, eyes and legs. No distinction was made between first, second and third-year birds.

## RESULTS

A summary of all documented breeding-related activity of Australian Pied Oystercatcher in Lake Macquarie is presented in **Table 1**. The locations for each such activity are shown in **Figure 1**.

Below are some specific comments in relation to the reports in **Table 1**:

- The report of two adult birds feeding a recently fledged young bird at Marks Point on 6 November 2021 is considered likely to involve the same family of three birds observed at that location early in the previous month (2 October).
- The report of two adults plus two fledged juvenile birds at Pirrita Island on 10 December 2021 is considered likely to involve the same

family which bred nearby (recorded there on 14 October).

- Three records over March-June 2023 of adults with a juvenile are considered likely to involve the same juvenile each time. All three juvenile birds had distinctive upturned bills; hence most likely they all were the same individual.
- Evidence of post-breeding dispersal included records of juvenile birds at Marks Point, Pirrita Island, Boatrowers Reserve Blacksmiths, Catherine Hill Bay and Moonee Beach (see **Figure 1** for locations).

## DISCUSSION

The successful hatching of chicks from four separate pairs of Australian Pied Oystercatchers within an area of three square kilometres in the spring of 2021 was encouraging news for the local oystercatcher population. This endangered species is reported to consist of fewer than 200 breeding pairs in NSW (NSW Office of Environment and Heritage 2021). Subsequent records of juvenile and sub-adult birds in the Lake Macquarie area suggest that the chicks survived to fledging and then dispersed to nearby locations on the lake and coast. The dispersal of Lake Macquarie juvenile oystercatchers (observed among flocks of up to eight adult birds between February and June 2023) suggests a similar pattern of movement to that observed on the Worimi Conservation Lands, where Australian Pied Oystercatchers congregate in mixed-age flocks along the coastline outside the breeding season (Fraser & Lindsey 2018).

One possible explanation for the spike in breeding events in 2021 is the decreased human activity on the lake resulting from the 2021 lockdowns associated with controlling the COVID-19 pandemic. It is known that the Australian Pied Oystercatcher is particularly vulnerable to human disturbance, the peak of which usually occurs during their breeding season in Spring and Summer (NSW Local Land Services 2021). Breeding attempts on the sandy island near Naru Beach in 2018 had previously been abandoned due to high numbers of people, boats and dogs at the site. The COVID-19 lockdowns, which included restrictions on recreational activities and on inter-LGA travel, resulted in less activity on the lake. For example, there were fewer boat trailers at the Pirrita Island boat ramp at that time (J. Adams pers. comm., 11 November 2021). This may have freed up the mangrove and sand islands for the oystercatchers to complete their breeding cycle relatively undisturbed, while the increase in people walking

and observing nature in their local area may have contributed to the increase in incidental sightings and visits by photographers to previously overlooked locations.

### Managing the increasing threats from disturbance

The ability of oystercatcher pairs to successfully complete a breeding cycle within their established territories on the lake is compromised by human disturbance during the breeding season. The Lake Macquarie Local Government Area (LGA) experienced a population increase of more than 30,000 people between 2006 and 2021 (Australian Bureau of Statistics 2016, 2021), and the population is projected to increase to approximately 250,000 by 2050 (Lake Macquarie City Council 2018). There has been a corresponding increase in recreational pressure on the lake, particularly on the sand banks and islands between Swansea bridge and the “drop-over”. Tourism campaigns have highlighted the white sands of Naru Beach and surrounding sand islands as places to recreate and explore (Lake Macquarie City Council 2022). Potential impacts on local birdlife include the crowding out of beach-nesting endangered shorebirds such as Australian Pied Oystercatcher and Little Tern *Sternula albifrons* and the inability of resident and migratory shorebirds to find undisturbed feeding and roosting habitat. This situation has already been observed by the wader survey team on days of high visitation. It is likely to intensify as recreational pressure grows.

Much is still unknown about the nesting behaviour of oystercatchers at Lake Macquarie and about their movements around the lake or between the lake and nearby coastal beaches. It is possible that some pairs retreat to quieter, more secluded sites to breed and only return to favoured territories in Swansea Channel once they have fledged young. Port Stephens birds are believed to originate largely from natal territories outside the area due to the sparsity of suitable breeding habitat and recorded breeding observations (Stuart 2011; Fraser & Stuart 2018), although breeding was recorded at Winda Woppa in 2017 and Corrie Island in 2018 (Fraser & Stuart 2018). Reports of a further four nesting pairs at Corrie Island in 2019 highlight the importance of isolated shoreline and secluded islands on which the birds can nest relatively undisturbed and in higher densities than beach-nesting oystercatchers (Fraser 2020).

Long-term studies of Australian Pied Oystercatchers in south-east Tasmania charted a decrease in breeding success, despite improvements

in estuary health and oystercatcher prey availability over the same period. The impact of recreational disturbance and sea level rise on traditional nesting sites in the study area resulted in limited availability of suitable breeding habitat, and birds of breeding maturity effectively “queueing for a territory” (Fletcher & Newman 2010). Human recreational activity been implicated in multiple nest failures and in the selection of inferior nesting territories with resultant lower breeding success on the Worimi Conservation Lands (Russell & George 2012). Given the documented impacts of recreational activities on oystercatcher populations, the breeding successes on Lake Macquarie in 2021 may be interpreted as a response to reduced habitat disturbance at a critical time in the breeding cycle, finally providing the birds of breeding age with an opportunity to hatch and fledge chicks.

### CONCLUSIONS

Reports of four separate Australian Pied Oystercatcher breeding events on Lake Macquarie in 2021 and the subsequent sightings of juvenile birds on the lake and nearby coastline are important for two reasons: they are the first local breeding records in which the nesting sites were able to be confirmed, and they followed many previous unsuccessful breeding attempts.

The reduction in recreational activity due to the 2021 COVID-19 lockdowns may have been a factor in the successful 2021 breeding events. The return to pre-pandemic levels of human activity and the projected population increase with a corresponding recreational pressure should be managed, so as to ensure that this threatened species is able to continue living and breeding at Lake Macquarie.

Further study of Australian Pied Oystercatcher breeding preferences and movements around the lake (and beyond) would assist in guiding habitat management to protect this threatened and iconic Lake Macquarie shorebird.

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