## **TEAM OYSTERCATCHER NEWSLETTER No. 5. August, 2021**





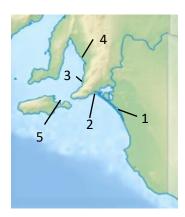


Greetings all! This is the 2021 mid-year report on our voluntary monitoring activities on the Oystercatchers in South Australia. Our work remains focused around the central SA coast, where we're beginning to see some interesting trends in their population numbers. We report here on the trends for the SE Fleurieu, southern Samphire and NE Kangaroo Island areas, and add some new information for the Coorong Lagoon and adjacent Ocean Beach, as well as the western Fleurieu coast, south of Adelaide. Importantly, David Potter and Jean Turner report on their detailed monitoring of nesting success rates for Pied Oystercatchers (POCs) at several sites on Kangaroo Island in 2020/21. This is the first instance that nesting success rates for POCs have been monitored in South Australia. Measuring these rates is vital to our greater understanding on the relative importance of environmental and human-induced factors affecting population numbers of Oystercatchers in this state. Under the National Parks & Wildlife Act (1972), both Pied and Sooty Oystercatchers have been listed as "rare", equating under the ICUN criteria to "near threatened". This definition includes species in decline and / or those that naturally have a limited presence.

Finally, we report on the progress with the Foundation for SA Shorebirds, highlighting the projects that have recently been funded.

#### **Population monitoring around Central SA coasts**

Of the 5 regions reported on (Fig. 1), 2 areas (Coorong and Kangaroo Island) are deemed areas of national importance for Pied Oystercatchers, being > 1 % of their global population size (Taylor et al, 2014).



#### Legend:

- 1: Coorong Lagoon & Ocean Beach
- 2: SE Fleurieu Beaches & Murray Estuary;
- 3: Western Fleurieu;
- 4: Southern Samphire;
- 5. NE Kangaroo Island Bays & Inlets

Fig. 1: Map of the central coast of SA, showing locations where monitoring of Oystercatchers is being undertaken by Team Oystercatcher and Birdlife Australia volunteers.

#### Coorong Lagoon and adjacent Ocean Beach; Region 1

Pied Oystercatchers (POCs) are the much more common of the two species in the Lagoon and on its Ocean Beach. Between 2000 and 2008, summer counts on the ocean beach (100 km, from Tea Tree Crossing to the Murray Mouth) ranged between 525 and 325 (Mean: 420, s.e. 72). During the same period within the lagoon, variable numbers of between 9 – 254 (mean 142, s.e. 81) were recorded (Wainwright & Christie, 2008). From 2015 to 2021, summer monitoring continued within the Lagoon by Birdlife Australia volunteers with slightly higher (mean 161 s.e. 89) counts than during the previous decade. In contrast, this last summer (Jan, 2021), which was the only count along the Ocean Beach since 2008, resulting in a total of 204 POCs counted. This included adults, recently fledged juveniles and several chicks. This count is quite less than numbers recorded a decade before. Therefore, ongoing monitoring of numbers of this species is urgently required to verify this trend. Monitoring levels of human disturbance, including Off-road vehicles (ORVs) is also required. To protect nesting Hooded Plovers, a seasonal closure to ORV's between October and December has been in place along this beach since the 1980's, but, as it appears that the nesting and rearing season for POCs extends for a longer period, a review of this closure is required to include protection of additional resident shorebirds.

## SE Fleurieu Beaches and the Murray Estuary; Region 2

Since July, 2011, monthly counts of POCs and SOCs at 10 sites along the SE Fleurieu coast between Middleton and the Murray Estuary have been undertaken, usually on low tides. The purpose has been to monitor the seasonal changes in distributions of both species on the ocean beach and in the estuary. The ocean beach (Middleton and Goolwa Beaches) provides a good foraging habitat for both species, with highest counts between September and December and March – May, where Pipis (*Plebidonax deltoides*) comprise a major part of their diets. Generally, POCs overwinter in roosting flocks within the estuary on sand spits, while the SOCs gather on the ocean beach immediately adjacent to the mouth. During September to November, numbers of POCs drop significantly in the estuary, some returning to the Goolwa ocean beach; these birds are non-breeding adults as, in contrast to the Coorong Ocean Beach, there is no evidence of nesting at the edges of the Goolwa sand dunes. Breeding birds probably move to nesting areas within the Coorong Lagoon or on the Coorong Ocean Beach, where nesting in both areas has been observed. The timing of the breeding season for SOCs is similar to POCs, but no nesting has been observed either on the ocean beach nor within the estuary. Previous monitoring on islands off SA suggests this is where they nest and rear their young (Dennis & Shaughnessy, 2020; Morgan, 1916).

For most years between 2011/12 and 2020/21, POC densities were an order of magnitude higher in the Murray Estuary compared with the ocean beach, the exception being in 2011/12 (Fig. 2a). On the ocean beach, their abundance has declined, but not significantly. For SOCs, similar densities occurred in both habitats, each with rises over the period, and significantly for the estuary ( $r^2 = 0.3712, 0.05 < P < 0.01$ ) (Fig. 2b).

Counts of human activities, including numbers of dog walkers, ORV's and recreational pipi gatherers are being made. An ongoing fishery independent assessment of the Pipi population along the Goolwa ocean beach has been underway since 2018 by the Nature Trust – Glenelg (Whiterod & Zukowski, pers. com.) and in 2022, a Flinders University honours student will be investigating the

diets of the two Oystercatchers species as well as the effect of human disturbance on their foraging behaviours.

In relation to Pipis and Oystercatchers on Goolwa Beach, you might like to view a youtube video produced by Miriam Yip, made in March, 2021, about the importance of Oystercatchers in the ecology of ocean beaches and the monitoring of Pipi numbers along this beach conducted by Nature Trust – Glenelg (https://vimeo.com/56154296).

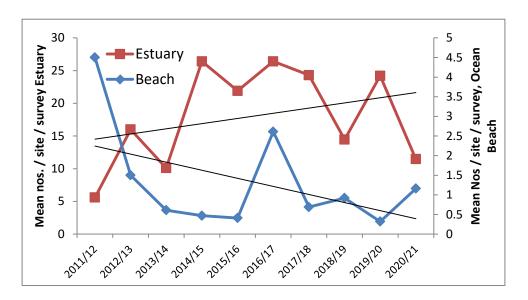


Fig. 2 a: Mean densities (numbers per site / survey) and trend lines of Pied Oystercatchers on SE Fleurieu Coast (Ocean Beach and Murray Estuary), 2011/12 – 2020/21). Note: different scales for the two habitats.

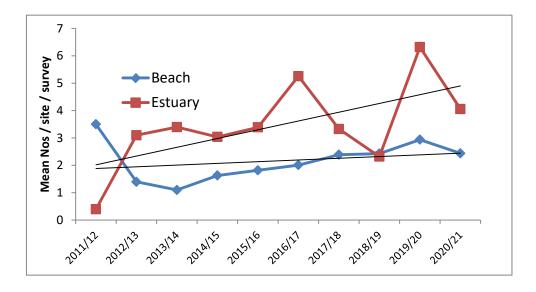


Fig. 2 b: Mean densities (numbers per site / survey) and trend lines of Sooty Oystercatchers on SE Fleurieu Coast (Ocean Beach and Murray Estuary), 2011/12 – 2020/21).





Fig. 3: Pied and Sooty Oystercatchers on Goolwa Beach, 2016 (Photo: Keith Jones)

### Western Fleurieu region (Snapper Point to Marino Rocks, SE Gulf St. Vincent); Region 3

The coast of this region comprises extensive rock platforms, interspersed with medium energy beaches and several small estuaries. Coastal housing development (Adelaide southern suburbia) is now well established. The shorebirds of the long-term established Aldinga Reef Aquatic Reserve, (commonly known as Snapper Point), were monitored during the 1970's - 90's (Ashton & Black, 1997). In those years, SOCs patchily occurred in small numbers on this reef, with maximum counts of up to 3 birds observed at any one time, i.e. in May, 1973). POCs were only observed very rarely (single birds in 1976, '78 and '80). In conjunction with an intensive monitoring and banding program on nesting Hooded Plovers by Birdlife Australia around the Fleurieu Coast, volunteers have recently included OYCs in their observations. During 2020/21, monthly counts of adult and juvenile OYCs have been recorded. SOCs have been reported at a number of rocky headlands, including Snapper Point, Ochre Point, Field River Estuary (rocks) and Marino Rocks, with maximum counts of 11 birds occurring in April, May, 2021 at Snapper Point (Fig. 4). In similarity with many other sites on mainland SA, SOC numbers dropped in September & October, 2020, possibly due to their movement to offshore islands to breed. Interestingly, juvenile SOCs together with adults were observed at Snapper Point, later in March and April, 2021. It is hoped that monitoring will continue at the sites. In late January, 2021, a single juvenile POC was observed at Snapper Point; however, it is not known where this bird had been reared.

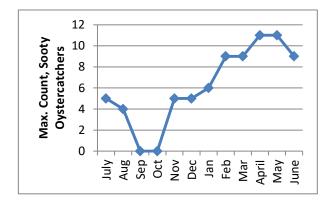




Fig. 4a: Maximum counts of Sooty Oystercatchers on western Fleurieu Coast, July'2020 – June'2021. Fig. 4b: Sooty Oystercatcher foraging at low tide on Aldinga Reef at Snapper Point, May, 2021.

### Southern Samphire Coast (Adelaide metro, Port River and St. Kilda Beach); Region 4

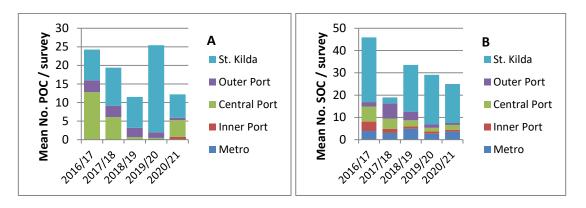
This region ranges from the Adelaide Metropolitan coast (Patawalonga Breakwater – North Haven marina)(3 sites), the entire Port River and Outer Harbour (9 sites)to the St. Kilda beach and channel (2 sites). Both species of OYCs inhabit the sheltered estuarine tidal sites of the Port River and St. Kilda. The habitats of these latter sites consist of exposed sandy to muddy substrate, often backed by stands of grey mangroves (*Avicennia marina*), the wharves of the inner Port River, the rock-edged boating channel of St. Kilda and seagrass meadows at St. Kilda beach. Although some counts of OYCs were made from 2014 - 2015, regular monthly monitoring has only been done since July 2016.

Sooty Oystercatchers are the most common Oystercatcher species seen along the medium energy Adelaide metro coast, where, at high tide, they roost on breakwaters at the Patawalonga, West Beach Boat Ramp and south Semaphore. At low tide, they forage in the sand close to the Semaphore breakwater (Fig. 5), or amongst mud substrate inside the North Haven marina. From time to time, they've been observed flying in flocks of up to 15 along this part of the coast (Potter & Turner, pers.com.). Small numbers of Pied Oystercatchers occasionally have been seen foraging at South Semaphore or North Haven.



Fig. 5: A foraging group of Sooty Oystercatchers at Semaphore, July, 2021. Photo: Mary James.

The respective densities of Pied and Sooty Oystercatchers show much inter-annual and inter-site variation throughout the Southern Samphire region (Figs. 6a & b). With the exception of 2019/20, Pied Oystercatcher densities dropped, mostly due to the decline in numbers in the central and outer Port River regions. Densities at St. Kilda have been quite variable, and very small numbers are observed along the Adelaide metro coast. In contrast, densities of Sooty Oystercatchers along the Adelaide metro coast have remained stable. However, in others parts of the southern Samphire, densities of SOCs have dropped.



Figs. 6a & b: Cumulative densities (Mean nos. / survey) of a) Pied Oystercatchers and b) Sooty Oystercatchers at sites within the southern Samphire coast, S.A.

### NE Kangaroo Island bays and inlets; Region 5.

A number of avid Team Oystercatcher volunteers on KI have regularly monitored OYC numbers since 2015/16. Three areas, Island Beach, the Bay of Shoals and Nepean Bay Conservation Park are discussed here. Island Beach is an area where Pied Oystercatchers occupy territorial nesting areas in the supra-tidal beach and fore-dunes. Also, foraging and roosting groups up to 70 birds are found. Sooty Oystercatchers also forage on low tides near the entrance to Pelican Lagoon. The Bay of Shoals sites include roosting and foraging areas at Reeves Point & Cape Rouge, with POC nesting occurring amongst the samphire, fore-dunes around the bay as well as the grasslands adjacent to Cape Rouge (Potter & Turner, pers. obs.). SOCs are often seen roosting at the Bay of Shoals Boat Ramp Breakwater as well as the spit at Cape Rouge. Nepean Bay is an area where Pied Oystercatchers form breeding territories, but no roosting sites have been reported. Since 2015/16, the trends in densities of both species differ between areas (Table 1).

Area	Pied C	ystercatcher	Sooty Oystercatcher		
	Mean Densities (+/- s.e.)	Trends	Mean Densities (+/- s.e.)	Trends	
Island Beach	57.9 +/- 3.6	Stable, n.s. trend	7.2 +/- 0.9	Significant rise, **	
Bay of Shoals	99.4 +/- 21.4	Significant rise, *	39.2 +/- 7.8	Stable, ns trend	
Nepean Bay CP	7.8 +/- 2.3	Slight decline, n.s.	Not observed		

Table 1: Mean Densities (Mean annual nos.) and statistical trends of Pied and Sooty Oystercatchers at three areas in NE Bays of Kangaroo Island, 2015/16 – 2020/21.

Levels of human disturbance and impact of natural predators are also being monitored, and volunteers report increasing levels of human activities (Dog walkers and ORVs) at all sites. Natural predators, such as Rosenberg's Goannas, especially at the Nepean Bay area, have been observed preying on the eggs of the Pied Oystercatchers (Hastwell, pers. obs.). Exceptionally high tides at nesting time also adversely affect POC nesting behaviour, as has been observed with birds moving their nests and shifting their eggs closer to fore-dunes (Haswell & Potter, pers. observations).

David Potter and Jean Turner now report on their comprehensive monitoring work on the nesting success rates of Pied Oystercatchers on Kangaroo Island.

# Our Perspective on the 2020/2021 Pied Oystercatcher Breeding Season on Kangaroo Island - Dave Potter and Jean Turner

While we have been observing and recording Pied Oystercatchers (and Sooty Oystercatchers) on Kangaroo Island (KI) since 2006, we only began serious monitoring of Pied Oystercatcher breeding pairs when we shifted here nearly 4 years ago. As registered BirdLife Australia volunteers our monitoring and data recording is done under BirdLife Australia's Beach-nesting Birds program, following their animal ethics protocols and research permit conditions.

Our main study area is Island Beach which has 13 distinct breeding territories/ nesting sites. We also do regular monitoring at Christmas Cove Penneshaw (1 territory), American Beach (1 territory), Baudin Beach (1 territory), Browns Beach (3 territories), Strawbridge Point Beach (2 territories),

American River (4 territories), Cygnet River Estuary (2 territories), Kingscote Bay of Shoals (3 territories) and Cape Rouge Beach (5 territories).

Other BirdLife volunteers also monitor Pied Oystercatchers on KI. Les Montanjees regularly monitors Christmas Cove and Baudin Beach, Jane Renwick checks American River sites, Peter Hastwell regularly monitors at Min Oil Beach Nepean Bay (not covered by us) and Katherine Lewis checks several locations including American River, Min Oil Beach and American Beach. This perspective of the 2020/21 breeding season is based only on sites that we (Dave and Jean) monitor. We regularly monitored 35 nesting sites during the breeding season, although the sites at Cygnet River and Cape Rouge were not monitored as intensively as the others. Additional nests were recorded during incidental visits to Antechamber Bay (1 nest) and D'Estrees Bay (1 nest).

### 2020-21 Breeding Season observations

A total of 73 eggs were observed this season across the 37 sites we monitored, while only 22 fledglings were recorded giving an overall breeding success rate of 30.1%.

A few pairs which have bred in previous seasons had no breeding attempts in 2020/21. Some pairs bred but failed in their first attempt and tried again once or twice with varying success, while others that failed the first time did not breed again.

Cape Rouge Beach was not monitored as frequently as other sites so a complete picture was not captured there.







Figs. 7 a & b: Pictures of some types of habitats where Pied Oystercatchers nest on Dudley Peninsula, Kangaroo Island.

Fig. 7 c: Distractive behaviour by Pied Oystercatchers at Island Beach, Kangaroo Island.

**Photos: Jean Turner** 

Following is a summary of Pied Oystercatcher breeding at all the Kangaroo Island nest sites we monitored in 2020/21.

Site	No. Clutches Observed	Total eggs Laid	Total Chicks Hatched	No. Fledglings
Cape Rouge Beach				
Site 1	1	2	0	0
Site 2	1	2	2	2
Site 3	1	2	unknown	unknown
Site 4	1	2	unknown	unknown
Site 5	1	2	2	2
Christmas Cove	1	2	2	2
American Beach	1	2	0	0
Baudin Beach	0	0	0	0
Browns Beach				
Site 1	0	0	0	0
Site2	1	2	2	1
Site 3	1	2	2	0
Island Beach				
Site 1	1	1	1	1
Site 2	1	2	0	0
Site3	1	2	2	2
Site 4	1	2	1	1
Site 5	1	2	2	1
Site 6	1	1	0	0
Site 7	0	0	0	0
Site 8	2	4	1	1
Site9	2	4	0	0
Site 10	2	4	1	0
Site 11	3	4	0	0
Site 12	1	2	0	0
Site 13	0	0	0	0
Strawbridge Point Beach				
Site 1	2	3	2	2
Site 2	1	2	0	0
American River				
Site 1	0	0	0	0
Site 2	0	0	0	0
Site 3	2	4	2	2
Site 4	2	4	2	0
Kingscote				
Site 1	1	2	2	2
Site2	1	2	2	2

Site 3	1	3	1	1
Cygnet River Estuary				
Site 1	1	2	0	0
Site2	1	1	0	0
D'Estrees Bay	1	3	unknown	0
Antechamber Bay	1	1	unknown	0

We revisited Antechamber Bay to check on progress but there was no sign of the nest or any chicks. Similarly, when we revisited D'Estrees Bay to check the nest there, storm surges had removed the nest site (seagrass wrack) and there was no sign of chicks.

In previous seasons we had found nests in 2 separate territories at Antechamber Bay; and D'Estrees Bay has had at least 3 breeding sites that we know of. Ongoing human disturbance may have impacted one of the Antechamber Bay breeding sites, while it is possible that more frequent storm-related tidal surges this season at D'Estrees Bay affected breeding at the other 2 previously recorded sites. In previous years we have also observed Pied Oystercatcher nesting at Vivonne Bay and Hanson Bay but none were seen during incidental visits there this breeding season.

#### Island Beach in detail

Our main study area of Island Beach has 13 distinct breeding territories spread along 5km of mostly north-facing beach backed by low dunes. The only rock platform is at the eastern end of the beach. The beach profile progressively flattens out towards the western end, with extensive sand bars exposed at low tide. A detailed summary of the breeding attempts at Island Beach follows.

Pair		1 <sup>st</sup> clutch	1	2 <sup>nd</sup> Clutch		3 <sup>rd</sup> Clutch			Total Eggs Laid	
	Eggs laid	Hatched	Fledged	Eggs laid	Hatched	Fledged	Eggs laid	Hatched	Fledged	
1	1	1	1							1
2	2	0	0							2
3	2	2	2							2
4	2	1	1							2
5	2	2	1							2
6	1	0	0							0
7	0	0	0							1
8	2	0	0	2	1	1				4
9	2	0	0	2	0	0				4
10	1	0	0	2	1	0				3
11	2	0	0	2	0	0	1	0	0	5
12	2	0	0							2
13	0	0	0							0
Total	19	6	5	8	2	1	1	0	0	28
Average	1.73			2			1			

A total of 28 eggs were laid at Island Beach this season, resulting in only 6 fledglings – a success rate of 21.4%. This is about half the success rate seen in the previous year, when fewer eggs laid resulted

in 15 fledglings- more than double the number! Multiple breeding attempts were more common this year than previously.

While two nest failures this year may be put down to human disturbance, and two pairs each lost one of their chicks to disturbance during October holidays, most nest losses were associated with storm surges. For the second breeding season in a row, the pair at Site 6 incubated its first and only clutch for 11 weeks! No result of course. Human disturbance at critical times during incubation may be a factor, or perhaps this pair is infertile.

We think that the breeding pairs at Island Beach generally hold their territories from one season to the next – unless death, divorce or a coup occurs. However, without banded and flagged birds it is impossible to be sure. Most Pied Oystercatchers on KI are not banded, but one bird at Island Beach is, providing evidence of both long life and long-term fidelity to a breeding site. This bird was banded as a chick by Terry Dennis at Emu Bay in 1987. We first noticed this banded bird at Island Beach in 2006 and have seen it here every year since, in exactly the same breeding territory. It took until 2020 to get enough clear photos of different parts of the leg band to sequence the band number, identify the individual and find out its provenance. The banded bird, now more than 33 years old has hung onto the same territory (Site 1) for at least 15 years. In 2020/21 "Silverband" and its partner successfully bred, fledging 1 chick. That's pretty good going!

Apart from locations where breeding completely failed, Island Beach - with the largest number of breeding territories - had the lowest percentage of fledged chicks relative to eggs laid in 2020/21.

#### **General locations compared**

Following is an overall summary of breeding effort for the general locations monitored.

Location	Total Eggs Laid	No. Chicks	No. Fledglings	%Fledged/ Eggs Laid at Location
Cape Rouge Beach	10	4	4	40
Christmas Cove	2	2	2	100
American Beach	2	0	0	0
Baudin Beach	0	0	0	0
Brown Beach	4	4	1	25
Island Beach	28	8	6	21
Strawbridge Point Beach	5	2	2	40
American River	8	4	2	25
Kingscote	7	5	5	71
Cygnet River Estuary	3	0	0	0
D'Estrees Bay	3	0	0	0
Antechamber Bay	1	0	0	0
Total	73	29	22	
Overall % Chicks and Fledglings / Total Eggs laid		39%	30%	

Of the chicks that successfully hatched 75% survived to fledging.

Stand-out successes this season were Kingscote (Bay of Shoals) where 5 chicks fledged at sites usually affected by high human visitation; and Cape Rouge Beach, where a new paddock boundary fencing (funded by the Letcombe Foundation and BirdLife Australia) kept sheep off the beach, enabling successful breeding by at least 2 of the 5 pairs. This is the first season we have observed Pied Oystercatcher nests, chicks and fledglings at Cape Rouge Beach or chicks and fledglings at the Kingscote Bay of Shoals sites.

Interestingly, 1 pair at Cygnet River Estuary and 1 pair at Strawbridge Point Beach laid their second egg in a separate nest less than 3 metres away from the first nest. Parent birds were seen incubating on one or the other of their 2 nests at different times. Unfortunately all eggs at both sites were washed away soon after by exceptionally high tides.

#### **Nest substrate choices**

The variety of nest substrates used by Pied Oystercatchers shows their flexibility in site selection (see Figs. 7 a & b). Nest substrates used in the 2020/21 breeding season are summarised below.

Substrate	Number
Beach	17
Dune	5
Foredune	2
Wrack	7
Chernier	1
Rocks	2
Paddock	1
Building Site	1
No Attempt	8

As expected, most pairs nested on beach sand. Dune areas (of varying elevations) above the foredune were used by some of the "craftier" sandnesters.

Dry seagrass wrack was another popular substrate where present, but proved to be risky option on some low profile beaches facing storm surges.

Two pairs in different locations nested on rocky substrates; their nests were very well hidden and took a while to discover.

Unexpected nest site choices included in a grassy paddock 55m in from the beach, and a building site 180m from the beach. The paddock site may have been a clever response to beach erosion in past years. Unfortunately sheep were returned to the paddock around hatching time and seem to have trampled both a recently hatched chick and its nearly-hatched sibling (bodies and shell remains found). The building site nest was a second breeding attempt by a pair whose first nest on seagrass wrack was washed away. No work had occurred on-site for about 12 months but ironically building recommenced on the day of hatching, resulting in chick failure.

Nil breeding attempts at 8 of the regular breeding sites seem to suggest that the pairs were able to make an assessment of the situation and determine that their territory was unsuitable for breeding this season.

#### **Concluding remarks**

Kangaroo Island is recognised internationally as a key biodiversity area for birds, based on the numbers of certain "trigger" species, one of which is the Pied Oystercatcher. Considering the number of breeding locations and territories, at both monitored and unmonitored sites across the island, it also seems to be an important refuge for Pied Oystercatcher breeding.

2020/21 was an interesting and exciting breeding season across the sites we monitored. Overall breeding success was a bit lower and results were certainly disappointing at some sites, including

our main study area of Island Beach. High tide storm surges and increased disturbance from unusually high numbers of visitors and off-leash dogs in the early months of the breeding season took a toll on nests and chick hatching. However, once hatched, the chicks had what seems a good survival rate of 75%. Breeding successes at Cape Rouge Beach and Kingscote area of Bay of Shoals were really encouraging; and we were impressed by the steadfast endurance of some pairs against the odds.

Every year we learn something new from monitoring the Pied Oystercatchers. This year it was about the flexibility of nest site selection in response to local pressures; and the age of one of our successful breeding birds. Maybe in the world of Pied Oystercatchers experience does win out over youthful vigour?

#### **Foundation for SA Shorebirds**

Late in 2020, the Foundation for SA Shorebirds was launched to financially support researchers, citizen scientists, community groups, artists and coastal managers through small grants. Up to June, 2021, grants have been awarded to 2 honours students at Adelaide and Flinders Universities, respectively, to undertake projects about the foraging behaviour of Red-capped Plovers in the Coorong Lagoon and Oystercatchers on the Goolwa Beach. The results of these projects will be reported on the Foundation's website (<a href="www.sashorebirds.org">www.sashorebirds.org</a>). Interest in the Foundation is slowly growing with recent expressions of interest on a range of topics for funding in 2021/22.

## Acknowledgments

The Team Oystercatcher and Birdlife Australia volunteers have been the mainstay of this program. These include David Potter, Jean Turner, Peter Hastwell, Barry Simes, John Cobb, Sue and Ashleigh Read. Many discussions with other shorebird enthusiasts, including John Gitsham, Angus Droogan-Turniski, Mary-Ann Van Trigt, Keith Evans, Emma Stephens, Aleisa Lamanna, Maureen Christie, Jenny Hiscock, Jeff and Sarah Campbell have also provided great support.

#### References

Ashton, C., Black, A.B. (1997) Birds of the Aldinga Reef and adjacent beach of Aldinga Bay. SA Ornithologist 32 (8), 128 - 131.

Dennis T.E., Shaughnessy, P.D. (2020) Seabird Islands Series, No. 269: The Pages Islands in the Backstairs Passage, South Australia. Corella 44, 77 – 80.

Morgan, A.M. (1916) An ornithological trip in St. Vincent and Spencer Gulfs. SA Ornithologist 2 (6), 141 – 151.

Taylor, I.R., Newman, M., Park, P, Hansen, B., Minton, C.T.D., Harrison, A. & Jessop, R. (2014) Conservation Status of Australian Pied Oystercatcher *Haematopus longirostris*. International Wader Studies, 20, 116 – 128.

Wainwright, P., Christie, M. (2008) Wader surveys at the Coorong and SE coastal lakes, South Australia, February, 2008. Stilt, 54, 31 - 47.