

TEAM OYSTERCATCHER NEWSLETTER, No. 2. August, 2019.



This newsletter summarises the activities of Team Oystercatcher volunteers for 2018/19 in the three South Australian regions (SE Fleurieu, Samphire and NE Kangaroo Island) and compares the results with previous years of Oystercatcher (OYC) monitoring since 2011/12.

1. SE Fleurieu - abundances, foraging ecology, sightings of flagged birds, natural and feral predators and human activities (p. 1 – 6);
2. Samphire Coast - abundances, breeding, natural and feral predators and human activities (p. 6 – 11);
3. NE Kangaroo Island - abundances, breeding, natural and feral predators and human activities (p. 11 – 15);
4. Long-term birddata for SA (p. 15 – 16);
5. Future Research (p. 16);
6. Publications about Oystercatchers in South Australia (p. 17 – 19); and
7. Acknowledgments (p. 19).

Region 1. SE Fleurieu coast

Monthly monitoring of numbers of Pied (POC) and Sooty (SOC) Oystercatchers at all 10 sites in the SE Fleurieu continued through 2018/19 (Figure 1); this now represents 8 consecutive years of data (July 2011 – June, 2019). Environmental data, including weather conditions, extent of beach wrack, foraging behaviors of OYCs, natural and feral predators and human activities (people, dogs and ORV's) were also monitored.

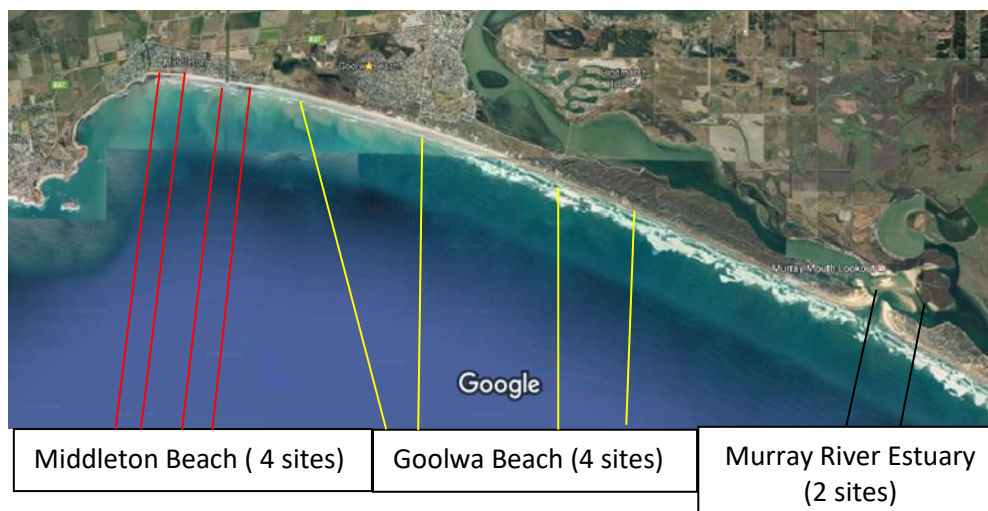
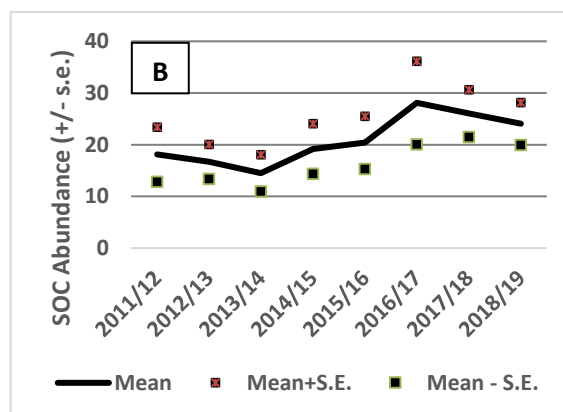
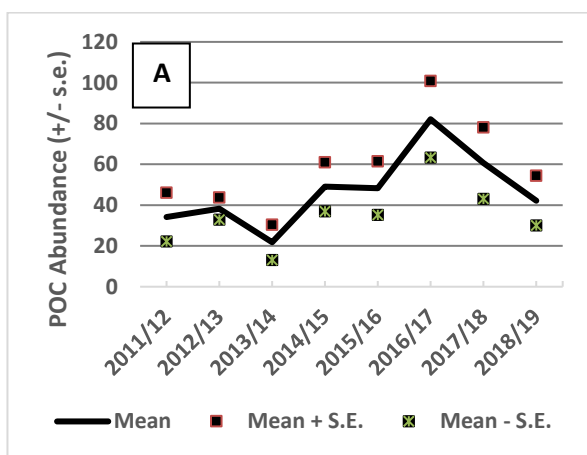


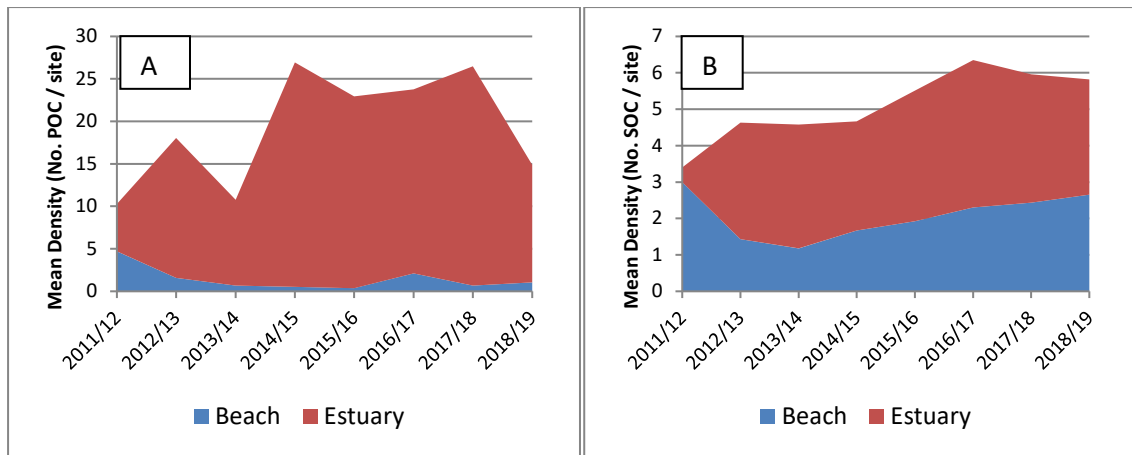
Fig. 1: Location of monitoring sites in SE Fleurieu region, 2011/12 – 2018/19.

This last year's abundances of POCs were the fourth lowest since 2011/12 and SOC numbers also slightly decreased from the high of 2016/17 (Figs. 2a & b). Interestingly, fluctuations in numbers of both species have shown a statistically significant positive correlation over the past 8 years ($r = 0.888$; $0.01 > p > 0.001$). Lowest numbers were seen in 2013/14. This suggests a commonality in the cause for the annual variations in both species; however, the cause is unknown. Future research on examining the relationship between numbers of Oystercatchers and the productivity of Goolwa Pipis along the ocean beaches, as this may shed some light on the reasons for the fluctuations. Overall, abundances of POCs were consistently higher than those for SOC's. Similarly, larger amplitudes in abundance variation were observed for POCs (20 in 2013/14 – 80 in 2016/17), compared with those for SOC's (15 - 28).



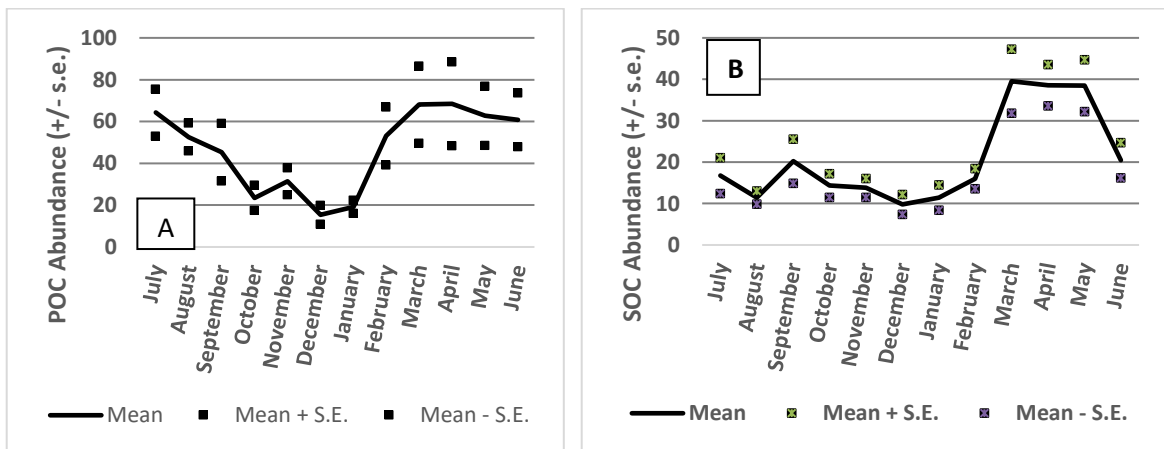
Figs. 2 a & b. Fluctuations in annual mean abundance (+/- s.e.) of a) Pied and b) Sooty Oystercatchers along the SE Fleurieu Coast, 2011/12 to 2018/19.

In all years, POC mean densities were higher than for SOC's, with highest numbers of POCs mostly within the Murray Estuary. In contrast, similar SOC densities occurred in both the ocean beach and estuary sites (Figs. 3 a & b). Since 2011/12, numbers of POCs along the ocean beaches have decreased, especially at the Middleton and western Goolwa Beach sites (unpublished data).



Figs. 3 a & b: Cumulative mean densities of a) POCs and b) SOC's at the Ocean Beach and Estuary sites, 2011/12 – 2018/19.

Both species showed similar seasonal fluctuations in counts, with highest numbers seen between March – May and lowest between December – January (Figs. 4 a, b). Relatively high counts of POCs in autumn resulted from the roosting flocks observed in the Murray estuary. For SOC's, high numbers of birds were observed not only immediately inside the mouth of the River Murray but on the ocean beaches. For both species, the drops in mean counts during spring and early summer are believed to be due to birds moving elsewhere to breed and rear their young.



Figs. 4a & b: Seasonal variation in mean abundances (+/- s.e.) of a) POCs and b) SOC's between 2011/12 – 2018/19 for the SE Fleurieu region.

Foraging ecology of Oystercatchers Observations continued this last year along the ocean beaches, with Goolwa Pipsis being the main diet for both species throughout the year, especially along the eastern portion of Goolwa Beach (Barrage and Beacon 19 beach sites). When live Pipi (*Donax deltoides*) or *Mactra* cockles were washed up, both POCs and SOC's were observed foraging for them in the higher tidal zones of the beach (November, 2015, December, 2017 & '18, resp.). Along the Middleton Beach coast, when beach wrack (washed up sea grass and kelp) occurred between March and June, 2019, SOC's and other shore birds (Hooded Plovers and Silver Gulls), were observed foraging for the maggots of

kelp flies. Also, during summer months at Middleton Point, SOC's foraged amongst the rocks for small mussels.

Sightings of flagged POCs This year, we sighted one POC (black flag, C8) in the Murray Estuary in August, 2018, and again on the eastern Goolwa Beach in May, 2019. This bird has now been observed a total of 7 times in our study area since 2015. It is estimated to be at least 8 years old, being banded at Danger Point, SE SA by the Friends of SE Shorebirds Group in December, 2012 as a one yr old bird. Whilst in the SE Fleurieu region, it's been sighted 5 times along the Middleton – Goolwa Beaches, and twice within the Murray Estuary, thus confirming movements of birds between the two habitats.

Natural and Feral Predators On 6 occasions, raptors (Whistling Kites and Swamp Harriers) were observed harassing the roosting flock of POCs in the Murray Estuary, but with no evidence of actual predation. Pacific and Silver Gulls are known kleptoparasites (i.e. stealing of food from foraging Oystercatchers), and both gulls were commonly found along the ocean beaches of the study area. Highest numbers (up to 40 mammals per survey) of Long-nosed Fur Seals were observed during winter & spring months (June – September) within the Murray Estuary. Although foxes (both live and their tracks) were observed in previous years, they were not observed this past year.

Human Activities Human activities along the ocean beaches (Middleton – Goolwa) included swimmers, beach walkers, dog walkers, horse exercisers, surfers, Pipi gatherers and ORV users and was highly seasonal, with peaks occurring during summer and Easter (March) holiday periods (Fig. 5). Although troughs in the numbers of POCs and SOC's on the ocean beaches generally coincided with these peaks (Figs. 6 a & b), the negative correlations with human activities were not statistically significant for either OYC (POC, $r = -0.1627$; SOC, $r = -0.0071$). On these beaches, POC numbers mainly peaked during spring months, whereas highest numbers of SOC's were in autumn months.

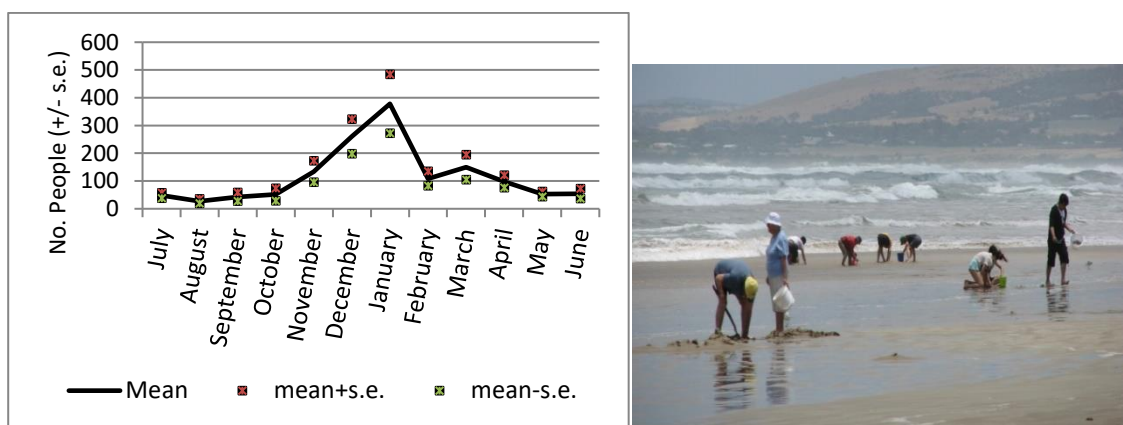
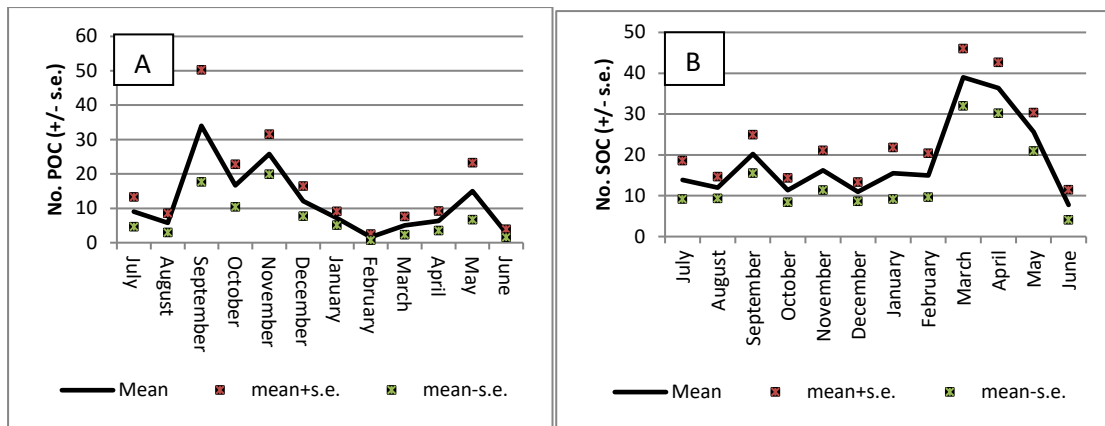


Fig. 5: Seasonal variation in mean numbers (+/-s.e.) of people / day using the Ocean Beaches on the SE Fleurieu Coast, 2011/12 – 2018/19, and Goolwa Pipi gatherers at Goolwa Beach, January, 2014.



Figs. 6 a & b: Seasonal variation in mean numbers (+/- s.e.) of a) POCs and b) SOCs on Ocean Beaches, 2011/12 – 2018/19.

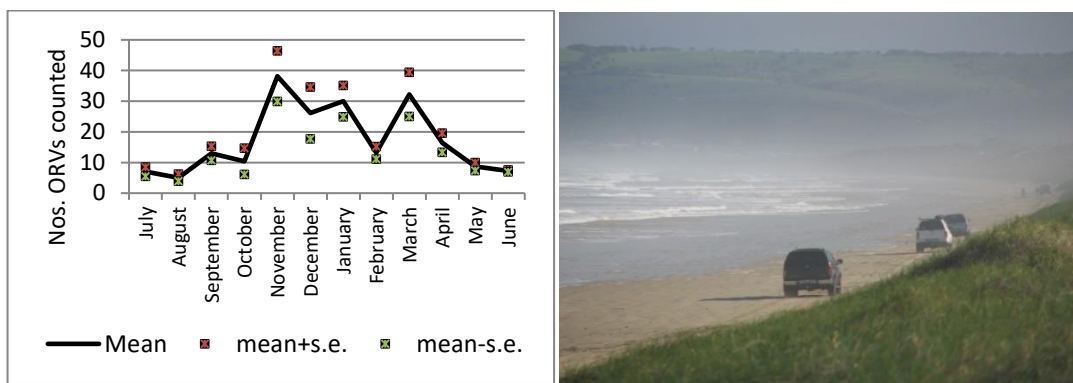


Fig. 7. Mean number (+/- s.e.) of ORV's counted along eastern Goolwa Beach, 2012/13 – 2018/19. Counts were undertaken on 2 randomly chosen surveys per month at two sites on the Goolwa Beach and at the Murray Mouth, where ORV's are permitted to drive. (Note, no data collected for 2011/12). Picture shows ORVs driving along eastern Goolwa Beach close to the sand dunes.

Beach usage by Off-Road Vehicles (ORV's) was highly seasonal with peaks in November (at the beginning of the recreational Goolwa Pipi gathering season) and in March (usually Easter holiday) (Fig. 7). The drop in numbers in February probably coincided with the start of the school year.

Within the Murray Estuary, human activities included dredging inside the mouth since 2015, shore and boat based line fishing, camping on Sir Richard Peninsula, pleasure boating (kayaking, sailing and motor boats), kite surfing, dog walkers and tourist boat cruising. Access to the estuary inside Sir Richard Peninsula was usually by ORVs along the eastern Goolwa Beach.

Oystercatcher breeding and presence of juveniles Neither breeding nor nesting activities of either species were observed along the ocean beaches in 2018/19, similar to our observations in all previous monitored years. Within the Murray estuary, mating by POCs was observed in August/September at Bird Island. Although there was little evidence of paired birds forming territories along the ocean beaches, small numbers of paired POCs were consistently seen inside the estuary, both inside the Youngusband Peninsula as well as on the sand spit adjacent to Bird Island, with birds maintaining their territories throughout the year.

Juveniles of both species, characterized by their black bill tips, and generally browner dorsal plumage than adults, were rarely seen throughout the region in 2018/19. In July 2018, one juvenile POC was seen amongst the roosting flock in the Murray Estuary, and in the same month, two juvenile SOC's were observed on the eastern Goolwa Beach (Barrage Beach site). These low numbers were also observed in 2017/18 (2 POCs, 7 SOC's) also occurring only along the ocean beaches.

To the west of our survey region at Yilki (Encounter Bay), in December, 2018, an adult SOC was observed feeding its dependent, almost fledged juvenile in the upper tidal area amongst beach wrack.

Summary of observations for the SE Fleurieu region.

1. Annual fluctuations in abundances of both species were significantly positively correlated, with peaks in abundances in 2016/17 and troughs in 2013/14, suggesting a common but unknown cause for these fluctuations. Numbers of POCs in 2018/19 were the fourth lowest since 2011/12. Generally, abundances of POCs were higher within the estuary, whereas, for SOC's, highest numbers were observed along the ocean beaches. Since 2011/12, very few POCs have been observed at the western sites of the Ocean Beach (Middleton – western Goolwa Beach).
2. Highest numbers of POCs occurred in autumn, due to the relatively high numbers of roosting birds within the Murray Estuary. With autumn counts in some years of close to 130 birds, the SE Fleurieu should be recognised as an area of international importance for this species (see # 4 for details). From observations of flagged POCs, this species is known to move between the estuary and ocean beaches. Highest numbers of POCs on ocean beaches were observed during spring, whereas for SOC's in the same area, peaks in their numbers occurred during autumn.
3. Goolwa Pipis were the most common food item for foraging POCs and SOC's on the ocean beaches. SOC's were also observed foraging for kelp fly maggots amongst washed up beach wrack at Middleton Beach during late summer - autumn months.
4. No mating nor nesting of either species was observed along the ocean beaches in 2018/19. The numbers of juveniles seen were also very low.

Region 2. Sapphire Coast (N.E. Gulf St. Vincent)

This region extends from the inner Port River and south Semaphore beach in the south to as far north as Bald Hill on the NE edge of Gulf St. Vincent. Much of Adelaide International Bird Sanctuary now covers this region. 2018/19 was the third year of regular monitoring. Monthly counts were made in the southern part (Inner Port, Central Port and Outer Port River sites; Fig. 8). (For ease of interpretation, Semaphore South and St. Kilda sites have been included in the Outer Port River sub-region).

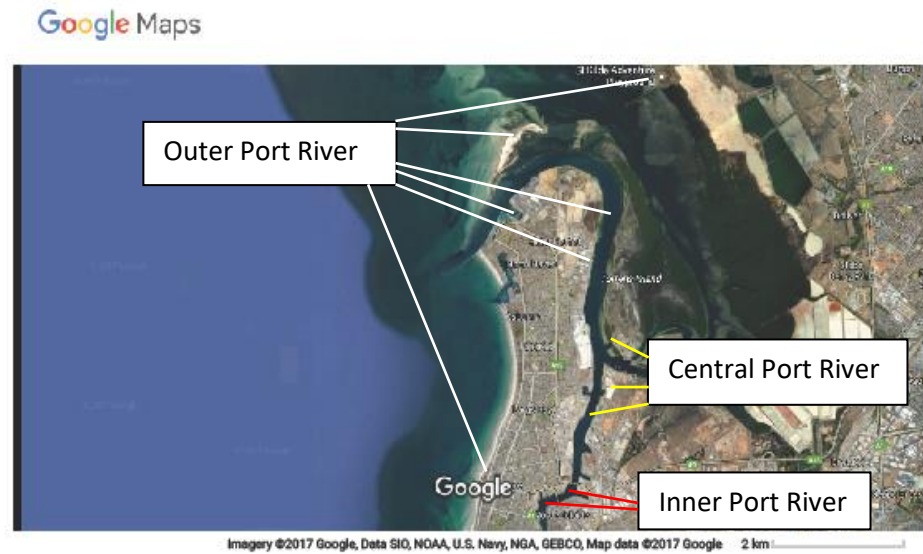
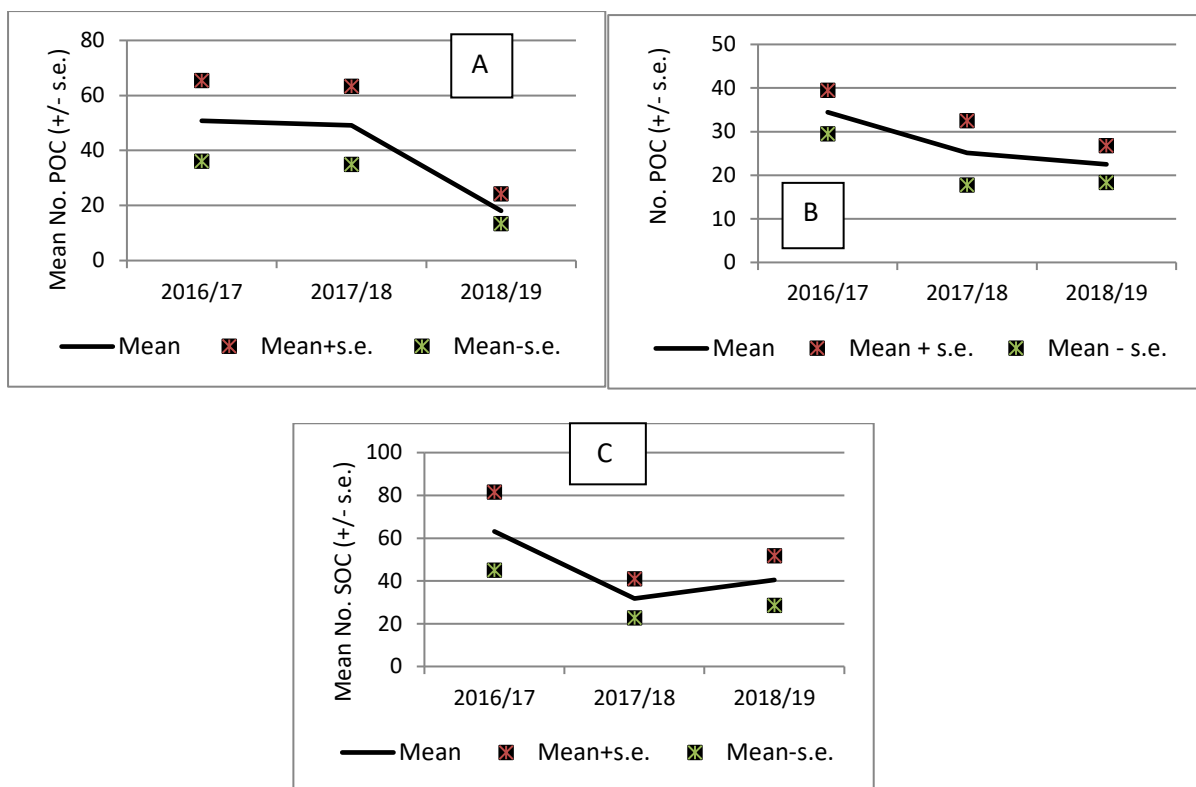


Fig. 8: Locations of monitoring sites in the southern Samphire region (2016/17 – 2018/19).

Along the northern Samphire coast, counts were carried out largely by volunteers from Shorebirds 2020 and Friends of the Adelaide Bird Sanctuary (FAIBS) participants at Bald Hill, Parham, Webb and Thompson's Beaches, Port Prime, Light River Delta, Middle Beach and Port Gawler.

The makeup of the OYC species composition differed between the two parts of the Samphire coast, with SOCs almost exclusively reported within the southern part, and POC's were reported from both parts in similar numbers. Highest counts of both species occurred in 2016/17, declining there-after, and significantly for POC's in 2018/19 in the southern part of the Samphire coast (Figs. 9a, b & c).

The significant decline in numbers of POCs in the southern area of the Samphire coast was due to their virtual absence at the 4 central Port River sites. Until the end of February, 2018, this area, and especially the Gilman site, supported up to 129 foraging and roosting birds in any one month (unpublished data). However, thereafter, other sites within the southern region did not support increasing numbers, suggesting that some birds may have moved to northern Samphire sites or even further away. The reason for the shift in distribution of POCs is unknown. Coinciding with this drop in in POC numbers was the outbreak of the POMs virus in feral Pacific Oysters in the Port River in February, 2018; however, this coincidental timing with the disappearance of the POCs at Gillman remains conjectural.

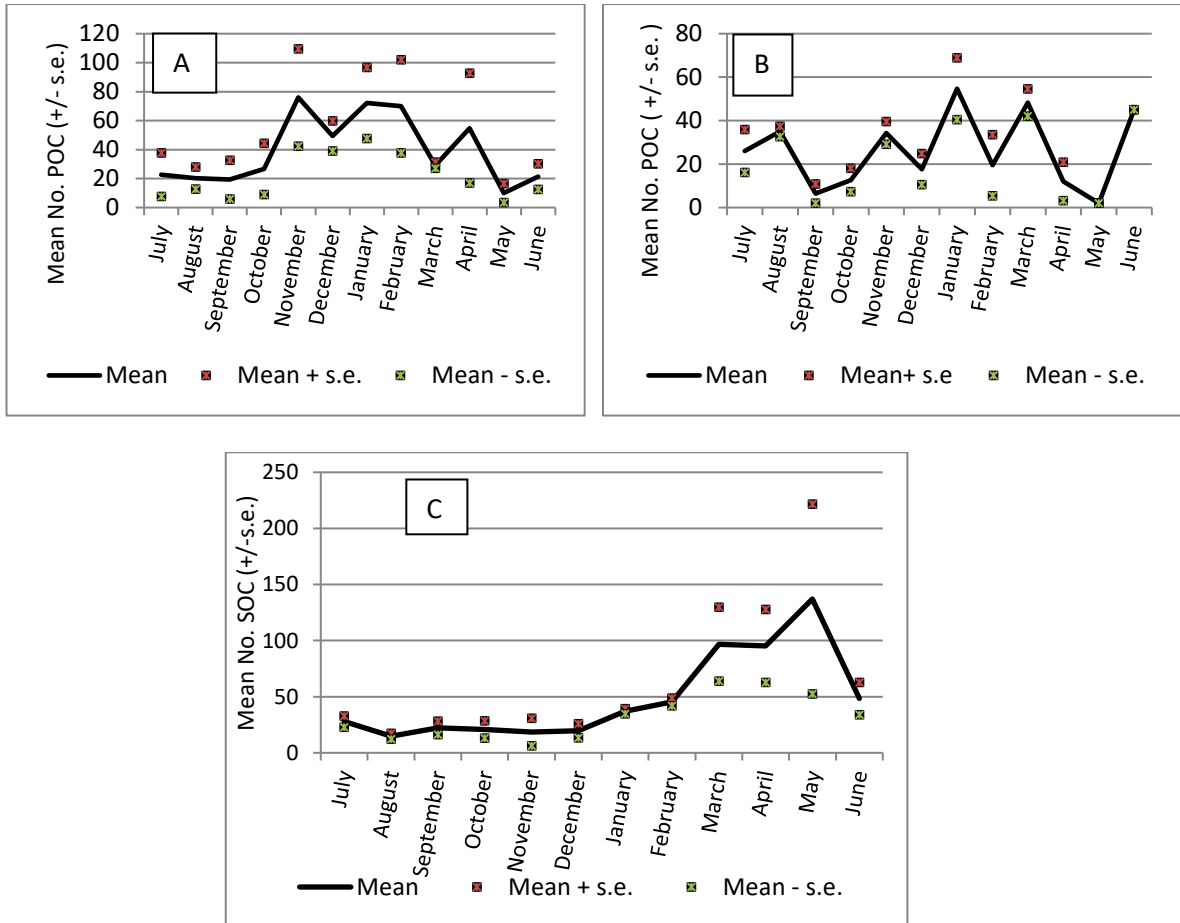


Figs. 9 a, b & c: Mean Counts of a) POCs in Southern Samphire, b) POCs in Northern Samphire and c) SOC in southern Samphire area.

In the southern area, relatively low numbers of POCs were consistently seen in every year during May – September, when high day-time tides occurred (Fig. 10 a). These tides probably resulted in restricted times available for the birds to forage. In contrast, when day-time low tides were lower in October – April, numbers of birds increased, however, as discussed above, inter-annual variability was much greater at this time of the year. Throughout the 3 years, a couple of pairs of POCs have remained in the outer Port River (Mutton Cove and NW Torrens Island). There was much greater seasonal variability in mean numbers of POCs observed in the northern part of the samphire coast, partly due to lower numbers of surveys in this area (Fig. 10 b).

The relatively high numbers of SOC in 2016/17 were also apparent at the central Port River sites, with up to 157 birds observed foraging and roosting in May, 2017 (Fig. 10 c). Smaller numbers were seen in the same months in 2017/18 and 2018/19, however, the drop was not significant. SOC were exclusively observed in the Inner Port River area.

Observations of Flagged POCs The POC flagged by the Friends of the SE Shorebirds at Bald Hill in November, 2017 was again seen in December, 2018 in the same area (M-A Van Trigt, pers. obs.).



Figs. 10 a, b & c: Mean counts (+/- s.e.) of POC's in the a) southern and b) northern areas, and c) SOC's in the southern area of the Samphire Coast, 2016/17 - 2018/19.

Breeding, Nesting OYCs and Juveniles.

Over the past 3 years, observations on the diagnostic broken wing behavior by adults, the presence of chicks, and juvenile birds all indicate some breeding activity along much of the Samphire coast between November and March. Sites included Bald Hill, northern sabkah at Thompson's beach, Port Gawler Conservation Park, Dry Creek salt fields, Bird Island, Mutton Cove and NW Torrens Island.



Fig. 11. Adult POC and accompanying chick in a northern sabkah at Thompson Beach, November, 2018 (Photo: M-A Van Trigt).

In November, 2018, in the northern samkah at Thompsons Beach, a young chick was banded by the Friends of the SE SA Shorebirds (Fig. 11), but, because of its small size, a flag was not added.

Neither breeding nor nesting activities were reported for SOC's on the Samphire coast.

Natural and Feral Predators Throughout the years, small numbers of Long-Nosed Fur Seals have been reported resting at the South Semaphore breakwater, co-occurring with small numbers of resting or foraging SOC's. No interactions were observed. Raptors, including Whistling Kites and a Swamp Harrier were observed during 2018/19 at Port Prime and St. Kilda, respectively. In December, 2018, the Swamp Harrier harassed a SOC at St. Kilda, which escaped predation (M-A. Van Trigt, pers. obs).

Human Activities In the southern Samphire coastal area, human activities included numbers of beach goers, walkers, dog walkers, shore fishers, bait diggers and sand carting by large trucks. In similarity with the SE Fleurieu region, activities were strongly seasonal, with highest mean counts occurring from January to March (Fig. 12). Types of activities varied within the region, ranging from relatively high numbers of beach goers, dog walkers and sand carting occurring at Semaphore South, whilst bait diggers and shore fishers made up the highest levels of activities along the central Port River. Overall, levels of activities were lower than those for the SE Fleurieu region (Fig. 12). Large bow waves generated by passing vessels along the Port River, which when reaching the intertidal flats, disturbed foraging OYCs, however, this type of disturbance was not monitored.

In the northern Samphire area, recreational blue swimmer crabbing at low tide and shore based line fishing at high tide often coincided with times when POC's occurred.

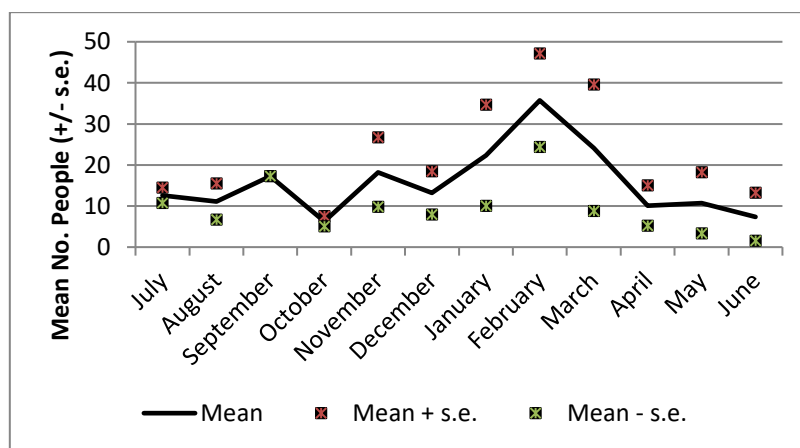


Fig.12: Seasonal variation in human activities along the southern Samphire coast, 2016/17 – 2018/19) (Mean No. people / survey +/- s.e.).

Summary of observations for the Samphire Coast

1. POC's are found throughout the Samphire coast region, with similar abundances in both southern and northern areas. Highest numbers occurred in summer and autumn months, when relatively low day-time tides provided optimal foraging periods. SOC's were most commonly found in the southern area of the samphire coast during autumn months.

2. Highest abundances for both species occurred in 2016/17, since then declining and for POCs in the southern Samphire region, this decline was significant in 2018/19. The reason for the decline remains unknown. In 2016/17, the high numbers exceeded the number required to recognize this area as an internationally important area for this species (see # 4).
3. The types of human activities varied between different sites of the southern samphire coast, ranging from beach goers, dog walkers and sand carting at Semaphore to bait digging and shore fishing in the central Port River.
4. POC breeding and rearing of young birds has been observed at a number of sites in the northern Samphire area; however, it is unknown whether resulting numbers of birds recruit in sufficient numbers to maintain the population along this coastline. Breeding areas for SOCs in this area are unknown.

Region 3. NE Kangaroo Island.

Since July, 2015, four areas within the NE Kangaroo Island region have been consistently surveyed for Oystercatchers, breeding occurrence, their natural and feral predators and human activities (Fig. 13). Other sites, including Western Cove, Sapphoretown Lagoon, Penneshaw – Baudin Beach and the South Coast of the Island have been monitored less often, but results are not presented here.

The Bay of Shoals (BOS) sites (Reeves Point & Cape Rouge) include several different habitats, including those where POCs form high tidal roosting flocks, nesting/rearing areas and low tidal foraging areas over the spits. Smaller flocks of POCs have also been seen foraging amongst grass and roosting along the road between Reeves Point and the BOS Boat ramp at times of extremely high tides. SOCs also occupy high tidal roosting sites at the Bay of Shoals breakwater and adjoining beach. The beach and adjacent sand dunes along the edge of Nepean Bay Conservation Park, is where a number of POCs pairs have their territories, with breeding and rearing of young occurring. No SOCs have been seen here. The beaches of American River township and the islands, beaches and samphire flats of Pelican Lagoon are where POC breeding and rearing of young occurs as well as foraging in grassed fields adjacent to Swan Crossing.

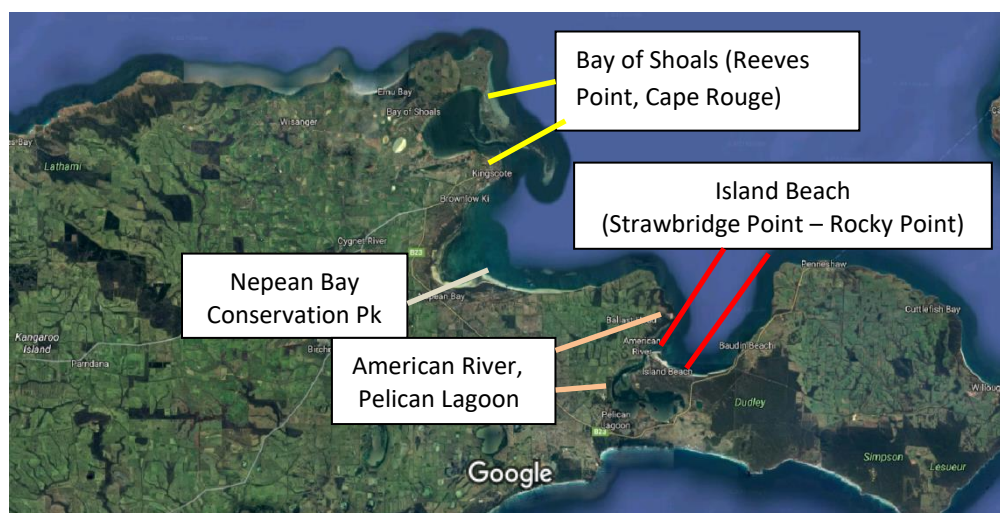
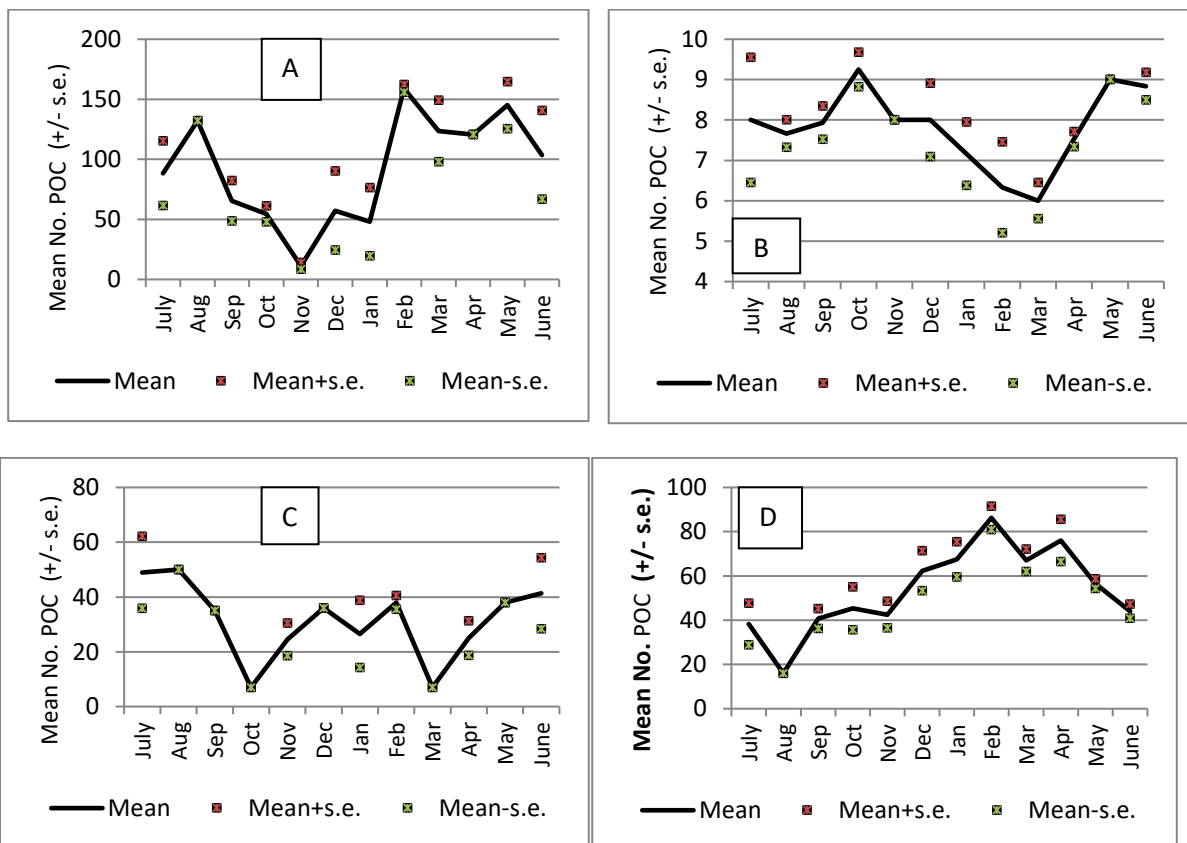


Fig. 13. Main monitoring sites on NE Kangaroo Island, 2015/16 – 2018/19.

Summarised annual counts show highest POC abundances at the Bay of Shoals (Table 1) probably due to the high numbers of roosting birds observed regularly at Reeves Point. In the past year, simultaneous counts were made at Reeves Point and Cape Rouge, to overcome any possible biases associated with double counts. Counts have steadily increased over the four years.

Table 1: Mean annual abundances (+/- s.e.) of POCs at the four areas of NE Kangaroo Island, 2015/16 – 2018/19. (*: based on 1 survey only)

Area	2015/16	2016/17	2017/18	2018/19	2015 – '19
Bay of Shoals (Cape Rouge, Reeves Point)	52.5+/-16.9	91.3+/-28.6	98.7+/-39.9	113.8+/-27.0	92.4+/-20.7
Nepean Bay CP	8.4+/-2.4	8.0+/-2.3	7.1+/-2.1	7.4+/-2.1	7.8+/-2.3
American River, Pelican Lagoon	79*	39.0+/-2.1	16.5+/-3.7	33.2+/-5.8	31.4+/-4.1
Island Beach	51.8+/-5.8	64.4+/-5.4	62.8+/-7.2	49.0+/-7.4	53.5+/-5.6



Figs. 14a,b,c & d: Seasonal variation in mean counts (+/- s.e.) of POCs at a) the Bay of Shoals, b) Nepean Bay Conservation Park, c) American River / Pelican Lagoon and d) Island Beach, 2015/16 – 2018/19.

The seasonal trends in POC abundances vary considerably between the four areas. At the Bay of Shoals, POC numbers were consistently highest from February to August, due to the

high counts of roosting birds at Reeves Point (Fig. 14a). Numbers dropped between September and December, because breeding birds moved to their nesting and rearing areas. We did find some breeding and nesting birds within the Bay of Shoals, but insufficient numbers to explain the high numbers returning to Reeves Point in February.

At the Nepean Bay Conservation Park, where no large numbers of roosting POCs were reported, the drop in numbers during late spring and early summer may have resulted from young newly fledged birds moving away from their parents' territories to other foraging areas outside the survey area (Fig. 14b). The high numbers in October comprised both breeding adults and chicks.

Reasons for the high seasonal variation in numbers at the American River/Pelican Lagoon (Fig. 14c) are unknown, and may partly reflect the low surveying frequency in October and March. At Island Beach, peaks in summer/early autumn may reflect the increasing numbers of foraging recently fledged birds vacating their adults' territories and foraging at Strawbridge Point (Fig. 14d).

SOC Of the four sites, the Bay of Shoals was the main one where SOC's were observed in all years (Table 2). In both the BOS and Island Beach areas, numbers were significantly higher in 2017/18 compared with the first monitoring year, and in 2018/19, numbers dropped slightly. No SOC's were reported from the Nepean Bay Conservation Park site. At the Bay of Shoals, highest numbers were reported in March and April (Fig. 15). Low numbers between September and January coincided with their breeding and rearing season, suggesting that birds had moved to their breeding areas, away from the Bay of Shoals. Similar seasonal trends were observed at Island Beach and American River (unpublished data).

Table 2: Mean annual abundances (+/- s.e.) of SOC's at 3 areas on NE KI coast, 2015/16 – 2018/19. (*: based on one survey)

Area	2015/16	2016/17	2017/18	2018/19	2015 – '19
Bay of Shoals	32.0+/-8.4	24.7+/-10.1	51.3+/-13.7	45.1+/-10.2	44.6 +/- 6.1
American River, Pelican Lagoon	9*	4.8+/-1.0	3.7+/-0.2	4.1+/-0.8	4.4 +/- 0.3
Island Beach	1.4+/-0.4	3.8+/-0.8	8.9 +/- 1.8	7.5+/-1.5	4.9+/- 1.7

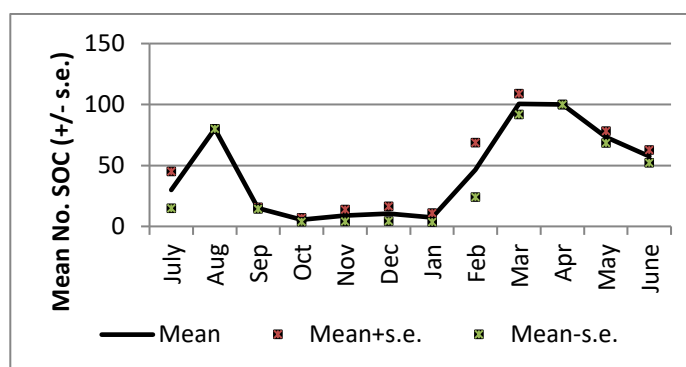


Fig. 15: Seasonal variation in mean counts (+/- s.e.) of SOC's at Bay of Shoals, 2015/16 – 2018/19.

Foraging behaviour by OYCs Few detailed observations are available on foraging OYCs on KI, except to note that for POCs, this mainly occurred at ebbing and low tides over the

extensive mud flats of the Bay of Shoals and sand spits at Island Beach (Strawbridge Point). At times of very high winter tides, often coupled with storm conditions, flocks of up to 50 foraging POCs were reported from grassed areas at Reeves Point, near Cape Rouge at the Bay of Shoals and at Swan Crossing near American River (Fig. 16). This behaviour is believed to be relatively uncommon for this species, in contrast to other Oystercatcher species worldwide, and, this last year, we published a small paper in *Stilt* journal (see references) to report on our observations.



Fig. 16: Foraging POCs amongst grasslands at Swan Crossing, near American River (Photo: K. Jones, July, 2017).

No observations on foraging by SOC_s were made.

Breeding and presence of juveniles Nesting by POCs and the presence of young chicks were reported at all four sites between August and December. At Nepean Bay, five pairs of adults occupied territories, each, about 100 m long were reported. A more detailed analysis of breeding, clutch sizes and the fate of chicks at Island Beach is underway. No breeding by SOC_s was reported at the sites on KI.

Natural and Feral Predators White-Bellied Sea Eagles and Ospreys were observed at all four sites. At Nepean Bay Conservation Park sightings of these raptors often coincided with nesting and rearing of young POCs (August – December). Additionally, Rosenberg's Goannas and their tracks were seen at similar times, often adjacent to POC nests. Australian Sea Lions were also reported at this site. Wedge-tailed Eagles were also observed at Island Beach.

Human Activities In contrast to the 2 other regions studied in this project, human activities at the NE KI sites were the lowest. Again, the summer months (Dec – Feb) proved to be the most popular months when people used the 4 KI sites. Island Beach was the site of highest human activity (Fig. 17). Annual mean human activities did not alter significantly over the 4 years of reporting at this site (4.5 +/- 1.6 in 2015/16 to 4.2 +/- 2.1 in 2018/19). At the Nepean Bay site, ORV usage along the beach were the most commonly reported activity. On several times at the Cape Rouge site within the Bay of Shoals area, sheep were observed grazing on intertidal algae, once, at the time when POC nesting was occurring (October, 2018) (D. Potter, pers.obs.). Because of the high numbers of POCs roosting at the Reeves Point site, disturbance by sight-seers and accompanied un-leashed dogs was also reported.

Disturbance of roosting POCs was also evident when they roosted along the roadside between Reeves Point and the BOS boat ramp, at times of high winter tides and adverse

weather conditions. Similarly, SOC's that were roosting on Bay of Shoals breakwater were disturbed and moved to the adjacent beach at times when boat launching and retrieval was taking place at the boat ramp.

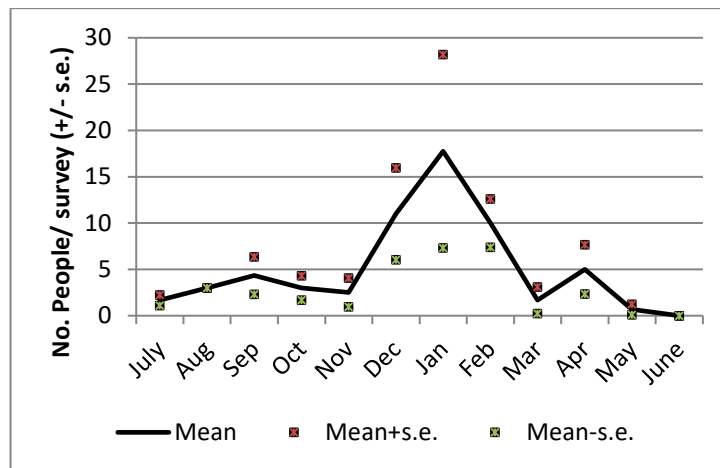


Fig. 17. Seasonal variation in human activities (mean no. people (+/- s.e.)) at Island Beach, NE KI, 2015/16 – 2018/19.

Summary of observations for NE Kangaroo Island.

1. Of all the 4 sites, highest abundances of both OYC species were observed at the Bay of Shoals, mainly due to the high numbers of roosting birds at Reeves Point (POCs) and the Bay of Shoals breakwater (SOCs). Relatively large numbers of roosting POCs were also observed at the Island Beach (Strawbridge Point), American Beach (Swan Crossing) and Cape Rouge sites.
2. Abundances at the Bay of Shoals have temporally increased for both species, with highest counts occurring in summer/autumn months. The POC counts exceeded the numbers required to recommend this area as one of international importance for this species.
3. All sites comprised pairs of adult POC's occupying territories, with breeding and rearing of young birds evident.
4. In similarity with the other 2 regions human activities were highest during summer holiday months. Disturbances of roosting flocks of POCs at Reeves Point by humans and accompanying dogs were reported.
5. Interactions between POCs and natural predators (Rosenberg's Goannas and White-Bellied Sea Eagles) were more prevalent at times of POC nesting at Nepean Bay and Island Beach.

4. Spatial distributions and temporal changes in number of Oystercatchers in South Australia, based on Birddata supplied by Birdlife Australia.

Following a request from Team Oystercatcher last year, Birdlife Australia kindly provided us with data sets (counts, locations and dates of sightings) on the two species of Oystercatchers throughout South Australia since 1981. These data had been collected over the years by many volunteers, including those in Shorebirds 2020, BirdsSA, Beach Nesting Birds, Birdlife Australia and SA Dept. Environment programs. Two aims of this request were to identify gaps in our understanding on the distributions of the 2 species in SA, and to

investigate any temporal changes in numbers of birds. An initial review of the POC data has identified “hot-spots” where future monitoring should be maintained. Importantly, the data set has confirmed a number of internationally important areas for POCs in this state. These areas are defined where more than 1% of the global population occur, based on the most recent assessment of the conservation status of Australian Pied Oystercatchers, published in 2014 (Taylor et al, 2014). In 2014, the global population was estimated at about 13,000. Our monitoring program in the SA 3 regions, clearly shows that all three should be considered as internationally important areas. The long-term bird data also reveal the West Coast of SA and Spencer Gulf as other internationally important areas in this State. Long-term trends in counts at these areas are currently being investigated by our volunteers, beginning with the Coorong Lagoon and associated Coorong Beach as well as Kangaroo Island. Similarly, data on Sooty Oystercatchers needs to be reviewed.

5. Future Research

a. Banding/flagging to investigate movements of POCs between nesting and foraging / roosting areas.

The spatial extent that newly fledged juveniles recruit to sub-adult roosting or foraging areas is fundamental to understanding the geographic ranges of populations of both species. This knowledge is essential in the future management of coastal areas of this state. The POC flagging program in Victoria and the SE of SA has shown how far afield POCs seen in SE Fleurieu region recruit from.

b. The foraging dynamics of OYCs on ocean beaches.

An initial investigation of the OYC Bird data and knowledge of spatial distribution of bivalve cockles in South Australia, suggests that many of the roosting flocks of POCs are located close to beaches and sand spits where there is relatively high productivity of bivalves. A number of these areas are where commercial or recreational harvesting of bivalves also exist. An understanding of the rate of foraging by OYCs in these areas would assist in quantifying the relative impacts of both foraging birds and the fisheries.

c. Further analyses of the long term bird data set.

The bird data set will be used in the coming year to investigate long-trends in numbers of POCs and SOCs at key regions in South Australia.

d. Reproduction rates of POCs on Kangaroo Island.

Nesting areas at several sites on KI have now been identified, and measuring the rate of hatching and fledging of young birds will assist in better understanding how natural predators and/or human disturbance affect these populations.

6. Publications on Oystercatchers in South Australia.

A literature review of all scientific publications pertaining to Oystercatchers in South Australia was undertaken over this past year, and the list of publications are included here. The many ones published in SA Ornithologist are freely available as pdfs from the BirdsSA web-site (<http://birdssa.asn.au>).

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

Bonnin, M. (1968) The Baudin Rocks – a further report. SA Ornithologist 25 (2), 49 – 50.

Bonnin, M. (1982) The Baudin Rocks, 1968 – 1982. SA Ornithologist 29 (1), 23 – 4.

Carpenter, G.A. (2009) Coastal birds of the far west coast of SA. SA Ornithologist 35 (7), 196 – 98.

Carpenter, G.A., Langdon, P. (2014) Seabirds and Shorebirds of Spencer Gulf. Part A: Waterbirds of Northern Spencer Gulf. In: Natural History of Spencer Gulf. Occasional Papers of the Royal Society of South Australia. Chapter 13A. p. 181 – 190

Christie, M. (2009) SA Team Report, Aug, 2008 – July, 2009). VWSG Bulletin, 32, 42 – 48.

Close, D.H., McCrie, N. (1986) Seasonal fluctuations of waders in GSV. Emu, 86, 145 – 154.

Condon, H.T. (1938) Birds of Reevesby Island, Sir Joseph Banks Group. SA Ornithologist 14 (7), 187 – 92

Condon, H.T., Terrill, S.E. (1948) Report on a visit to the Pelican Islands in the Coorong. SA Ornithologist 19 (1), 6 – 10. Sept, 1935. 2

Crompton, A.O. (1951) Pied Oystercatchers (*H. ostralegus*). SA Ornithologist 20 (1), p. 2.

Dennis, T.E., Baxter, C.I. (2006) Resident and migratory birds of coastal marshland habitats in Bay of Shoals and Western Cove area of Kangaroo Island, SA. SA Ornithologist 34, 267 – 75.

Eckert, J. (1970) Birds of the Investigator Group. SA Ornithologist 25 (7), 201 – 5.

Eckert, J. (1972) Birds of Streaky Bay. SA Ornithologist 26 (6), 138 – 41.

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Ellis, R. (1958) Birds seen on a trip to Troubridge Island, SA. SA Ornithologist 22, 68 – 9.

Finlayson, H.H. (1938) Notes on some birds seen on Flinders Island and other islands off the Eyre Peninsula coasts, Feb – March, 1937. SA Ornithologist 14(6), 41 – 6.

Finlayson, H.H. (1951) Further notes of some birds seen upon islands of the Eyre Peninsula coasts, SA, with remarks on the soil erosion of North Gambier Island. SA Ornithologist 20 (1), 3 – 5

Ford, H. (1979) Birds. In: Natural History of Kangaroo Island. Chapter 8. p. 103 – 114. Occasional Papers of the Royal Soc. Of SA.

Hastings, J.G. (1919) Bird Notes from McGrath's Flat. SA Ornithologist 4 (2), 53 – 4.

- Hitchcock, W.B. (1938)** Nesting on some Islands in the Coorong. SA Ornithologist 14(3), 64 – 6.
- Hornsby, P.E. (1978)** Notes on the birds of Pearson Island. SA Ornithologist 27 (8), 280 – 4.
- Jenkins, C.R., Waterman, M. (1965)** An expedition to Eyre Peninsula and offshore Islands. SA Ornithologist 24 (3), 45 – 8.
- Johnston, G. Wiebkin, A. (2007)** Birds of Gulf St. Vincent. Ch. 24, in : Natural History of Gulf St. Vincent. Occasional publication of the Royal Society of South Australia. P. 324 – 338.
- Jones, G.K. (2016)** Changes in distribution and abundance of Australian Pied and Sooty Oystercatchers on highly disturbed beaches of SE Fleurieu Peninsula, South Australia. Stilt, 68, 30 – 8.
- Jones, G.K., Potter, D., Evans, K. (2018)** Observations on Australian Pied Oystercatchers foraging in grasslands and watered recreational areas in South Australia. Stilt, 72, 33 – 35.
- Matheson, W.E. (1978)** The birds of the Redcliff Point Development Area. SA Ornithologist 27 (4), 25 – 30.
- McGilp, J.N. (1920)** A fortnight on Kangaroo Island (South Australia). SA Ornithologist 5 (1), 24 – 29.
- Morgan, A.M. (1916)** An ornithological trip in St. Vincent and Spencer Gulfs. SA Ornithologist. 2 (6), 141 – 51.
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- Paton, D.C. (1973)** Birds of the Goose Island Group, Spencer Gulf. SA Ornithologist 26 (4), 77 – 84.
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- Robinson, R.D. (1971)** New SA specimens from Goolwa Beach. SA Ornithologist 26 (1), 18 – 24.
- Sutton, J. (1929)** A trip to the islands near the River Murray Mouth. SA Ornithologist 10 (3), 93 – 102; 10, 186 – 94.
- Sutton, J. (1931a)** The Lakes and Coorong. SA Ornithologist 11 (4), 112 – 19.
- Sutton, J. (1931b)** An outing on Lake Alexandrina and the Coorong. SA Ornithologist 11 (1), 24 – 33.
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Sunset with the POCs at Island Beach, December, 2018 (Photo: David Potter)