Ashburton Rivermouth Bird Monitoring

Report for Year April 2020 – March 2021



Prepared for Environment Canterbury

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1.0 Introduction

This is the fourth report covering regular bird monitoring at the Ashburton Rivermouth and covers the 12-month period, April 2020 to March 2021. These surveys were commissioned by Environment Canterbury (ECAN) to facilitate an understanding of the seasonal abundance of birds at the site, to monitor trends and to inform ongoing wildlife management initiatives.

The Ashburton Rivermouth/Hapua is an important wetland on the mid Canterbury coastline, utilised by a wide range of braided river birds, wetland birds and coastal seabirds. Its relative isolation from other sizeable wetland habitats mean that it attracts a range of migratory and transient wader and waterbird species, as well as serves as the major roosting and/or breeding station for populations of gulls, terns and shags ranging along the adjacent coastline and near-shore waters.

1.1 Study Area

As in the three previous years, the study area (Figure 1.) comprised the shingle spits at the rivermouth, the rivermouth discharge area and lagoon (hapua), and the deltaic braided riverbed area upstream of the lagoon up to a narrow point opposite the northern-most houses. These habitats combine to support a distinctive assemblage of "rivermouth-associated" bird species



Figure 1. Study Area.

1.2 Survey Methodology

Counts (n = 12) of all riverbed/wetland/coastal birds detected within the study area were carried out once/month between April 2020 and March 2021. All counts commenced 2-3 hours before sunset so that consistent counts of species that occur in maximum numbers at dusk could be made. Species like shags, cormorants, gulls, terns and waders come and go from the rivermouth all day (often moving back and forward from the sea, upriver or dispersing to feed over farmland), but return and congregate into roosts at day's end.

All counts were conducted by the author, using 10x42 Kowa or Zeiss binoculars and a Nikon 20-60x80 spotting scope. A Cannon camera with 200x zoom was used for photographing large bird flocks and incidental species records. Census techniques were the same as previous years and followed those outlined in Howes & Bakewell (1989). They replicate methods used in surveys of other Canterbury wetlands, eg; the Avon-Heathcote Estuary (Crossland 2013), Lake Ellesmere/Te Waihora (Crossland *et al.* 2018), Lake Forsyth, Brooklands Lagoon, Rakaia Rivermouth, etc. Counts were made of the majority of birds present from six observation points (five on the cliff top and one in the centre of the delta – yellow dots in Figure 2), with additional birds picked up by either following a standardised survey transect through the study area when the river was fordable (yellow line on Figure 2) or by additional cliff top observation points. Scans were made of roosting, rafting or feeding congregations of birds and involved counting individuals wherever possible, with block counting in multiples of 10 in large concentrations exceeding 2000 individuals. Very large flocks of Spotted Shags were photographed and later counted via enlargened images on a computer.



Figure 2. Survey observation points (yellow dots) and transect route (yellow line).

1.2 Data Gaps

At a site like the Ashburton Rivermouth, where the occurrence of many birds is transient (ie; moving along the coast or moving up and down the river), and where feeding, roosting and breeding conditions can change rapidly as a consequence of fluctuating river flows, tidal inundation, human disturbance, etc, bird numbers can rise and fall more rapidly than is usually the case on larger, more settled habitats like coastal lagoons and estuaries. This survey involved a single bird census per month and the results provide reliable information on the seasonal abundance of monitored bird species. However, inevitably the gap between surveys will mean that uncommon species that arrive and depart between survey dates will be missed, as will spikes in abundance of regular species that occur between visits.

1.3 **River flows and Habitat Condition**

The following is a summary of habitat condition on each of the 2020-21 surveys. River flow was measured at State H/W 1 by ECAN and is given as a 4:00 PM mean discharge figure.

8.097 m3/s 5768 birds 30 April 2020 23 species

Mouth closed to sea. Full lagoon, Many clean islands on delta.





Full lagoon extending upstream. No mudflats. Mouth at extreme north end of lagoon. Many delta islands.



17 June 2020 6.370 m3/s 11,554 birds



21 July 2020 7.471 m3/s 11,109 birds 18 species

Very high lagoon level. No mudflats exposed. Lagoon open to sea at far northern end.



19 August 2020 6.761 m3/s 7413 birds 19 species

Lagoon at medium level with shingle & mudflat delta islands. Mouth beyond northern cliff.



23 September 2020 *16.52 m3/s*

581 birds

18 species

High lagoon. No mudflat and delta islands mostly inundated.



22 October 2020 9.593 m3/s 498 birds

25 species

Mouth beyond cliffs, lagoon high with limited habitat available.



19 November 2020 *14.33 m3/s*

599 birds

25 species

24 species

High lagoon level, limited habitat.



22 December 2020 7.325 m3/s 1240 birds

Mouth open and continuing to migrate north. Lagoon full with watyer flowing through. Mudflats and open shingle on delta.



29 January 2021 9.303 m3/s 7632 birds 27 species

Lagoon very high and open to sea. No mudflats and limited open shingle habitat on delta.



23 February 20214.165 m3/s6652 birds28 speciesLagoon medium-high with mudflats and open shingle delta islands.



19 March 2021 4.876 m3/s 10,591 birds 28 species

Lagoon re-filling but expansive shingle delta islands remain with small extent of mudflat.



2.0 Key Findings

Thirty-five river/wetland/coastal bird species were recorded in 2020-2021 compared to 33 species in 2019-2020, 30 in 2017-18 and 34 in 2018-19.

Species richness averaged higher than previous years with an average 23.6 species recorded per visit, compared to 20.5 in 2019-20, 21.9 in 2018-19 and 19.2 species in 2017-18.

Count totals ranged from 498 - 11,554 birds, compared to 520 to 10,044 birds in 2019-20, 2812 - 9386 in 2018-19, and 1253 - 13,583 in 2017-18. More than 10,000 birds were recorded in three of the twelve months (June, July and March).

The most abundant bird species were **Spotted Shag** (max. 9980 in July), **Grey Teal** (max. 1330 in May), **Black-backed Gull** (max. 890 in June) and **Black-billed Gull** (up to 410 in July).

A review of the checklist leaves the total number of bird species recorded at 78, but several have changed status. The list now stands at 38 resident species, 17 seasonal/regular visitors and 23 vagrants or irregular visitors (see Appendix 2).

3.0 Species Accounts

3.1 Cormorants and Shags

As with other years, three cormorant and two shag species were recorded in 2020-21: **Black Cormorants** (max. 3) were recorded in seven of the 12 months, absent only during spring.

Pied Cormorant numbers were much higher than in previous years with a max. count of 24 in March, twice the highest count in previous years. They were present during eight months and exceeded 10 individuals in five months. They were also absent during spring but can be expected to follow a colonisation pattern at coastal sites elsewhere in Canterbury and eventually breed here. In addition to the usual night roost overlooking the lagoon at the end of Hakatere Drive they have now also begun roosting in macrocarpas overlooking the delta on the northern side. This mirrors typical nesting habitat elsewhere in coastal Canterbury.



Figure 3. *Pied Cormorants roosting at a new site - in macrocarpas overlooking the delta, and at the regular Hakatere Drive road-end site.*

Little Cormorants (max. 2) were recorded more frequently than in previous years with sightings in nine out of 12 months, compared to sightings in just two months in 2019-20.



Figure 3. Adult Black Cormorant with three juvenile Pied Cormorants on the delta (Dec 2020).

| 2020-21 data | | | | | | | | | | | | |
|------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| species | 30/04/2020 | 22/05/2020 | 17/06/2020 | 21/07/2020 | 19/08/2020 | 23/09/2020 | 22/10/2020 | 19/11/2020 | 22/12/2020 | 29/01/2021 | 23/02/2021 | 19/03/2021 |
| Black Cormorant | 2 | 3 | 2 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 2 |
| Pied Cormorant | 13 | 14 | 7 | 2 | 0 | 0 | 0 | 0 | 8 | 11 | 14 | 24 |
| Little Cormorant | 1 | 2 | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 2 | 1 | 1 |
| Spotted Shag | 5133 | 3550 | 9280 | 9980 | 6590 | 2 | 7 | 292 | 660 | 7096 | 5379 | 9770 |
| Otago Shag | 1 | 3 | 1 | 4 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 4 |

Comparative 2019-20 data

| 2019-20 data | | | | | | | | | | | | |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| Species | 30/04/2019 | 22/05/2019 | 20/06/2019 | 18/07/2019 | 23/08/2019 | 28/09/2019 | 29/10/2019 | 28/11/2019 | 21/12/2019 | 18/01/2020 | 27/02/2020 | 25/03/2020 |
| Black Cormorant | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 3 | 1 | 1 | 6 |
| Pied Cormorant | 1 | 0 | 5 | 5 | 0 | 0 | 3 | 6 | 9 | 4 | 8 | 11 |
| Little Cormorant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Little Black Cormorant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spotted Shag | 7360 | 7105 | 9190 | 6318 | 2650 | 406 | 26 | 94 | 1390 | 458 | 1453 | 4376 |
| Otago Shag | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

Comparative 2018-19 data

| species | | | | | | | | | | | | | | | |
|---------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|
| | 23/04/2018 | 17/05/2018 | 22/06/2018 | 21/07/2018 | 24/08/2018 | 14/09/2018 | 26/10/2018 | 22/11/2018 | 17/12/2018 | 29/12/2018 | 3/01/2019 | 12/01/2019 | 29/01/2019 | 19/02/2019 | 26/03/2019 |
| Black Cormorant | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 0 | 1 |
| Pied Cormorant | 6 | 6 | 5 | 1 | 0 | 2 | 1 | 3 | 8 | 5 | 2 | 2 | 8 | 5 | 7 |
| Little Cormorant | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 1 | 3 | 0 |
| Little Bl Cormorant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spotted Shag | 7370 | 8130 | 7620 | 4024 | 832 | 1940 | 24 | 2080 | 781 | 760 | 152* | 790 | 1452 | 2010 | 7660 |
| Otago Shag | 3 | 5 | 9 | 3 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | | | | | | | | | | | | | | |

| species | | | | | | | | | | | | | |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 24/04/2017 | 20/05/2017 | 17/06/2017 | 26/07/2017 | 17/08/2017 | 22/09/2017 | 21/10/2017 | 21/11/2017 | 23/12/2017 | 19/01/2018 | 27/02/2018 | 13/03/2018 | 26/03/2018 |
| Black Cormorant | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 4 | 1 | 1 | 0 |
| Pied Cormorant | 6 | 12 | 3 | 1 | 3 | 0 | 1 | 3 | 3 | 2 | 2 | 5 | 9 |
| Little Cormorant | 0 | 0 | 1 | 0 | 0 | 3 | 2 | 1 | 0 | 2 | 0 | 0 | 1 |
| Little Black Cormorant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spotted Shag | 2230 | 2090 | 660 | 760 | 1460 | 1360 | 890 | 1970 | 940 | 910 | 6810 | 130 | 7180 |
| Otago Shag | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

Spotted Shag abundance reflected previous years but had more extremes. Peak counts of 9280 in June, 9980 in July and 9770 in March were all record-breaking highs, but conversely low season counts (comprising mainly juveniles while adults were away on Banks Peninsula breeding) were at record lows – just two birds in September and seven birds in October. Factors around breeding success and autumn-winter feeding availability on Banks Peninsula are the likely causes of this.



Figure 4. Spotted shag flocks coming into to roost just before dusk (May 2020)

Otago Shags (max. 4) were recorded in eight months, absent only from September to December. Most birds observed were juveniles.



Figure 5. Two juvenile bronze morph Otago Shags stride through the Spotted shag roost, pushing their smaller congeners aside (August 2020).

3.2 Herons and Spoonbills

| 2020-21 data | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| species | 30/04/2020 | 22/05/2020 | 17/06/2020 | 21/07/2020 | 19/08/2020 | 23/09/2020 | 22/10/2020 | 19/11/2020 | 22/12/2020 | 29/01/2021 | 23/02/2021 | 19/03/2021 |
| White-faced Heron | 2 | 2 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |
| Denni Consentati | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7 |

Comparative 2019-20 data

| 2019-20 data | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| Species | 30/04/2019 | 22/05/2019 | 20/06/2019 | 18/07/2019 | 23/08/2019 | 28/09/2019 | 29/10/2019 | 28/11/2019 | 21/12/2019 | 18/01/2020 | 27/02/2020 | 25/03/2020 |
| White-faced Heron | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| Royal Spoonbill | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 9 |

Comparative 2018-19 data

| species | | | | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|
| | 23/04/2018 | 17/05/2018 | 22/06/2018 | 21/07/2018 | 24/08/2018 | 14/09/2018 | 26/10/2018 | 22/11/2018 | 17/12/2018 | 29/12/2018 | 3/01/2019 | 12/01/2019 | 29/01/2019 | 19/02/2019 | 26/03/2019 |
| White-faced Heron | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 1 | 3 | 0 | 1 | 1 | 1 | 0 | 1 |
| Royal Spoonbill | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Comparative 2017-18 data

| species | | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 24/04/2017 | 20/05/2017 | 17/06/2017 | 26/07/2017 | 17/08/2017 | 22/09/2017 | 21/10/2017 | 21/11/2017 | 23/12/2017 | 19/01/2018 | 27/02/2018 | 13/03/2018 | 26/03/2018 |
| White-faced Heron | 2 | 0 | 1 | 0 | 0 | 2 | 1 | 1 | 1 | 3 | 1 | 1 | 1 |
| Royal Spoonbill | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |

White-faced Herons (max. 2) were recorded in seven of the 12 monthly surveys and the birds probably comprised a resident breeding pair – although no young birds were observed this year.

Visiting Royal Spoonbills were present in January (1 bird), Feb (2 birds) and March (9 birds).



Figure 6. Royal Spoonbills from a group of nine roosting on a delta island with cormorants and Grey Teal..

3.3 Waterfowl

Much higher numbers of waterfowl were recorded in 2020-21 than in the previous three survey periods. The highest count (1393 birds of six species in May 2021) is much higher than maximum counts of 469 in 2019-20, 448 in 2018-19 and 303 in 2017-18. **Grey Teal** were exceptionally abundant, being present each month with highest totals of 1330 in May and 901 in June. Other species occurring in sizeable numbers were **Canada Goose** (max. 242) and

Mallard/Grey (max. 157). Uncommon visitors included a lone **Mute Swan** in June; up to 3 **Black Swans**; up to 12 **New Zealand Scaup** from November to March; and maximum counts of 22 **Paradise Shelduck** and 8 **New Zealand Shoveler**.

| 2020-21 data | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| species | 30/04/2020 | 22/05/2020 | 17/06/2020 | 21/07/2020 | 19/08/2020 | 23/09/2020 | 22/10/2020 | 19/11/2020 | 22/12/2020 | 29/01/2021 | 23/02/2021 | 19/03/2021 |
| Mute Swan | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Black Swan | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| Canada Goose | 83 | 4 | 18 | 8 | 25 | 0 | 13 | 10 | 0 | 6 | 242 | 5 |
| Paradise Shelduck | 4 | 5 | 4 | 0 | 2 | 4 | 2 | 0 | 5 | 22 | 2 | 3 |
| Mallard/Hybrid | 102 | 49 | 136 | 105 | 36 | 9 | 22 | 15 | 21 | 17 | 105 | 157 |
| NZ Shoveler | 4 | 4 | 0 | 2 | 0 | 3 | 8 | 7 | 0 | 0 | 7 | 6 |
| Grey Teal | 172 | 1330 | 901 | 223 | 25 | 4 | 47 | 11 | 19 | 73 | 118 | 324 |
| NZ Scaup | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 12 | 11 | 4 | 3 |
| Total | 365 | 1393 | 1061 | 338 | 88 | 20 | 92 | 52 | 57 | 132 | 478 | 498 |

Comparative 2019-20 data

| 2019-20 data | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| Species | 30/04/2019 | 22/05/2019 | 20/06/2019 | 18/07/2019 | 23/08/2019 | 28/09/2019 | 29/10/2019 | 28/11/2019 | 21/12/2019 | 18/01/2020 | 27/02/2020 | 25/03/2020 |
| Black Swan | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Canada Goose | 0 | 64 | 104 | 58 | 4 | 13 | 6 | 14 | 2 | 0 | 190 | 44 |
| Paradise Shelduck | 0 | 0 | 2 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 2 | 51 |
| Mallard/Grey Duck | 47 | 145 | 195 | 111 | 23 | 14 | 35 | 8 | 7 | 15 | 145 | 157 |
| NZ Shoveler | 3 | 0 | 7 | 2 | 0 | 0 | 2 | 1 | 4 | 0 | 1 | 4 |
| Grey Teal | 58 | 74 | 129 | 113 | 2 | 20 | 23 | 19 | 2 | 2 | 28 | 213 |
| NZ Scaup | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 111 | 286 | 440 | 284 | 29 | 50 | 70 | 42 | 15 | 17 | 366 | 469 |

Comparative 2018-19 data

| species | | | | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|
| | 23/04/2018 | 17/05/2018 | 22/06/2018 | 21/07/2018 | 24/08/2018 | 14/09/2018 | 26/10/2018 | 22/11/2018 | 17/12/2018 | 29/12/2018 | 3/01/2019 | 12/01/2019 | 29/01/2019 | 19/02/2019 | 26/03/2019 |
| Black Swan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 3 | 3 | 3 |
| Canada Goose | 247 | 97 | 1 | 0 | 4 | 22 | 24 | 22 | 0 | 0 | 10 | 10 | 0 | 85 | 254 |
| Paradise Shelduck | 2 | 0 | 0 | 0 | 0 | 2 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| Mallard/Hybrid | 107 | 65 | 18 | 75 | 16 | 12 | 24 | 10 | 12 | 4 | 2 | 8 | 6 | 48 | 73 |
| NZ Shoveler | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grey Teal | 92 | 8 | 0 | 2 | 2 | 4 | 4 | 1 | 3 | 0 | 0 | 0 | 11 | 10 | 87 |
| NZ Scaup | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 448 | 170 | 19 | 77 | 22 | 44 | 63 | 38 | 15 | 4 | 12 | 22 | 20 | 146 | 428 |

| species | | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 24/04/2017 | 20/05/2017 | 17/06/2017 | 26/07/2017 | 17/08/2017 | 22/09/2017 | 21/10/2017 | 21/11/2017 | 23/12/2017 | 19/01/2018 | 27/02/2018 | 13/03/2018 | 26/03/2018 |
| Canada Goose | 65 | 131 | 176 | 0 | 3 | 7 | 2 | 15 | 32 | 55 | 135 | 262 | 155 |
| Paradise Shelduck | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 2 | 0 |
| Mallard/Hybrid | 22 | 158 | 47 | 37 | 22 | 14 | 17 | 24 | 17 | 2 | 25 | 29 | 62 |
| NZ Shoveler | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grey Teal | 4 | 0 | 78 | 4 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 3 | 4 |
| TOTAL | 91 | 289 | 303 | 41 | 27 | 23 | 19 | 43 | 53 | 57 | 160 | 296 | 221 |



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Figs 7 & 8. Mute Swan and Black Swan (June 2020).



Figure 9. Part of a very large flock of Grey Teal present in May 2020.



Figure 10. Four birds from a small party of New Zealand Scaup present over summer-autumn (Dec 2020).



Figure 11. A pair of New Zealand Shoveler (Oct 2020). Small numbers were seen amongst the Grey Teal flocks.

3.4 Birds of Prey and Skuas

One to two **Swamp Harriers** were recorded in seven of the monthly surveys, suggesting a pair residing in the wider environs of the rivermouth.

Only one **Arctic Skua** was seen on the 2020-21 surveys – one bird in February 2021, although the species is likely to be a regular (undetected) visitor through summer-autumn.

| 2020-21 data | | | | | | | | | | | | |
|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| species | 30/04/2020 | 22/05/2020 | 17/06/2020 | 21/07/2020 | 19/08/2020 | 23/09/2020 | 22/10/2020 | 19/11/2020 | 22/12/2020 | 29/01/2021 | 23/02/2021 | 19/03/2021 |
| Swamp Harrier | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| Arctic Skua | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

Comparative 2019-20 data

| 2019-20 data | | | | | | | | | | | | |
|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| Species | 30/04/2019 | 22/05/2019 | 20/06/2019 | 18/07/2019 | 23/08/2019 | 28/09/2019 | 29/10/2019 | 28/11/2019 | 21/12/2019 | 18/01/2020 | 27/02/2020 | 25/03/2020 |
| Swamp Harrier | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| Arctic Skua | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 |

Comparative 2018-19 data

| species | | | | | | | | | | | | | | | |
|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|
| | 23/04/2018 | 17/05/2018 | 22/06/2018 | 21/07/2018 | 24/08/2018 | 14/09/2018 | 26/10/2018 | 22/11/2018 | 17/12/2018 | 29/12/2018 | 3/01/2019 | 12/01/2019 | 29/01/2019 | 19/02/2019 | 26/03/2019 |
| Swamp Harrier | 2 | 2 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 2 | 0 |
| Arctic Skua | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 |

| species | | | | | | | | | | | | | |
|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 24/04/2017 | 20/05/2017 | 17/06/2017 | 26/07/2017 | 17/08/2017 | 22/09/2017 | 21/10/2017 | 21/11/2017 | 23/12/2017 | 19/01/2018 | 27/02/2018 | 13/03/2018 | 26/03/2018 |
| Swamp Harrier | 0 | 2 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Arctic Skua | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |



Figure 12. A migratory Arctic Skua (photographed in Christchurch), similar to one seen at the Ashburton Rivermouth in February.

3.5 Waders

Ten wader species were recorded in 2020-21, comprising seven native species and three Arcticbreeding species. Seasonal patterns were text book and numbers exceeded 100 birds each month between October and February.

| 2020-21 data | | | | | | | | | | | | |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| Species | 30/04/2020 | 22/05/2020 | 17/06/2020 | 21/07/2020 | 19/08/2020 | 23/09/2020 | 22/10/2020 | 19/11/2020 | 22/12/2020 | 29/01/2021 | 23/02/2021 | 19/03/2021 |
| SIPO | 2 | 1 | 3 | 28 | 0 | 15 | 68 | 12 | 18 | 21 | 16 | 1 |
| Variable Oystercatcher | 0 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 2 | 1 |
| Spur-winged Plover | 4 | 3 | 2 | 4 | 8 | 10 | 8 | 6 | 18 | 6 | 8 | 17 |
| Banded Dotterel | 0 | 2 | 2 | 0 | 6 | 8 | 27 | 50 | 72 | 30 | 54 | 2 |
| Black-fronted Dotterel | 2 | 0 | 0 | 2 | 5 | 2 | 6 | 6 | 7 | 4 | 10 | 4 |
| Wrybill | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 7 | 3 | 0 | 0 |
| Bar-tailed Godwit | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Turnstone | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 10 | 9 | 13 | 11 | 0 |
| Pectoral Sandpiper | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| node F-I Hybrid Stilt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Pied Stilt | 6 | 2 | 10 | 12 | 20 | 28 | 35 | 21 | 45 | 37 | 36 | 17 |
| TOTAL | 14 | 11 | 17 | 48 | 41 | 65 | 149 | 110 | 181 | 119 | 137 | 43 |

Comparative 2019-20 data

| 2019-20 data | | | | | | | | | | | | |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| Species | 30/04/2019 | 22/05/2019 | 20/06/2019 | 18/07/2019 | 23/08/2019 | 28/09/2019 | 29/10/2019 | 28/11/2019 | 21/12/2019 | 18/01/2020 | 27/02/2020 | 25/03/2020 |
| SI Pied Oystercatcher | 0 | 0 | 25 | 16 | 25 | 12 | 15 | 12 | 49 | 63 | 2 | 2 |
| Variable Oystercatcher | 2 | 2 | 3 | 4 | 2 | 2 | 2 | 3 | 0 | 0 | 1 | 0 |
| Spur-winged Plover | 12 | 9 | 5 | 55 | 4 | 4 | 14 | 6 | 13 | 15 | 12 | 4 |
| Banded Dotterel | 2 | 0 | 0 | 0 | 1 | 18 | 16 | 33 | 20 | 43 | 26 | 67 |
| Black-fronted Dotterel | 7 | 0 | 1 | 4 | 2 | 4 | 2 | 0 | 2 | 0 | 3 | 2 |
| Wrybill | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 3 | 0 | 0 | 0 |
| Turnstone | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 3 | 16 | 3 | 0 |
| Pectoral Sandpiper | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Pied Stilt | 9 | 19 | 0 | 6 | 6 | 14 | 37 | 44 | 4 | 25 | 14 | 13 |
| TOTAL | 32 | 30 | 34 | 85 | 40 | 56 | 89 | 109 | 94 | 162 | 61 | 88 |

Comparative 2018-19 data

| species | | | | | | | | | | | | | | | |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|
| | 23/04/2018 | 17/05/2018 | 22/06/2018 | 21/07/2018 | 24/08/2018 | 14/09/2018 | 26/10/2018 | 22/11/2018 | 17/12/2018 | 29/12/2018 | 3/01/2019 | 12/01/2019 | 29/01/2019 | 19/02/2019 | 26/03/2019 |
| SIPO | 2 | 6 | 12 | 15 | 6 | 22 | 14 | 6 | 17 | 8 | 7 | 17 | 48 | 7 | 1 |
| Variable Oystercatcher | 11 | 9 | 6 | 4 | 2 | 4 | 4 | 4 | 4 | 2 | 2 | 2 | 2 | 2 | 2 |
| Spur-winged Plover | 8 | 12 | 8 | 2 | 10 | 10 | 4 | 6 | 8 | 8 | 21 | 4 | 9 | 19 | 27 |
| Banded Dotterel | 13 | 2 | 2 | 0 | 0 | 8 | 12 | 8 | 28 | 29 | 63 | 43 | 54 | 63 | 15 |
| Black-fronted Dotterel | 4 | 2 | 2 | 2 | 2 | 5 | 2 | 2 | 2 | 2 | 3 | 2 | 0 | 2 | 1 |
| Wrybill | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| Turnstone | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 1 | 1 | 1 | 2 | 4 | 0 |
| Pied Stilt | 19 | 2 | 0 | 3 | 10 | 25 | 15 | 6 | 7 | 5 | 9 | 17 | 12 | 21 | 32 |
| TOTAL | 59 | 33 | 30 | 26 | 30 | 74 | 58 | 35 | 69 | 55 | 107 | 87 | 127 | 118 | 78 |

| species | | | | | | | | | | | | | |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 24/04/2017 | 20/05/2017 | 17/06/2017 | 26/07/2017 | 17/08/2017 | 22/09/2017 | 21/10/2017 | 21/11/2017 | 23/12/2017 | 19/01/2018 | 27/02/2018 | 13/03/2018 | 26/03/2018 |
| SI Pied Oystercatcher | 1 | 0 | 0 | 2 | 5 | 5 | 4 | 5 | 7 | 7 | 7 | 1 | 2 |
| Variable Oystercatcher | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 3 | 2 | 3 | 4 | 4 |
| Spur-winged Plover | 0 | 6 | 57 | 40 | 6 | 5 | 2 | 5 | 8 | 20 | 4 | 2 | 5 |
| Banded Dotterel | 1 | 0 | 4 | 0 | 2 | 2 | 2 | 17 | 43 | 9 | 6 | 12 | 14 |
| Black-fronted Dotterel | 0 | 2 | 0 | 0 | 2 | 1 | 1 | 4 | 4 | 3 | 3 | 5 | 2 |
| Wrybill | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 |
| Turnstone | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 0 |
| Pied Stilt | 0 | 2 | 22 | 7 | 4 | 2 | 4 | 22 | 17 | 8 | 11 | 8 | 25 |
| TOTAL | 2 | 10 | 84 | 49 | 19 | 17 | 13 | 57 | 84 | 51 | 36 | 32 | 52 |



Figure 13. Part of a flock of 68 South Island Pied Oystercatchers (SIPO) in Oct 2020 – a new record count.

Breeding waders included 15+ pairs of **Pied Stilt**, 10+ pairs of **Banded Dotterel**, 2+ pairs of **South Island Pied Oystercatcher**, 1-2 pairs of **Black-fronted Dotterel**, 1 pair of **Wrybill** and 1 pair of **Variable Oystercatcher**.

Post-breeding flocking peaked at 181 birds in December (compared to a peak of 162 in Jan 2020). Highest counts for various native species included 72 Banded Dotterel, 68 South Island Pied Oystercatcher, 45 Pied Stilt, 18 Spur-winged Plover, 10 Black-fronted Dotterel, 7 Wrybill and 4 Variable Oystercatcher.



Fig. 14. (above) Juvenile Wrybill feeding on the delta (Dec). Fig. 15. (below) nesting Pied Stilts (Oct).



Of the international migrants, **Turnstones** were recorded in May (1 bird), and then again from October to February (max. 13 in January). Single **Bar-tailed Godwits** were seen in October and December; and a **Pectoral Sandpiper** was observed in March.



Figure. 16. Pectoral Sandpiper (March 2021)

3.6 Gulls

Numbers of **Southern Black-backed Gulls** appear to be rebounding after a cull at the nearest colony upstream 2-3 years ago. Counts of 890 in June 2020 and 480 in February 2021 were higher than any monthly totals since 2017.

Between 270 and 410 **Black-billed Gulls** were present from July to September but no breeding took place and numbers fell sharply to 78 in October and 26 in November. In December, a total of 233 were present, including 121 gathered on a small mid-channel island below the caretakers hut. These looked like they were preparing to nest but the site was very low-lying and easily washed over by freshes. They were gone by the next survey on 29 January 2021. Post-breeding flocking numbers were relatively low with a max. 233 in December, but <50 in most other months. **Red-billed Gulls** were present in all twelve months and were the dominant small gull from April to June, in August, and then again in February and March. The highest count was 338 in August 2020 – closely comparable to max. counts of 370 in July 2019 and 364 in July 2018.



Fig. 17. Black-billed Gull courtship behaviour and possible nest building in Dec were quickly erased by a fresh.

| 2020-21 data | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| Species | 30/04/2020 | 22/05/2020 | 17/06/2020 | 21/07/2020 | 19/08/2020 | 23/09/2020 | 22/10/2020 | 19/11/2020 | 22/12/2020 | 29/01/2021 | 23/02/2021 | 19/03/2021 |
| Black-backed Gull | 18 | 172 | 890 | 227 | 58 | 46 | 80 | 32 | 6 | 99 | 480 | 82 |
| Red-billed Gull | 94 | 164 | 180 | 84 | 338 | 16 | 21 | 4 | 16 | 40 | 71 | 116 |
| Black-billed Gull | 67 | 2 | 10 | 410 | 270 | 359 | 78 | 26 | 233 | 42 | 21 | 12 |
| TOTAL | 179 | 338 | 1080 | 721 | 666 | 421 | 179 | 62 | 255 | 181 | 572 | 210 |

Comparative 2019-20 data

| 2019-20 data | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| Species | 30/04/2019 | 22/05/2019 | 20/06/2019 | 18/07/2019 | 23/08/2019 | 28/09/2019 | 29/10/2019 | 28/11/2019 | 21/12/2019 | 18/01/2020 | 27/02/2020 | 25/03/2020 |
| Black-backed Gull | 43 | 76 | 198 | 190 | 301 | 72 | 119 | 36 | 63 | 25 | 18 | 114 |
| Red-billed Gull | 395 | 173 | 148 | 370 | 102 | 36 | 26 | 69 | 13 | 18 | 51 | 267 |
| Black-billed Gull | 244 | 3 | 14 | 48 | 986 | 3240 | 642 | 101 | 8 | 19 | 4 | 27 |
| TOTAL | 682 | 252 | 360 | 608 | 1389 | 3348 | 787 | 206 | 84 | 62 | 73 | 408 |

Comparative 2018-19 data

| species | | | | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|
| | 23/04/2018 | 17/05/2018 | 22/06/2018 | 21/07/2018 | 24/08/2018 | 14/09/2018 | 26/10/2018 | 22/11/2018 | 17/12/2018 | 29/12/2018 | 3/01/2019 | 12/01/2019 | 29/01/2019 | 19/02/2019 | 26/03/2019 |
| Black-backed Gull | 108 | 143 | 294 | 71 | 259 | 74 | 52 | 83 | 41 | 19 | 35 | 26 | 7 | 36 | 80 |
| Red-billed Gull | 111 | 116 | 232 | 364 | 27 | 99 | 35 | 183 | 83 | 123 | n.c. | 92 | 95 | 93 | 106 |
| Black-billed Gull | 119 | 6 | 2 | 216 | 4498 | 7130 | 7182 | 4770 | 2544 | 1902 | n.c. | 1650 | 1514 | 433 | 35 |
| TOTAL | 338 | 265 | 528 | 651 | 4784 | 7303 | 7269 | 5036 | 2668 | 2044 | 35 | 1768 | 1616 | 562 | 221 |

Comparative 2017-18 data

| species | | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 24/04/2017 | 20/05/2017 | 17/06/2017 | 26/07/2017 | 17/08/2017 | 22/09/2017 | 21/10/2017 | 21/11/2017 | 23/12/2017 | 19/01/2018 | 27/02/2018 | 13/03/2018 | 26/03/2018 |
| Black-backed Gull | 230 | 46 | 123 | 508 | 201 | 262 | 143 | 14 | 13 | 4 | 191 | 224 | 392 |
| Red-billed Gull | 32 | 11 | 20 | 18 | 21 | 21 | 22 | 20 | 17 | 24 | 110 | 88 | 77 |
| Black-billed Gull | 258 | 5 | 36 | 1264 | 3430 | 459 | 8798 | 7008 | 6290 | 3910 | 39 | 141 | 140 |
| TOTAL | 520 | 62 | 179 | 1790 | 3652 | 742 | 8963 | 7042 | 6320 | 3938 | 340 | 453 | 609 |

3.7 Terns

White-fronted Terns were recorded in ten out of twelve months but did not attempt breeding in 2020-21. The highest count was a mere 24 birds in December. The absence of sizeable postbreeding flocks can probably be attributable to birds flocking at this year's breeding sites on other Canterbury river mouths. Caspian Terns were recorded in ten of the monthly surveys with the annual passage of birds migrating from the Invercargill breeding colony to wintering grounds in Pegasus Bay being picked up in March (19 birds counted). Black-fronted Terns were the most abundant tern species present in 2020-21, with a large post-breeding flock (265 birds) observed in May. Successful breeding took place over spring with c.30 pairs nesting – mostly on islands just upstream of the delta.



Figure. 18. Nesting Black-fronted Terns (Nov).

| 2020-21 data | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| Species | 30/04/2020 | 22/05/2020 | 17/06/2020 | 21/07/2020 | 19/08/2020 | 23/09/2020 | 22/10/2020 | 19/11/2020 | 22/12/2020 | 29/01/2021 | 23/02/2021 | 19/03/2021 |
| Caspian Tem | 0 | 4 | 4 | 7 | 1 | 1 | 1 | 1 | 1 | 0 | 5 | 19 |
| White-fronted Tem | 3 | 12 | 2 | 0 | 0 | 1 | 5 | 5 | 24 | 6 | 23 | 6 |
| Black-fronted Tem | 17 | 265 | 3 | 0 | 2 | 5 | 32 | 69 | 47 | 48 | 24 | 3 |
| TOTAL | 20 | 281 | 9 | 7 | 3 | 7 | 38 | 75 | 72 | 54 | 52 | 28 |

Comparative 2019-20 data

| 2019-20 data | | | | | | | | | | | | |
|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | | | | | | | | |
| Species | 30/04/2019 | 22/05/2019 | 20/06/2019 | 18/07/2019 | 23/08/2019 | 28/09/2019 | 29/10/2019 | 28/11/2019 | 21/12/2019 | 18/01/2020 | 27/02/2020 | 25/03/2020 |
| Caspian Tern | 4 | 0 | 4 | 4 | 1 | 0 | 1 | 0 | 1 | 3 | 4 | 2 |
| White-fronted Tern | 7 | 0 | 0 | 0 | 0 | 1 | 1 | 43 | 0 | 1048 | 66 | 59 |
| Black-fronted Tern | 2 | 0 | 0 | 2 | 0 | 4 | 10 | 6 | 4 | 42 | 25 | 33 |
| TOTAL | 13 | 0 | 4 | 6 | 1 | 5 | 12 | 49 | 5 | 1093 | 95 | 94 |

Comparative 2018-19 data

| species | | | | | | | | | | | | | | | |
|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|
| | 23/04/2018 | 17/05/2018 | 22/06/2018 | 21/07/2018 | 24/08/2018 | 14/09/2018 | 26/10/2018 | 22/11/2018 | 17/12/2018 | 29/12/2018 | 3/01/2019 | 12/01/2019 | 29/01/2019 | 19/02/2019 | 26/03/2019 |
| Caspian Tem | 1 | 1 | 5 | 2 | 1 | 1 | 1 | 1 | 3 | 2 | 1 | 1 | 2 | 4 | 1 |
| White-fronted Tern | 14 | 82 | 0 | 3 | 26 | 1 | 85 | 13 | 26 | 294 | 441 | 104 | 74 | 49 | 6 |
| Black-fronted Tem | 32 | 2 | 0 | 2 | 3 | 2 | 2 | 7 | 12 | 4 | 17 | 6 | 24 | 66 | 6 |
| TOTAL | 47 | 85 | 5 | 7 | 30 | 4 | 88 | 21 | 41 | 300 | 459 | 111 | 100 | 119 | 13 |

| species | | | | | | | | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 24/04/2017 | 20/05/2017 | 17/06/2017 | 26/07/2017 | 17/08/2017 | 22/09/2017 | 21/10/2017 | 21/11/2017 | 23/12/2017 | 19/01/2018 | 27/02/2018 | 13/03/2018 | 26/03/2018 |
| Caspian Tern | 0 | 2 | 14 | 2 | 0 | 0 | 2 | 0 | 4 | 8 | 7 | 25 | 4 |
| White-fronted Tern | 2 | 5 | 3 | 0 | 4 | 4 | 2630 | 4436 | 3234 | 1678 | 115 | 133 | 32 |
| Black-fronted Tern | 0 | 4 | 4 | 117 | 65 | 23 | 1 | 18 | 30 | 14 | 8 | 3 | 2 |
| White-winged Black Tern | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| TOTAL | 2 | 11 | 21 | 119 | 69 | 27 | 2633 | 4454 | 3268 | 1700 | 131 | 161 | 38 |



Figure. 19. Part of a large flock of 265 Black-fronted Terns present at the Ashburton Rivermouth in May 2020.

3.8 Other Species

Up to three **New Zealand Kingfisher** were recorded in spring, comprising a presumed breeding pair and at least one other bird.

Welcome Swallows were present in all months, with the highest count, 95 in June.

No close inshore observations of seabirds were made in 2020-21.

| Species 30/04/2 | 20 22/05/202 | 0 17/06/2020 | 21/07/2020 | 19/08/2020 | 23/09/2020 | 22/10/2020 | 19/11/2020 | 22/12/2020 | 29/01/2021 | 23/02/2021 | 19/03/2021 |
|-----------------|--------------|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| NZ Kingfisher | 0 | 0 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 |
| Welcome Swallow | 35 4 | 8 95 | 8 | 20 | 66 | 27 | 4 | 4 | 34 | 12 | 2 |



Figure. 20. One of three New Zealand Kingfishers present in spring.

4.0 Wildlife Management Recommendations

Signage, protective fencing, local media interest, education, community outreach, stakeholder consultation and simply having conversations with local residents and visitors all seem to be leading to a reduction in wildlife disturbance and habitat destruction. This is likely at least part of the reason why species richness and bird abundance has increased since 2017.

Over 2020-21 the quality of riverbed habitat deteriorated as expansive areas of mud and bare shingle (a positive legacy of recent flooding) has been progressively colonised by invasive weedy vegetation. This will inevitably lead to a decline in habitat extent and condition for many of the rivermouth bird species and also attract a greater mammalian predator presence. If this trajectory continues for another year without a significant flood to "clean out" the riverbed, some active weed spraying or targeted scraping away of vegetation by mechanical means may be appropriate.

Future provision of new bird habitat on the southern side of the lagoon will likely be attractive both to waders and terns, as well as the increasingly abundant and species diverse waterfowl population.

Further population reduction of Black-backed Gull colonies on the immediate upstream part of the riverbed would probably benefit breeding birds at the rivermouth and lower river.

Further efforts to curb habitat damage by off-road vehicles on the lagoon and delta, as well as further efforts to reduce vehicle disturbance along the beach (such as by way of an inner and an outer temporary fence) would be useful. Although vehicle and trail bike activity seemed to be less in 2020-21 than in other seasons, it still occurred fairly regularly. Two examples:-



Two 4WD's ripping up mudflats (April 2020).



4WD approaching too close to the main beach roost – gulls and roosting ducks had already taken flight but fortunately the vehicle did not drive closer to the large shag flock and most of these stayed settled. (Feb 2021).

Acknowledgments

Thanks to Donna Field and Jean Jack at ECAN for commissioning these surveys. Thanks to Tony Gray (ECAN) for riverflow information, and to various folks at ECAN, Ashburton Rivermouth/Hakatere Huts and the Ashburton branch of Forest & Bird for support, information and conversation.

Appendix 1 Ashburton Rivermouth Bird Counts 2020-2021

| Species | 30/04/2020 | 22/05/2020 | 17/06/2020 | 21/07/2020 | 19/08/2020 | 23/09/2020 | 22/10/2020 | 19/11/2020 | 22/12/2020 | 29/01/2021 | 23/02/2021 | 19/03/2021 |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Black Cormorant | 2 | 3 | 2 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 2 |
| Pied Cormorant | 13 | 14 | 7 | 2 | 0 | 0 | 0 | 0 | 8 | 11 | 14 | 24 |
| Little Cormorant | 1 | 2 | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 2 | 1 | 1 |
| Spotted Shag | 5133 | 3550 | 9280 | 9980 | 6590 | 2 | 7 | 292 | 660 | 7096 | 5379 | 9770 |
| Otago Shag | 1 | 3 | 1 | 4 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 4 |
| White-faced Heron | 2 | 2 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |
| Royal Spoonbill | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7 |
| Mute Swan | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Black Swan | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| Canada Goose | 83 | 4 | 18 | 8 | 25 | 0 | 13 | 10 | 0 | 6 | 242 | 5 |
| Paradise Shelduck | 4 | 5 | 4 | 0 | 2 | 4 | 2 | 0 | 5 | 22 | 2 | 3 |
| Mallard/Grey Duck | 102 | 49 | 136 | 105 | 36 | 9 | 22 | 15 | 21 | 17 | 105 | 157 |
| NZ Shoveler | 4 | 4 | 0 | 2 | 0 | 3 | 8 | 7 | 0 | 0 | 7 | 6 |
| Grey Teal | 172 | 1330 | 901 | 223 | 25 | 4 | 47 | 11 | 19 | 73 | 118 | 324 |
| NZ Scaup | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 12 | 11 | 4 | 3 |
| Swamp Harrier | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| SI Pied Oystercatcher | 2 | 1 | 3 | 28 | 0 | 15 | 68 | 12 | 18 | 21 | 16 | 1 |
| Variable Oystercatcher | 0 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 2 | 1 |
| Spur-winged Plover | 4 | 3 | 2 | 4 | 8 | 10 | 8 | 6 | 18 | 6 | 8 | 17 |
| Banded Dotterel | 0 | 2 | 2 | 0 | 6 | 8 | 27 | 50 | 72 | 30 | 54 | 2 |
| Black-fronted Dotterel | 2 | 0 | 0 | 2 | 5 | 2 | 6 | 6 | 7 | 4 | 10 | 4 |
| Wrybill | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 7 | 3 | 0 | 0 |
| Bar-tailed Godwit | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| TOTAL | 5768 | 5645 | 11554 | 11109 | 7413 | 581 | 498 | 599 | 1240 | 7632 | 6652 | 1059 |
|--------------------|------|------|-------|-------|------|-----|-----|-----|------|------|------|------|
| Welcome Swallow | 35 | 48 | 95 | 8 | 20 | 66 | 27 | 4 | 4 | 34 | 12 | |
| NZ Kingfisher | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | |
| Black-fronted Tem | 17 | 265 | 3 | 0 | 2 | 5 | 32 | 69 | 47 | 48 | 24 | |
| White-fronted Tern | 3 | 12 | 2 | 0 | 0 | 1 | 5 | 5 | 24 | 6 | 23 | |
| Caspian Tem | 0 | 4 | 4 | 7 | 1 | 1 | 1 | 1 | 1 | 0 | 5 | |
| Black-billed Gull | 67 | 2 | 10 | 410 | 270 | 359 | 78 | 26 | 233 | 42 | 21 | |
| Red-billed Gull | 94 | 164 | 180 | 84 | 338 | 16 | 21 | 4 | 16 | 40 | 71 | 1 |
| Black-backed Gull | 18 | 172 | 890 | 227 | 58 | 46 | 80 | 32 | 6 | 99 | 480 | |
| Arctic Skua | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| Pied Stilt | 6 | 2 | 10 | 12 | 20 | 28 | 35 | 21 | 45 | 37 | 36 | |
| Hybrid Stilt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| Pectoral Sandpiper | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Turnstone | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 10 | 9 | 13 | 11 | |

Appendix 2

CHECKLIST to the BIRDS of the ASHBURTON RIVER MOUTH/ HAPUA HAKATERE and environs

(5th update to April 2021)

Compiled by Andrew Crossland

Sources:

McArthur, N. & M. Bell. 2016. Ashburton River/Hakatere shorebird habitat management strategy. Wildlife Management International, Blenheim.

O'Donnell, C. F. J. 2000. The significance of river and open water habitats for indigenous birds in Canterbury, New Zealand. *Report UOO/37*. Environment Canterbury, Christchurch. Unpublished report.

O'Donnell, C.F.J. & S.M. Moore. 1983. The wildlife and conservation of braided river systems in Canterbury. *Fauna Survey Unit Report No.33*. Wellington, New Zealand Wildlife Service, Department of Internal Affairs.

O'Donnell, C.F.J.R. Ashburton River Report

A. Crossland pers. obs. 1986 - 2019

S. Butcher pers. coms.

D. Geddes pers. coms.

Classified Summarised Notes/OSNZ records

BirdingNZ.net/ebirdNZ

| Key | | | |
|---------|---------------------------|------|------------------------------------|
| Origin: | | | Maximum numbers (2000s): |
| W | = wetland/coastal species | **** | over 2000 (abundant ¹) |

| t | = terrestrial/non wetland species | **** | over 500 (abundant ²) |
|------------|---|-----------|-----------------------------------|
| bold | = native or endemic sp. or sub.sp. | *** | over 200 (very common) |
| italics | = Australian visitor | ** | over 50 (common) |
| std font | = human-introduced (exotic) | * | 10 - 50 (less common) |
| underlined | = northern hemisphere migrant | # | < 10 (uncommon) |
| Status: | | | |
| R | = resident - present all year round | | |
| Rb | = resident and breeding | | |
| RS | = non-breeding resident with seasonal p | opulatio | on influxes |
| RbS | = breeding resident with seasonal popul | lation in | fluxes |
| V | = vagrant or irregular visitor | | |
| S | = seasonal or regular visitor | | |

SPECIES RECORDED 1980 to 2021

Penguins

| 1. | Little Blue Penguin (Eudyptula minor) | w V | # |
|--------|---|-----|---|
| Petrel | S | | |
| 2. | Giant Petrel sp. (Macronectus sp.) | w V | # |
| Ganne | ets | | |
| 3. | Australasian Gannet (Morus serrator) | w S | # |
| Corm | orants and Shags | | |
| 4. | Black Cormorant (Phalacrocorax carbo novaehollandiae) | w S | # |
| 5. | Pied Cormorant (Phalacrocorax varius varius) | w S | * |

| 6. | Little Cormorant (Phalacrocorax melanoleucos brevirostris) | w S | # |
|----|--|------|------|
| 7. | Little Black Cormorant (Phalacrocorax sulcirostris) | w V | # |
| 8. | Spotted Shag (Stictocarbo punctatus punctatus) | w RS | **** |
| 9. | Otago Shag (Leucocarbo chalconotus) | w S | # |

Herons and Allies

| 10. | White-faced Heron (Ardea n. novahollandiae) | w RbS | # |
|-----|---|-------|---|
| 11. | White Heron (Egretta alba modesta) | w V | # |
| 12. | Royal Spoonbill (Platalea regia) | w S | # |

Waterfowl

| 13. | Mute Swan (Cygnus olor) | w V | # |
|-----|--|-------|------|
| 14. | Black Swan (Cygnus atratus) | w S | # |
| 15. | Canada Goose (Branta Canadensis maxima) | w RbS | *** |
| 16. | Greylag (Feral) Goose (Anser anser) | w V | # |
| 17. | Paradise Shelduck (Tadorna variegata) | w RbS | * |
| 18. | Mallard (Anas p. platyrhynchos) | w RbS | ** |
| 19. | Grey Duck (Anas s. superciliosa) | w V | # |
| 20. | Grey Teal (Anas gracilis) | w RbS | **** |
| 21. | New Zealand Shoveler (Anas rhynchotis) | w S | * |
| 22. | New Zealand Scaup (Aythya novaeseelandiae) | w V | # |

Raptors (Birds of Prey)

| 23. | Swamp Harrier | (Circus approximans) | w RbS | # |
|-----|---------------|----------------------|-------|---|
|-----|---------------|----------------------|-------|---|

Gamebirds

| 24. | California Quail (Callipepla californica brunnescens) | | * |
|-----|---|------|---|
| 25. | Ring-necked Pheasant (Phasianus colchicus) | t Rb | # |

Rails/Gallinules

| 26. | Pukeko | (Porphyrio | porphyrio melanotus | w V | # |
|-----|--------|------------|---------------------|-----|---|
|-----|--------|------------|---------------------|-----|---|

Waders

| 27. | South Island Pied Oystercatcher (Haematopus ostralegus) | w RbS | * |
|-----|---|-------|----|
| 28. | Variable Oystercatcher (Haematopus unicolor) | w S | # |
| 29. | Pied Stilt (Himantopus himantopus) | w RbS | * |
| 30. | Black Stilt (Himantopus novaezelandiae) | w V | # |
| 31. | Spur-winged Plover (Vanellus miles) | w RbS | ** |
| 32. | Banded Dotterel (Charadrius bicinctus) | w RbS | ** |
| 33. | Mongolian Plover (Charadrius mongolus) | w V | # |
| 34. | Black-fronted Dotterel (Charadrius melanops) | w RbS | * |
| 35. | Wrybill (Anarhynchus frontalis) | w S | # |
| 36. | Pacific Golden Plover (Pluvialis fulva) | w V | # |
| 37. | Ruddy Turnstone (Arenaria interpres) | w S | # |
| 38. | Red Knot (Calidris canutus canutus) | w V | # |
| 39. | Sharp-tailed Sandpiper (Calidris acuminata) | w V | # |
| 40. | Pectoral Sandpiper (Calidris melanotos) | w V | # |
| 41. | Red-necked Stint (Calidris rufficollis) | w V | # |
| 42. | Eastern Bar-tailed Godwit (Limosa lapponica baueri) | w V | # |
| 43. | Eastern Curlew (Numenius madagascariensis) | w V | # |
| 44. | Siberian Tattler (Tringa brevipes) | w V | # |
| 45. | Common Sandpiper (Tringa hypoleucos) | w V | # |

Skuas, Gulls and Terns

| 46. | Arctic Skua (Stercorarius parasiticus) | w S | # |
|-----|--|-----|---|
| 47. | Pomarine Skua (Stercorarius pomarinus) | w S | # |

| 48. | Black-backed Gull (Larus dominicanus) | w RbS | **** |
|-------|--|-------|------|
| 49. | Red-billed Gull (Larus novahollandiae) | w RbS | *** |
| 50. | Black-billed Gull (Larus bulleri) | w RbS | **** |
| 51. | White-winged Black Tern (Chlidonias leucopterus) | w V | # |
| 52. | Black-fronted Tern (Sterna albostriata) | w RbS | ** |
| 53. | Caspian Tern (Sterna caspia) | w S | * |
| 54. | White-fronted Tern (Sterna striata) | w RbS | **** |
| 55. | Common Tern (Sterna hirundo) | w V | # |
| | | | |
| Pigeo | ns and Doves | | |
| 56. | Rock Pigeon (Columba livia) | t R | ** |
| ~ 1 | | | |
| Cucke | DOS | | |
| 57. | Shining Cuckoo (Chrysococcyx lucidus) | t Sb | * |
| Owls | | | |
| 58. | Little Owl (Athene noctua) | t Rb | # |
| Kingf | ïshers | | |
| 59. | New Zealand Kingfisher (Halcyon sancta) | w RbS | # |
| Swall | OWS | | |
| 60. | Welcome Swallow (Hirundo tahitica) | wRS * | * |
| Passe | rines | | |
| 61. | Skylark (Alaudu arvensis) | t RbS | * |
| 62. | New Zealand Pipit (Anthus novaseelandiae) | t S | # |
| 63. | Dunnock (Prunella modularis) | t RbS | * |
| 64. | Blackbird (Turdus merula) | t RbS | ** |
| 65. | Song Thrush (Turdus philomelos) | t RbS | * |

| 66. | Bellbird (Anthornis melanura) | t S | # |
|-----|---|-------|------|
| 67. | Grey Warbler (Gerygone igata) | t RbS | * |
| 68. | South Island Fantail (Rhipidura fuliginosa) | t RbS | * |
| 69. | Silvereye (Zosterops lateralis) | t RbS | *** |
| 70. | Yellowhammer (Emberiza citrinella) | t RbS | ** |
| 71. | Cirl Bunting (Emberiza cirlus) | t V | # |
| 72. | Chaffinch (Fringilla coelebs) | t RbS | *** |
| 73. | Greenfinch (Carduelis chloris) | t RbS | *** |
| 74. | Goldfinch (Carduelis carduelis) | t RbS | *** |
| 75. | Redpoll (Carduelis flammea) | t RbS | *** |
| 76. | House Sparrow (Passer domesticus) | t RbS | ** |
| 77. | Starling (Sturnus vulgaris) | t RbS | **** |
| 78. | White-backed Magpie (Gymnorphina tibicen) | t RbS | * |

78 species recorded 1980 – 2021, including 38 resident species, 17 seasonal/regular visitors and 23 vagrants/irregular visitors.