

# THE STATUS OF NEW ZEALAND DOTTERELS and VARIABLE OYSTERCATCHERS ON AOTEA: 2026.

Report to Aotea EcoVision and Auckland Council.  
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## Introduction.

This report summarises the annual New Zealand dotterel count data in the “DOTTS DATA BASE post-breeding” excel file which is held by John Ogden with copies to the Department of Conservation (Sue Moore), Ecovision (Jo O’Reilly), and Auckland Council (Annamarie Clough) (Appendix 1). It also covers variable oystercatchers, which have been counted in most years at the time of the annual dotterel count, usually in March. The Okiwi Spit Oystercatcher results are presented here for the first time.

The 2025-26 monitoring of productivity (fledged young) dotterel breeding at Medland Beach organized by Oruawharo Medlands Ecovision (OME) is included, but additional data on NZ dotterel survivorship and movement on and off Aotea, included in the 2025/2026 OME Report and elsewhere are *not* updated here. Oystercatcher productivity data at Medland Beach up to 2026 are included for comparison with the Okiwi population changes.

For both species emphasis is on long-term trends and the apparent effects of Cyclone Gabrielle, which caused seawater to overflow Okiwi Spit in February 2023, immediately before the counts, when gatherings of both species would have been present.

## Methods

The annual post-breeding New Zealand dotterel count involves a team of volunteers on all the main Aotea beaches on a specified day in March or April. The date is chosen after almost all fledging has occurred, on a day when high tide is in the early morning at Whangapoua/Okiwi Spit. This is because Okiwi Spit is the main post-breeding flocking site for the Aotea dotterels and oystercatchers, and at high tide the birds are resting on the spit rather than feeding out on the estuary mud-flats, and hence easier to count.

The productivity (‘fecundity’) data are obtained by watching nesting pairs, and recording the number of chicks which survive to fledging. This is not as straightforward as it appears (see Dowding 2006); not only do fledged chicks resemble adults, but also they frequently move between beaches or parts of beaches, so that without frequent observation, it can be uncertain if a fledged chick is an offspring from the pair being monitored. The Oruawharo/Medlands Ecovision group has carried out a weekly beach survey for these data since 2024, and collated some earlier observations.

## Results

### General Aotea trends. New Zealand dotterel.



The general trend in New Zealand Dotterel numbers on Aotea has been positive since c. 2000. Numbers increased significantly between 2010 and 2022 ( $r < .001^{***}$ ) but dropped dramatically after Cyclone Gabrielle (February 2023) which moved large amounts of sand from the spit, and probably killed many birds. Since then numbers appear to be increasing (Fig 1).

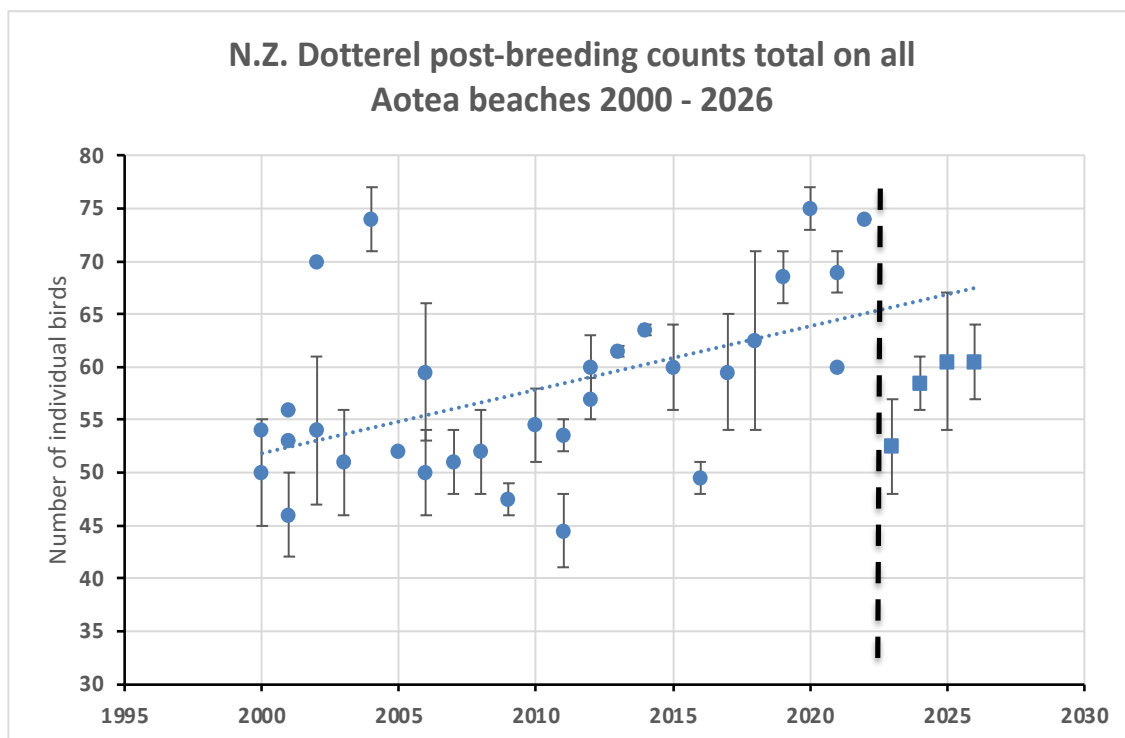


Fig 1. New Zealand dotterel counts, summed for all occupied beaches on one day, usually in March. Error bars are 'counting uncertainties' rather than statistical. Regression line (dotted) is based on pre-Gabrielle counts. The vertical dashed line indicates the timing of Cyclone Gabrielle just prior to the 2023 count. Counts since then have square symbols.

The average count over 26 years is 58 with a minimum of 55 and maximum of 61 (rounded figures), which are the same as the 95% statistical confidence limits on the average counts: 55 – 61. However, considerable variation surrounds the long-term trend, which is positive ( $p < 0.05^*$  Fig 1). Exceptional values (2004, 2020) can be accounted for by likely accidental inclusion of other species of dotterels in those years (greater sand dotterels, 2004, banded dotterels 2020).

## Between-Beaches Comparisons. New Zealand dotterel.

As noted previously (Ogden & Dowding 2013. *Notornis* 60: 210-223), there is a weak negative relationship between numbers at Whangapoua (Okiwi Spit) and numbers on Kaitoke beach. Above average numbers at one site are usually reflected in below average at the other site. This was also the case also in 2026. Local movement between these two beaches (and others) has been shown unequivocally with banded birds. An apparent decline at Whangapoua over the 2000 – 2012 period can now be seen as variation within a longer-term more stable average trend (Fig 1).

No formal post-breeding counts were made at Okupu or the Tryphena beaches before 2013 as the few prior observations had failed to find any birds. However, breeding has been confirmed at Okupu since at least 2018, and one bird was fledged in 2026 (S. Daly *pers. com.*). New Zealand dotterels now appear more frequent on these western beaches, with a maximum of 12 counted in 2026. Because observations on the Tryphena beaches were not included in the Aotea totals until 2021, it is possible that some of the positive trend in Fig 1. is an artifact due to the inclusion of these additional data. However, until this year, the addition has been small and within the variability recorded before these beaches were included.

No observations have been made at Palmer’s Beach since 2021, but generally zero or 1 bird was recorded before then (but 5 in 2008). A pair of NZ dotterels are usually present on Harataonga beach during the breeding season, but appear to leave soon after so often not included in the counts.

## Breeding at Medlands Beach in 2026. New Zealand dotterel.

Table 1. Productivity of NZ Dotterels at Oruawharo/Medlands

Season	2018 -19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	AVG
Pairs	4	5	7	5	5	4	4	4	4.75
Known chick	7	9	11	7	6	2	4	3	6.13
fledged	3	3	3	2	2	2	3	1	2.38
Productivity (average off spring/pair)	0.75	0.60	0.43	0.40	0.40	0.50	0.75	0.25	0.51

Table 1, based on 8 years of dotterel watching at Medlands, gives an average productivity per pair estimate of 0.51. Note that having more pairs present (e.g. 2020-21) doesn’t necessarily increase productivity because several pairs may fail to fledge young (high chick mortality). Note too, that in 2025-26, 3 of the 4 pairs were known to nest, one pair (BB) at least twice. However, only one chick fledged.



## Variable Oystercatcher trends (Okiwi Spit).

The most comprehensive counts of Oystercatchers have been made on Okiwi Spit, where, like dotterels, a significant proportion of the East Coast nesting pairs

and/or their offspring appear to accumulate after breeding. Counts have generally been in March, when most other beaches have lost most or all of their breeding pairs. There is usually a distinct flock on the Spit at high tide, but with other more scattered pairs along the beach, north to the Wairarapa Graves. These scattered pairs are presumably local breeders. The total count includes the flock and the scattered birds. The flock includes, and may largely comprise, juveniles.

A strongly positive trend from 2000 to 2020 came to a sudden termination in 2022 or 2023. Unfortunately, no count was made in 2022, but the effect of cyclone Gabrielle in 2023 seems evident. Since then, the post-breeding Oystercatcher flock on the Spit has remained well below the average of the previous decade. There was no sign of a variable oystercatcher flock when the 2025 (dotterel) count was made on March 23<sup>rd</sup>, but a flock of 57 (minimum) was counted on March 30<sup>th</sup> (Sue Moore: Ebird). Oystercatchers often move to wet coastal fields after heavy rain, so it is likely that the birds were elsewhere on the count day. However, there appears to have been little recovery since Gabrielle.

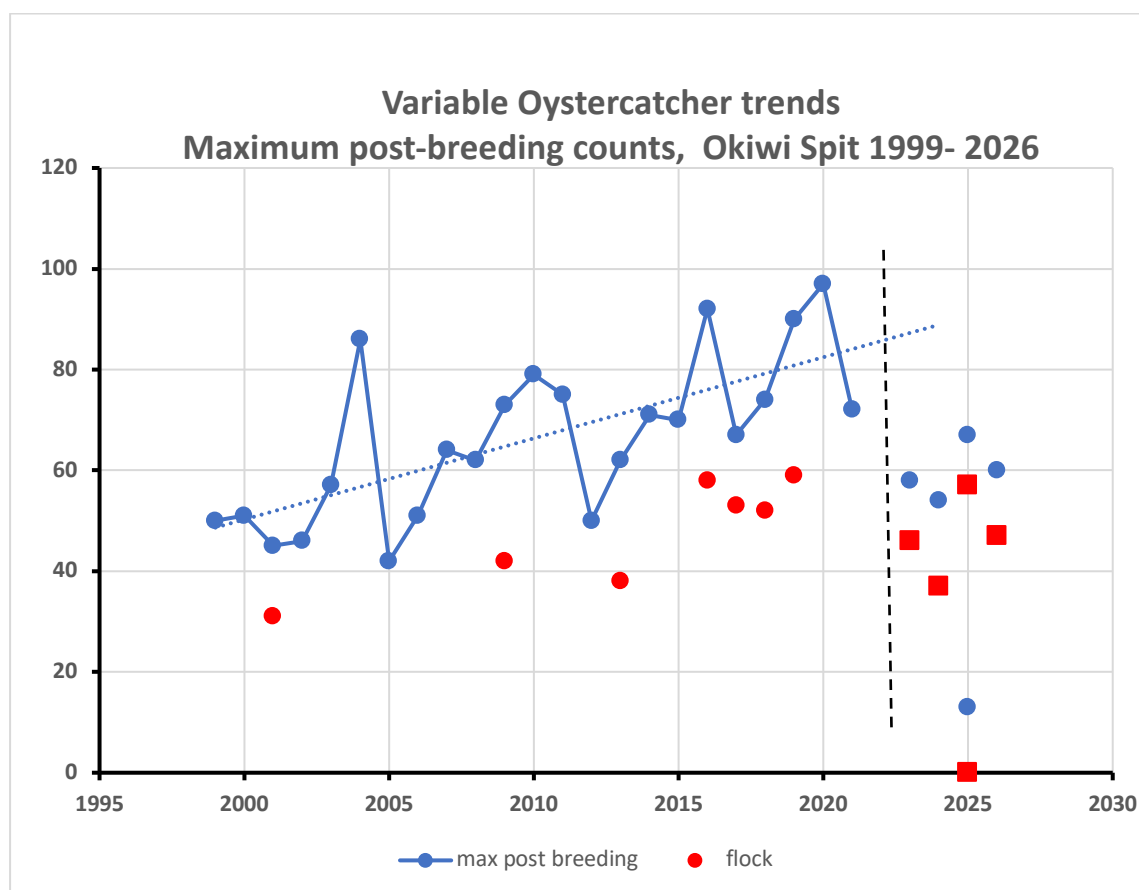


Fig 2. Variable Oystercatcher trends. Blue points are total annual maximum count (including flock) on Whangapoua/Okiwi Spit at high tide, usually in March. The dotted regression is based only on pre-Gabrielle counts. Red points are the separate flock counts (not done every year). Square points are post-Gabrielle (indicated by vertical dashed line)

### Variable Oystercatcher productivity (Medland Beach).

Variable Oystercatchers have been monitored on Medland Beach by Peggy Garlick since before 2018. Individual birds can often be recognized by white markings and site fidelity, so it is known that some pairs have been together for 12 years. Elsewhere *individual* longevities up to 19 years have been recorded. The 8 years of data in Table 2 might suggest a progressive decline in productivity over those years, but with average individual longevity of >5 years, the average productivity of 0.41 is adequate to maintain the Medland population. Consequently, this apparently low productivity is not a cause for concern, rather the current eight-year average implies a likely population increase, and this is substantiated by annual counts on Okiwi Spit, where the total increased from c. 50 to c. 80 birds (60%) between 2000 and 2020 (before Gabrielle). The change in trend after Gabrielle is discussed below.

*Table 2. Productivity Variable Oystercatchers at Oruawharo/Medlands (Breeding season from c. September – February).*

Season	2018 -19	2019-20	2020-21	2021-22	2022-23	23-24	24-25	25-26	AVG
Pairs present	6	6	5	5	5	6	6	6	5.63
Pairs nested	4	4	3	4	5	5	1	3	3.63
Known chicks	7	5	5	6	6	7	2	7	5.63
fledged	4	3	3	3	2	2	0	1	2.25
Productivity (average offspring/pair)	0.67	0.50	0.60	0.60	0.40	0.33	0.00	0.17	0.41

It is possible that the old pairs on Medland beach are losing fertility. The Far North pair had two chicks in 2017 and again in 2022-23 but never succeeded in fledging any. They took over a dotterel clutch one year, but these eggs were washed away by a high tide. A new pair occupied vacant territory on the south end of the beach in 2023-24 but have so far raised no young. This new pair may have been birds fledged on Medlands the previous year, or a displaced pair of young birds following Cyclone Gabrielle in February.

## Discussion.

### *New Zealand dotterel.*

Sources of error in the dotterel counts – such as confusion with winter-plumage and juvenile banded dotterels (which are often mixed with New Zealand dotterels on Okiwi Spit), or groups of birds being missed or counted twice, are believed to be small in most years. Uncertainties of this nature are reflected in the error bars in Fig 1. Error in the productivity data can arise if fledged chicks arrive on the counting beach from elsewhere (cf. Dowding 2006), but the conclusion that annual productivity per pair on Medland Beach is generally in the range 0.40 - 0.75 is supported by observations elsewhere on Aotea (Ogden & Dowding 2013).

All the optimum sites for dotterel breeding – sandy beaches backed by dunes but with a nearby fresh-water estuary - are currently occupied by pairs or triplets during the breeding season. Given the apparent stability of the Aotea east-coast numbers it is possible that the western beaches have been colonised by offspring from the east during the period of observation. However, if the Aotea birds are regarded as outliers of a larger Coromandel population, then fluctuations in numbers will also reflect the dynamics of the latter, which appears to be increasing (Dowding 2006) and may be exporting birds to the post-breeding flock at Okiwi Spit.

Three independent data sets; the annual post-breeding counts (increasing), pair productivity (>.05) and survivorship (> 4 years), support a conclusion that the Aotea New Zealand dotterel population is currently increasing or stable. Cyclone Gabrielle may have reduced the dotterel population by 20 – 30% but it appears to have been increasing again since that event.

#### *Variable Oystercatcher.*

Although a similar large % of the Okiwi Oystercatcher flock may have been destroyed by the cyclone and/or a change of venue initiated, the most dramatic ‘effect’ may have occurred after a lag of one breeding season. This is illustrated by the reduction of fecundity at Medlands in the 2024-25 season, coinciding with the absence of the ‘fledged’ flock at Okiwi on some days in March 2025. That season (24/25), the second after Gabrielle, appears to have been exceptionally bad for Variable Oystercatcher breeding success throughout the Island (*personal communications* and Medland data). As the juveniles probably do not start to breed until their 3<sup>rd</sup> year, any first-year birds (2022-23) killed by Cyclone Gabrielle could not be added as new 3<sup>rd</sup> year breeders to the population in the 2024 – 2025 breeding season. This lag effect may explain the poor breeding success in that season, though older birds also failed to breed.

#### *Cyclone Gabrielle – a message for the future?*

While natural catastrophes can greatly reduce bird populations, numbers can quickly recover where eggs or very young birds are the main mortalities (cf. Ogden 1993a,b). This will be so also when the non-breeding juvenile period is short, as in New Zealand dotterels. On the other hand, mortality of relatively long-lived non-breeding juveniles can have longer-term effects on population recruitment, which could, conceivably, render oystercatchers more vulnerable to *sequential* disasters. Thus, longer-lived irregular breeding waders, such as variable oystercatchers, might be more at risk from increasing storm effects as climate warms and sea-level rises in the longer term. However, the adaptability of birds under strong selection pressure seems likely to ensure survival unless populations get to very low numbers.

#### *Future research.*

The dynamics of these bird populations are not to be understood by simply monitoring on an annual basis. While that is ‘the bottom line’, real understanding leading to conservation outcomes requires more detailed studies of breeding success over several years. Also, although not discussed here, much essential information is only obtained by tracking marked birds. Banded (or trackable) birds give information on local movements and on longevity. It is to be hoped that more of these Aotea waders can be tagged in future so that their life cycles and links to other populations can be clarified. Otherwise, as here, much is simply ‘informed guesswork’!

## **Acknowledgements**

The total data in the DATA BASE, the most reliable part of which (since 2000) is in the Appendix, was initially gathered by John Ogden, but has been added to by many other

volunteers. In 2026 the team (including the OME group) comprised: Karen Walker (Puriri Bay, Mulberry Grove, Shoal Bay, Gooseberry Flat, Pa Beach). Peggy Garlick, Jennifer Neads and Raoul Stuart, Jenni Ogden (Medlands and Boulder Bay). Lotte McIntyre, Cait Devey (Kaitoke). Sue Daly (Okupu). Annamarie Clough (Awana beach & estuary). Department of Conservation staff (Harataonga). Jo O'Reilly (Whangapoua & Okiwi Spit).

Jo O'Reilly (Ecology Vision) and Lotte McIntyre (OME) recruited and organised the counters and data collection.

Thanks also to John and Peggy Garlick for editorial comments.

## References.

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## APPENDIX.

PDF of Excel data file: [NZ DOTTS Fin data for ECOVIS].

date	year	Whangapoua MIN	Wmax	Wavg	Harataonga	Awana	Kaitoke	Kmax	Kavg	Okupu plus Tryphena	Palmers	Medlands	Tot min	Total AVG	Tot max	source
Mar-00	2000.00	52	52	52		0	1	1	1			1	54	54	54	
26 Mar - 01	2000.00	40	50	45		0	5	5	5		0	0	45	50	55	
Apr 2000																
Mar-01	2001.00	48	48	48		0	5	5	5			0	53	53	53	
9-Apr-01	2001.00	51	51	51			5	5	5			0	56	56	56	
08-18 Apr 2001	2001.00	42	42	42		0	6	6	6		2	0	42	46	50	
16-Mar-02	2002.00	57	57	57		2	9	9	9			2	70	70	70	
05-07 Apr 2002	2002.00	35	49	42		3	6	6	6		0	3	47	54	61	
21-22 Mar 2003	2003.00	38	44	41	0	0	6	10	8		2	0	46	51	56	this study
22-Mar-04	2004.00	57	61	59	0	0	11	13	12		2	1	71	74	77	this study
11-Apr-05	2005.00	29	29	29		0	23	23	23			0	52	52	52	6
04-05 Mar 2006	2006.00	41	52	46.5		0	12	14	13		0	0	53	59.5	66	this study
3-Apr-06	2006.00	34	40	37		0	12	14	13				46	50	54	this study
21-Mar-07	2007.00	36	42	39		0	10	10	10		2	0	48	51	54	this study
10-Mar-08	2008.00	33	37	35		0	10	14	12		5	0	48	52	56	this study
7-Apr-08	2008.00					0	15	19	17							this study
29-Mar-09	2009.00	38	41	39.5		0	8	8	8		0	0	46	47.5	49	this study
2-Apr-10	2010.00	41	46	43.5		0	10	12	11		0		51	54.5	58	this study
20-Feb-11	2011.00	23	25	24		0										this study
24-25 March 2011	2011.00	23	29	26	0	0	15	16	15.5		0	3	41	44.5	48	this study
6-7 April 2011	2011.00	39	41	40	0	0	8	9	8.5		0	5	52	53.5	55	this study
12-16 Feb 2012	2012.00	35	37	36	2	0	15	17	16		0	3	55	57	59	
23-Mar-12	2012.00	47	53	50	1	0	5	5	5		0	4	57	60	63	
28-Mar-13	2013.00	50	51	50.5	0	0	10	10	10		0	1	61	61.5	62	
21-22 Mar 14	2014.00	48	48	48	3	0	8	9	8.5	1	0	3	63	63.5	64	
6-Apr-15	2015.00	45	52	48.5	0	0	8	8	8	3	0	2	58	61.5	65	
25/26 Apr 16	2016.00	37	38	37.5	2	0	6	8	7		0	0	45	48	51	
15-Apr-17	2017.00	38	42	40	0	2	10	17	13.5	2	1	1	54	59.5	65	
17-Apr-18	2018.00	40	54	47	0	0	10	13	11.5	3	0	1	54	62.5	71	NOTE 28/9/2
4-Apr-19	2019.00	38	42	40	2	1	14	15	14.5	6	0	5	66	68.5	71	
23-Mar-20	2020.00	55	58	56.5		0	8	9	8.5	3	0	7	73	75	77	
6-Mar-21	2021.00	46											46			
17-18 Mar 2021	2021.00	42	42	42	0	0	12	12	12	1		12	67	67	67	
7-Apr-21	2021.00	47	47	47	0	0	6	6	6	1		6	60	60	60	Shanti Morgan, et al.
25-Mar-22	2022.00	63	63	63	0	0	4	4	4	2	0	5	74	74	74	NOT BY JO
24-Mar-23	2023.00	39	46	42.5	0	0	8	10	9	0		1	48	52.5	57	
27-Mar-24	2024.00	36	41	38.5	0	0	10	10	10	8		2	56	58.5	61	Jo O'Reilly
17-Mar-25	2025.00	39	52	45.5	0	0	6	6	6	7		2	54	60.5	67	Felicitas
7-Mar-26	2026.00	30	37	33.5	0	0	13	13	13	12		2	57	60.5	64	Jo O'Reilly
AVG		41.4	45.5	43.4	0.5	0.2	9.2	10.3	9.7	3.5	0.6	2.2	54.7	57.8	60.6	
STD		9.0	8.7	8.6	0.9	0.7	4.1	4.7	4.4	3.5	1.2	2.7	8.8	8.0	7.9	
SEM		1.5	1.4	1.4	0.2	0.1	0.7	0.8	0.7	0.6	0.2	0.4	1.6	1.5	1.4	
95% CL													3.2	2.9	2.8	