

**BEFORE THE AUCKLAND UNITARY PLAN INDEPENDENT HEARINGS  
PANEL**

**IN THE MATTER OF** The Resource Management Act 1991 and  
the Local Government (Auckland  
Transitional Provisions) Act 2010

**AND**

**IN THE MATTER OF** Topic 081b Rezoning and Precincts  
(Geographical Areas)

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**STATEMENT OF BERNARD MICHAUX  
ON BEHALF OF  
THE OKURA ENVIRONMENTAL GROUP  
AND  
THE LONG BAY-OKURA GREAT PARK SOCIETY**

**Terrestrial Ecology  
Weiti Precinct**

**10 February 2016**

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## Summary of Evidence

1. The purpose of this report is to provide ecological evidence on terrestrial ecology in relation to submissions on the proposed Weiti Precinct development on behalf of the Okura Environmental Society and Long Bay – Okura Great Park Society.

## Introduction

2. My name is Bernard Michaux.
3. I have a BA (Hons) from University College, Oxford in Natural Sciences (1973), an MPhil (1<sup>st</sup> Class Honours) in Ecology from the University of Auckland (1983), and a PhD in Evolutionary Biology from Auckland University (1986).
4. I have 31 peer-reviewed publications in scientific journals, have contributed four peer-reviewed chapters to books, and have published a book (Michaux, 2014). The New Zealand avifauna features as data in a number of these publications. In addition, I wrote entries for 13 species on the New Zealand Birds Online website (<http://nzbirdsonline.org.nz/>).BEF
5. I am a member of Birds New Zealand (formerly the Ornithological Society of New Zealand) and have been active in monitoring waders for the past six years (winter and summer censuses at Mangawhai and Jordan's Island, Kaipara Harbour; New Zealand Dotterel breeding and post-breeding censuses at Mangawhai), monitoring tomtits (*Petroica macrocephala*) at Atuanui Scenic Reserve (Michaux, 2009), and monitoring the breeding success of Variable Oystercatchers (*Haematopus unicolor*) at Long Bay – Okura Great Park (Michaux, 2013).
6. I have been recording numbers and diversity of birds at the Okura Shell Bank (opposite the end of the Okura River Road), the Okura Estuary, and Karepiro Bay since the opening of the Okura Bush Walk track in 2006

which allowed access to these areas. I have continuous written records in notebooks going back to 31/10/06 and have placed the last 4 years records (2012-2015) in a freely available electronic format on eBird (Appendix A).

7. Other than where I state that I am relying on the evidence of another person, my evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

### **Karepiro Bay and the Okura Estuary**

8. The area of Karepiro Bay and the Okura Estuary is the most important east coast wader feeding and roosting site south of Mangawhai and north of Miranda, Firth of Thames.

### **Shore Birds of Karepiro Bay**

9. I have been a regular observer of shore birds in Karepiro Bay, for the past nine years.
10. Karepiro Bay is an important roosting and feeding site for both winter migrants from the South Island, such as South Island Pied Oystercatchers ((*Haematopus unicolor*), and summer migrants from the northern hemisphere, in particular Bar-tailed Godwits (*Limosa lapponica*).
11. In addition, Karepiro Bay is home to resident New Zealand endemics, including Variable Oystercatchers (*Haematopus unicolor*) and New Zealand Dotterels (*Charadrius obscurus*) which have attempted to breed in the past and are now being encouraged to do so more regularly through an active pest management programme and roping off of breeding sites.

## Resident Breeding Waders

12. *Variable Oystercatcher (Haematopus unicolor)*. These endemic waders are listed as Nationally Recovering with an estimated population of 6000 birds in 2006 (Bell, 2010). The birds are highly territorial and actively defend breeding territories during the breeding season. Outside the breeding season some pairs remain on territory while others (and that season's young) form winter flocks. These birds are ground nesters making shallow scrapes above the spring high tide mark or laying directly on rocky ledges. One to three eggs are laid in this area usually in late November and are incubated for about four weeks (Heather & Robertson, 1996). During this period (which coincides with maximum summer usage by people) both incubating birds and eggs are vulnerable to disturbance and predation. The young leave the nest after a few days and are looked after by their parents on wave-cut platforms or beaches within the breeding territory, but remain vulnerable to people, horses and dogs due to their "squat and freeze" behaviour when threatened. Young birds remain with their parents until they disperse away from their parents' territory in the autumn, shortly after they are able to fly. There are between 10 and 12 active breeding territories between Granny's Bay and the Wade River Spit including those on the Shell Spit within the Estuary.

13. *New Zealand Dotterel (Charadrius obscurus)*. These endemic waders are listed as Nationally Threatened. Apart from an isolated Stewart Island population, these birds are restricted to the upper half of the North Island. The total North Island population is about 1400 birds (Heather & Robertson, 1996). NZ Dotterels have successfully bred on the Wade River Spit (2-3 breeding pairs) for a number of years where a community group actively manages the breeding site. Birds have periodically attempted to breed at Karepiro Bay and the Okura Shell Bank and recent predator control and roping off of potential breeding sites is likely to increase breeding success (one pair nesting presently on the Okura Shell Bank produced two juveniles). A maximum of 19 birds have been recorded roosting at Karepiro Bay (January, 2014)

14. *Pied Stilt (Himantopus himantopus)*. There is a resident breeding pair at Karepiro Bay.

### Post-breeding and Winter Migrant Birds

15. Table 1 below indicates the post-breeding and Winter Migrant birds observed on specific months between 2012 and 2015.

**Table 1 High count for species (month)**

Common name	Scientific name	2012	2013	2014	2015
SI Pied Oystercatcher	<i>Haematopus ostralegus</i>	<b>420</b> (Feb)	<b>424</b> (Jan)	<b>174</b> (Jan)	<b>381</b> (April)
Variable Oystercatcher	<i>Haematopus unicolor</i>	<b>18</b> (Jan)	<b>21</b> (Jan)	<b>32</b> (July)	<b>21</b> (Jan)
Pied Stilt	<i>Himantopus himantopus</i>	<b>31</b> (April)	<b>22</b> (Jan)	<b>27</b> (Feb)	<b>30</b> (May)
NZ Dotterel	<i>Charadrius obscurus</i>	<b>11</b> (Feb)	<b>18</b> (April)	<b>19</b> (Jan)	<b>9</b> (Jan)
Red-billed Gull	<i>Larus novaehollandiae</i>	<b>56</b> (July)	<b>83</b> (Jan)	<b>115</b> (July)	<b>74</b> (July)
Black-backed Gull	<i>Larus dominicanus</i>	<b>30</b> (April)	<b>33</b> (Feb)	<b>31</b> (April)	<b>40</b> (Aug)
White-fronted Tern	<i>Sterna striata</i>	-	<b>80</b> (April)	<b>28</b> (April)	<b>57</b> (Aug)

16. *South Island Pied Oystercatchers (Haematopus ostralegus)*. These waders breed on the braided river systems of the South Island's east coast, and more recently Hawkes Bay, and migrate north following breeding where they overwinter. There are always some non-breeding birds remaining over spring, but the majority of birds are found from the late summer to autumn (maximum 424 recorded in January, 2013) where they feed in the outer Okura Estuary and Karepiro Bay and roost at Karepiro Bay beach.
17. Gulls and Terns disperse away from their breeding colonies and utilize the stretch between Grannys Bay and Wade River, including the Okura Estuary, to feed offshore and roost over the winter months at low tide.
18. Large rafts of tubenoses, predominantly Fluttering Shearwaters (*Puffinus gavia*), can be found just off the Okura Estuary and Karepiro Bay during the winter months where they feed on small fish that congregate inshore.
19. Arctic skuas (*Stercorarius parasiticus*) can be seen offshore chasing White-fronted Terns to get them to disgorge small fish they have caught.

### **Summer Migrants from the northern Hemisphere**

20. Table 2 below indicates the Summer Migrant bird observed at various months between 2012 and 2015.

**Table 2 High count for species (month)**

Common name	Scientific name	2012	2013	2014	2015
Eastern Bar-tailed Godwit	<i>Limosa lapponica</i>	<b>150</b> (Jan)	<b>120</b> (Dec)	<b>126</b> (Jan)	<b>195</b> (Nov)

21. A flock of Eastern Bar-tailed Godwits feed in the outer estuaries of both the Okura and Wade rivers as well as Karepiro Bay, and roost at Karepiro Bay beach. These iconic New Zealand birds were voted NZ Bird of the Year for 2015 and are classified as Declining, probably due to pressure on feeding and roosting sites on the East Asia flyway. Of the 150 000 birds of this subspecies, 90 000 occur in New Zealand (Woodley, 2013). Perhaps the most remarkable fact about these birds is the 8-10 day non-stop return journey they make from Alaska (where they breed) to New Zealand (Woodley, 2009).

### **Rarer birds**

22. Biodiversity is increased by the occurrence of rarer birds that utilise Karepiro Bay including; Reef Heron (*Egretta sacra*), Brown Teal (*Anas aucklandica*), Shore Plover (*Thinornis novaeseelandiae*), Banded Dotterel (*Charadrius bicinctus*), Whimbrel (*Numenius phaeopus*), and Lesser Knot (*Calidris canutus*). Some of these birds are nationally, not just locally, rare.

### **Protection under the Marine Reserves Act 1971**

23. The relevant sections of the Marine Reserves Act 1971 that apply to Karepiro Bay are given in Appendix B.

24. The migrant waders and resident shore birds have full protection under the provisions of the Marine Reserves Act 1971 and the Wildlife Act 1953, which include provisions for the protection of their habitat where practical. The New Zealand Coastal Policy Statement 2010, Policy 11, also refers to the need to protect indigenous biodiversity and increase habitat quality.

### **Effects of Proposed increase in Housing Density**

25. Waders and other shorebirds are in decline worldwide due to increased human-induced pressures on coastal land and adjacent feeding grounds. (Woodley, 2012) Any increase or intensification of urbanisation of the

land in the Weiti Precinct above 550 dwellings will certainly accord with the same pressures that have led a decline in waders and other shore birds. There will be much increased human activity within and around Karepiro Bay. There is a high likelihood of increased cat and dog menace for the birds.

26. It is my opinion that the proposed increase in housing density will have a detrimental effect on the wading birds in the area by:

Increasing disturbance of nesting birds resulting in lower rates of breeding success. For example, my continued monitoring of Variable Oystercatcher breeding has shown that alteration to Long Bay Regional Park bylaws in 2014, which allowed dogs north of Vaughn Stream, has resulted in a complete breeding failure of all five territories to fledge chicks in 2015/2016, despite success in earlier years.

Increasing disturbance of roosting birds resulting in increased stress and loss of condition, which will impact on breeding success.

## **Conclusion**

27. For the above reasons, I cannot support an increase in housing density above the 550 houses currently approved in the Operative District Plan for the Weiti Precinct. I do not support the increase of houses in the Weiti Precinct to a total of 1,200 as notified in the Proposed Auckland Unitary Plan. In addition, I do not support the submissions applying for additional dwellings in the Weiti Precinct.



## References

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## Appendix A: eBird Highest Count numbers and Species

List for Karepiro Bay, Wade River Spit and the Okura Shell Bank  
[www.ebird.org](http://www.ebird.org)

## Appendix B: Relevant Sections of the Marine Reserves Act 1971

# Appendix A

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YEAR REPORT: High Count

**High Count** Abundance Frequency Group Size Species Totals

Report Details

**Date range:** Jan 1, 2012 – Dec 31, 2012 **Total # of Species:** 33  
**Total # of Checklists:** 49

Location(s): Karepiro Bay;; Long Bay;; Okura shellbank

Summary

	Jan 2012	Feb 2012	Mar 2012	Apr 2012	May 2012	Jun 2012	Jul 2012	Aug 2012	Sep 2012	Oct 2012	Nov 2012	Dec 2012
Number of Species	18	10	7	16	10	16	24	14	16	20	16	12
Number of Individuals	808	650	31	1,333	235	1,151	1,263	377	210	525	151	445
Number of Checklists	5	2	1	8	1	5	10	4	2	6	2	3

Highest Count for a Species (sample size)

[Hide Sample Size](#)

Species Name	Jan 2012	Feb 2012	Mar 2012	Apr 2012	May 2012	Jun 2012	Jul 2012	Aug 2012	Sep 2012	Oct 2012	Nov 2012	Dec 2012
Canada Goose ( <i>Branta canadensis</i> )	21 (1)	—	—	16 (1)	—	—	—	—	—	—	—	—
Paradise Shelduck ( <i>Tadorna variegata</i> )	—	—	—	33 (2)	—	8 (3)	—	—	—	20 (2)	—	—
Mallard ( <i>Anas platyrhynchos</i> )	—	—	—	—	—	24 (1)	11 (2)	19 (3)	—	10 (4)	—	—
Grey Duck ( <i>Anas superciliosa</i> )	—	—	—	10 (1)	—	—	—	—	—	—	—	—
California Quail ( <i>Callipepla californica</i> )	—	—	—	—	—	—	—	—	—	—	—	—
Australasian Gannet ( <i>Morus serrator</i> )	2 (1)	—	—	—	—	—	1 (1)	1 (1)	—	1 (1)	—	2 (1)
Little Black Shag ( <i>Phalacrocorax sulcirostris</i> )	—	—	—	—	—	2 (1)	2 (1)	3 (2)	1 (1)	2 (1)	—	—
Black Shag ( <i>Phalacrocorax carbo</i> )	—	—	—	—	—	—	1 (1)	—	—	—	—	—
Pied Shag ( <i>Phalacrocorax varius</i> )	1 (1)	—	5 (1)	4 (3)	2 (1)	3 (3)	8 (3)	6 (3)	2 (1)	6 (2)	3 (2)	2 (1)
Little Pied Shag ( <i>Phalacrocorax melanoleucos</i> )	1 (1)	—	2 (1)	1 (1)	1 (1)	1 (1)	5 (4)	7 (2)	1 (1)	1 (1)	1 (2)	—
White-faced Heron ( <i>Egretta novaehollandiae</i> )	2 (4)	1 (1)	—	4 (5)	—	5 (3)	10 (5)	3 (3)	3 (1)	6 (2)	3 (1)	—
Reef Heron ( <i>Egretta sacra</i> )	—	—	—	—	—	—	1 (1)	—	—	—	—	—
Australasian Harrier ( <i>Circus approximans</i> )	—	—	—	—	—	—	1	—	—	—	—	—

																		(1)
Spotless Crane ( <i>Porzana tabuensis</i> )	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(1)
Australasian Swamphen ( <i>Porphyrio melanotus</i> )	—	—	—	—	—	—	—	1	—	—	2	—	—	—	—	—	—	(1)
Pied Stilt ( <i>Himantopus leucocephalus</i> )	21	18	—	31	2	11	24	—	2	5	2	7	—	—	—	—	—	(1)
South Island Pied Oystercatcher (SIPO) ( <i>Haematopus finschi</i> )	228	420	—	293	203	311	259	87	79	126	3	161	—	—	—	—	—	(1)
Variable Oystercatcher ( <i>Haematopus unicolor</i> )	18	8	2	7	1	9	13	12	8	15	12	16	—	—	—	—	—	(1)
Spur-winged Plover ( <i>Vanellus miles</i> )	40	3	—	5	—	9	19	—	2	24	2	60	—	—	—	—	—	(1)
New Zealand Dotterel ( <i>Charadrius obscurus</i> )	7	11	—	9	4	3	2	—	—	3	2	7	—	—	—	—	—	(1)
Banded Dotterel ( <i>Charadrius bicinctus</i> )	—	—	—	2	—	—	1	—	—	—	—	—	—	—	—	—	—	(1)
Shore Plover ( <i>Thinornis novaeseelandiae</i> )	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	(1)
Bar-tailed Godwit ( <i>Limosa lapponica</i> )	78	92	—	16	—	—	—	—	62	77	71	150	—	—	—	—	—	(1)
Black-billed Gull ( <i>Chroicocephalus bulleri</i> )	—	—	—	—	—	—	10	—	—	—	—	2	—	—	—	—	—	(1)
Red-billed Gull ( <i>Chroicocephalus scopulinus</i> )	5	2	1	6	—	47	56	30	3	1	19	4	—	—	—	—	—	(1)
South Black Backed Gull ( <i>Larus dominicanus</i> )	13	6	18	30	16	11	14	27	6	11	6	—	—	—	—	—	—	(1)
Caspian Tern ( <i>Hydroprogne caspia</i> )	1	2	1	3	2	2	2	1	1	2	1	—	—	—	—	—	—	(1)
White-fronted Tern ( <i>Sterna striata</i> )	3	—	—	—	—	—	—	—	—	—	—	7	—	—	—	—	—	(1)
Rock Pigeon ( <i>Columba livia</i> )	6	—	—	—	—	6	6	2	5	25	12	—	—	—	—	—	—	(1)
African Collared-Dove (Barbary Dove) ( <i>Streptopelia roseogrisea</i> )	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	(1)
Sacred Kingfisher ( <i>Todiramphus sanctus</i> )	8	—	2	—	2	14	15	15	13	1	3	2	—	—	—	—	—	(1)
Eastern Rosella ( <i>Platycercus eximius</i> )	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	(1)
Welcome Swallow ( <i>Hirundo neoxena</i> )	—	—	—	—	2	—	3	2	4	—	—	—	—	—	—	—	—	(1)
Common Myna ( <i>Acridotheres tristis</i> )	—	—	—	—	—	—	—	—	3	—	4	—	—	—	—	—	—	(1)

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YEAR REPORT: High Count

High Count	Abundance	Frequency	Group Size	Species Totals
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Report Details

**Date range:** Jan 1, 2013 – Dec 31, 2013 **Total # of Species:** 49  
**Total # of Checklists:** 52

Location(s): Karepiro Bay;; Long Bay;; Okura shellbank;; Wade River Spit

Summary

	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013	Sep 2013	Oct 2013	Nov 2013	Dec 2013
Number of Species	17	15	—	18	10	—	14	18	12	39	—	22
Number of Individuals	2,452	723	—	2,726	297	—	167	337	99	883	—	997
Number of Checklists	13	4	—	6	2	—	2	4	2	9	—	10

Highest Count for a Species (sample size)

[Hide Sample Size](#)

Species Name	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013	Sep 2013	Oct 2013	Nov 2013	Dec 2013
Canada Goose ( <i>Branta canadensis</i> )	—	—	—	—	—	—	—	6 (1)	—	7 (2)	—	—
Black Swan ( <i>Cygnus atratus</i> )	—	—	—	—	—	—	—	5 (1)	—	—	—	—
Paradise Shelduck ( <i>Tadorna variegata</i> )	16 (2)	—	—	—	2 (1)	—	—	5 (1)	2 (1)	10 (2)	—	10 (3)
Mallard ( <i>Anas platyrhynchos</i> )	12 (1)	—	—	20 (1)	—	—	3 (1)	6 (3)	4 (1)	9 (4)	—	2 (1)
California Quail ( <i>Callipepla californica</i> )	1 (1)	—	—	—	—	—	—	—	—	—	—	—
Fluttering Shearwater ( <i>Puffinus gavia</i> )	—	—	—	2,000 (1)	—	—	—	—	—	—	—	—
Australasian Gannet ( <i>Morus serrator</i> )	—	—	—	1 (1)	—	—	—	—	—	—	—	—
Little Black Shag ( <i>Phalacrocorax sulcirostris</i> )	—	1 (1)	—	2 (2)	—	—	1 (1)	—	—	1 (1)	—	—
Black Shag ( <i>Phalacrocorax carbo</i> )	—	—	—	—	—	—	—	1 (1)	—	—	—	—
Pied Shag ( <i>Phalacrocorax varius</i> )	4 (5)	1 (2)	—	1 (1)	1 (2)	—	8 (1)	2 (2)	2 (1)	4 (2)	—	6 (4)
Little Pied Shag ( <i>Phalacrocorax melanoleucos</i> )	1 (3)	3 (1)	—	1 (1)	—	—	3 (1)	1 (1)	2 (2)	1 (1)	—	1 (2)
White-faced Heron ( <i>Egretta novaehollandiae</i> )	7 (8)	3 (4)	—	3 (4)	9 (1)	—	3 (1)	3 (2)	—	3 (6)	—	15 (7)

Royal Spoonbill ( <i>Platalea regia</i> )	—	—	—	—	—	—	—	—	—	1	—	—
										(1)		
Australasian Harrier ( <i>Circus approximans</i> )	—	—	—	—	—	—	—	—	1	—	1	—
									(1)		(1)	(1)
Australasian Swamphen ( <i>Porphyrio melanotus</i> )	—	—	—	—	—	—	—	—	—	—	110	—
											(1)	
Pied Stilt ( <i>Himantopus leucocephalus</i> )	22	2	—	9	—	—	2	7	—	7	—	12
	(7)	(2)		(3)			(1)	(2)		(3)		(5)
South Island Pied Oystercatcher (SIPO) ( <i>Haematopus finschi</i> )	424	173	—	169	223	—	33	57	20	63	—	66
	(9)	(2)		(3)	(1)		(1)	(3)	(1)	(4)		(5)
Variable Oystercatcher ( <i>Haematopus unicolor</i> )	21	16	—	9	13	—	8	12	14	18	—	18
	(12)	(4)		(5)	(1)		(2)	(3)	(2)	(7)		(10)
Spur-winged Plover ( <i>Vanellus miles</i> )	53	—	—	—	2	—	—	20	1	10	—	48
	(7)				(1)			(4)	(1)	(4)		(4)
New Zealand Dotterel ( <i>Charadrius obscurus</i> )	10	9	—	18	11	—	—	8	—	4	—	17
	(7)	(2)		(2)	(1)			(2)		(5)		(5)
Banded Dotterel ( <i>Charadrius bicinctus</i> )	—	—	—	—	—	—	—	—	—	—	—	—
Shore Plover ( <i>Thinornis novaeseelandiae</i> )	—	—	—	—	—	—	—	—	—	—	—	1
												(1)
Bar-tailed Godwit ( <i>Limosa lapponica</i> )	118	73	—	7	3	—	—	—	—	97	—	120
	(8)	(2)		(3)	(1)					(3)		(4)
Black-billed Gull ( <i>Chroicocephalus bulleri</i> )	—	33	—	—	—	—	—	—	6	—	—	1
		(1)							(1)			(1)
Red-billed Gull ( <i>Chroicocephalus scopulinus</i> )	83	53	—	65	—	—	52	51	21	37	—	13
	(3)	(4)		(3)			(2)	(1)	(2)	(4)		(7)
South Black Backed Gull ( <i>Larus dominicanus</i> )	26	40	—	18	2	—	7	11	4	16	—	21
	(6)	(3)		(3)	(1)		(2)	(2)	(1)	(5)		(6)
Caspian Tern ( <i>Hydroprogne caspia</i> )	1	—	—	1	—	—	2	1	—	2	—	1
	(1)			(1)			(1)	(1)		(2)		(2)
White-fronted Tern ( <i>Sterna striata</i> )	—	—	—	80	—	—	—	—	—	—	—	—
				(1)								
Rock Pigeon ( <i>Columba livia</i> )	20	19	—	30	—	—	23	—	14	9	—	44
	(3)	(2)		(2)			(1)		(1)	(1)		(3)
African Collared-Dove (Barbary Dove) ( <i>Streptopelia roseogrisea</i> )	—	—	—	—	—	—	—	—	—	2	—	—
										(2)		
Spotted Dove ( <i>Streptopelia chinensis</i> )	—	—	—	—	—	—	—	—	—	2	—	—
										(1)		
New Zealand Pigeon ( <i>Hemiphaga novaeseelandiae</i> )	—	—	—	—	—	—	—	—	—	—	—	1
												(1)
Shining Cuckoo ( <i>Chrysococcyx lucidus</i> )	—	—	—	—	—	—	—	—	—	—	—	1
												(4)
Sacred Kingfisher ( <i>Todiramphus sanctus</i> )	2	2	—	1	—	—	10	3	4	6	—	4
	(3)	(1)		(1)			(2)	(1)	(1)	(3)		(8)
Eastern Rosella ( <i>Platycercus eximius</i> )	—	—	—	—	—	—	—	—	—	5	—	—
										(1)		
Tui ( <i>Prosthemadera novaeseelandiae</i> )	—	—	—	—	—	—	—	—	—	4	—	—
										(1)		
Grey Warbler ( <i>Gerygone igata</i> )	—	—	—	—	—	—	—	—	—	6	—	—
										(1)		
Australian Magpie ( <i>Gymnorhina tibicen</i> )	—	—	—	—	—	—	—	—	—	5	—	—
										(1)		
New Zealand Fantail ( <i>Rhipidura fuliginosa</i> )	—	—	—	—	—	—	—	—	—	3	—	—
										(1)		
Skylark ( <i>Alda arvensis</i> )	—	—	—	—	—	—	—	—	—	14	—	—
										(1)		
Welcome Swallow ( <i>Hirundo neoxena</i> )	—	3	—	—	—	—	3	—	—	7	—	—
		(2)					(1)			(1)		
Silver-eye ( <i>Zosterops lateralis</i> )	—	—	—	—	—	—	—	—	—	1	—	—
										(1)		

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YEAR REPORT: High Count

High Count	Abundance	Frequency	Group Size	Species Totals
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Report Details

**Date range:** Jan 1, 2014 – Dec 31, 2014  
**Total # of Species:** 32  
**Total # of Checklists:** 49

Location(s): Karepiro Bay;; Long Bay;; Okura shellbank;; Wade River Spit

Summary

	Jan 2014	Feb 2014	Mar 2014	Apr 2014	May 2014	Jun 2014	Jul 2014	Aug 2014	Sep 2014	Oct 2014	Nov 2014	Dec 2014
Number of Species	23	13	—	18	18	12	19	14	—	19	16	—
Number of Individuals	1,616	737	—	837	450	223	946	152	—	362	418	—
Number of Checklists	14	4	—	6	3	2	9	2	—	4	5	—

Highest Count for a Species (sample size)

[Hide Sample Size](#)

Species Name	Jan 2014	Feb 2014	Mar 2014	Apr 2014	May 2014	Jun 2014	Jul 2014	Aug 2014	Sep 2014	Oct 2014	Nov 2014	Dec 2014
Canada Goose ( <i>Branta canadensis</i> )	—	—	—	—	32 (1)	—	—	—	—	—	3 (1)	—
Paradise Shelduck ( <i>Tadorna variegata</i> )	2 (1)	—	—	2 (1)	1 (1)	—	2 (2)	—	—	7 (1)	33 (2)	—
Mallard ( <i>Anas platyrhynchos</i> )	8 (1)	—	—	—	15 (1)	—	16 (7)	3 (1)	—	—	4 (3)	—
Australasian Gannet ( <i>Morus serrator</i> )	2 (1)	—	—	—	—	2 (1)	—	—	—	1 (1)	—	—
Little Black Shag ( <i>Phalacrocorax sulcirostris</i> )	—	—	—	1 (2)	—	3 (1)	2 (2)	—	—	—	—	—
Black Shag ( <i>Phalacrocorax carbo</i> )	—	—	—	—	—	—	—	—	—	1 (1)	—	—
Pied Shag ( <i>Phalacrocorax varius</i> )	7 (5)	2 (1)	—	6 (3)	6 (1)	5 (2)	6 (3)	—	—	1 (2)	4 (2)	—
Little Pied Shag ( <i>Phalacrocorax melanoleucos</i> )	2 (6)	4 (1)	—	2 (4)	1 (1)	1 (1)	3 (4)	—	—	2 (1)	3 (2)	—
White-faced Heron ( <i>Egretta novaehollandiae</i> )	10 (11)	1 (2)	—	8 (5)	3 (2)	2 (1)	4 (4)	1 (1)	—	5 (3)	8 (4)	—
Reef Heron ( <i>Egretta sacra</i> )	—	—	—	—	—	1 (1)	—	—	—	—	—	—
Australasian Harrier ( <i>Circus approximans</i> )	—	—	—	—	—	—	—	—	—	1 (1)	—	—
Pied Stilt ( <i>Himantopus leucocephalus</i> )	17 (8)	27 (2)	—	9 (4)	20 (3)	—	4 (3)	4 (2)	—	—	2 (2)	—

South Island Pied Oystercatcher (SIPO) ( <i>Haematopus finschi</i> )	174 (7)	132 (4)	—	149 (4)	146 (3)	171 (1)	112 (7)	79 (1)	—	65 (2)	77 (2)	—
Variable Oystercatcher ( <i>Haematopus unicolor</i> )	19 (11)	14 (4)	—	12 (6)	18 (3)	7 (2)	32 (8)	12 (2)	—	12 (4)	12 (5)	—
Spur-winged Plover ( <i>Vanellus miles</i> )	25 (5)	—	—	4 (2)	1 (1)	—	4 (4)	2 (1)	—	12 (1)	4 (2)	—
New Zealand Dotterel ( <i>Charadrius obscurus</i> )	19 (10)	16 (2)	—	6 (4)	6 (2)	—	8 (3)	4 (1)	—	3 (3)	4 (3)	—
Banded Dotterel ( <i>Charadrius bicinctus</i> )	1 (3)	3 (1)	—	—	5 (1)	—	—	—	—	—	—	—
Bar-tailed Godwit ( <i>Limosa lapponica</i> )	126 (6)	87 (3)	—	5 (2)	16 (1)	—	2 (1)	—	—	93 (2)	101 (2)	—
Red Knot ( <i>Calidris canutus</i> )	—	—	—	—	—	—	—	—	—	—	1 (1)	—
Red-billed Gull ( <i>Chroicocephalus scopulinus</i> )	35 (8)	30 (3)	—	76 (6)	3 (1)	2 (1)	115 (8)	5 (1)	—	10 (2)	3 (2)	—
South Black Backed Gull ( <i>Larus dominicanus</i> )	15 (9)	25 (2)	—	31 (5)	3 (3)	12 (2)	22 (8)	12 (2)	—	12 (3)	9 (1)	—
Caspian Tern ( <i>Hydroprogne caspia</i> )	3 (4)	—	—	3 (2)	1 (1)	2 (1)	1 (3)	—	—	2 (2)	—	—
White-fronted Tern ( <i>Sterna striata</i> )	—	12 (1)	—	28 (1)	—	—	—	—	—	—	—	—
Rock Pigeon ( <i>Columba livia</i> )	40 (3)	10 (1)	—	35 (2)	—	—	5 (1)	4 (1)	—	23 (1)	—	—
African Collared-Dove (Barbary Dove) ( <i>Streptopelia roseogrisea</i> )	1 (1)	—	—	—	—	—	1 (1)	—	—	—	—	—
Spotted Dove ( <i>Streptopelia chinensis</i> )	1 (1)	—	—	—	—	—	6 (1)	—	—	—	—	—
Shining Cuckoo ( <i>Chrysococcyx lucidus</i> )	1 (1)	—	—	—	—	—	—	—	—	—	—	—
Sacred Kingfisher ( <i>Todiramphus sanctus</i> )	5 (7)	—	—	8 (5)	3 (1)	7 (1)	10 (6)	3 (1)	—	1 (1)	4 (2)	—
Eastern Rosella ( <i>Platycercus eximius</i> )	—	—	—	—	—	—	—	6 (1)	—	—	—	—
Skylark ( <i>Alda arvensis</i> )	1 (1)	—	—	—	—	—	—	1 (1)	—	—	—	—
Welcome Swallow ( <i>Hirundo neoxena</i> )	20 (3)	—	—	2 (2)	—	—	—	—	—	2 (1)	—	—
European Goldfinch ( <i>Carduelis carduelis</i> )	—	—	—	—	30 (1)	—	—	9 (1)	—	2 (1)	—	—

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YEAR REPORT: High Count

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Report Details

**Date range:** Jan 1, 2015 – Dec 31, 2015
 **Total # of Species:** 35  
**Total # of Checklists:** 53

Location(s): Karepiro Bay;; Long Bay;; Okura shellbank;; Wade River Spit

Summary

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Number of Species	—	14	12	21	18	18	24	24	16	19	16	10
Number of Individuals	—	633	279	1,669	429	663	4,766	1,146	347	735	549	148
Number of Checklists	—	3	2	4	2	4	9	8	5	8	5	3

Highest Count for a Species (sample size)

[Hide Sample Size](#)

Species Name	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Canada Goose ( <i>Branta canadensis</i> )	—	15 (2)	—	112 (2)	—	67 (1)	—	68 (2)	20 (2)	9 (1)	3 (2)	—
Black Swan ( <i>Cygnus atratus</i> )	—	—	—	—	—	—	2 (1)	—	—	—	—	—
Paradise Shelduck ( <i>Tadorna variegata</i> )	—	4 (1)	2 (1)	—	2 (1)	2 (1)	2 (2)	7 (5)	6 (2)	12 (5)	13 (1)	—
Mallard ( <i>Anas platyrhynchos</i> )	—	9 (1)	—	—	24 (1)	—	—	2 (2)	3 (1)	6 (1)	—	—
Brown Teal ( <i>Anas chlorotis</i> )	—	—	—	—	1 (1)	—	—	—	—	—	—	—
California Quail ( <i>Callipepla californica</i> )	—	—	—	—	—	—	—	—	—	8 (1)	—	—
Fluttering Shearwater ( <i>Puffinus gavia</i> )	—	—	—	600 (1)	—	—	3,500 (1)	300 (1)	—	—	—	—
Australasian Gannet ( <i>Morus serrator</i> )	—	—	—	1 (1)	—	—	3 (1)	4 (2)	—	2 (1)	—	—
Little Black Shag ( <i>Phalacrocorax sulcirostris</i> )	—	—	—	1 (1)	—	4 (1)	3 (1)	1 (1)	—	3 (1)	—	—
Pied Shag ( <i>Phalacrocorax varius</i> )	—	9 (2)	2 (1)	2 (2)	3 (1)	6 (2)	6 (3)	4 (4)	—	2 (2)	8 (4)	1 (1)
Little Pied Shag ( <i>Phalacrocorax melanoleucos</i> )	—	—	—	2 (1)	—	3 (2)	8 (4)	3 (2)	1 (1)	—	1 (1)	1 (1)
White-faced Heron ( <i>Egretta novaehollandiae</i> )	—	8 (2)	2 (2)	2 (2)	1 (2)	4 (2)	3 (6)	19 (3)	5 (3)	3 (6)	3 (4)	3 (1)



Reef Heron ( <i>Egretta sacra</i> )	—	—	—	—	—	1 (1)	—	—	—	—	—	—
Australasian Harrier ( <i>Circus approximans</i> )	—	—	—	3 (1)	1 (1)	—	1 (1)	1 (3)	—	—	—	—
Pied Stilt ( <i>Himantopus leucocephalus</i> )	—	21 (3)	2 (1)	35 (1)	30 (2)	14 (2)	8 (6)	6 (7)	6 (3)	2 (5)	7 (2)	10 (3)
South Island Pied Oystercatcher (SIPO) ( <i>Haematopus finschi</i> )	—	258 (3)	139 (1)	381 (2)	280 (2)	238 (3)	243 (7)	86 (6)	36 (2)	35 (5)	36 (2)	42 (1)
Variable Oystercatcher ( <i>Haematopus unicolor</i> )	—	8 (3)	9 (2)	18 (4)	20 (2)	21 (4)	12 (9)	16 (6)	5 (4)	10 (6)	10 (5)	6 (3)
Spur-winged Plover ( <i>Vanellus miles</i> )	—	—	1 (1)	7 (1)	5 (2)	9 (3)	26 (4)	24 (6)	18 (4)	43 (5)	42 (3)	33 (3)
New Zealand Dotterel ( <i>Charadrius obscurus</i> )	—	9 (2)	—	3 (2)	8 (1)	4 (1)	4 (8)	5 (3)	6 (2)	5 (5)	6 (4)	6 (3)
Banded Dotterel ( <i>Charadrius bicinctus</i> )	—	1 (1)	—	—	1 (1)	4 (1)	—	1 (1)	—	—	—	—
Bar-tailed Godwit ( <i>Limosa lapponica</i> )	—	108 (3)	31 (1)	—	1 (1)	—	5 (1)	—	91 (2)	119 (3)	195 (2)	12 (1)
Parasitic Jaeger ( <i>Stercorarius parasiticus</i> )	—	—	—	2 (1)	—	—	—	—	—	—	—	—
Red-billed Gull ( <i>Chroicocephalus scopulinus</i> )	—	5 (1)	21 (2)	—	3 (1)	7 (1)	68 (3)	74 (3)	10 (2)	15 (3)	33 (4)	—
South Black Backed Gull ( <i>Larus dominicanus</i> )	—	10 (1)	21 (2)	16 (4)	2 (2)	9 (2)	6 (6)	12 (6)	40 (4)	38 (7)	9 (4)	—
Caspian Tern ( <i>Hydroprogne caspia</i> )	—	—	—	—	2 (1)	1 (3)	1 (1)	2 (4)	2 (3)	2 (3)	1 (1)	2 (1)
White-fronted Tern ( <i>Sterna striata</i> )	—	—	—	43 (2)	—	—	—	57 (1)	—	—	—	—
Rock Pigeon ( <i>Columba livia</i> )	—	—	26 (1)	1 (1)	—	21 (1)	11 (1)	36 (1)	—	28 (1)	14 (1)	—
Sacred Kingfisher ( <i>Todiramphus sanctus</i> )	—	2 (2)	1 (1)	1 (1)	—	14 (1)	15 (4)	10 (5)	2 (2)	11 (3)	3 (2)	—
Eastern Rosella ( <i>Platycercus eximius</i> )	—	—	—	—	—	—	—	2 (1)	—	—	—	—
Australian Magpie ( <i>Gymnorhina tibicen</i> )	—	—	—	—	—	—	1 (1)	—	—	—	—	—
Welcome Swallow ( <i>Hirundo neoxena</i> )	—	—	—	6 (1)	8 (2)	—	—	—	—	—	—	—
Australasian Pipit ( <i>Anthus novaeseelandiae</i> )	—	—	—	—	—	—	2 (1)	—	—	—	—	—
Chaffinch ( <i>Fringilla coelebs</i> )	—	—	—	—	—	—	2 (1)	—	—	—	—	—
European Greenfinch ( <i>Chloris chloris</i> )	—	—	—	6 (1)	—	—	—	—	—	—	—	—
European Goldfinch ( <i>Carduelis carduelis</i> )	—	—	—	5 (1)	15 (1)	—	2 (1)	2 (1)	2 (1)	—	—	—

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## Appendix B: Relevant Sections of the Marine Reserve Act 1972

### 2 Interpretation

- In this Act, unless the context otherwise requires,—  
*area* means any part of—
  - (a) the seabed vertically below an area of the surface of—
    - (i) the territorial sea of New Zealand; or
    - (ii) the internal waters of New Zealand as defined by [section 4](#) of the Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977; or
  - (b) the foreshore of the coast of New Zealand;—

and includes any water at any material time upon or vertically above it

*Board* means a Conservation Board established under [section 6L](#) of the Conservation Act 1987

*Conservation Authority* means the New Zealand Conservation Authority established under [section 6A](#) of the Conservation Act 1987

*conservation management plan* means a conservation management plan approved under [section 8](#)

*conservation management strategy* means a conservation management strategy approved under [section 17F](#) of the Conservation Act 1987

*Department* means the Department of Conservation

*Director-General* means the Director-General of Conservation

*firearm* means anything from which any shot, bullet, missile, or other projectile can be discharged (whether or not by force of explosive); and includes any firearm as defined in [section 2](#) of the Arms Act 1983; and *to shoot* has a corresponding meaning

*marine life* means any species of the plant or animal kingdoms which at any time of the life of the species inhabits the sea or foreshore; and includes any specimen of the species whether alive or dead, and any part of any specimen, and the seed, spores, eggs, spawn, young, fry, and offspring of the species; but does not include wildlife within the meaning of the [Wildlife Act 1953](#)

### 3 Marine reserves to be maintained in natural state, and public to have right of entry

- (1) It is hereby declared that the provisions of this Act shall have effect for the purpose of preserving, as marine reserves for the scientific study of marine life, areas of New Zealand that contain underwater scenery, natural features, or marine life, of such distinctive quality, or so typical, or beautiful, or unique, that their continued preservation is in the national interest.
- (2) It is hereby further declared that, having regard to the general purpose specified in subsection (1), marine reserves shall be so administered and maintained under the provisions of this Act that—
  - (a) they shall be preserved as far as possible in their natural state:

- (b) the marine life of the reserves shall as far as possible be protected and preserved:
- (c) the value of the marine reserves as the natural habitat of marine life shall as far as possible be maintained:
- (d) subject to the provisions of this Act and to the imposition of such conditions and restrictions as may be necessary for the preservation of the marine life or for the welfare in general of the reserves, the public shall have freedom of access and entry to the reserves, so that they may enjoy in full measure the opportunity to study, observe, and record marine life in its natural habitat.

(3) For the purposes of this section but subject to any authorisation given under [section 11\(b\)](#), no person shall fish in a marine reserve except—

- (a) persons (not being persons holding a permit issued under [Part 4](#) of the Fisheries Act 1983) authorised by notice in the *Gazette* given by the Minister after having regard to the purpose specified in subsection (1); and
- (b) in accordance with such conditions as to time, place, species of fish, methods, and gear to be used in fishing, as may be specified in the notice; and
- (c) where not inconsistent with any conditions imposed under paragraph (b), in compliance with restrictions imposed on fishing by the [Fisheries Act 1983](#) and any regulations made under it.

(4) Nothing in this section shall apply to prohibit any person from fishing in the reserve in accordance with any conditions imposed by any Order in Council made under [section 5](#).

Section 3(3): replaced, on 10 April 1990, by [section 50](#) of the Conservation Law Reform Act 1990 (1990 No 31).

Section 3(4): inserted, on 13 January 1981, by section 2 of the Marine Reserves Amendment Act 1980 (1980 No 121).