



MCSPPOP2010-02

Chatham Island and Pitt Island shag census 2011

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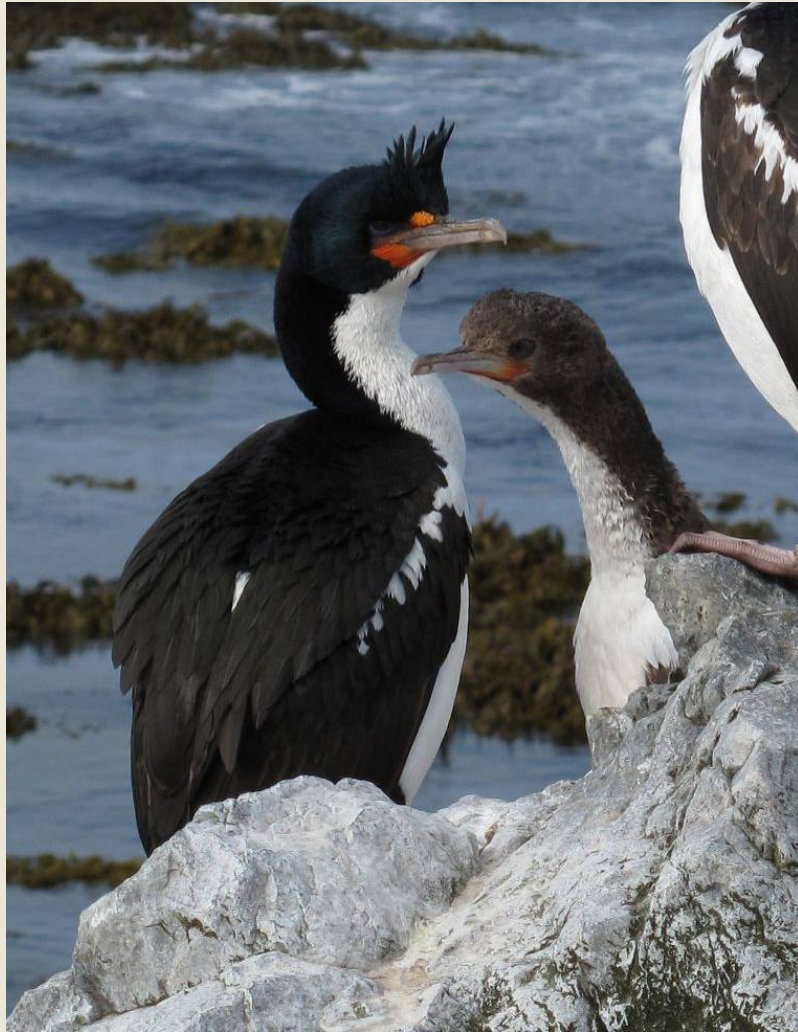
- 1. Science & Technical, Department of Conservation**
- 2. Wildlife Management International Limited**

Objectives

- (a) conduct a complete recensus of Chatham Island and Pitt Island shags in such a way as to maximise comparability with earlier counts in order to determine any trend in population size; and
- (b) investigate the effects of timing and methodology on colony counts, and make recommendations for future monitoring of the populations of Chatham Island and Pitt Island shags.



Chatham Island shag



Pitt Island shag



Methods

- Followed the methods of Bell & Bell (2000) as closely as feasible in order to maximise the comparability with 1997/98
- Counted breeding pairs
- Timed counts at incubation when maximum counts would be made
- Extensive survey of all coast line suitable for shag nesting sites was conducted on 11 consecutive days, from 1 to 11 October 2011 (except 3 outlying islands)
- Additional counts at sites where temporal variation known to be important
- On foot and by boat
- Also report results from a series of visits to breeding sites around main Chatham Island





Map of Chatham Islands showing census search effort

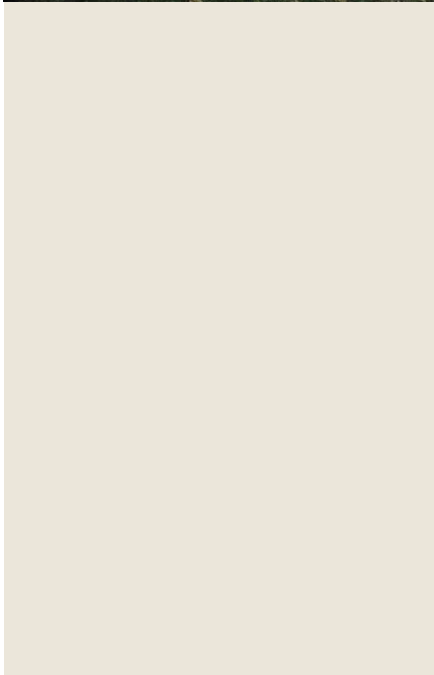
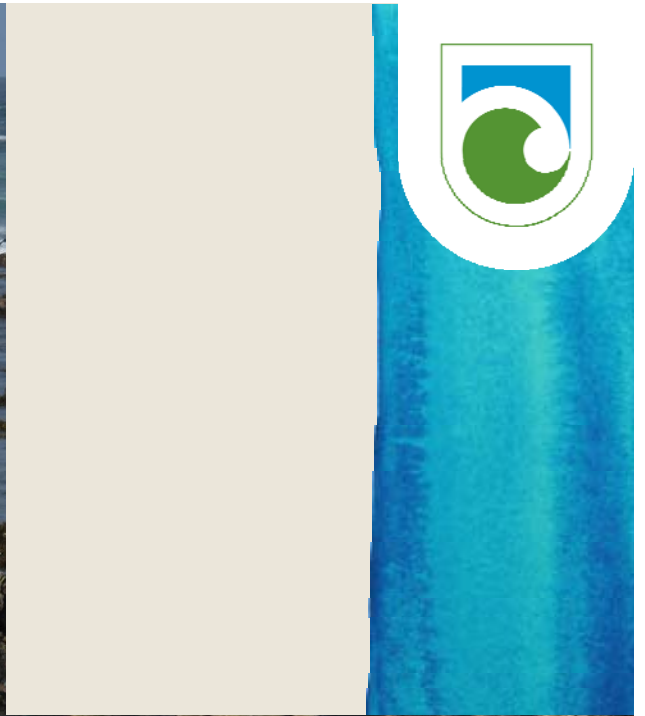


Example GPS plot of on foot search



Example GPS plot of boat search







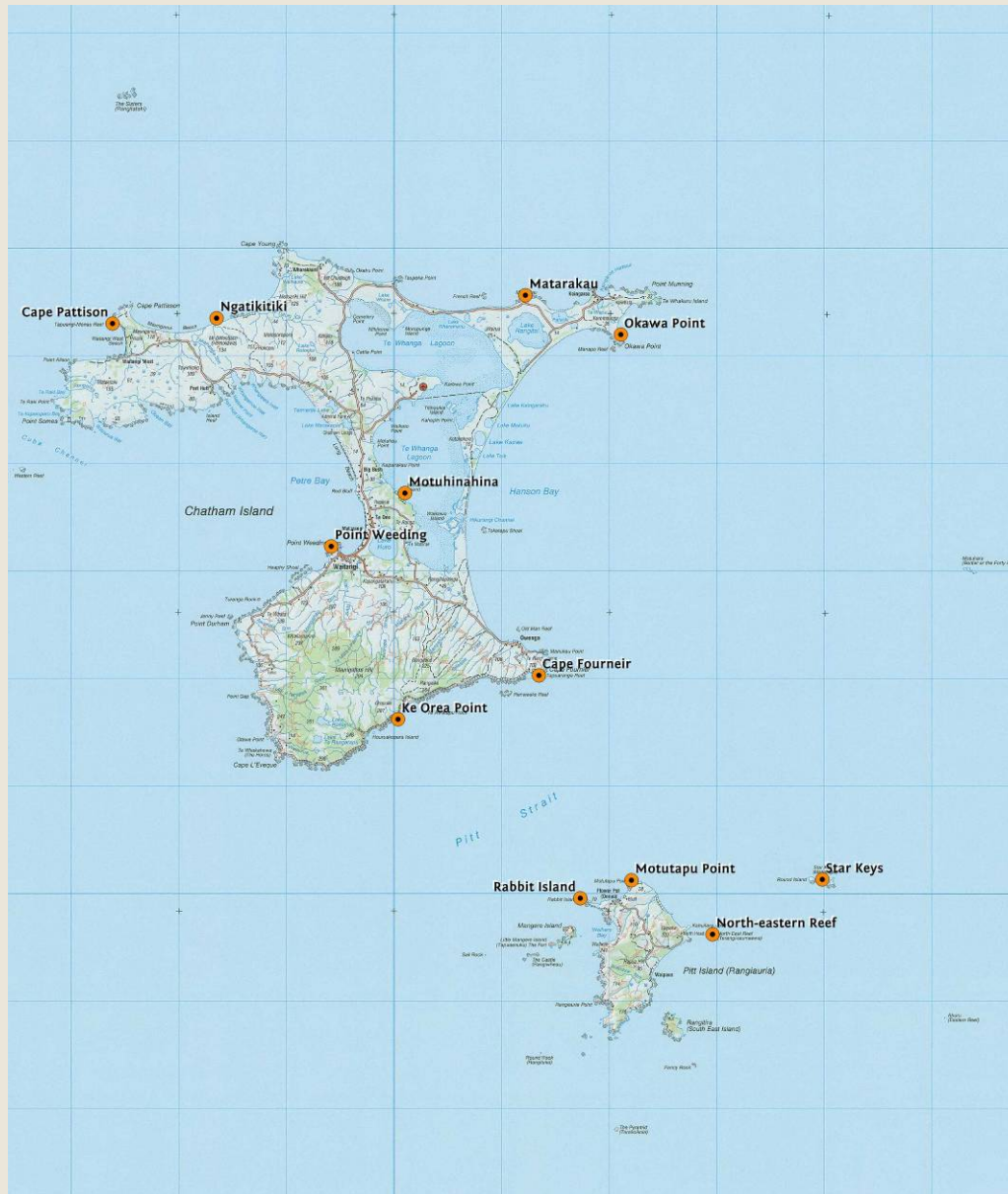
Department of
Conservation
Te Papa Atawhai



Pitt Island
shag colony

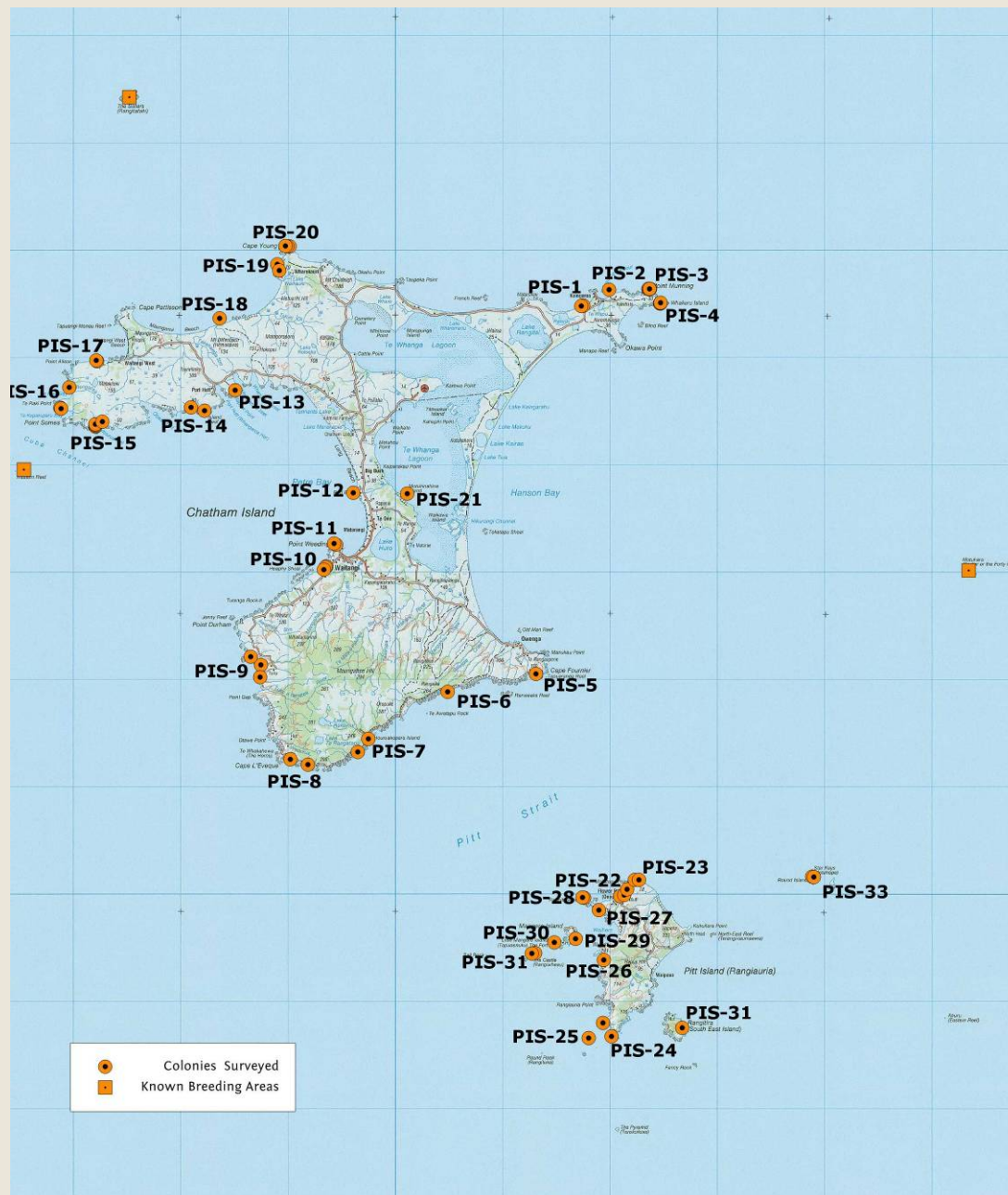
cray pot

Results



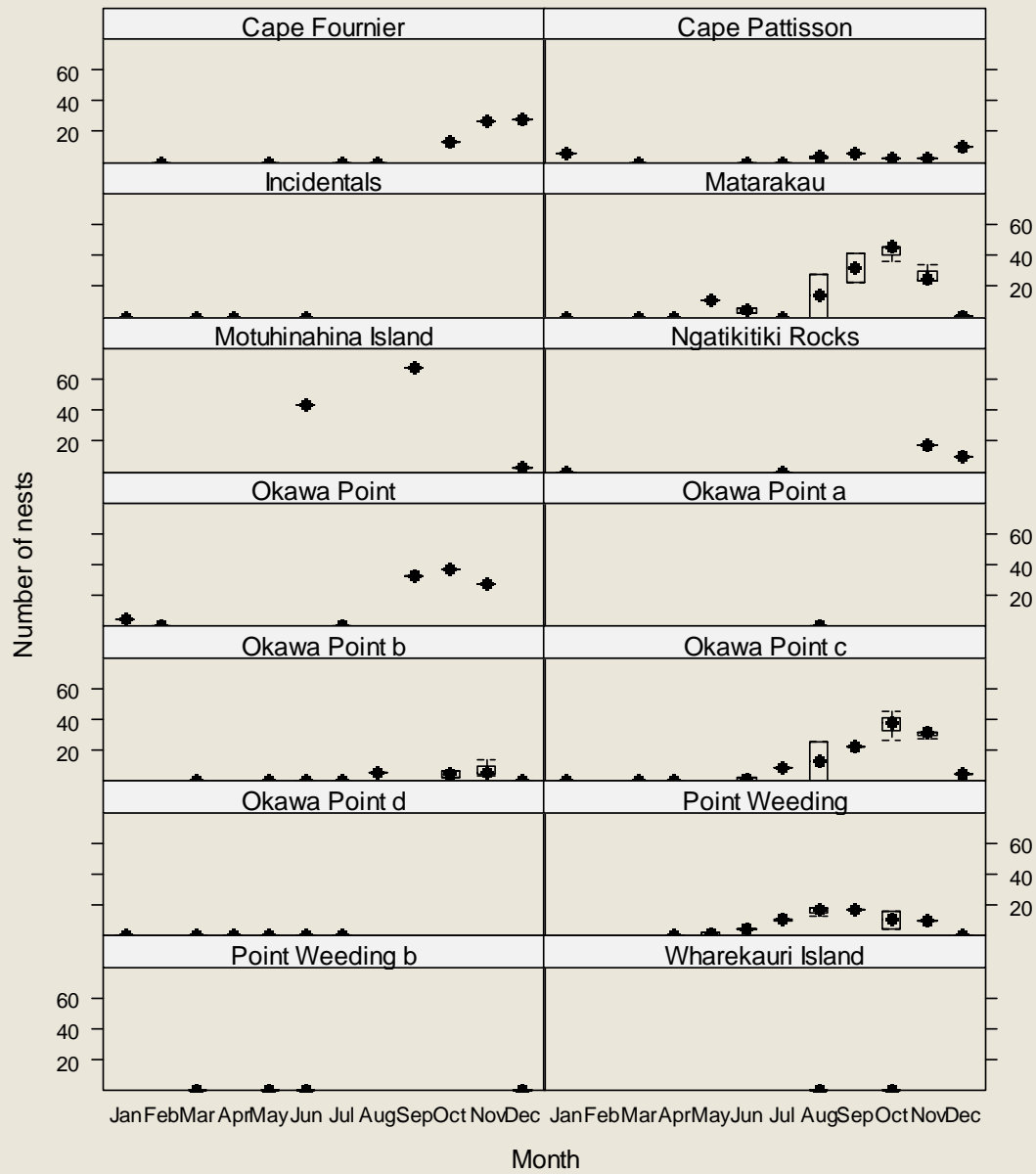
Chatham Island shag breeding colonies





Pitt Island shag breeding areas

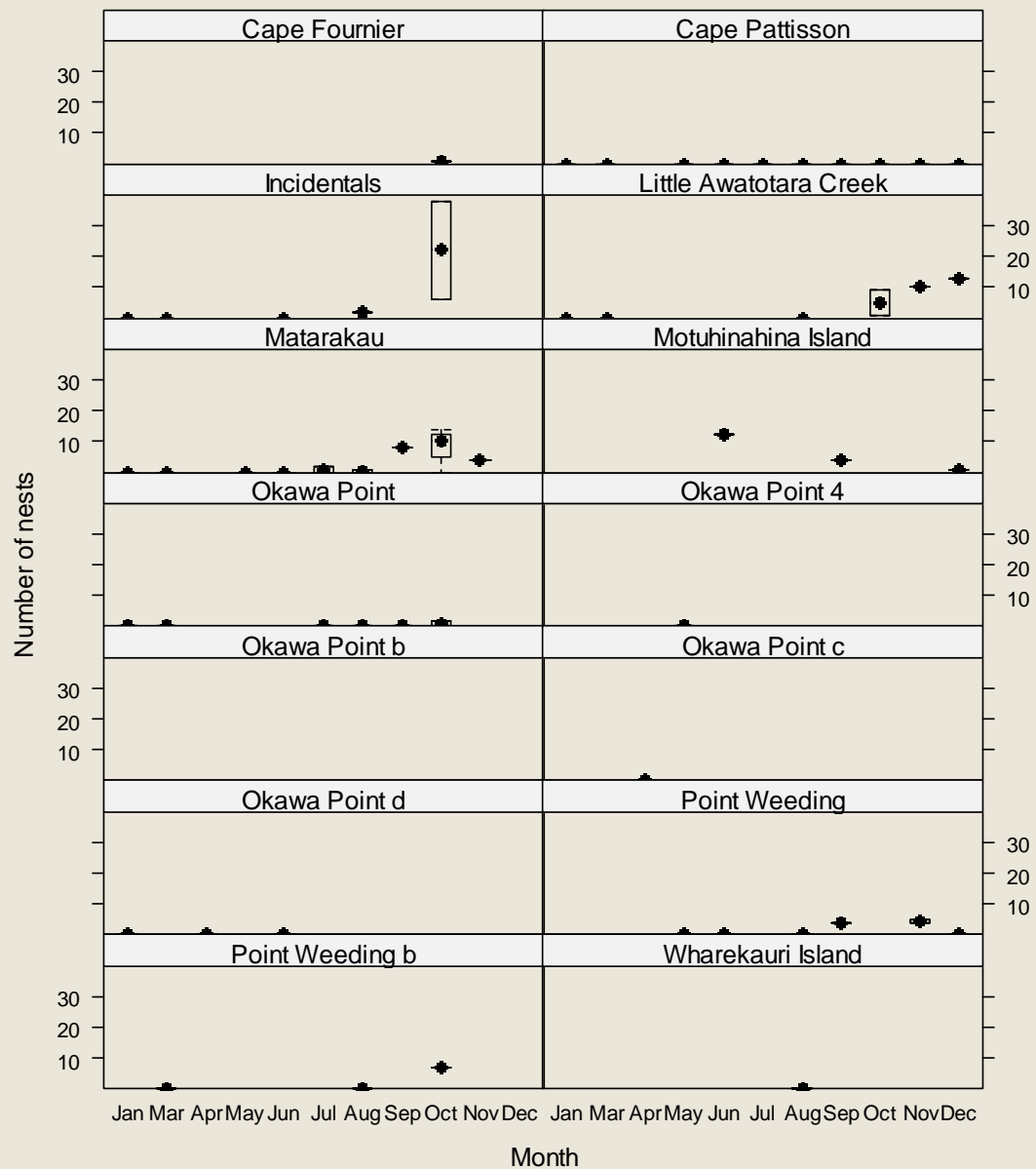
Chatham Island shag



Monthly counts for Chatham Island shags



Pitt Island shag



Monthly counts for Pitt Island shags





Colony	Number of nests			Overall change
	1997/98	2003/04	2011	
Matarakau	53	35	27	
Kaingaroa	0	1	0	
Okawa Point	114	47	42	
Cape Fournier	115	0	51	
The Pinnacles	0	30	0	
Ke Orea Point	7	4	3	
Waitangi	6	5	19	
Cape Pattison	0	11	5	
Ngatikitiki	38	4	13	
Cape Young	0	1	0	
Motuhinahina	68	0	72	
Chatham Island total	401	138	232	42% decline
Motutapu Point	0	0	6	
Kokepa Rock	0	15	0	
Rabbit Island	83	20	18	
North-eastern Reef	19	17	11	
Star Keys	339	81	88	
Pitt Island and surrounding islands total	441	133	23	72% decline
Total	842	271	355	58% decline

Chatham Island shag census results

Comparative breeding area	Number of nests			Overall change
	1997/98	2003/04	2011	
Matarakau	3	11	0	
Kaingaroa to Te Wakaru Island	29	32	62	
Okawa Point	7	0	0	
Owenga-Ko Orea Point	31	24	22	
SW Coast	47	57	27	
Waitangi	33	33	33	
Red Bluff	6	9	10	
Port Hutt Bays	0	0	1	
Port Hutt	30	10	14	
Point Somes South	19	21	7	
Point Somes North	38	20	36	
Ngatikitiki Rocks	18	9	3	
Cape Young	68	14	62	
Motuhinahina	11	7	12	
Chatham Island total	340	247	289	15% decline
Pitt Island North	55	54	28	
Pitt Island East	32	36	0	
Pitt Island South	49	43	15	
Pitt Island West	6	11	2	
Pitt Island total	142	144	45	68% decline
Rabbit Island	29	18	6	
Mangere incl. Little Mangere	23	19	15	
Castle	6	14	11	
Rangatira	63	45	10	
Star Keys	46	43	12	
Pitt Island and surrounding islands total	309	283	99	68% decline
1997/98-2011 comparative subtotal	649	530	388	40% decline
Fourty Fours	9	4	5 ⁺	
Sisters	71	9	41 ⁺	
Western Reef	0	4	0 ⁺	
Total	729	547	434⁺	

Pitt Island shag census results



Conclusions

- Results represent a real declines in the populations, with no information to suggest such substantial numbers of breeding pairs may have been missed in 2011.
- Greatest declines in population for both species at Pitt Island and offlying islands, including protected, predator-free sites.
- Declines likely to be driven by at-sea factors, but lack of information on causal mechanisms.



Recommendations

Future survey methods:

- Counts should be timed to coincide with incubation at all colonies/breeding areas, recognising temporal variability.
- Boat/on foot methods should be standardised for any one area.
- Aerial photography is likely to be well suited for Chatham Island shags and should be trialled alongside ground counts.





Understanding causal factors:

- Describe the nature and extent of direct fishing impacts (see INT2011-02).
- Quantify demographic parameters and identify which are leading to the decline.
- Describe the at-sea foraging habits (see proposed POP2012-08).
- Quantify diet (see proposed POP2012-08).
- Compare studies of the elements listed above between sites where colony trends differ (e.g. Motuhinahina vs Pitt Island area)