Seabird abundance project update

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Dragonfly

CSP/NPOA – Seabirds Technical Working Group
5 October 2009

photo by Sarah M Stewart 2008

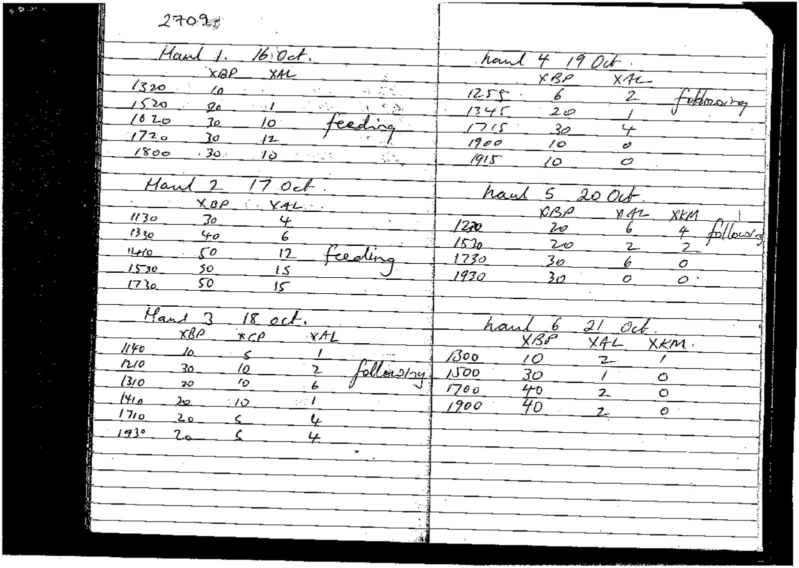
Outline

Seabird abundance observations

- Observers on fishing vessels estimate sea bird abundance
- Conducted for DOC by the MFish observer programme
- Project has been running since 2000
- Initially data recorded in observer diaries
- Also recorded on longline forms
- Since 2005 data recorded on specially developed CSP forms

Diaries and forms

Data collection and grooming



2709

Haul 1. 16 Oct.

	XBP	XAL	
1320	10		
1520	20	1	
1620	30	10	feeding
1720	30	12	
1800	30	10	

Haul 2 17 Oct.

	XBP	XAL	
1130	30	4	
1330	40	6	
1410	50	12	feeding
1530	50	15	
1730	50	15	

Haul 3 18 oct.

	XBP	XCP	XAL	
1140	10	5	1	
1210	30	10	2	following
1310	20	10	6	
1410	20	10	1	
1710	20	5	4	
1930	20	5	4	

haul 4 19 Oct

	XBP	XAL	
1255	6	2	following
1345	20	1	
1715	30	4	
1900	10	0	
1915	10	0	

haul 5 20 Oct

	XBP	XAL	XKM	
1230	20	6	4	following
1530	20	2	2	
1730	30	6	0	
1930	30	0	0	

haul 6 21 Oct.

	XBP	XAL	XKM
1300	10	2	1
1500	30	1	0
1700	40	2	0
1900	40	2	0

Diaries and forms

Data collection and grooming

CSP Protected Species Abundance Form

Observation Data

Trip: 2830 Page 1 of 1

Count No.	Tow / Set No.	Set / Haul	Start / Middle / End	Time	Date	< or > 100 m	Sea State	Species Code (number) XAL	XMA	XWC	XTP	XCP	XSH	XST
1	1	H	E	1408	29/03/09	<100	3	60	100	60	40	30	60	
2	2			1344	30/03/09	<100	4	80	150	80	100	80	100	
3	3			1227	31/03/09	<100	3	100	190	50	120	100	150	
4	4			1659	01/04/09	<100	4	160	250	60	50	90	120	
5	5			1656	02/04/09	<100	3	200	290	120	100	180	180	
6	7			1239	04/04/09	<100	5	160	280	200	220	190	250	
7	9			1030	05/04/09	<100	5	200	320	200	250	250	300	
8	11			1446	06/04/09	<100	5	150	200	150	200	200	200	
9	12			1436	07/04/09	<100	5	120	206	100	190	180	150	30
10	15			1035	09/04/09	<100	5	100	220	150	220	150	180	
11	18			1618	11/04/09	<100	6	100	200	160	180	120	150	10
12	19			1641	12/04/09	<100	7	80	250	180	250	200	200	20
13	20			1519	13/04/09	<100	8	60	160	150	190	150	150	20
14	21	H	E	1577	14/04/09	<100	5	40	120	100	80	100	100	
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														

Number of trips with data collected

	Longline	Notebook	CSP	Total
2001	13	121	0	134
2002	4	112	0	116
2003	16	98	0	114
2004	50	100	0	150
2005	24	104	0	128
2006	13	48	62	123
2007	13	0	115	128
2008	10	0	152	162
2009	0	0	3	3
Total	143	583	332	1058

Years ending in June, with data from July 2000 to June 2008

Getting the data keyed

- Forms since July 2004 have been keyed
- and continue to be keyed as they come in
- Data entry system developed (python, django)
- The CSP developed forms have been double entered

Abundance database

Hey there Finlay. You have entered 6 forms.
Form type: CSP 1 CSP 2

Save Reset Logout

CSP Protected Species Abundance Form for Longline and Offshore Trawl Fisheries v.2 **Trip**(n) 2830 **Page**(n) 1 **of**(n) 1

Observation Data							Species Code (number)						
Ref #	Set No.	Set Haul	NZST	<	>	BF	XAL	XWA	XWC	XTP	XCP	XSH	XST
1	1	H	1408	<		3	60	100	60				
2	2	H	1344	<		4	80	150	50	20			
3	3	H	1227	<		3	100	190	60	100			
4	4	H	1659	<		4	160	250	100	200			2
5	5	H	1656	<		3	200	290	120		300		
6	6	H	1239	<		4	160	200	70			10	1
7	7	H	1030	<		4	150	320	20				5
8	8	H	1446	<		3	120	200	10				

Abundance data keyed

	Trips keyed		Forms	Stations	Obs.
	Once	Multi			
2004	48	0	68	791	4 056
2005	114	3	165	2 352	11 661
2006	66	49	178	2 677	14 511
2007	20	109	203	3 444	17 419
2008	11	136	376	5 895	26 114
2009	16	29	88	1 742	7 289
Total	275	326	1 078	16 901	81 050

Years ending in June.

Reconciliation

Data collection and grooming

- The abundance information keyed on CSP forms has been double entered to allow the data to reconciled
- Each trip's data has been viewed, and reconciled, using a custom grooming application
- Data has been compared with the original forms as it has been reconciled

Abundance Database // Grooming   All trips

Reconcile trip 2808   {'abundances': 17, 'columns': 2, 'stations': 2}   Ignore   Reconcile

Keyed by Thomasin Abraham (iamasexybeast) and Isabella Buttle (izzy) .

Station	Type	Date	Time	Dist.	XWA	XWM	XBM	XWC	XSH	XCP	FUR	HSL
1	H	None	10:20:00	<|	25	100	25	50	25	100		
4	H	None	11:05:00	<|	20	200	50	50	150	100		
7	H	None	11:25:00	<|	10	200	20	50	100	150		
10	H	None	10:45:00	<|	5	100	25	50	100	100		
12	H	None	09:15:00	<|	40	400		100	100	100		
16	H	None	12:05:00	<|	10	250	25	100	100	150		
20	H	None	08:00:00	<|	10	150	15	100	100	100		
21		None	14:30:00	<|							none 1	
22	H	None	11:00:00	<|	10	200	20	100	150	100		
23	H	None	19:40:00	<|							none 1	
25	H	None	12:20:00	<|	10	150	15	50	100	100		
28	H	None	13:10:00	<|	10	100	10	100	100	100		
31	H	None	19:00:00	<|	10	150	15	50	100	100		
33	H	None	12:40:00	<|	10	100		50	150	100		
36	H	None	14:35:00	<|	15 10	150		100	250	100		
40	H	None	11:40:00	<|	10	150	20	100	200	100		
41	H	None	10:54:00	<|	10	100		50	50	50		none 1
44	H	None	12:20:00	<|	10	100		50	100	100		
45	H	None	12:20:00	<|	20	270	30	100	200	100		
Station	Type	Date	Time	Dist.	XWA	XWM	XBM	XWC	XSH	XCP	FUR	HSL
48	H	None	11:05:00	<|	20	200	20	150	250	100		
52	H	None	10:05:00	<|	10	100	10	100	100	100		
56	H	None	09:43:00	<|	10	200	10	50	50	50		
59	H	None	09:20:00	<|	10	200	10	50	50	50		
63	H	None	12:55:00	<|	30	250	50	50	100	100		
66	H	None	11:50:00	<|	20	250	50	50	150	100		
69	H	None	09:35:00	<|	10	200	20	100	200	100		
73	H	None	11:50:00	<|	10	150	20	50	200	100		
76	H	None	10:35:00	<|	10	150	30	100	200	100		
76	H	None	10:55:00	<|	10	150	30	100	200	100		

Error rates

- 2130 corrections were made during reconciliation
  - 540 (0.7% of 77 756) abundance observations were added
  - 419 (0.5% of 77 756) abundance observations were corrected
  - 998 (5.9% of 17 047) station details were corrected
  - 171 (2.1% of 8038) species codes corrected
  - 2 (0.2% of 970) CSP trip key numbers corrected

Linking to COD data

- Using trip and event keys abundance observations were linked to the Central Observer Database (COD) data
- Adds station data (latitude, longitude, target species etc.)
- linked to trawl, surface longline, and bottom longline records

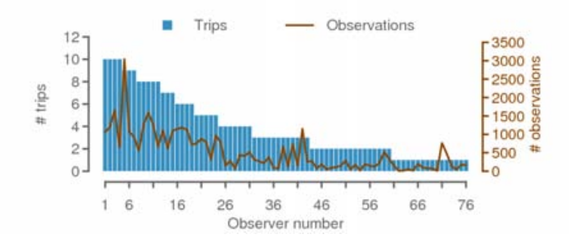
Number of trips by fishery

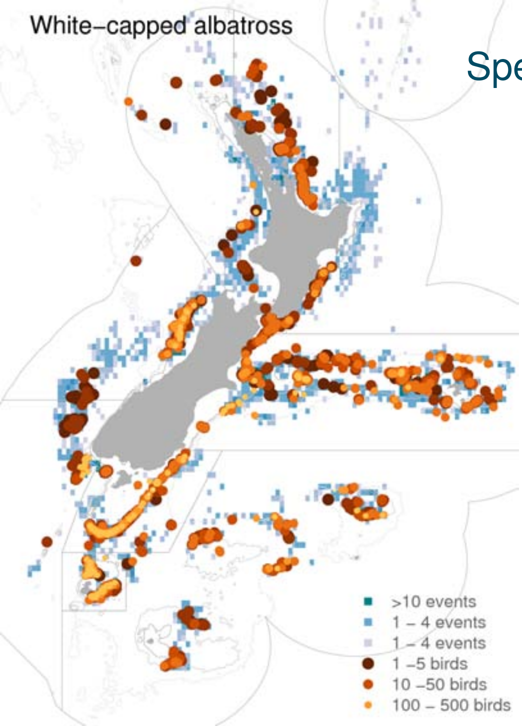
	Trawl			Longline		Total
	Squid	Hoki	Other	Surface	Bottom	
2004	13	4	8	9	6	40
2005	23	22	38	6	19	108
2006	7	23	28	4	11	73
2007	17	9	39	11	9	85
2008	16	27	76	20	17	156
2009		17	21	7	1	46
Total	76	102	210	57	63	508

Note: 2009 forms continue to be keyed, and not all keyed forms have been reconciled.

Source of observer names

- From the COD, we have the names of observers on each trip
- We have defined ”the” observer as the more experienced of the two observers on each trip
- There are 77 different observers in the data set

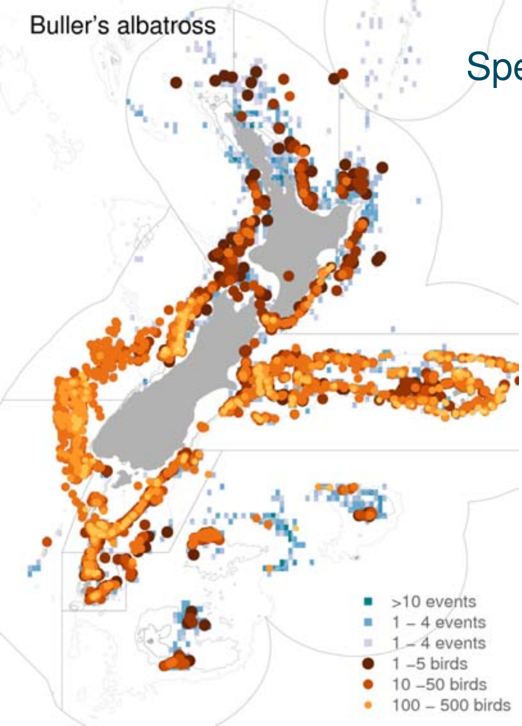




Species distributions

Summary of data

- White-capped albatross are distributed widely
- includes the XWM and the XSY codes.



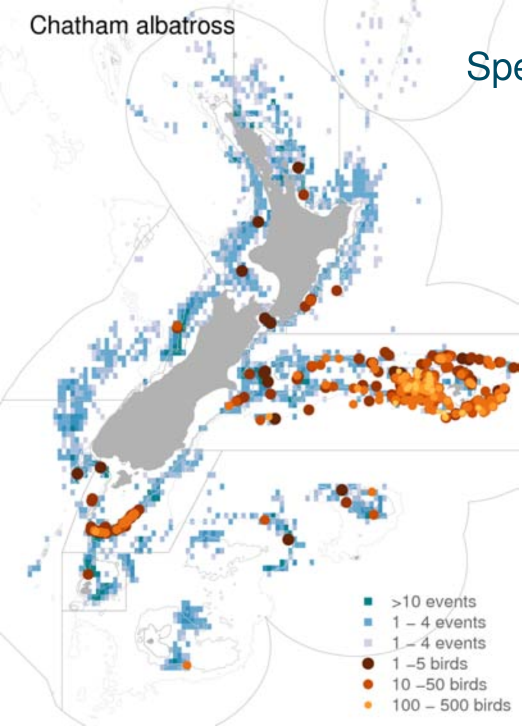
Species distributions

Summary of data

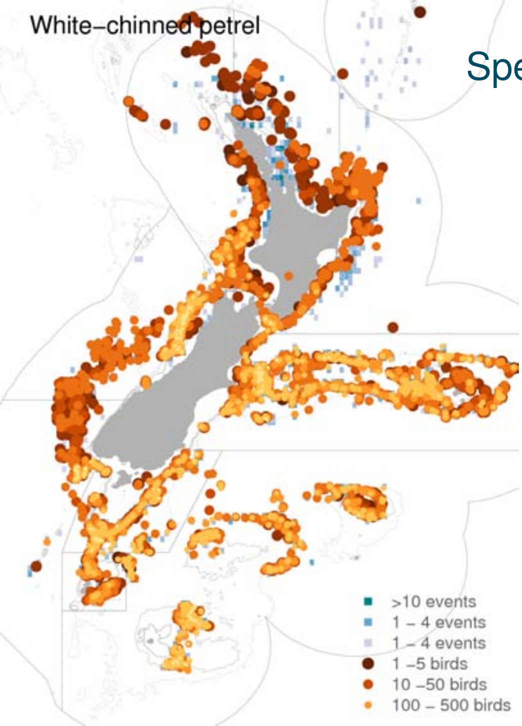
- Buller's albatross are seen in large numbers in the Southern blue-fin tuna fishery
- Widely distributed

Species distributions

Summary of data



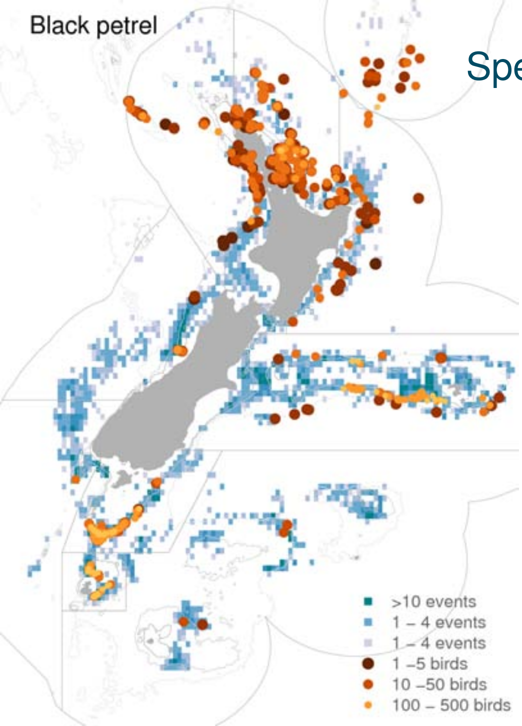
- The Chatham albatross distribution is concentrated near the Chatham islands
- Also seen in numbers on the Stewart-snares shelf



Species distributions

Summary of data

- White-chinned petrels are everywhere
- Higher concentrations in the south



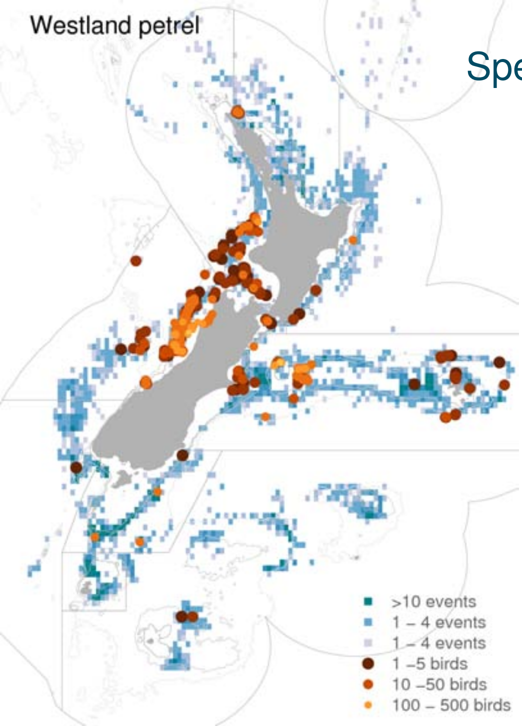
Species distributions

Summary of data

- Black petrels are concentrated in the Hauraki gulf
- The observations in the south are probably due to observers miss interpreting the XBP code

Species distributions

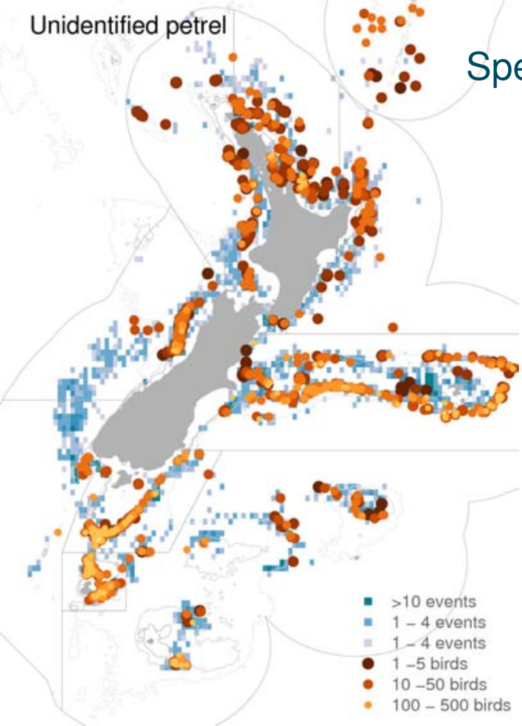
Summary of data



- Do Westland petrels travel as far as North Cape and Cambpell Island?

Species distributions

Summary of data



- Widespread use of the unidentified petrel code