SEA BIRDS FOUND DEAD IN NEW ZEALAND IN 1965 AND 1966

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ABSTRACT

During 1965, 1406 sea birds and during 1966, 1102 sea birds were recovered from 1064 km and 785 km of New Zealand beaches. Monthly recovery rates indicated that sea bird mortality was usually higher in spring and summer (September to February) than in autumn and winter (March to August). Two wrecks were recorded during the two-year period, both on Wellington West coast beaches, and following periods of westerly or south-westerly winds. From September to December 1965 species affected included Fairy Prion, Sooty Shearwater, Short-tailed Shearwater, Fluttering Shearwater and Diving Petrel. In July 1966 there was a wreck of Lesser Broadbilled Prions. Uncommon species found were Blue Petrel, Fiordland Crested Penguin, Pycroft's Petrel and Antarctic Fulmar (all in 1965), and Arctic Skua (in 1966).

INTRODUCTION

The Ornithological Society of New Zealand's Beach Patrol Scheme was set up in 1951 to record the numbers of birds found on the coast, together with information on date, locality, length of beach patrolled and freshness of specimens. Since 1960, annual reports have been prepared summarizing results from this scheme (see Imber & Boeson 1969). Results from 1965 and 1966 are given below. References to weather were taken from New Zealand Meteorological Service notes published in the *New Zealand Gazette.*

RESULTS AND DISCUSSION

During 1965, 197 beach-patrol cards were completed. These showed that 1420 birds, including 1406 sea birds (Tables 1 - 3) were recovered from 1064 km (661 miles) of New Zealand coasts by 38 OSNZ members and friends. Patrols were made in 12 of 15 beach-patrol zones (see Imber & Boesen 1969, Fig. 1). However, much of the effort (61% of distance travelled) was spent in Wellington West zone (Wanganui River to Cape Terawhiti). In the text and Table 1 " km travelled " is the total distance walked by patrollers whereas " km covered " is the length of coast inspected at least once during the month and omits distances of subsequent visits to particular beaches.

The monthly recovery rate (number of birds per km covered) was high from September to February (0.7 - 7.1 birds/km) compared with other months (0.1 - 0.3 birds/km) except June (0.9 birds/km) when there was a small "wreck" of Fairy Prions (14 specimens), Sooty Shearwaters (2), Short-tailed Shearwaters (4) and Diving Petrels (27) in the Wellington West zone. Highest monthly recovery rate (7.1 birds/km) occurred during October when there was a wreck of mainly Fairy Prions (123 specimens) and unidentified prions (357 *Pachyptila* spp.) on Wellington West coast. Small numbers of Northern Diving Petrels (27), Buller's Shearwaters (9), Sooty Shearwaters (10), Short-tailed Shearwaters (10), Fluttering Shearwaters (26), Hutton's Shearwaters (7) and White-headed Petrels (2). Other less common species were also found (Table 2). Altogether 611 sea birds (43.5% of the number recovered in 1965) were recorded along Wellington West beaches in October. Beach patrols were carried out in only two other zones in this month. On one of the three other patrols made during October, 35 Fluttering Shearwaters were found on 4 km of Auckland East zone.

The Wellington West wreck continued through November and December, with Fairy Prion (68 specimens in November and 84 in December, Sooty Shearwater (19 and 48) and Short-tailed Shearwater (6 and 39) the most affected species. Although little patrolling was carried out in other zones high recovery rates in short distances of Auckland West zone in November (2.8 birds/km including 11 Sooty Shearwaters) and Taranaki zone in December (3.1 birds/km including 6 Sooty Shearwaters, 3 Short-tailed Shearwaters, 2 Fluttering Shearwaters, 2 Fairy Prions) suggested that the wreck extended along the west coast of the North Island.

Meteorological records for 1965 show that unusually persistent westerly winds affected the New Zealand region throughout September and early October. November was cold and wet as a series of depressions brought unsettled weather to the whole country. In late December a very deep depression moved from Campbell Island on to New Zealand and resulted in gale force north westerly winds in Cook Strait, and unseasonably cold weather.

The westerlies in September affected local species (e.g. Fairy Prion, Northern Diving Petrel) as well as migrants (e.g. Sooty Shearwater, Buller's Shearwater) returning to breeding grounds. Short-tailed Shearwaters were severely affected by these storms and 68 were recovered in 1965, more than in any previous year for which data are available (i.e. from 1960-64 an average of 11 Short-tailed Shearwaters were recovered each year). First recoveries were made on 6 October, soon after sexually mature adults return to Southern Australia breeding grounds, usually in the last week of September. There was a second peak of recoveries in December (Table 3), probably of immature and non-breeding birds which return later than breeders. Similar wrecks of this species have subsequently been

recorded (755 specimens in 1968, 100 specimens in 1969) on west coast beaches, again following periods of persistent westerly winds (Imber & Crockett 1970, Imber 1971).

The 3 Blue Petrels found during the above wreck were the first since 1960. The 35 Buller's Shearwaters (25 in Wellington West zone between September and December) was the highest number since annual records began in 1960. Other rarely found birds (Table 2) included 2 Fiordland Crested Penguins, 1 Pycroft's Petrel and 1 Antarctic Fulmar.

From 19 September to 16 October 371 unidentified prions *Pachyptila* spp., (90% of the 1965 total for this category) were found on Wellington West coast (Table 3). This suggests that large numbers of prion corpses float offshore in northern Cook Strait before being blown onto beaches by persistent westerly winds.

Other species not listed in the tables were Black Swan (4), Mallard (1), Pukeko (1), Oystercatcher (1), Rock Pigeon (2), Song Thrush (1), Magpie (2) and domestic species (2).

During 1966, 136 beach patrols were recorded by 60 OSNZ members and friends. Altogether 1102 sea birds and 17 other birds were recovered from 784.5 km (488 miles) of beach in 10 coastal zones (Tables 4 - 6). Most patrols (94% of distance travelled) were in four zones: Auckland West, Taranaki, Wellington West and Auckland East, and a correspondingly high proportion (i.e. 94% of total birds collected) were found in these zones. The total number of birds found was the lowest since annual records were started in 1960, but relatively little patrolling was done and the average of 1.4 sea birds per km travelled was equal to the 1960-1965 mean. As in 1965, recovery rate was lower from March to August except for a wreck of Lesser Broad-billed Prions in July, which occurred on Wellington West zone beaches.

This wreck was first noticed in early July after a period of strong south-westerly winds. During the weekend 2-3 July most beaches between Wanganui and Pukerua Bay in the Wellington West zone were examined, and 235 Lesser Broad-billed Prions (78% of the 1966 total of this species) were recovered. The wreck appeared to be a very local one, as all except one of these were found between Foxton and Pukerua Bay, in the southern half of the area patrolled. Also no fresh specimens were picked up on any beach after 3 July. Only one specimen was found in Taranaki zone (in July) and another 12 very dried specimens in Auckland West zone (all in August). Together with the Lesser Broad-billed Prions, 44 Fairy Prions were recovered. This represented 57% of the number of this species found during the year. Mortality of Fairy Prions as indicated by beach patrol records appeared to be low in 1966 with only 75 recoveries, compared with an average of 299 during the previous six years.

Two hundred and three Blue Penguins were recovered during 1966. In comparison, the annual totals between 1960 and 1965

ranged between 61 and 113 (90 per year on average over that period). About half (106 specimens) of those found in 1966 were recorded from Auckland East zone during September and October. From 1960-1965 beaches in this area have been patrolled in September and October only in 1965 (when 5 specimens were recovered from 11.4 km of beach) and the apparent low mortality of previous years probably resulted from inadequate sampling. However, New Zealand Meteorological Office records show that there were unusually frequent north-easterly winds in September 1966, and these on-shore conditions would have also helped to cast corpses on the beaches.

There was probably one other wreck during the year, on Auckland East coast in January. Only one patrol was carried out, in early February, along 6.4km of Pakiri Beach. On this occasion 64 birds of 17 species were recorded. The list included a Giant Petrel, 6 Grey-faced Petrels, 1 White-headed Petrel, 5 Cook's Petrels, 5 Short-tailed Shearwaters, and 34 other petrels and shearwaters. The corpses were all between one and four weeks old indicating the wreck occurred in January. The Short-tailed Shearwaters were probably part of the population weakened by westerly storms in the Tasman Sea in December and blown to the east coast of New Zealand before dying. However, their occurrence on the Auckland East coast was surprising as only one other specimen was found from September to December 1965 on the west coast north of Taranaki, indicating that few birds of this species were present in northern waters.

Other species found during 1966 were Black Swan (2), Mallard (2), Grey Duck (1), Australian Harrier (1), Rock Pigeon (2), Morepork (1), House Sparrow (1), Starling (1) and Magpie (6).

Specific names of sea birds mentioned in the text are:

Eudyptula minor	Blue Penguin
Eudyptes pachyrhynchus pachyrhynchus	Fiordland Crested Penguin
Macronectes giganteus	Giant Petrel
Fulmarus glacialoides	Antarctic Fulmar
Pterodroma macroptera	Grey-faced Petrel
Pterodroma pycrofti	Pycroft's Petrel
Pterodroma cooki	Cook's Petrel
Halobaena caerula	Blue Petrel
Pachyptila salvini	Lesser Broad-billed Prion
Pachyptila turtur	Fairy Prion
Puffinus bulleri	Buller's Shearwater
Puffinus griseus	Sooty Shearwater
Puffinus tenuirostris	Short-tailed Shearwater
Puffinus gavia	Fluttering Shearwater
Puffinus huttoni	Hutton's Shearwater
Pelecanoides urinatrix	Northern Diving Petrel

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TABLE 1.

ZONE	CODE		MONTH J	F	M	A	M	J	J	A	S	O	N	D	TOTAL KM	NUMBER BIRDS	BIRDS/KM COVERED
Auckland West	AW	km	6.4	3.2	2.4	2.4	3.2	5.6	1.6	54.7	4.8	-	7.2	2.4	94.1		0.5
		covered birds	1	4	3	0	1	3	1	10	2	-	20	2		47	
Taranaki	T	km	-	-	-	-	-	-	-	-	-	-	-	6.4	6.4		3.1
		birds	-	-	-	-	-	-	-	-	-	-	-	20		20	
Wellington West	WW	km	27.4	22.5	-	22.5	36.2	46.7	33.0	22.5	40.2	74.0	37.0	83.7	445.8		2.7
		birds	31	44	-	2	9	54	10	2	43	611	119	257		1182	
Westland	WD	km	3.2	-	-	-	-	-	-	-	-	-	16.1	-	19.3		0.1
		birds	0	-	-	-	-	-	-	-	-	-	2	-		2	
Auckland East	AE	km	4.8	-	3.2	-	4.8	4.8	1.6	4.8	4.8	5.6	1.6	6.4	42.6		1.4
		birds	2	-	2	-	1	2	0	1	3	43	0	6		60	
Bay of Plenty	BP	km	8.0	12.9	8.0	4.8	-	-	-	-	11.3	-	-	-	45.1		1.4
		birds	54	3	3	0	-	-	-	-	1	-	-	-		61	
Wairarapa	WA	km	-	4.8	-	-	2.4	-	22.5	-	-	-	-	-	29.8		0.1
		birds	-	1	-	-	0	-	0	-	-	-	-	-		1	
Canterbury North	CN	km	1.6	12.1	-	-	1.6	-	-	-	-	-	-	-	15.3		0.5
		birds	3	5	-	-	0	-	-	-	-	-	-	-		8	
Otago	O	km	1.6	3.2	17.7	-	3.2	4.8	4.0	-	-	12.9	1.6	1.6	50.7		0.2
		birds	3	0	0	-	1	0	1	-	-	1	1	2		9	
Wellington South	WS	km	3.2	18.5	-	-	-	2.4	-	-	-	-	-	2.4	26.5		0.3
		birds	1	6	-	-	-	0	-	-	-	-	-	0		7	
South Island North Coast	SN	km	3.2	-	-	-	-	-	-	-	-	-	-	-	3.2		0.3
		birds	1	-	-	-	-	-	-	-	-	-	-	-		1	
KM Travelled (not listed above)			74.0	80.5	61.2	44.2	60.3	92.5	67.6	88.5	89.3	174.6	86.1	144.8	1063.8		
KM Covered			59.5	70.8	43.5	29.8	49.9	64.4	64.4	82.1	61.2	92.5	64.4	103.0	785.4		
Birds Recorded			96	66	13	2	12	59	12	13	49	655	142	287		1406	
Birds/km covered			1.6	0.9	0.3	0.1	0.2	0.9	0.2	0.7	7.1	2.2	2.8				1.8

TABLE 1 — Numbers of dead sea birds recorded and distance patrolled in each coastal zone in 1965. Distances were recorded in miles and data were totalled before conversion to metric units. There are thus small differences between rows or columns and their totals.

TABLE 2.

SPECIES	NUMBER FOUND	COAST (MONTH)
Eudyptula albosignata	1	CN (3)
Eudyptes pachyrhynchus pachyrhynchus	2	WW (10) WD (11)
Diomedea exulans	3	CN (1,1,1)
D. *chrysostoma*	5	AW (8,9) WW (6,6,6)
D. bulleri	2	AW (6) WW (10)
Phoebetria palpebrata	2	AW (8) WW (9)
Macronectes giganteus	4	WW (6,7,12,12)
Fulmarus glacialoides	1	WW (10)
Pterodroma lessoni	3	AW (8) WW (10,10)
P. inexpectata	5	AW (11) WW (12,12,12) SN (1)
P. pycrofti	1	BP (1)
P. cooki cooki	1	AE (3)
Halobaena caerula	3	WW (10,10,12)
Pachyptila salvini	2	AW (8) WW (10)
Procellaria cinerea	1	WW (11)
P. aequinoctialis	1	WS (2)
Puffinus assimilis	5	WW (1, 12,12) WD (11) BP (1)
Pelagodroma marina maoriana	5	AW (11) BP (1,1,1,1)
Phalacrocorax carbo	3	T (12) WW (10,10)
P. melanoleucos brevirostris	1	WW (10)
Stictocarbo punctatus	1	AW (3)
Larus bulleri	1	O (10)
Hydroprogne caspia	1	AW (8)
Sterna striata	4	WW (12) CN (3) CS (2,2)
	58	

TABLE 2 — Less common sea birds (1-5 specimens) found dead in 1965. Zone code and month of discovery (in brackets) is given.

NOTE: The record of *Puffinus pacificus* is unconfirmed and probably erroneous (R. B. Sibson personal communication).

TABLE 3.

SPECIES	COAST AW	T	WW	AE	BP	WA	CH	CS	O	WS	MONTH 1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Eudyptula minor	4	1	38	7	8	-	-	2	1	-	9	3	2	1	1	2	1	-	3	7	5	27	61
Diomedea cauta cauta	1	-	5	-	1	-	-	-	-	-	2	-	-	-	-	2	-	1	-	-	1	1	7
Diomedea spp.	-	-	7	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	3	-	1	7
Daption capensis	1	-	8	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	3	3	1	9
Pterodroma macroptera		1	-	-	10	-	-	-	-	-	9	1	-	-	-	-	-	-	-	-	-	1	11
Pachyptila vittata	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	3	7
P. desolata	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	7	-	-	8
P. belcheri	-	-	7	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	5	-	-	7
P. turtur	3	2	349	2	3	-	1	-	1	-	13	40	1	1	1	14	2	1	7	125	70	86	361
Pachyptila spp.	-	-	410	-	-	-	-	1	-	-	-	1	-	-	-	12	1	1	16	357	10	13	411
Puffinus carneipes	-	-	5	2	10	-	-	-	-	-	6	2	1	-	-	-	-	-	-	-	-	6	17
P. bulleri	-	-	26	2	7	-	-	-	-	-	7	-	1	-	2	-	-	-	5	9	2	9	35
P. griseus	11	6	95	-	2	-	-	-	2	-	16	3	-	-	-	2	-	-	-	10	31	54	116
P. tenuirostris	1	3	61	-	2	-	-	-	1	-	3	-	-	-	1	4	-	-	-	10	7	43	68
P. gavia gavia	1	2	37	37	3	-	-	-	-	-	5	-	-	-	1	1	-	-	4	61	2	6	80
P. huttoni	-	-	17	-	-	-	1	-	-	-	-	-	1	-	-	1	-	-	1	7	1	7	18
Puffinus spp.	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	5	6
Pelecanoides urinatrix	-	-	37	3	7	-	-	-	-	-	7	-	-	-	-	7	-	-	3	28	-	2	47
Sula bassana serrator	8	1	12	-	-	-	-	-	-	-	-	4	1	-	1	4	1	1	3	4	-	2	21
Larus dominicanus	4	-	19	2	-	1	1	2	4	3	3	6	2	-	4	2	4	1	2	3	3	6	36
L. novaehollandiae	3	1	2	4	2	-	-	1	-	2	2	3	-	-	-	1	1	1	-	1	2	4	15
TOTAL	37	19	1154	59	55	1	3	6	9	5	85	63	9	2	12	54	11	8	47	643	137	277	1348

TABLE 3 — Zonal (left side) and monthly (right side) distribution of more common sea birds found dead in 1965.

TABLE 4 — Numbers of dead sea birds recorded and distance patrolled in each coastal zone in 1966. Distances were recorded in miles and data were totalled before conversion to metric units. There are thus small differences between rows or columns and their totals.

TABLE 4.

ZONE	CODE		MONTH J	F	M	A	M	J	J	A	S	O	N	D	KM	TOTAL NUMBER BIRDS	BIRDS/KM COVERED
Auckland West	AW	km covered	31.4	-	9.7	-	9.7	4.0	1.6	66.8	37.0	2.4	38.6	3.2	204		0.8
		birds	14	-	0	-	4	1	7	23	15	0	74	15		153	
Taranaki	T	km	3.2	-	12.1	13.7	13.7	16.0	12.1	3.2	12.1	14.5	10.5	2.4	113.5		0.6
		birds	12	-	13	8	1	6	3	0	3	3	13	1		63	
Wellington West	WW	km	23.3	3.2	-	-	-	-	104.6	4.8	38.6	-	4.8	9.7	189.1		2.6
		birds	24	11	-	-	-	-	375	4	15	-	5	58		492	
Westland	WD	km	1.6	-	-	-	-	-	-	-	-	-	-	-	1.6		0.6
		birds	1	-	-	-	-	-	-	-	-	-	-	-		1	
Auckland East	AE	km	4.8	11.3	4.8	-	7.2	-	-	0.8	48.3	22.5	4.8	11.3	115.9		2.8
		birds	1	98	5	-	3	-	-	2	127	60	24	8		328	
Bay of Plenty	BP	km	-	5.6	-	-	-	-	-	-	-	-	-	3.2	8.8		4.8
		birds	-	4	-	-	-	-	-	-	-	-	-	38		42	
Wairarapa	WA	km	-	-	-	-	-	-	3.2	-	-	-	-	-	3.2		0
		birds	-	-	-	-	-	-	0	-	-	-	-	-		0	
Otago	O	km	-	0.8	0.8	2.4	-	-	1.6	-	0.8	1.6	-	3.2	11.3		0.5
		birds	-	1	3	1	-	-	0	-	1	0	-	2		7	
Wellington South	WS	km	-	-	-	-	1.6	1.6	-	1.6	-	-	-	8.0	12.9		1.2
		birds	-	-	-	-	1	1	-	1	-	-	-	13		16	
South Island North Coast	NCS	km	-	-	-	-	-	-	-	0.8	-	-	-	-	0.8		1.3
		birds	-	-	-	-	-	-	-	1	-	-	-	-		1	
Km travelled (not listed above)			64.4	27.4	30.6	18.5	32.2	21.7	202.8	106.2	140.0	41.0	58.7	41.0	784.5		
Km covered			64.4	20.9	27.4	16.1	32.2	21.7	123.1	78.1	136.8	41.0	58.7	41.0	661.4		
Birds recorded			52	114	21	9	9	7	335	32	161	63	116	133		1102	
Birds/km covered			0.8	5.5	0.8	0.6	0.3	0.3	3.1	0.4	1.2	1.5	2.0	3.2			1.7

TABLE 5.

SPECIES	NUMBER FOUND	COAST (MONTH)
Diomedea melanophris	1	WW (9)
Diomedea cauta cauta	1	WW (9)
Diomedea cauta salvini	1	AW (1)
Diomedea spp.	2	WS (5), WW (7)
Pterdroma lessoni	3	AE (2), WW (12, 12)
P. inexpectata	3	WW (1, 12), AW (12)
P. brevirostris	1	WW (9)
Pachyptila desolata	2	WW (7), AE (9)
P. belcheri	4	WW (7, 7, 8), AW (9)
Procellaria cinerea	3	BP (12)
Puffinus pacificus	1	AW (11)
P. huttoni	2	WW (12)
P. assimilis	4	AE (9), AW (11, 11), WW (12)
Puffinus spp.	2	WW (7)
Phalacrocorax carbo	2	AW (5), BP (12)
P. melanoleucos	2	AW (1), BP (12)
Stictocarbo punctatus	3	WW (7), AW (8, 12)
Stercorarius parasiticus	1	AE (5)
Larus bulleri	1	WD (1)
Hydroprogne caspia	1	AW (5)
	40	

TABLE 5 — Less common sea birds (1-5 specimens) found dead in 1966. Zone code and month of discovery (in brackets) is given.

TABLE 6.

SPECIES	COAST								MONTH												
	AW	T	TW	AE	BP	O	WS	NCS	1	2	3	4	5	6	7	8	9	10	11	12	Total
Eudyptula minor	30	14	22	134	-	-	3	-	4	21	5	-	2	1	5	1	75	37	34	18	203
Macronectes giganteus	2	-	-	3	-	-	1	-	-	1	-	-	-	-	-	1	2	-	1	1	6
Daption capensis	-	1	2	2	-	-	1	-	-	-	-	-	-	-	1	1	2	1	-	1	6
Pterodroma macroptera	-	-	-	10	-	-	1	-	-	7	-	-	-	-	-	-	3	-	-	1	11
P. cooki	1	-	-	9	-	-	-	-	-	7	2	-	-	-	-	-	-	-	-	1	10
Pachyptila vittata	2	-	5	-	-	-	-	-	1	-	-	-	-	-	5	-	-	-	1	-	7
P. salvini	15	1	282	1	-	-	-	-	-	-	-	-	-	-	281	14	3	-	1	-	299
P. turtur	14	-	49	10	-	-	2	-	16	9	-	-	-	-	11	1	2	4	8	24	75
Pachyptila spp.	3	-	55	4	-	-	-	-	-	3	-	-	-	-	44	3	8	4	-	-	62
Puffinus carneipes	3	-	-	12	2	-	-	-	1	11	-	-	-	-	-	-	-	-	1	4	17
P. bulleri	-	-	3	12	6	-	1	-	1	11	-	-	-	-	1	-	-	2	-	7	22
P. griseus	42	1	14	20	11	1	1	-	5	4	1	1	-	-	-	-	-	-	48	31	90
P. tenuirostris	2	-	3	6	-	-	1	-	2	6	-	-	-	-	-	-	-	-	1	3	12
P. gavia	10	6	15	43	1	-	-	-	1	14	1	-	-	-	15	4	29	7	1	3	75
Pelagodroma marina	-	-	-	8	-	-	-	-	-	2	-	-	-	-	-	-	5	-	1	-	8
Pelecanoides urinatrix	-	2	5	21	10	-	-	-	-	6	1	-	1	1	3	-	7	3	4	12	38
Sula bassana	3	1	2	11	1	-	-	-	-	5	2	-	-	-	2	-	5	1	2	1	18
Phalacrocorax varius	-	-	-	1	5	-	-	1	-	1	-	-	-	-	-	1	-	-	-	5	7
Larus dominicanus	13	8	15	8	-	2	2	-	4	1	3	3	1	4	10	2	9	1	5	5	48
L. novaehollandiae	2	22	2	8	1	2	1	-	11	3	3	4	1	1	-	2	3	3	5	2	38
Sterna striata	-	7	-	1	-	1	1	-	2	1	3	1	-	-	-	-	2	-	-	1	10
Total	142	63	474	324	37	6	15	1	48	113	21	9	5	7	378	30	155	63	113	120	1062

TABLE 6 — Zonal (left side) and monthly (right side) distribution of more common sea birds found dead in 1966.