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ENCOUNTER BAY

PENGUIN STUDY

1991/1992

**REPORT FOR THE
GRANITE ISLAND MANAGEMENT AUTHORITY.**

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Appendices 1 to 5 - Pages not numbered.

Appendix 1 : Penguin monitoring database for adults and chicks
on alternating pages.

Appendix 2 : Averaged chick growth curve from data for chicks
which had more than one weight recorded with the
first measurement being taken when less than 0.5 kg.

Appendix 3 : Banding and recapture results.

Appendix 4 : Chicks banded this study.

Appendix 5 : Penguin counts by M Boulter - North Shore Granite
Island 1989-1992.

ENCOUNTER BAY PENGUIN STUDY 1991/1992

REPORT FOR THE GRANITE ISLAND MANAGEMENT AUTHORITY.

EXECUTIVE SUMMARY

Mike Hinsliff
Regional Manager - Fleurieu District
South Australian National Parks & Wildlife Service

The second year of data collection for the Encounter Bay Monitoring Program was Concluded in April 1992.

The study was jointly commissioned by the District Council of Victor Harbor, the National Parks & Wildlife Service (NPWS) and the Granite Island Development Syndicate.

Principal Results : This years results tended to confirm those obtained in 1990/91. Some differences occurred as a result of the more extended and frequent monitoring of breeding activity.

The breeding season extended from May to December with moult occurring during January 1992.

Breeding success within the study sites indicated that:

- West Island fledged 0.67 chicks per Breeding Pair (1.0 in 1990/91)
- Granite Island Reserve fledged 0.22 chicks per breeding pair (0.46 in 1990/91))
- North Shore Development Area fledged 0.46 chicks per breeding pair (0.56 in 1990/91)

This level of breeding success is within the normal population variation recorded for Australian colonies.

The percentage of chicks born reaching fledging status for the three areas also differs between the three study areas:

West Island - 67%
Granite Island Reserve - 24%
North Shore Granite Island - 30%

The higher level of chick mortality on Granite Island may be due to a combination of visitor pressure and predation.

No movement of banded birds between study sites was noted.

Food shortages were again noted in chick growths patterns

A colony of New Zealand Fur Seals may have affected the West Island results

Conclusions for Management :

The two year data collection establishes a good base of information against which to monitor the effect of the proposed development and future visitor management on Granite Island.

The data indicates a population of birds naturally subject to considerable variation in breeding success.

The data still suggests that visitor pressure and predation by Water Rats have a negative influence on Granite Island penguins

Separating this result out from the natural background environmental variation is difficult.

The following action is recommended:

1. NPWS investigate the link between Water Rats and chick mortality.
2. That this study is repeated in 3-5 years after development and visitor management actions have been implemented.

North Shore Development :

- Heavy, noisy construction should occur after mid- February and before mid May to minimise impact on Penguins.
- Penguin access routes need to be maintained during construction.
- Replacement nesting boxes are indicated.
- Granite Island Development Syndicate should monitor North Shore sites to establish burrow occupancy rates, chick mortality and fledgling success per breeding pair in Area A during construction years.

INTRODUCTION

The 1991/92 penguin monitoring study aimed to complete the gathering of baseline data commissioned in 1990. It has established a baseline for future monitoring of penguin breeding success. The baseline will enable the assessment of potential impacts from the proposed tourist development on the north shore of Granite Island on the Granite Island penguin population. This report documents the second year of research of this ongoing monitoring program. For more introduction please refer to the previous report titled "Encounter Bay Penguin Study 1990/91. Report for the Greater Granite Island Management Authority" by Robert Brandle.

The study sites and methods were identical to those used during the first year of the program, differing only in frequency of monitoring and detail of information collected. Please refer to the 1990/91 report for details of the study sites and maps and methods.

METHODOLOGY

Monitoring the occupancy of burrows

Each burrow was checked for adults, eggs and chicks fortnightly in Areas A & B on Granite Island and monthly in Area C on West Island. Each area has 40 marked monitoring burrows. These locations are detailed in the 1990/91 Report Appendix 1, and also in a photo album held by the National Parks & Wildlife Service (NPWS) at Victor Harbor.

Monitoring commenced on 2nd July 1991 on Granite Island and the 11th of May 1991 on West Island and continued through to March on both Islands. No monitoring occurred on West Island in July due to bad weather and NPWS whale associated duties. All birds were weighed, had their bill depth and length (from tip to forehead) measured, and were banded. Downy chicks with under-developed wings were marked with black ink on their feet and banded later. Bill depths were used to determine the sex of adult birds (Stahel & Gales, 1987). Eggs were counted but not marked.

Recording on Database

All field data has been entered onto the NPWS Dataflex database program held at the Resource Conservation Branch, Norwood. Copies of the database are held at both Norwood and Victor Harbor NPWS Offices.

Penguin Count in the Encounter Bay Region

Two islands were searched on the night of the 19/10/1991 : Granite Island and Wright Island (a small, ~ 2.5 ha island located between West and Granite Island). Searching occurred after dusk (~ 9.30pm) until midnight. Both chicks and adults were counted. Burrows were not individually checked and birds in them were therefore only counted when visible.

The methodology used for counting penguins on Granite Island was altered from that used during 1990 because of difficulties in maintaining even search lines over rough terrain and the low numbers of penguins on the centre of the Island. Searching thus occurred below and above the main walking track ring route. The 15 people were separated into three groups. Two groups searched below the ring route in opposite directions and met half way around the island. The third group searched the area above the ring route and the North Shore. (see map 1 for diagrammatic explanation). Counting on Wright Island was consistent with that in 1990

RESULTS

Occupancy Status of Burrows

The number of burrows that were recorded unoccupied, with one, two or more individuals using them over the study period are summarised for adults, chicks and eggs in Tables 1 to 3 below. These tables show general and breeding activity over the three study areas during the survey period. Full details of burrow occupancy in all areas are provided on the field data base in Appendix 1. The Tables provide both the total numbers and percentages.

SUMMARY TABLES

Table 1. AREA A.

BURROW STATS.	ADULT PENGUINS		PENGUIN CHICKS		EGGS
EMPTY	5	13%	20	50%	15 38%
1	1	2%	6	15%	1 2%
2	16	40%	9	23%	16 40%
3+	18	45%	5	12%	8 20%
TOTALS	40	100%	40	100%	40 100%

Table 2. AREA B

BURROW STATS.	ADULT PENGUINS		PENGUIN CHICKS		EGGS
EMPTY	5	13%	23	58%	7 17%
1	1	2%	7	17%	7 17%
2	14	35%	9	23%	11 28%
3+	20	50%	1	2%	15 38%
TOTALS	40	100%	40	100%	40 100%

Table 3. AREA C

BURROW STATS.	ADULT PENGUINS		PENGUIN CHICKS		EGGS	
EMPTY	2	5%	25	62%	21	53%
1	6	15%	4	10%	2	5%
2	15	38%	11	28%	13	32%
3+	17	42%	0		4	10%
TOTALS	40	100%	40	100%	40	100%

Differences between Areas for burrow use by adult penguins in general and for breeding were not significant at the 95% confidence level using chi-squared analyses.

BURROW OCCUPANCY OVER TIME

The following figures indicate total numbers and burrow occupancy of adult penguins, chicks and eggs based on the occasions that burrows were searched over the length of the study. Area A and B were visited 17 times on a fortnightly basis beginning on the 2/7/1991 and finishing on the 20/3/1992. Area C was visited 9 times on a monthly basis beginning on the 11/5/1991 and ending on the 20/2/1992 (monthly trips were irregular depending on boat transport availability and weather conditions).

FIGURE 1. The number of adult penguins recorded in each sample period

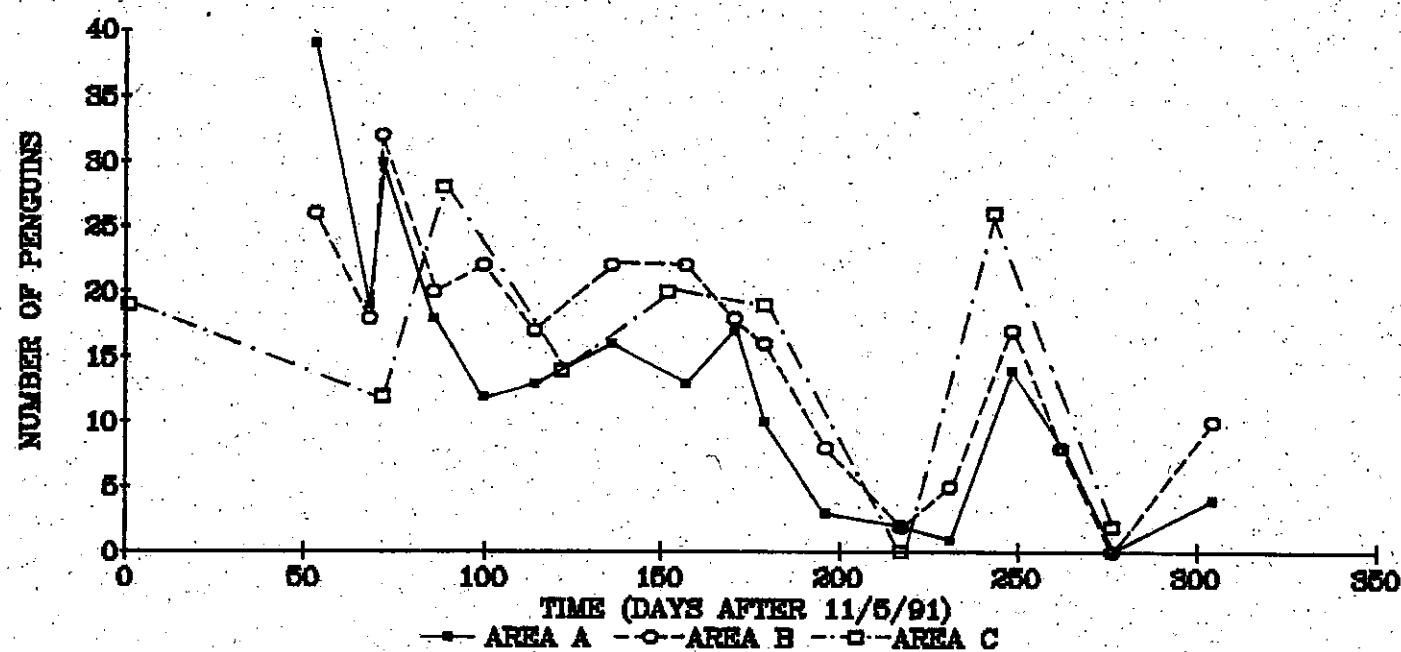


FIGURE 2. Burrows occupied by adult penguins in each sample period

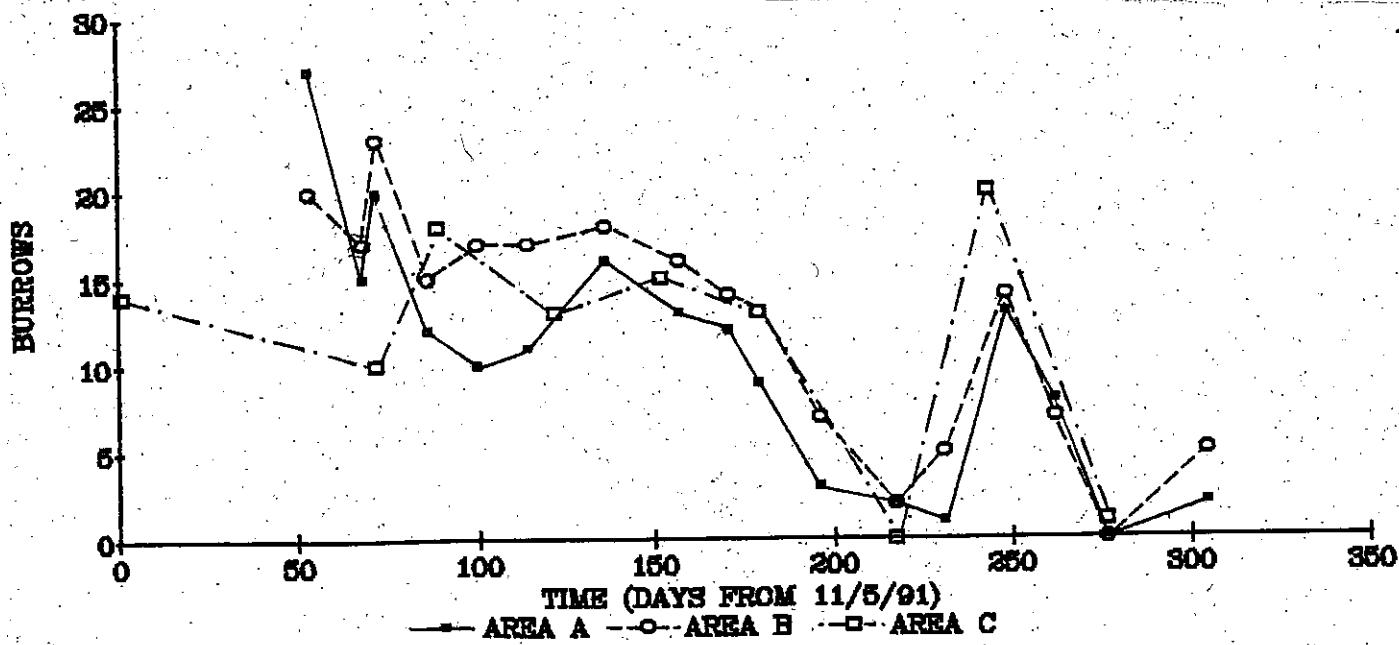


FIGURE 3. The number of eggs recorded in each sample period

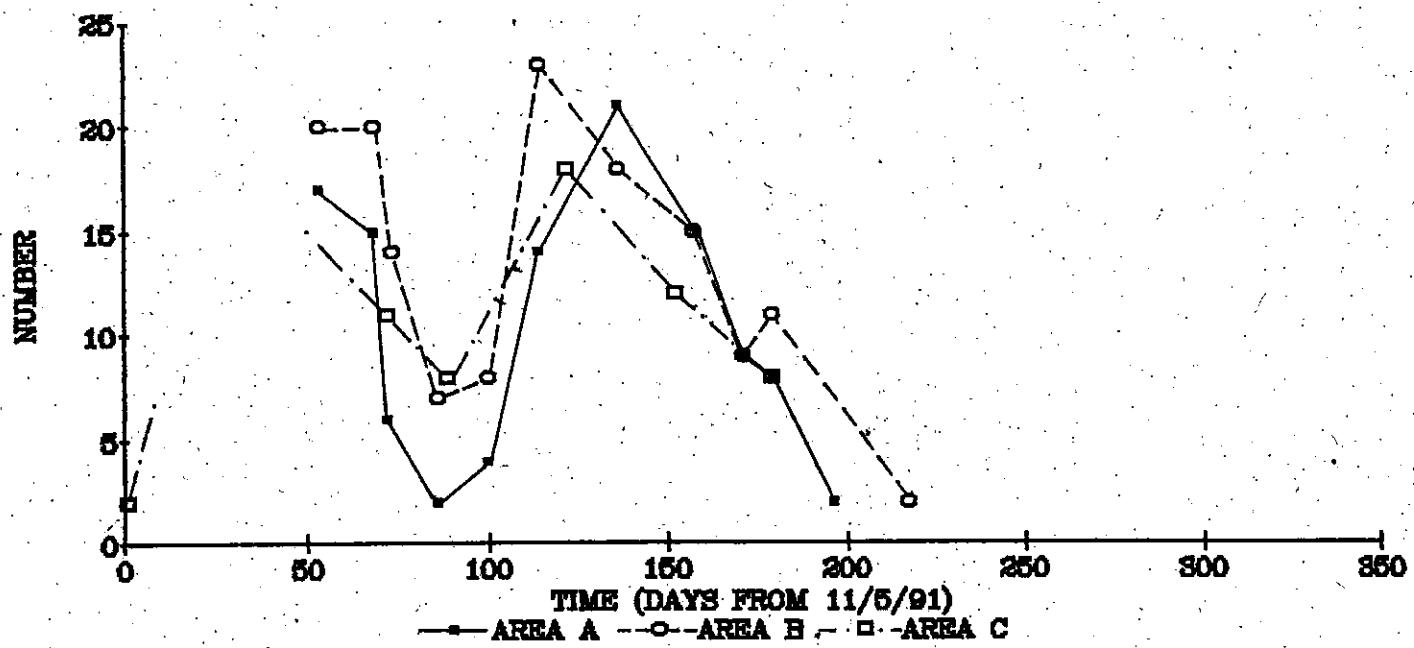


FIGURE 4. Burrows occupied by eggs in each sample period

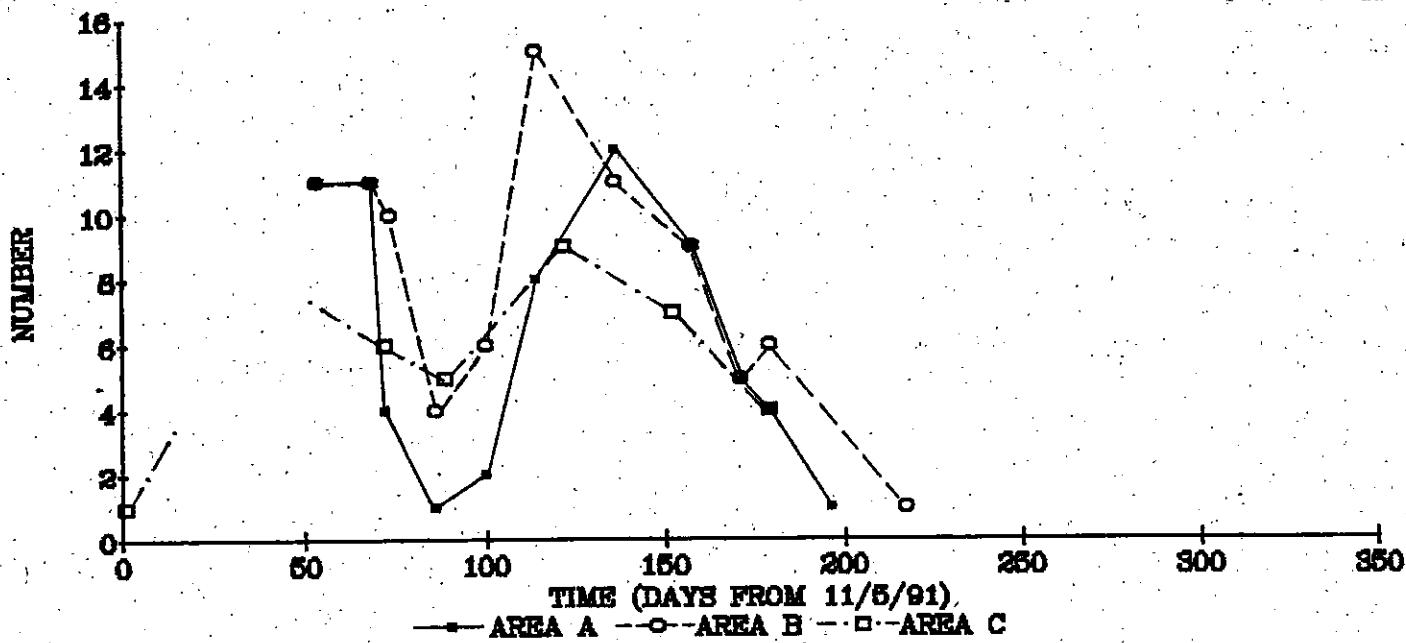


FIGURE 5. The number of chicks recorded in each sample period.

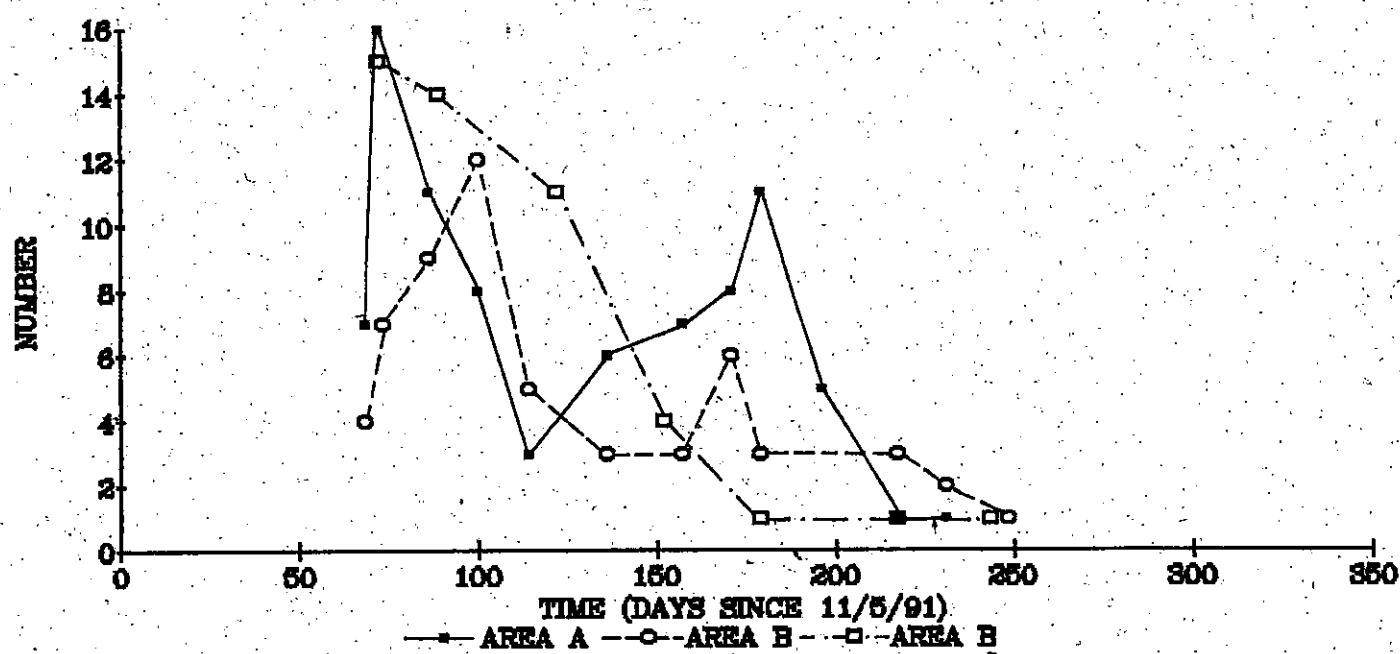
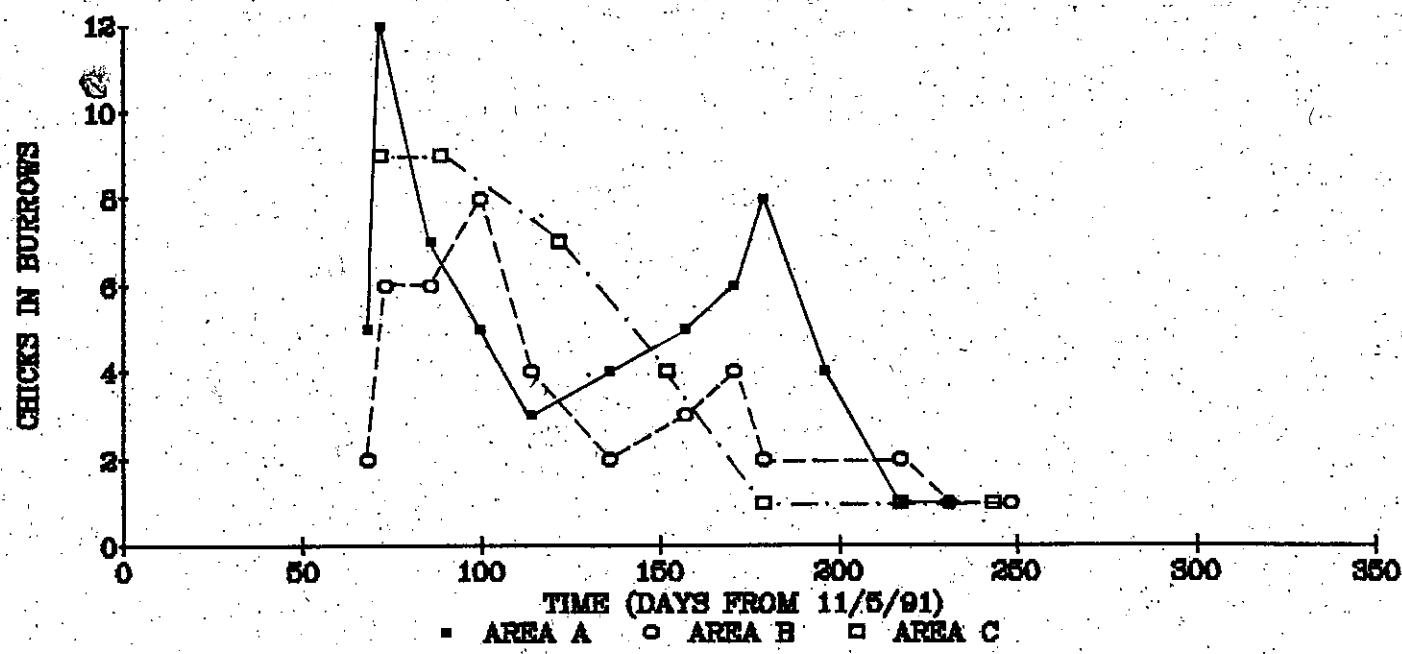


FIGURE 6. Burrow occupancy by eggs over the sample periods



BREEDING RESULTS

TABLE 4. Summaries of Results

	A	B	C
Burrows used for breeding	26 65%	34 85%	27 68%
Number of breeding pairs	28	36	27
Clutches produced	36	50	30
Burrows not used for breeding	14 35%	6 15%	13 32%
Burrows with eggs recorded	25	34	19
Burrows with chicks recorded	15	17	15
Eggs recorded (eggs estimated from chicks) +	63 (69)	86	43 (63)
Chicks recorded	43	33	27
Chicks reared to fledging	* 13* 30%	8 24%	18* 67%
% of eggs producing fledglings	19%	9%	29%
Clutches with at least one fledgling	10 28%	7 14%	12 40%
Burrows producing fledglings	10 25%	7 18%	11 28%
Failed clutches (no fledglings)	26 72%	43 86%	18 60%
Burrows used for breeding which failed to produce fledglings	16 62%	27 79%	16 59%

Area A (2 found dead), Area C (3 found dead)

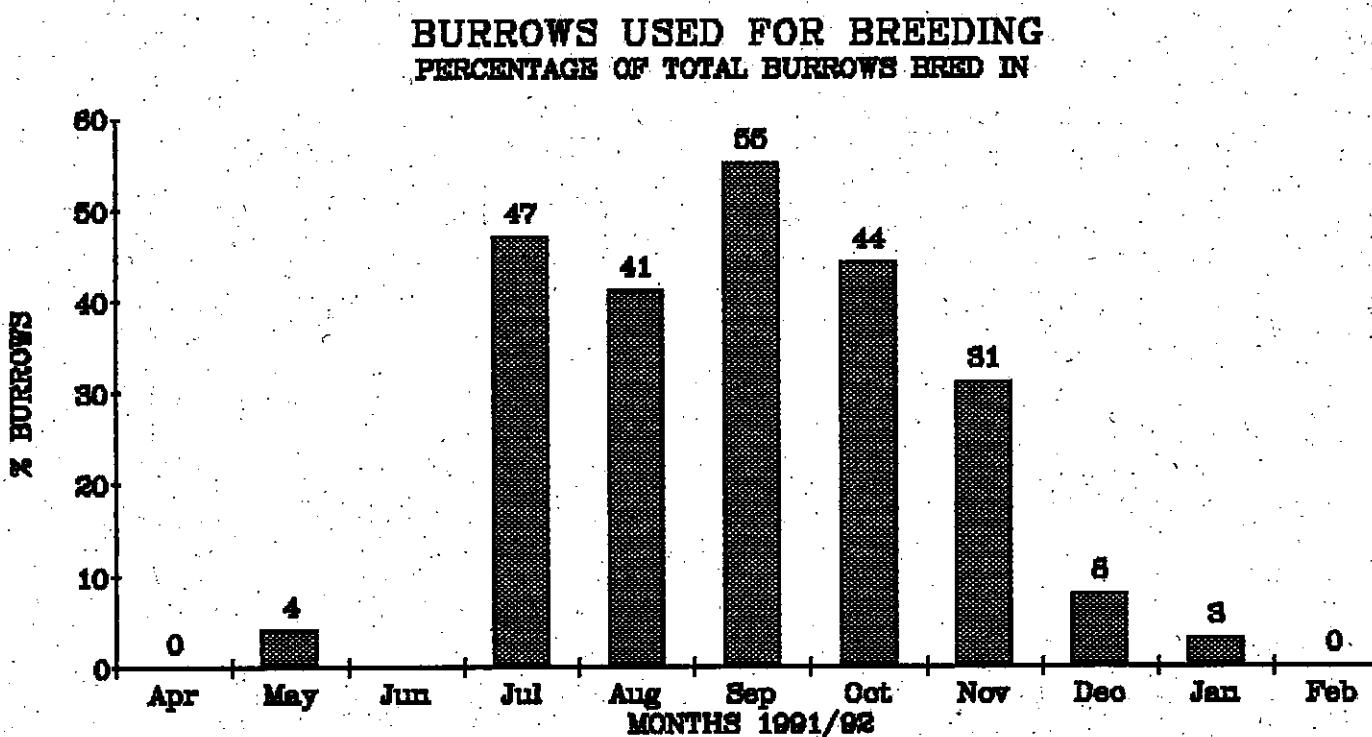
+ eggs were estimated for Areas A & C because 13 chicks had been produced without their eggs having been recorded because of the delay in monitoring early in the season and the monthly intervals between monitoring trips in area C (cf explanation below).

The average rate for eggs hatching (49% see results - Clutch Success) and the number of chicks for which no eggs were recorded enabled crude estimation of the numbers of eggs laid before monitoring started. In Area A, 3 chicks had no eggs recorded for them implying that 6 eggs were not recorded. In Area C 10 chicks had no eggs recorded for them, implying an extra 20 eggs were not recorded. The estimated totals for these areas are recorded in brackets in table 4.

LENGTH OF SEASON

Breeding commenced in early May on both Granite & West Islands. The first egg was observed on Granite Island's north shore on 4/5/91 by Boulter (pers. comm.). Two eggs were observed on the 11/5/91 in burrow C25 on West Island. The last chick Boulter observed on Granite Island was on the 3/2/92. The last chick recorded in the monitored burrows was in B2 on the 23/1/92. Chicks were last recorded in the monitoring area on West Island on the 23/12/91 in Burrow C39, and were still observed on the 18/1/92 away from Area C closer to the coast (cf figures 3 to 6). The breeding period extended for ~ 8 months on both islands, the majority of activity occurring from July to November (figure 7). The period of egg laying and chick rearing for each burrow are presented in Appendix 1.

Figure 7.



CLUTCH SUCCESS

A total of 192 eggs in 107 clutches were recorded in the three areas (1.8 eggs per clutch). Of these 94 (49%) or 0.89 eggs per clutch hatched.

Of the 58 burrows containing only one clutch: 13 (22%) produced fledged chicks.

Of the 30 burrows containing 2 clutches:

- * 1 (3%) had both clutches producing fledged chicks;
- * 11 (37%) produced fledged chicks in the first clutch only;
- * 1 (3%) produced fledged chicks in the second clutch only; &
- * 17 (57%) had both clutches fail.

i.e 43% of 2 clutch burrows produced fledged chicks. However, only 14 (23%) of the 60 clutches in these burrows produced fledged chicks.

Only one burrow (B1) in the study contained 3 clutches. All of these failed.

Differences found between recorded hatching success of single egg clutches (6/22 27%) and 170 two egg clutches (84/170 49%) were not statistically significant (chi-squared 95% 1df).

In the 30 burrows where two clutches were recorded, hatching success in the first clutch (17 57%) was slightly higher than for the second clutch (13 43%). This difference was not statistically significant (chi-squared 95% 1df).

EGG HATCHING SUMMARIES

Tables 5 to 7 summarise the number of single egg and two egg clutches and the fates of these clutches found in the three study areas. For example a clutch with two eggs hatches two, one or no eggs. If one egg is hatched then the other fails and if no eggs hatch then 2 eggs failed. This is presented numerically and as percentages of recorded totals where these are useful for comparisons.

Table 5. EGGS RECORDED AREA A

CLUTCHES	EGGS PRESENT		TOTALS	
	1 EGG	2 EGGS	CLUTCHES	EGGS
RECORDED	5	29	34	63
			1 egg	2 eggs
HATCHED	1	5	17	23 68%
FAILED	4	5	7	11 32% 23 37%

Table 6. EGGS RECORDED AREA B

CLUTCHES	EGGS PRESENT		TOTALS	
	1 EGG	2+ EGGS	CLUTCHES	EGGS
RECORDED	14	36	50	86
		1 egg 2 eggs		
HATCHED	4	5	12	21 42%
FAILED	10	5	19	29 58% 53 62%

Table 7. EGGS RECORDED AREA C

CLUTCHES	EGGS PRESENT		TOTALS	
	1 EGG	2 EGGS	CLUTCHES	EGGS
RECORDED	3	20	23	43
		1 egg 2 eggs		
HATCHED	1	6	5	12 52% 17 40%
FAILED	2	6	9	11 48% 26 60%

Egg numbers in Area C are under represented because of fewer sampling dates.

Hatching rates calculated from estimated egg numbers & chick data were:

$$A = 62\%; \quad B = 37\%; \quad C = 42\%$$

Whilst the numbers of burrows used for breeding were not statistically significant, Area B had significantly more eggs (chi-squared 95% df2).

The differences in hatching between areas was also statistically significant (chi-squared 95% df2) Area A.

The differences in the proportion of eggs hatched between single egg clutches (27%) and 2 egg clutches (49%) were not significant using chi-squared analysis at the 95% confidence level.

CHICK SUMMARIES

Of the 107 chicks recorded, 39 (36%) fledged (moulted to adult plumage). Of these, 5 were found dead and 8 were severely under-weight. Tables 8 to 10 summarise the fate of chicks monitored over the study period. This includes those hatched from eggs, plus those present at the start of the survey.

Table 8. CHICKS RECORDED AREA A

CLUTCHES	CHICKS PRESENT		TOTALS	
	1 CHICK	2 CHICKS	CLUTCH	CHICKS
RECORDED	7	18	25	43
		1 chick 2 chicks		
FLEDGED	6	3	2	11 44% 13 30%
FAILED	1	3	13	14 56% 30 70%

Two of the fledged chicks died with another two being under-weight (<1 kg).

Table 9. CHICKS RECORDED AREA B

CLUTCHES	CHICKS PRESENT		TOTALS	
	1 CHICK	2 CHICKS	CLUTCH	CHICKS
RECORDED	9	12	21	33
		1 chick 2 chicks		
FLEDGED	2	2	2	6 29% 8 24%
FAILED	7	2	8	15 71% 25 76%

One chick was underweight (<1 kg) at time of fledging.

Table 10. CHICKS RECORDED AREA C

CLUTCHES	CHICKS PRESENT		TOTALS	
	1 CHICK	2 CHICKS	CLUTCH	CHICKS
RECORDED	11	8	19	27
		1 chick 2 chicks		
FLEDGED	6	2	5	13 68% 18 67%
FAILED	5	2	1	6 32% 9 33%

Three fledglings died and another five were considered under-weight (<1 kg).

The differences in the proportion of chicks fledged to chicks recorded between areas was statistically significant using chi-squared analyses at the 95% confidence level.

To determine whether this difference between areas was consistent with the previous seasons result, the data from 1990/91 and 1991/92 was compared statistically using chi-squared analyses. No significant differences were found.

To determine whether there were any consistencies in breeding success (ie. total numbers of chicks raised to fledging) between seasons, further chi-squared analyses were done. The differences were significant at the 99% confidence level.

The differences in the proportion of chicks fledged from single chick clutches (14/27 [51%]) and two chick clutches (25/92 [27%]) were significant from the overall 36% fledge rate using chi-squared analyses at the 95% confidence level.

CHICK DEATHS

Table 11. Chick death/disappearance in fortnightly groupings from hatching. Percentages taken from total chick numbers in each area. Fledged chicks not recovered dead are recorded in the last column.

AREA	WEEK 1-2	WEEK 3-4	WEEK 5-6	WEEK 7-	FLEDGED
A	20 47%	6 14%	4 9%	2 5%	11 25%
B	12 37%	11 33%	2 6%	0 0%	8 24%
C	4 15%	1 4%	4 15%	3 11%	15 55%

Statistical comparisons between areas would not be meaningful as Area C was visited on a significantly fewer occasions than areas A and B.

CHICK GROWTH

Average chick growth rates for each area were established from the growth of those chicks which were recorded over successive periods. These are summarised in table 12, showing the 95% confidence limits for these averages.

Table 12. Chick Growth Rates (KG/DAY)

AREA	FIRST 4 WEEKS	WEEKS 5-6	WEEKS 7-
A	0.023-0.035	0.018-0.040	0.002-0.008
B	0.026-0.034	0.004-0.024	-0.006-0.006
C	0.021-0.029	-0.003-0.023	-0.012-0.002

The average chick growth rate for chicks in their first 5 weeks during 1990/91 ranged from 0.032-0.035 for the 95% confidence limit.

FIGURE 8.

CHICK GROWTHS 91/92
ALL DATA CHICKS WITH WHTS AT < 15 DAY

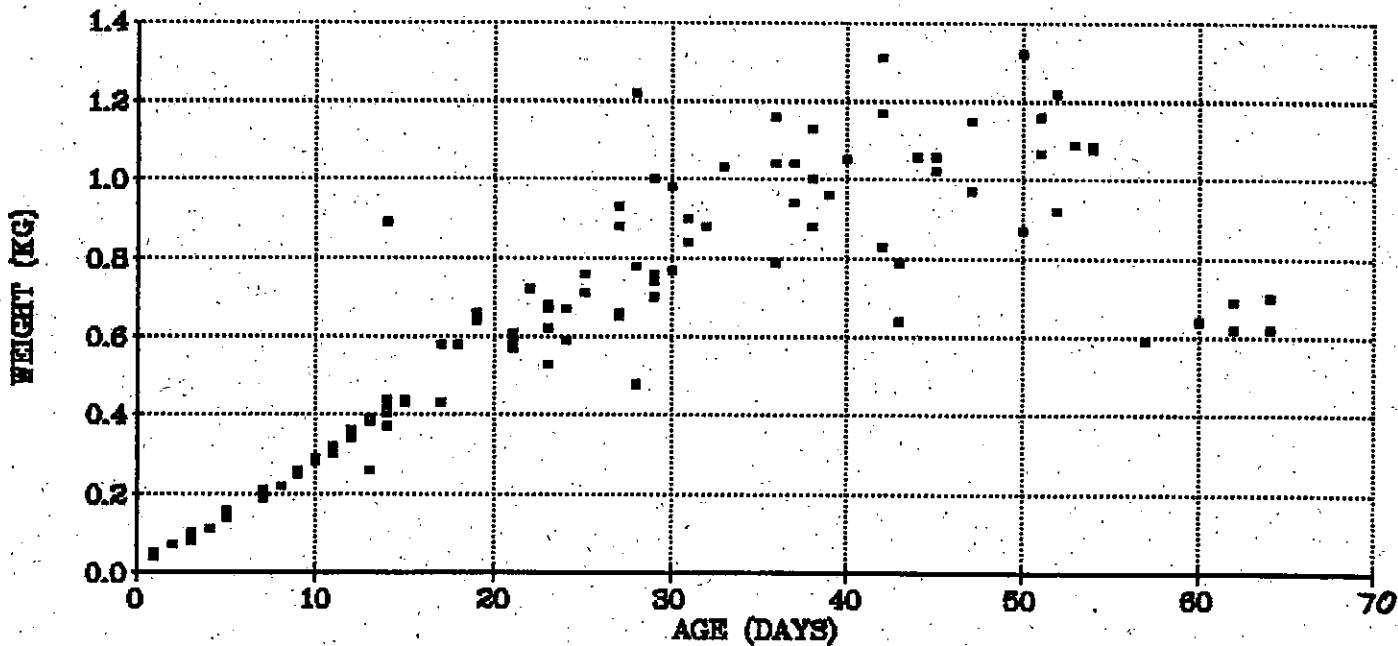


Figure 9.

CHICK GROWTH
AREA A

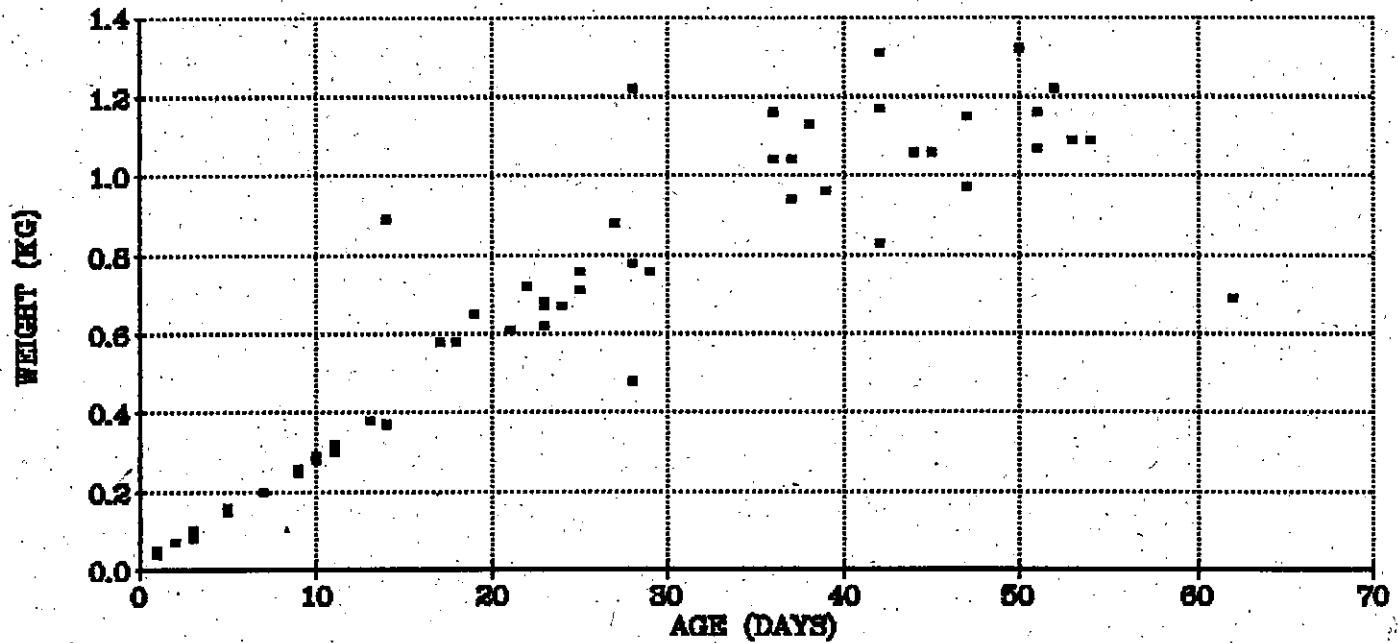


Figure 10.

CHICK GROWTH
AREA B

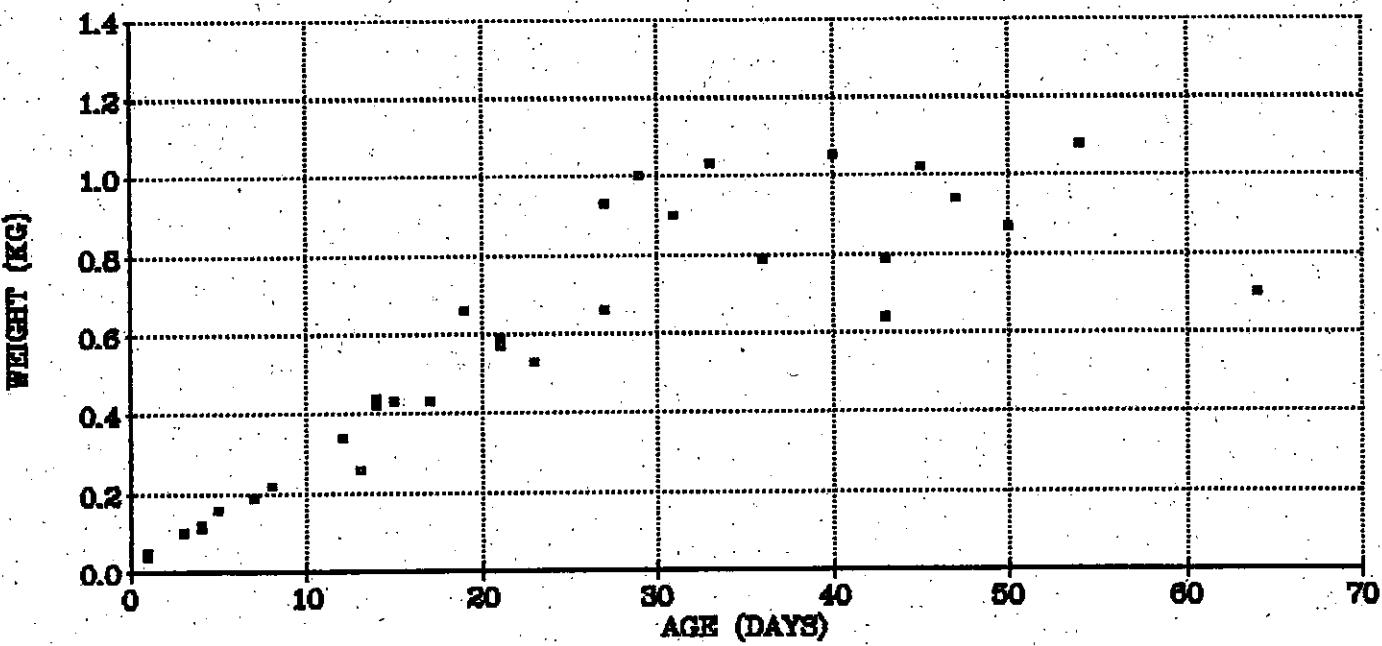


Figure 11.

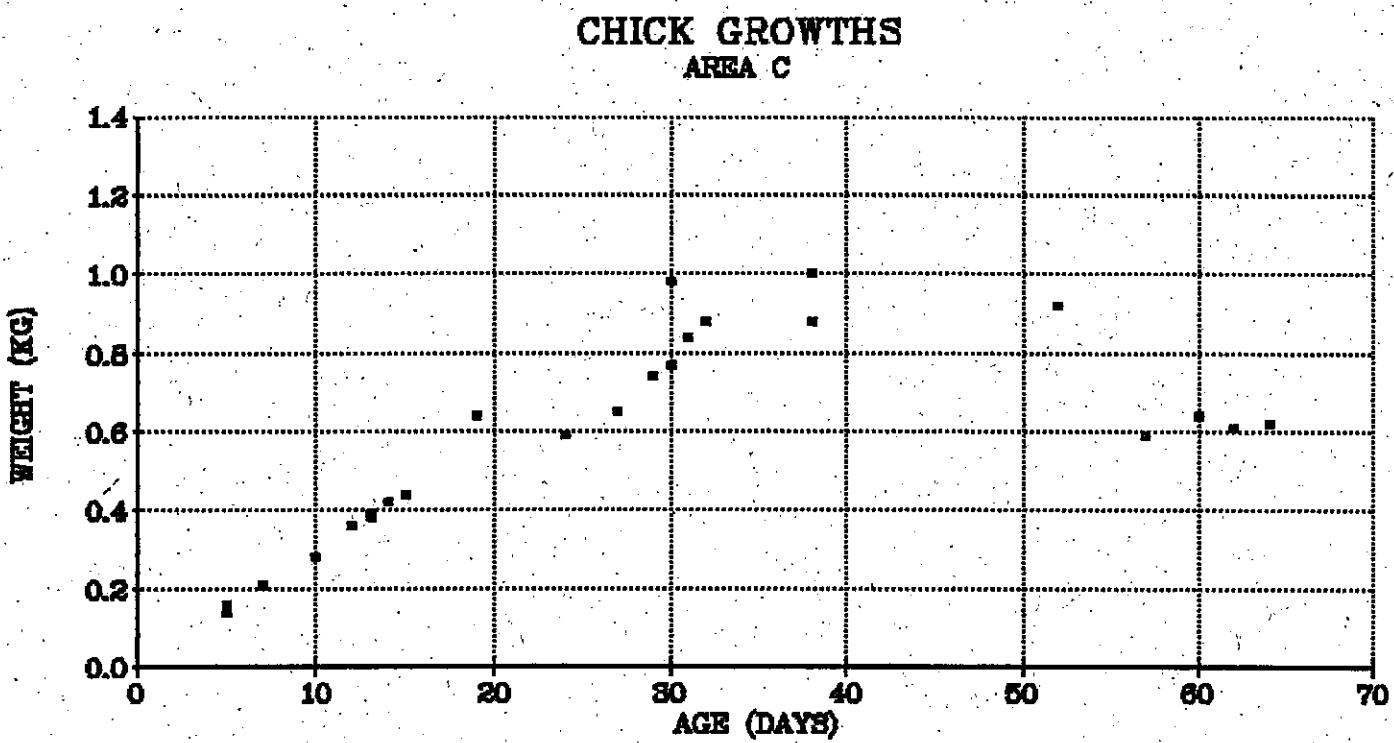
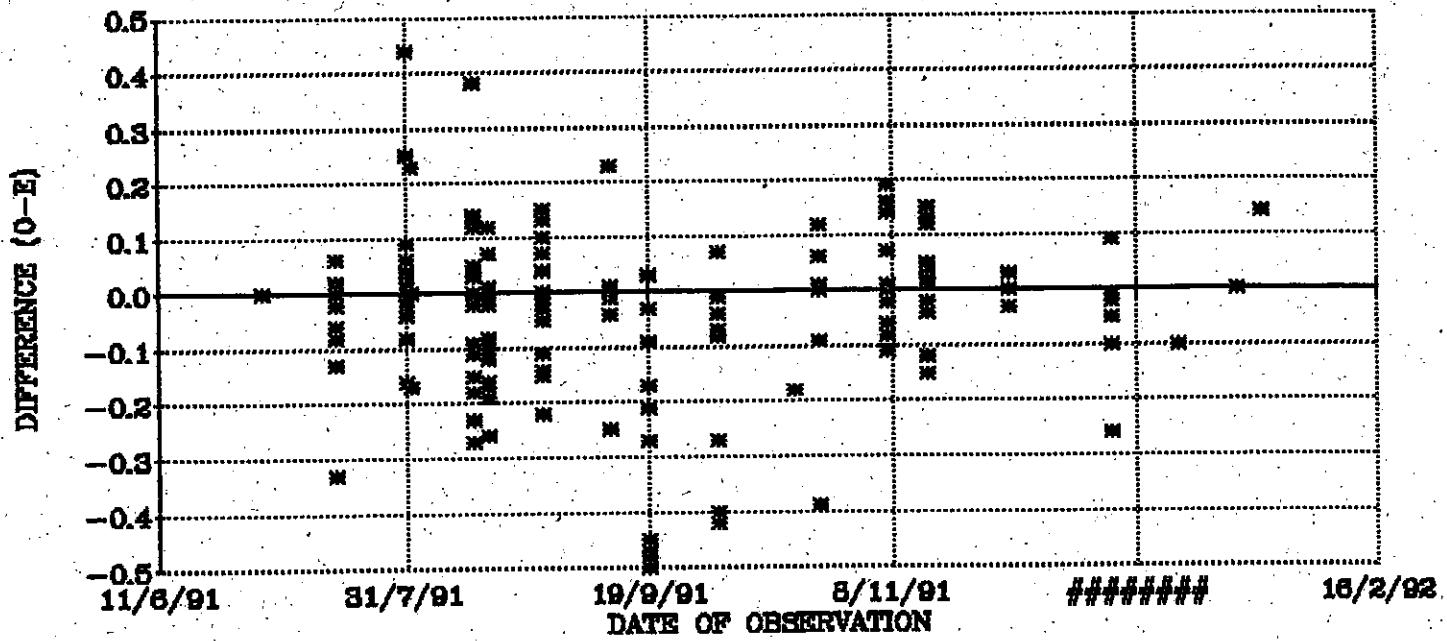


Figure 12. Differences between observed weights and projected weights for chicks from an averaged growth curve for chicks during 1991/92. The average growth curve was generated from all data where the birth of chicks was known to within 2 days (cf. Appendix 2).



MOULTING

Moultинг Birds were first noted in Area B on 6/1/1992, Area A on 23/1/92, and Area C on 18/1/92. The previous visit to all three areas on the 23/12/91 revealed no moultинг penguins. No penguins were recorded on Granite Island on 20/2/1991. However two moultинг birds were recorded on West Island this day. On the last visit to Granite Island on 20/3/1992, small numbers of non-moultинг paired adult penguins were recorded in Areas A & B. The peak moultинг period is highlighted in figures 1 & 4 with low penguin numbers and burrow occupancy during sample periods in December 1991 and February 1992.

BANDING RESULTS

A total of 161 size 190 stainless steel penguin right flipper bands (supplied by the Australian National Parks & Wildlife Service Bird & Bat Banding Scheme [ABBBS]) were used in the study. Of the 254 banded adults monitored in the study, 107 were banded on the previous season's study, 22 by ABBBS volunteers (20 on West Island and 2 on Penguin Island SA) and 125 were banded this study (Appendix 3). Of the 107 chicks recorded 38 were banded (Appendix 4).

Bands sequences used were 190 :

60031 to 60100 Granite Is; 60101 to 60122 West Is; 60501 to 60556 Granite Is; & 60487 to 60500 & 65901 to 65902 West Is.

ADULT WEIGHTS

Adult weights were recorded on sixteen occasions from 11/5/91 (Area C) and 2/7/91 (Areas A & B) to late March 1992 (see figure 9). Weights ranged from a minimum 0.8 kg throughout the year to a maximum 2.05 kg during the moultинг period in January. The variations in averages between sampling occasions to some extent reflect some of the small sample sizes rather than weight fluctuations in the population (particularly at the start and end of the moult). Average weight over the study period was 1.2 kg with a standard deviation of 0.126. By Area these were: "A" 1.18 kg; "B" 1.2 kg; and "C" 1.19, however none of these differences are significant. Over the season averages were: breeding 1.16 kg; moultинг 1.38 kg; post moult 1.2 kg. These differences were not significant given the fluctuations in weight during breeding and moultинг.

Figure 13. Average adult weights: points correspond to dates sampled

AVERAGE WEIGHTS - ADULT PENGUIN 91/92
ALL AREAS

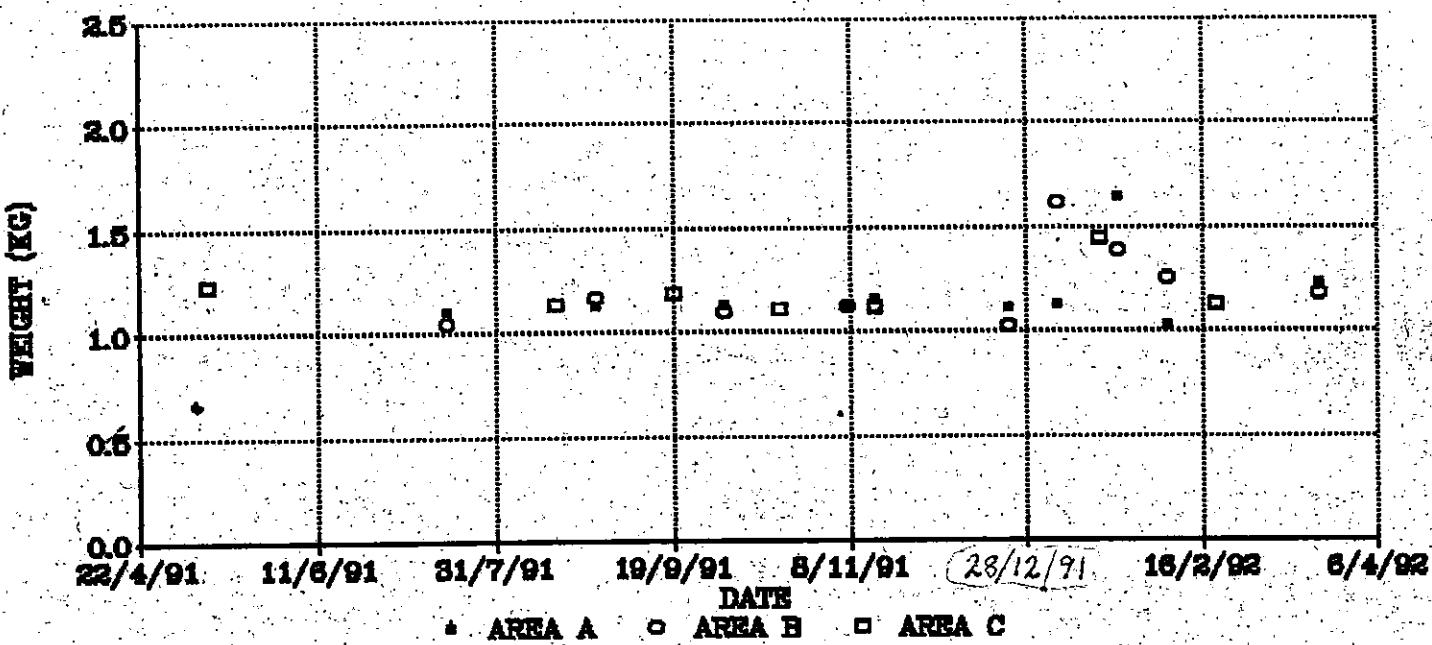
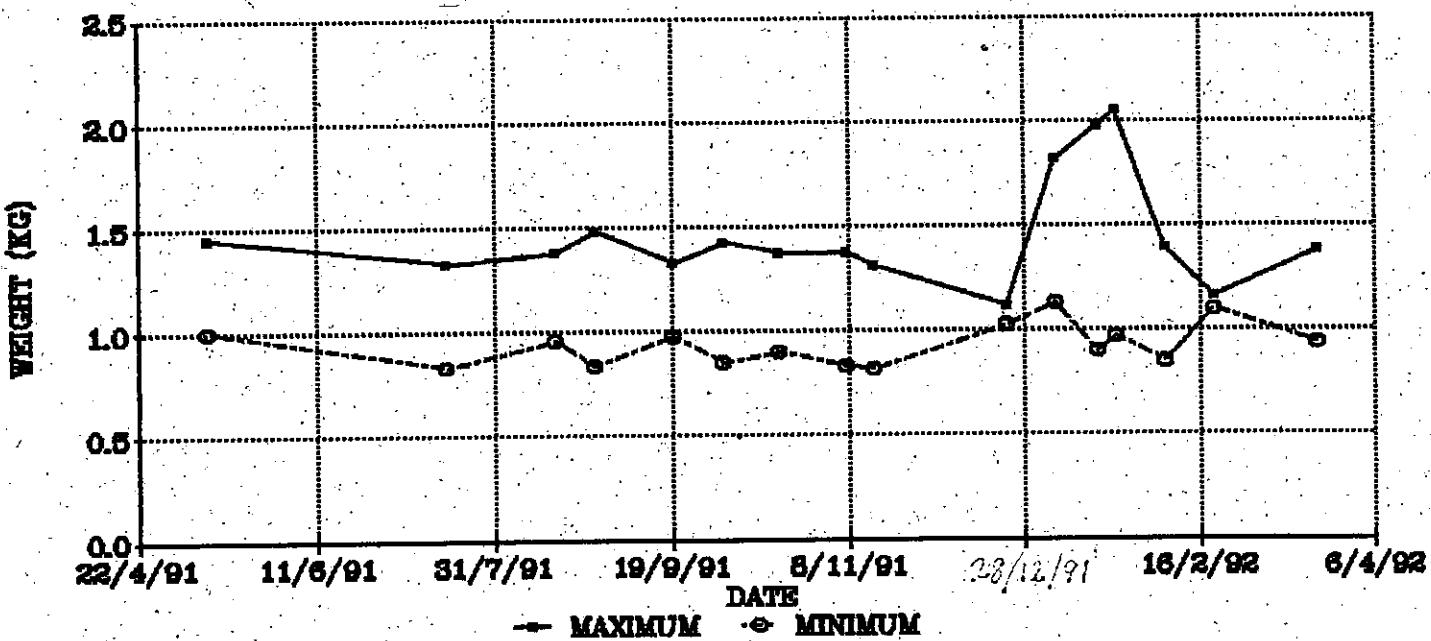


Figure 14. Maximum & minimum adult weights.



PENGUIN COUNTS ON THE 19/10/1991

Granite Island

Penguin counts:
below the main track 715
above the main track 118
Total = 833

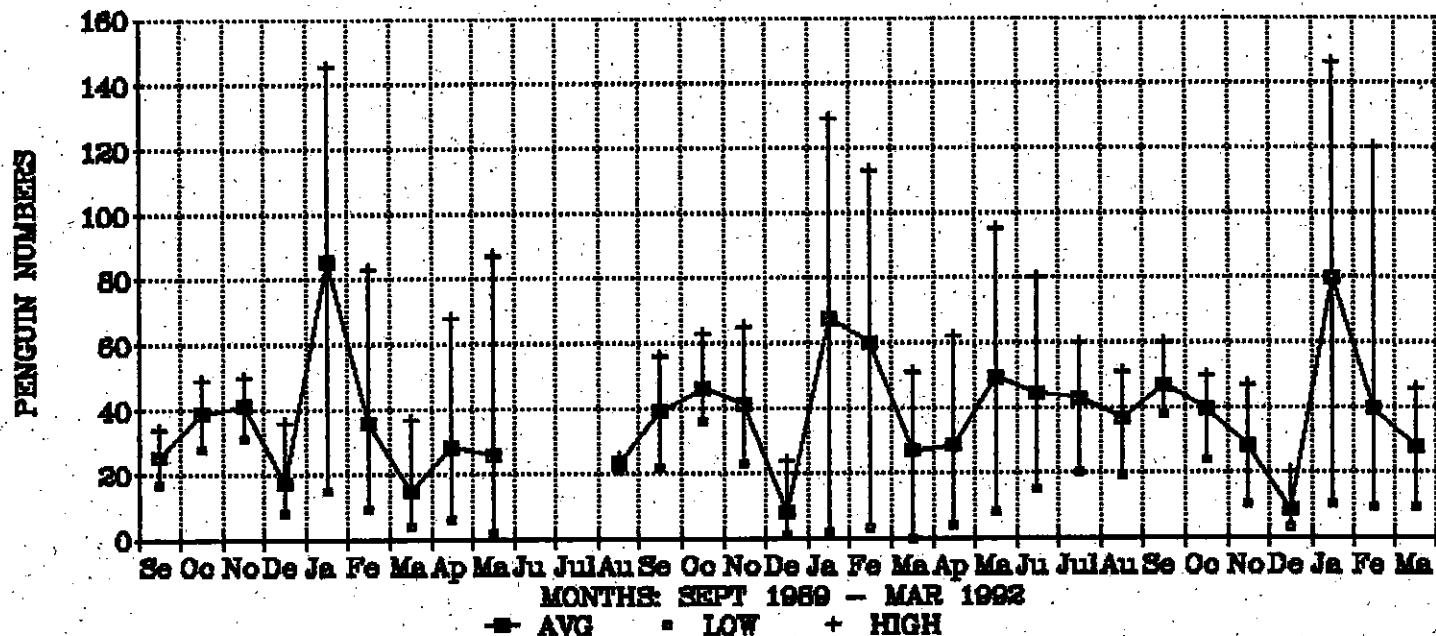
Wright Island

Penguin Counts: Whole Island = 388

Boulter has continued her daily counts along the North Shore of Granite Island. These are represented in figure 15 as average counts for the month with maximum and minimum counts. This figure includes data from September 1989 to March 1992 (cf. Appendix 5 for 1991/92 daily counts. Daily counts for 1989/91 in Brandle, 1991).

Figure 15.

PENGUIN NUMBERS NORTH SHORE
MONTHLY AVERAGES 89-92



DISCUSSION

The fortnightly data collection on Granite Island has improved the accuracy for determining the fate of eggs and chicks (in comparison to the 1990/91 monitoring program) over the course of the breeding season. The first two months of the breeding season were not monitored, however all successful clutches would have been recorded as it takes approximately three months from the day the first egg is laid for a clutch to produce a fully fledged chick. This was probably not the case in the previous season's monitoring on West Island (commenced late September 1990) where information received by the author after the completion of that report indicated that the breeding season at West Island began in May 1990. The eggs laid and chicks which hatched but died in this period would thus be unrecorded and would therefore underestimate the unsuccessful clutches.

Likewise, almost three months intervened in the period between the first day of monitoring and the second on West Island. This gap in the records combined with the fewer monitoring trips to West Island would have further decreased the numbers of clutches recorded and perhaps the burrows used for breeding, and makes direct comparisons between West Island and Granite Island less precise.

Burrow Occupancy

Adult (daytime) burrow occupancy was highest in all areas in July coinciding with the peak egg laying and nest preparation activity. Given that the first eggs on both islands were laid in early May (Boulter pers com) June would probably had similar rates of burrow occupancy. The slightly lower numbers for the next four months reflect the fact that after eggs have hatched and chicks are over two weeks old they are left alone in the nest. The dramatic decline in burrow occupancy during December coincides with the completion of breeding activity for most penguins and their period of intensive feeding in preparation for moult. The high rates of burrow occupancy over January 1992 coincide with the penguin moulting season, a period when adults are land bound for three weeks (Stahel & Gales, 1987). This is also a time when adults are commonly found in burrows other than those in which they were banded, hence the high numbers of 3+ individuals per burrow in tables 1 to 3.

The generally higher burrow occupancy for adults, eggs and chicks for 1991/92 when compared with the previous seasons results also reflects the increased number of visits and the longer monitoring season. The lack of significant differences in burrow occupancy between areas improves the confidence of differences encountered in breeding success. That is, such differences could not be attributed to breeding penguins' preferences for a particular area or colony.

Breeding Activity

The number of burrows used for breeding were similar for both monitoring seasons in Areas A & B (70% & 80% = 90/91 to 65% & 85% = 91/92). Area C (88% = 90/91 to 68% = 91/92) had 20% fewer breeding burrows this year. A number of factors are likely to have contributed to this. The lack of monitoring early in the season would cause the numbers of burrows used for breeding to be underestimated to a greater extent than on areas A & B because of the extra month over which the burrows were not monitored.

A possible cause of decline in breeding activity could be related to the establishment of a small collection (20+) of New Zealand Fur-seals (Arctocephalus forsteri) below the study area in the vicinity of the penguin access route from the water. Crawley (in Strahan, 1988) lists penguins as one of the prey items of this species. The seals started congregating in this area in early May 1991, building up to 20+ individuals in July and left in December 1991, shortly after they received local media and thus increased public attention (however their leaving the island may be related to other influences such as breeding or decreased food resources). The presence of the seals may have also contributed to the poor second clutch response and the higher number underweight fledged chicks on West Island.

Approximately twice as many egg clutches were recorded in 1991/92 than 1990/91 at an average of 1.8 eggs/clutch which is similar to the 1.7 eggs/clutch found previously. The reason fewer eggs were found in 1990/91 relates to the late start and monthly visits of that monitoring program. The poor hatch rate (18%) in that study was thought to be related to the fact that the eggs recorded were second or late clutches. This was not supported by the 1991/92 results where the hatch rate for first clutches (57%) differed only marginally from the second clutch hatch rate (43%). Figures 3 & 4 indicate the that a number of second and late clutches were laid, and figures 5 & 6 show that chick survival of second & late clutches was lower than for the first. This is also supported by the low numbers of chicks fledged from second clutches (cf results Clutch Success page 8)

The significantly higher numbers of eggs laid in area B possibly reflect the poor hatching success. Lack of chick rearing activity would give breeding pairs more time and energy to lay subsequent clutches. Area B had the only recorded burrow containing three clutches of which only the last clutch hatched. A maximum of 2 eggs and 2 chicks per clutch were recorded.

Hatching Success

Hatching success was significantly lower in Areas B & C. A possible reason for low success rates in Area B may relate to the positioning of the burrows on the Island. This area is divided into four separate groups of 10 burrows, two of these groups are located on south facing high energy coastline and are thus more exposed to the winter winds than burrows on the northern coasts. Burrows in Areas A & C are relatively sheltered from the

prevailing winds and storm activity. Area C hatching success could be underestimated despite our correction (table 4) because of the high percentage of chick mortality during the first fortnight of life. By visiting this area on a monthly basis many hatchings followed by early chick failures may have been recorded as egg failures. This problem would also lead to an underestimation of chick numbers and an over estimation of percentage of chicks fledged. More meaningful are direct comparisons between chicks fledged per burrows used for breeding.

The disappearance of all trace of eggs or shell in many instances between visits was not resolved in this study. Kinsky (RAOU, 1990) noted removal of eggshell to sea. Possible causes of destruction to eggs include Water Rats (Hydromys chrysogaster) and people in Areas A & B. Eggs were also noted to go missing in Area C. On Penguin Island in Western Australia Kings skinks (Egernia kingii) have been observed predating on penguin eggs (Meathrel & Klomp, 1990). West Island supports a dense population of the closely related though slightly smaller Cunningham's skinks (Egernia cunninghamii). Whether these lizards have learned to supplement their diets with the abundant egg resources on the Island needs to be tested, as these lizards have often been observed in occupied penguin nests.

Chick Survival

Significantly more chicks were fledged in Area C than A & B. However the underestimation of failed chicks in Area C would have enhanced this difference and should be interpreted with caution. This result is consistent with the previous year's result, though it is less pronounced.

The number of fledglings produced per breeding pair (A=0.46, B=0.22, C=0.67) is considerably lower than the previous year's result (A=0.56, B=0.46, C=1.00). It is likely that the 1990/91 result was an overestimate given the numbers of failed clutches which would not have been recorded. The absolute numbers of chicks fledged in both years were down for 1991/92 for Areas A (18:13), B (15:8) and C (35:18).

The proportion of chicks fledged from chicks recorded in each area differed markedly between years: Area A (58%:30%); B (70%:24%); & C (85%:67%). Apart from the obviously poorer season in 1991/92, for Areas A & B the increased visits over chicks' lives in would have increased the proportion of chicks known to have failed before fledging. The greatly reduced breeding success in Area C could reflect the presence of a seal colony below the study area. This is reflected in figure 5 which shows that the second clutch of chicks was almost non-existent in Area C whilst being obvious on Granite Island, the reverse of 1990/91. Chick growth was also slower in area C (table 12).

The chick death/disappearance data (table 11) indicates that the majority of the penguin chicks which die, do so in the first few weeks. Area C data cannot be considered as the sampling frequency was almost half of Areas A & B. The higher rates of chick mortality recorded on Granite island in both

seasons could be attributed to the high visitor pressure, predation by Water Rats (Strahan, 1988) or a combination of both.

Chick Growth

The wider 95% confidence range in chick growths (0.021 - 0.035 kg/day) for 1991/92 than 1990/91 is likely to be caused by fluctuations in food availability during the season. The high proportion of underweight chicks during September/October is highlighted in figure 12. A similar analysis of the 1990/91 data (Encounter Bay Penguin Study 1990/91, Brandle; figure 8) showed a period of weight loss in chicks at the end of the season. During 1991/92 the food supply appears to have recovered sufficiently by November. This is reflected in some of the individual chick results which show weight loss for some chicks over this period, and in others good weight gain during November after initially poor weight gain during October.

Over the season chick growth appeared strongest in Area A (figure 9) followed by Area B (figure 10), and was very poor in Area C (figure 11) with few chicks achieving fledging weights in excess of 1 kg. The average chick growth 95% confidence range in Area C for the first month of growth (0.021-0.029 kg/day) was significantly less than the previous year's 95% confidence range of 0.032-0.035 kg/day for the first month of life. The fact that growth rates were higher on Granite Island imply that site specific factors were causing chick famine at Area C. The most obvious cause would be the presence of Fur-seals. By reducing the number of parents or preventing their easy access to the breeding area, chick raising would become more difficult. It is likely that all the Encounter Bay penguins share resources.

From figures 8 - 11 it can be seen that most fledglings leave the burrow by 56 days. Chicks which are severely underweight remain in the burrows for much longer periods. The proportionately higher number of grossly underweight fledged chicks in Area C possibly reflects the loss of parents or their access to their chicks, by seals.

To avoid such problems, future monitoring of penguins at Area C, West Island should relocate the burrows to be monitored over a wider geographic spread than at present (in a manner similar to those in Area B).

Banding Results

No movement of banded birds between study areas was noted. Less than half of the birds monitored were banded in last year's program. The more intensive monitoring should have lead to both partners in most pairs being banded, very few adult penguins were unbanded towards the end of the study. The exception to this was during moult when burrow sharing and movement of adults between burrows appears to be greatest.. Future recording of unbanded penguins is likely to represent the yearly influx of new penguins into the area. Reilly has calculated from long term banding studies on

Phillip Island that 14% of the Adult population is lost every year (Stahel & Gales, 1987).

Penguin Counts

This season's penguin counts were higher on Granite Island than for 1990/91. This most likely reflects both the timing of the count during the height of the breeding season (as apposed to the end of it) and the improved methodology used. The slight decrease in penguins counted on Wright Island may be related to reduced access through boxthorn and the lusher vegetation that exists in October (as apposed to the drier December trip in 1990).

The future continuation of these annual counts will only be of benefit if no other monitoring is taking place. To enable consistency between counts, a different approach should be adopted. To do this one or more key penguin routes from the sea should be monitored over a set period of time on several occasions. All penguins coming ashore can then be counted with small margin for error between different counters. Thus fewer volunteers can be used more efficiently to collect more comparable data. This method will not provide an estimate of total population unless area of burrows serviced by those particular penguin routes and the number of day time residents in those burrows are determined on the same day. This information could then be extrapolated to estimate the total population on the island.

CONCLUSIONS

The 1991/92 penguin breeding season extended from May to December, the moulting season following quickly in January. This result is consistent with the 1990/91 study. Adult penguin burrow occupancy was similar across the three monitoring areas, most burrows having been used at some stage by penguins. Breeding activity in the burrows was similar on Granite Island to 1990/91, and less on West Island Area C. The numbers of chicks fledged per breeding pair was reduced when compared to 1990/91 in all areas, but most markedly in Area C. The most likely cause for poorer fledge rates across the areas would be poorer food supply mid breeding season or climatic factors. The presence of New Zealand Fur Seals during the breeding season around the penguin arrival/departure routes to and from the island could have contributed to the reduction in fledgling production in Area C. Fledging was highest in Area C followed by A & B. This result is consistent with results from 1990/91.

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Victor Harbor District Council and National Parks & Wildlife Service Fleurieu District for financial and transport support.

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MAP 1.

GRANITE ISLAND
PENGUIN BURROW DISTRIBUTION

AREA 1.

AREA 1

GROUP 1
SEARCHED

BELLOW
TRACK

START
OF
COUNT
Causeway

GROUP 2
SEARCHED

BELLOW TRACK
AREA 2.

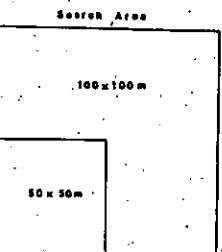
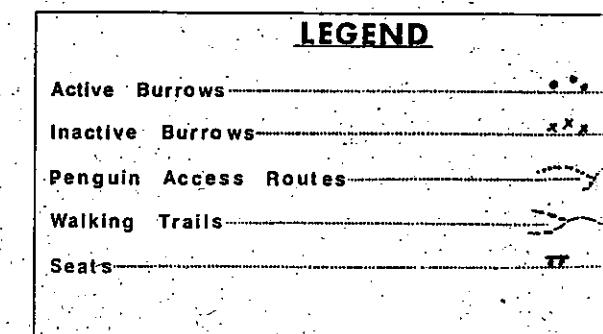
AREA 2.

GROUP 3
SEARCHED
ABOVE TRACK
AREA 3.

AREA 3.

N

Screwpile Jetty



Scale 1:2390
Metres 0 50 100 150
0 Metres

SANPWS SURVEY

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX 1 : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

BURROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
02/07/91	19060031	0.00	12.90	37.40			BURROW CAVED IN, REPAIRED WITH A ROCK,	BURROW TAG MISSING
02/07/91	19060032	0.00	14.00	40.50				
17/07/91		0	0.00	0.00	0.00			
31/07/91	19055401	0.00	0.00	0.00				
31/07/91	19055530	0.00	0.00	0.00				
14/08/91	19055401	0.00	0.00	0.00				
28/08/91		0	0.00	0.00	0.00			
11/09/91		1	0.00	0.00	0.00	E	1 ADULT PRESENT NOT REACHED	
03/10/91		1	0.00	0.00	0.00	E	ONE ADULT NOT REACHED	
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055409	0.00	0.00	0.00				
17/07/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00			
28/08/91	19060503	1.16	15.30	39.00				
11/09/91	19060520	0.00	12.30	38.00	E			
03/10/91		0	0.00	0.00	0.00		EGG SHELL PRESENT	
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060037	0.00	0.00	0.00	Y			
17/07/91	19060037	0.92	11.50	39.30	Y			
31/07/91		0	0.00	0.00	0.00	Y		
14/08/91		0	0.00	0.00	0.00	Y		
28/08/91		0	0.00	0.00	0.00	C		
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91	19060530	0.00	13.50	39.00	E			
07/11/91	19060530	1.15	0.00	0.00	E			
15/11/91	19060530	1.12	0.00	0.00	E			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91	11111111	0.00	0.00	0.00			NOT REACHED; 2 PRESENT	
17/07/91	19055411	1.28	15.00	41.00			2 ADULTS PRESENT ; 1 NOT REACHED	
31/07/91		0	0.00	0.00	0.00			
14/08/91	19055411	0.00	0.00	0.00				
28/08/91	19060504	1.16	12.80	37.00				
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91	19055533	0.00	12.10	34.00				
07/11/91	19055411	1.29	0.00	0.00				
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19055411	1.95	0.00	0.00			BEGINNING MOULT	
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060038	0.00	0.00	0.00				
02/07/91	19060039	0.00	0.00	0.00				
17/07/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
14/08/91	19060038	0.00	0.00	0.00				
14/08/91	19060039	0.00	0.00	0.00				
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055574	0.00	0.00	0.00	Y			
17/07/91	11111111	0.00	0.00	0.00	Y		ADULT PRESENT ; NOT REACHED	
31/07/91	19055574	1.13	13.60	0.00	Y			
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			

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ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
03/10/91	19055574	1.42		14.60	36.00			
24/10/91	19060531	0.00		13.00	40.00	E		
07/11/91	19060531	1.00		0.00	0.00	E		
15/11/91	19055574	1.31		0.00	0.00	E		
02/12/91	19055574	0.00		0.00	0.00	C		
23/12/91		0		0.00	0.00			
06/01/92		0		0.00	0.00			
23/01/92	19055574	1.99		0.00	0.00		BEGINNING MOULT	
06/02/92	19055574	1.22		0.00	0.00		MOULT	
20/02/92		0		0.00	0.00			
20/03/92		0		0.00	0.00			
02/07/91	19060040	0.00		0.00	0.00			
02/07/91	19060041	0.00		0.00	0.00			
17/07/91		0		0.00	0.00			
31/07/91	19060040	0.00		0.00	0.00			
14/08/91	19060040	0.00		0.00	0.00			
14/08/91	19060041	0.00		0.00	0.00			
28/08/91		0		0.00	0.00			
11/09/91		0		0.00	0.00			
03/10/91		0		0.00	0.00			
24/10/91		0		0.00	0.00			
07/11/91		0		0.00	0.00			
15/11/91		0		0.00	0.00			
02/12/91		0		0.00	0.00			
23/12/91		0		0.00	0.00			
06/01/92		0		0.00	0.00			
23/01/92		0		0.00	0.00			
06/02/92		0		0.00	0.00			
20/02/92		0		0.00	0.00			
20/03/92		0		0.00	0.00			
02/07/91	19060042	0.00		0.00	0.00			
02/07/91	19060043	0.00		0.00	0.00			
17/07/91		0		0.00	0.00			
31/07/91		0		0.00	0.00			
14/08/91		0		0.00	0.00			
28/08/91	19055414	0.99		14.30	37.00	E		
11/09/91	19055414	0.00		0.00	0.00	E		
03/10/91	19060525	0.00		12.40	35.00	C		
24/10/91		0		0.00	0.00			
07/11/91	19055414	1.09		0.00	0.00			
07/11/91	19060525	0.98		0.00	0.00			
15/11/91		0		0.00	0.00			
02/12/91		0		0.00	0.00			
23/12/91		0		0.00	0.00			
06/01/92		0		0.00	0.00			
23/01/92		0		0.00	0.00			
06/02/92		0		0.00	0.00			
20/02/92		0		0.00	0.00			

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ROW DATE	BAND	WT	BDDEPTH	B LENGTH	E GGS	C HICKS	COM1	COM2
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
31/07/91	19060080	0.00	13.70	0.00				
31/07/91	19060081	0.00	11.10	0.00				
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91	19055415	1.05	14.40	39.00	E			
24/10/91	19055415	0.00	14.40	39.00	E			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00	C	2 DEAD CHICKS	
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92	19055534	1.10	13.50	38.00			FINISHED MOULT	
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055416	0.00	0.00	0.00				
17/07/91		0	0.00	0.00	0.00			
31/07/91	19055416	0.00	0.00	0.00				
31/07/91	19055535	0.00	0.00	0.00				
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91	19055416	0.00	0.00	0.00				
11/09/91	19055535	0.00	0.00	0.00				
03/10/91	19055416	1.19	15.30	37.00	E			
24/10/91	19055416	0.00	14.80	36.00	Y		EGG & CHICK	
07/11/91		0	0.00	0.00	0.00	C		
15/11/91		0	0.00	0.00	0.00	C		
02/12/91		0	0.00	0.00	0.00	C		
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19055416	1.33	0.00	0.00			MOULT	
06/02/92	19055535	0.85	11.50	36.00			NEARLY FINISHED MOULT	
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			

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ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
31/07/91	19060073	0.00	13.10	0.00				
31/07/91	19060074	0.00	14.60	0.00				
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91	19060074	0.00	0.00	0.00	E			
03/10/91	19060074	1.26	15.70	39.00	E			
24/10/91	19060073	0.00	13.40	34.00	C			
07/11/91		0	0.00	0.00	0.00	C		
15/11/91		0	0.00	0.00	0.00	C		
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055419	0.00	0.00	0.00	Y			
17/07/91	19055419	1.02	11.50	38.60	Y			
31/07/91		0	0.00	0.00	0.00	Y		
14/08/91	19055418	0.00	0.00	0.00				
14/08/91	19055419	0.00	0.00	0.00				
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91	19055419	1.06	0.00	0.00				
07/11/91	19060534	0.95	11.50	35.00				
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
		0	0.00	0.00	0.00			
1	28/08/91	0	0.00	0.00	0.00			
1	11/09/91	0	0.00	0.00	0.00			
1	03/10/91	0	0.00	0.00	0.00			
1	24/10/91	0	0.00	0.00	0.00			
1	07/11/91	0	0.00	0.00	0.00			
1	15/11/91	0	0.00	0.00	0.00			
1	02/12/91	0	0.00	0.00	0.00			
1	23/12/91	0	0.00	0.00	0.00			
1	06/01/92	0	0.00	0.00	0.00			
1	23/01/92	0	0.00	0.00	0.00			
1	06/02/92	0	0.00	0.00	0.00			
1	20/02/92	0	0.00	0.00	0.00			
1	20/03/92	0	0.00	0.00	0.00			
2	02/07/91	19055421	0.00	0.00	0.00			
2	02/07/91	19055539	0.00	0.00	0.00			
2	17/07/91	0	0.00	0.00	0.00			
2	31/07/91	0	0.00	0.00	0.00			
2	14/08/91	0	0.00	0.00	0.00			
2	28/08/91	0	0.00	0.00	0.00			
2	11/09/91	0	0.00	0.00	0.00			
2	03/10/91	0	0.00	0.00	0.00			
2	24/10/91	0	0.00	0.00	0.00			
2	07/11/91	0	0.00	0.00	0.00			
2	15/11/91	19029684	1.18	12.90	38.00			
2	02/12/91	0	0.00	0.00	0.00			
2	23/12/91	0	0.00	0.00	0.00			
2	06/01/92	0	0.00	0.00	0.00			
2	23/01/92	0	0.00	0.00	0.00			
2	06/02/92	0	0.00	0.00	0.00			
2	20/02/92	0	0.00	0.00	0.00			
2	20/03/92	0	0.00	0.00	0.00			
3	02/07/91	19049675	0.00	0.00	0.00			
3	02/07/91	19055536	0.00	0.00	0.00			
3	17/07/91	0	0.00	0.00	0.00			
3	31/07/91	0	0.00	0.00	0.00			
3	14/08/91	19049675	0.00	0.00	0.00			
3	14/08/91	19055536	0.00	0.00	0.00			
3	28/08/91	0	0.00	0.00	0.00			
3	11/09/91	19055536	0.00	0.00	0.00 E			
3	03/10/91	19049675	1.14	12.90	36.00 E			
3	24/10/91	0	0.00	0.00	0.00			
3	07/11/91	0	0.00	0.00	0.00 C			
3	15/11/91	0	0.00	0.00	0.00 C			
3	02/12/91	0	0.00	0.00	0.00			
3	23/12/91	0	0.00	0.00	0.00			
3	06/01/92	0	0.00	0.00	0.00			
3	23/01/92	0	0.00	0.00	0.00			
3	06/02/92	0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
3	20/02/92	0	0.00	0.00	0.00			
3	20/03/92	0	0.00	0.00	0.00			
4	02/07/91	19055537	0.00	0.00	0.00	Y		
4	17/07/91	11111111	0.00	0.00	0.00	Y	ADULT PRESENT ; NOT REACHED	
4	31/07/91	19055537	0.00	0.00	0.00	Y		
4	14/08/91	0	0.00	0.00	0.00			
4	28/08/91	0	0.00	0.00	0.00			
4	11/09/91	0	0.00	0.00	0.00	C		
4	03/10/91	0	0.00	0.00	0.00	C		
4	24/10/91	0	0.00	0.00	0.00			
4	07/11/91	1	0.00	0.00	0.00		2ND ADULT NOT REACHED	
4	07/11/91	19055537	1.19	12.00	41.00			
4	15/11/91	0	0.00	0.00	0.00			
4	02/12/91	0	0.00	0.00	0.00			
4	23/12/91	0	0.00	0.00	0.00			
4	06/01/92	0	0.00	0.00	0.00			
4	23/01/92	1	0.00	0.00	0.00		BIRD NOT REACHED	
4	23/01/92	19055537	1.92	0.00	0.00			
4	06/02/92	0	0.00	0.00	0.00			
4	20/02/92	0	0.00	0.00	0.00			
4	20/03/92	0	0.00	0.00	0.00			
5	02/07/91	0	0.00	0.00	0.00			
5	17/07/91	0	0.00	0.00	0.00			
5	31/07/91	0	0.00	0.00	0.00			
5	14/08/91	0	0.00	0.00	0.00			
5	28/08/91	0	0.00	0.00	0.00			
5	11/09/91	0	0.00	0.00	0.00			
5	03/10/91	0	0.00	0.00	0.00			
5	24/10/91	0	0.00	0.00	0.00			
5	07/11/91	0	0.00	0.00	0.00			
5	15/11/91	0	0.00	0.00	0.00			
5	02/12/91	0	0.00	0.00	0.00			
5	23/12/91	0	0.00	0.00	0.00			
5	06/01/92	0	0.00	0.00	0.00			
5	23/01/92	0	0.00	0.00	0.00			
5	06/02/92	0	0.00	0.00	0.00			
5	20/02/92	0	0.00	0.00	0.00			
5	20/03/92	0	0.00	0.00	0.00			
6	02/07/91	19055422	0.00	0.00	0.00	Y		
6	17/07/91	19055425	1.33	14.50	39.60	Y		
6	31/07/91	19055422	0.00	0.00	0.00	Y		
6	14/08/91	0	0.00	0.00	0.00			
6	28/08/91	0	0.00	0.00	0.00			
6	11/09/91	19055425	0.00	14.90	38.00			
6	03/10/91	19055422	0.93	12.20	35.00	E		
6	24/10/91	0	0.00	0.00	0.00			
6	07/11/91	0	0.00	0.00	0.00			
6	15/11/91	0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

BROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
6	02/12/91	0	0.00	0.00	0.00			
5	23/12/91	0	0.00	0.00	0.00			
5	06/01/92	0	0.00	0.00	0.00			
6	23/01/92	0	0.00	0.00	0.00			
6	06/02/92	0	0.00	0.00	0.00			
6	20/02/92	0	0.00	0.00	0.00			
6	20/03/92	0	0.00	0.00	0.00			
7	02/07/91	0	0.00	0.00	0.00			
7	17/07/91	0	0.00	0.00	0.00			
7	31/07/91	19060082	0.00	11.80	0.00			
7	31/07/91	19060083	0.00	13.40	0.00			
7	14/08/91	0	0.00	0.00	0.00			
7	28/08/91	0	0.00	0.00	0.00			
7	11/09/91	0	0.00	0.00	0.00			
7	03/10/91	0	0.00	0.00	0.00			
7	24/10/91	0	0.00	0.00	0.00			
7	07/11/91	0	0.00	0.00	0.00			
7	15/11/91	0	0.00	0.00	0.00			
7	02/12/91	0	0.00	0.00	0.00			
7	23/12/91	0	0.00	0.00	0.00			
7	06/01/92	0	0.00	0.00	0.00			
7	23/01/92	0	0.00	0.00	0.00			
7	06/02/92	0	0.00	0.00	0.00			
7	20/02/92	0	0.00	0.00	0.00			
7	20/03/92	0	0.00	0.00	0.00			
8	02/07/91	19049676	0.00	0.00	0.00	Y		
8	17/07/91	19049676	1.15	14.00	35.30	Y		
8	31/07/91	19049676	0.00	0.00	0.00	Y		
8	14/08/91	0	0.00	0.00	0.00			
8	28/08/91	0	0.00	0.00	0.00			
8	11/09/91	19049676	0.00	13.50	34.00			
8	11/09/91	19049686	0.00	11.60	37.00			
8	03/10/91	19049686	1.20	13.60	34.00	E		
8	24/10/91	19049686	0.00	0.00	0.00	C		
8	07/11/91	0	0.00	0.00	0.00			
8	15/11/91	0	0.00	0.00	0.00			
8	02/12/91	0	0.00	0.00	0.00			
8	23/12/91	0	0.00	0.00	0.00			
8	06/01/92	0	0.00	0.00	0.00			
8	23/01/92	0	0.00	0.00	0.00			
8	06/02/92	0	0.00	0.00	0.00			
8	20/02/92	0	0.00	0.00	0.00			
8	20/03/92	0	0.00	0.00	0.00			
9	02/07/91	11111111	0.00	0.00	0.00		2 ADULTS PRESENT ; NOT REACHABLE	
9	02/07/91	22222222	0.00	0.00	0.00		2 ADULTS PRESENT ; NOT REACHABLE	
9	17/07/91	0	0.00	0.00	0.00			
9	31/07/91	22222222	0.00	0.00	0.00		2 ADULTS PRESENT NOT REACHED	
9	14/08/91	0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

OW-DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
28/08/91		1	0.00	0.00	0.00	2	1 ADULT PRESENT - NOT REACHED	
11/09/91	19055540	0.00	14.50	38.00	E			
03/10/91		1	0.00	0.00	0.00	C	ADULT NOT REACHED	
24/10/91		1	0.00	0.00	0.00	C		
07/11/91		0	0.00	0.00	0.00	C	CHICKS NOT REACHED	
15/11/91		0	0.00	0.00	0.00	C	BOTH CHICKS DEAD	
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	11111111	0.00	0.00	0.00				
17/07/91	11111111	0.00	0.00	0.00			2 ADULTS PRESENT; 1 NOT REACHED	
31/07/91	19060075	0.00	13.00	0.00				
31/07/91	19060076	0.00	12.40	0.00				
14/08/91		0	0.00	0.00	0.00			
28/08/91	19060099	1.05	12.00	38.00				
11/09/91	19060519	0.00	12.50	38.00				
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19060546	1.79	12.40	35.00			MOULT	
06/02/92	19060546	0.00	0.00	0.00				
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00		NO NEST PREPARATION OR FEACES	
17/07/91		0	0.00	0.00	0.00	Y	LARGE CHICK PRESENT	
31/07/91		0	0.00	0.00	0.00	Y		
14/08/91		0	0.00	0.00	0.00	Y		
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91	19055427	1.12	14.80	40.00	E			
24/10/91		0	0.00	0.00	0.00	E		
07/11/91	19055427	1.10	0.00	0.00	C			
15/11/91		0	0.00	0.00	0.00	C		
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19049677	1.76	12.60	36.00			MOULT	
06/02/92	19049677	1.06	0.00	0.00			NEARLY FINISHED MOULT	
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
02/07/91	19060044	0.00	0.00	0.00	Y			
17/07/91	19060044	1.08	14.90	40.20	Y			
31/07/91	19060085	0.00	12.40	0.00	Y			
31/07/91	19060086	0.00	13.20	0.00	Y			
14/08/91		0	0.00	0.00	0.00	Y		
28/08/91		0	0.00	0.00	0.00	C		
11/09/91		0	0.00	0.00	0.00			
03/10/91	19055428	0.99	12.30	36.50	E			
24/10/91	19060044	0.00	14.90	40.00	E			
07/11/91		0	0.00	0.00	0.00	E		
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92	19060044	1.29	0.00	0.00				
20/03/92	19060556	1.22	13.00	41.00				
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
14/08/91		1	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19049678	1.81	14.30	37.00		MOULT		
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055429	0.00	0.00	0.00				
02/07/91	19060045	0.00	0.00	0.00				
17/07/91	19055429	1.13	13.80	38.00				
31/07/91	19060045	0.00	13.30	0.00				
31/07/91	19060087	0.00	14.20	0.00				
14/08/91	19055429	0.00	0.00	0.00				
14/08/91	19060045	0.00	0.00	0.00				
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91	19060087	1.11	14.80	37.00				
24/10/91	19060087	0.00	0.00	0.00	E			
07/11/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COMI	COM2
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92	19060555	1.18	12.70	36.00			SECOND ADULT NOT REACHED	
02/07/91	19049681	0.00	0.00	0.00	Y			
17/07/91		0	0.00	0.00	0.00	Y		
31/07/91		0	0.00	0.00	0.00	Y		
14/08/91		0	0.00	0.00	0.00			
28/08/91	19049681	0.00	0.00	0.00				
28/08/91	19049682	0.00	0.00	0.00				
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91	19060536	1.12	12.40	37.00				
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
31/07/91	19060089	0.00	14.50	0.00				
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91	19060089	0.00	15.00	36.00	E			
03/10/91	19060089	1.08	15.10	38.00	E			
24/10/91		0	0.00	0.00	0.00			
07/11/91	19049682	0.99	12.00	37.00				
07/11/91	19060089	1.20	0.00	0.00				
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91	19049680	1.00	14.40	40.00	Y			
31/07/91	19055544	0.00	0.00	0.00	Y			
14/08/91	19055544	0.00	0.00	0.00	Y			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
28/08/91	19049680	0.00	0.00	0.00	C			
11/09/91		0	0.00	0.00	0.00	C		
03/10/91		0	0.00	0.00	0.00	C		
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91	19049680	1.13	0.00	0.00				
15/11/91	19055544	1.09	12.10	38.00				
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19060548	1.15	12.40	37.00			ALMOST FINISHED MOULT	
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060046	0.00	0.00	0.00	Y			
17/07/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00			
28/08/91	19060507	1.06	15.00	38.00				
28/08/91	19060508	1.09	12.70	36.50				
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00	E		
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19060507	1.32	0.00	0.00			MOULT	
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060034	0.00	0.00	0.00	Y			
17/07/91		0	0.00	0.00	0.00	Y		
31/07/91	19060034	0.00	0.00	0.00	Y			
14/08/91		0	0.00	0.00	0.00	Y		
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19060545	1.73	15.40	39.00			MOULT	
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

BROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055436	0.00	0.00	0.00				
02/07/91	19055437	0.00	0.00	0.00				
17/07/91		0	0.00	0.00	0.00			
31/07/91	19060077	0.00	13.10	0.00				
31/07/91	19060078	0.00	11.10	0.00				
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92	19060547	0.94	12.00	36.00			FINISHED MOULT	
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00		HAS BEEN USED BY MOULTING BIRD	
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060035	0.00	0.00	0.00			FRESH EGG SHELL PRESENT	
17/07/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00			
28/08/91	19055438	1.48	15.00	38.00				
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91	19060035	1.04	12.60	37.00				
02/12/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGBGS	CHICKS	COM1	COM2
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19060035	1.42	0.00	0.00			IN MOULT	
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060033	0.00	0.00	0.00				
17/07/91	19060033	1.03	12.80	40.50	Y			
31/07/91	19060033	0.00	0.00	0.00	Y			
14/08/91		1	0.00	0.00	0.00	Y		
28/08/91	19060100	1.04	14.50	37.50	C			
11/09/91		0	0.00	0.00	0.00			
03/10/91	19060100	1.22	15.00	38.00				
24/10/91	19060033	0.00	0.00	0.00	E			
07/11/91	19060100	1.04	0.00	0.00	E			
15/11/91	19060100	1.15	0.00	0.00	C			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91	19055436	1.18	12.70	40.00				
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	11111111	0.00	0.00	0.00	Y		ADULT PRESENT NOT REACHED	
17/07/91	11111111	0.00	0.00	0.00	Y		ADULT PRESENT NOT REACHED	
31/07/91	11111111	0.00	0.00	0.00	Y		BIRD PRESENT NOT REACHED	
14/08/91	11111111	0.00	0.00	0.00			BIRD PRESENT - NOT REACHED	
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00	C		1 SEMI FLEDGED CHICK SEEN BUT NOT REACHED
03/10/91		0	0.00	0.00	0.00			NO BIRDS NOTICED - DID NOT HAVE TORCH
24/10/91		1	0.00	0.00	0.00	E		ADULT PRESENT - NOT REACHED

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
07/11/91		1	0.00	0.00	0.00	E	1 ADULT NOT REACHED	
15/11/91		1	0.00	0.00	0.00	E	ADULT NOT REACHED	
02/12/91		1	0.00	0.00	0.00	C	ADULT NOT REACHED	
23/12/91		1	0.00	0.00	0.00		NOT REACHED	
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		1	0.00	0.00	0.00		ADULT NOT REACHED	
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055407	0.00	0.00	0.00				
02/07/91	19060036	0.00	0.00	0.00				
17/07/91	19055407	1.12	11.80	37.00				
31/07/91		0	0.00	0.00	0.00			
14/08/91	19055407	0.00	0.00	0.00				
14/08/91	19060036	0.00	0.00	0.00				
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00	E		
03/10/91	19060036	0.98	15.00	39.00	E			
24/10/91	19055407	0.00	0.00	0.00	C			
07/11/91		0	0.00	0.00	0.00	C		
15/11/91		0	0.00	0.00	0.00	C		
02/12/91		0	0.00	0.00	0.00	C		
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19055407	1.62	0.00	0.00			MOULT	
06/02/92	19055407	0.99	0.00	0.00			ALMOST FINISHED MOULT	
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055408	0.00	0.00	0.00	Y		EGG HATCHING	
17/07/91	19055408	0.89	12.10	37.50	Y			
31/07/91		0	0.00	0.00	0.00	Y		
14/08/91		0	0.00	0.00	0.00	Y		
28/08/91		0	0.00	0.00	0.00	C		
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91	19055408	1.30	0.00	0.00				
07/11/91	19060533	1.37	13.40	39.00				
15/11/91	19060533	1.25	0.00	0.00	E			
02/12/91	19055408	0.00	0.00	0.00	E			
23/12/91	19060533	1.12	0.00	0.00	C			
06/01/92	19060533	1.13	0.00	0.00	C			
23/01/92	19060547	1.56	12.00	36.00			MOULT	
06/02/92		0	0.00	0.00	0.00		19060533 ADJACENT TO BURROW IN MOULT	
20/02/92		0	0.00	0.00	0.00		55408 & 60533 MOULTING IN ADJACENT BURROW	
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060047	0.00	0.00	0.00	Y			
17/07/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COMI	
01/08/91	19055439	0.00	15.70	36.00				COM2
01/08/91	19060047	0.00	12.30	0.00				
14/08/91		0	0.00	0.00	0.00			
28/08/91	19055439	1.14	0.00	0.00				
28/08/91	19060047	1.26	12.30	36.00				
11/09/91	19060047	0.00	13.00	36.00	E			
03/10/91		0	0.00	0.00	0.00			
24/10/91	19055439	0.00	16.00	37.00				
24/10/91	19060047	0.00	0.00	0.00				
07/11/91	19055439	1.20	0.00	0.00				
5/11/91	19060047	1.12	0.00	0.00	E			
2/12/91	19055439	0.00	0.00	0.00	E			
3/12/91	19055439	1.03	0.00	0.00	C			
6/01/92		0	0.00	0.00	0.00			
3/01/92		0	0.00	0.00	0.00			
5/02/92		0	0.00	0.00	0.00			
7/02/92		0	0.00	0.00	0.00			
10/03/92		0	0.00	0.00	0.00			
07/91	19051105	0.00	0.00	0.00				
07/91	19055450	0.00	0.00	0.00				
07/91	19055450	0.94	11.80	39.00	Y			
08/91	19051105	0.00	0.00	0.00	Y			
08/91	19051105	0.00	0.00	0.00	Y			
08/91	19055450	0.84	0.00	0.00	C			
09/91		0	0.00	0.00	0.00			
10/91	19051105	1.12	14.90	39.00	E			
0/91	19055450	0.00	0.00	0.00	E			
1/91	19055450	0.83	0.00	0.00	C			
1/91		0	0.00	0.00	0.00			
2/91		0	0.00	0.00	0.00			
2/91		0	0.00	0.00	0.00			
1/92		0	0.00	0.00	0.00			
1/92	19051105	1.35	0.00	0.00				MOULT
1/92	19055450	1.21	0.00	0.00				MOULT
1/92	19051105	0.00	0.00	0.00				
1/92		0	0.00	0.00	0.00			
1/92	19051105	1.26	0.00	0.00				
1/92	19055450	0.94	0.00	0.00				
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			
91	19049667	0.00	0.00	0.00				
91	19060054	0.00	0.00	0.00				
91		0	0.00	0.00	0.00			
91		0	0.00	0.00	0.00			</

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

NEW DATE	BAND	WT	BDDEPTH	BLGTH	EIGGS	CHICKS	COM1	COM2
07/11/91	19049667	1.27	0.00	0.00				
15/11/91	0	0.00	0.00	0.00				
02/12/91	0	0.00	0.00	0.00				
23/12/91	0	0.00	0.00	0.00				
06/01/92	0	0.00	0.00	0.00				
23/01/92	0	0.00	0.00	0.00				
06/02/92	1	0.00	0.00	0.00			MOULTING ADULT NOT REACHED	
20/02/92	0	0.00	0.00	0.00				
20/03/92	0	0.00	0.00	0.00				
02/07/91	0	0.00	0.00	0.00				
17/07/91	0	0.00	0.00	0.00				
01/08/91	19060091	0.00	11.80	35.00	Y			
14/08/91	1	0.00	0.00	0.00				
14/08/91	2	0.00	0.00	0.00				
28/08/91	19060510	1.17	14.70	39.00				
11/09/91	19060091	0.00	0.00	0.00	E			
03/10/91	0	0.00	0.00	0.00				
24/10/91	0	0.00	0.00	0.00				
07/11/91	19060091	1.03	0.00	0.00				
07/11/91	19060510	1.18	0.00	0.00				
15/11/91	0	0.00	0.00	0.00				
02/12/91	0	0.00	0.00	0.00				
23/12/91	0	0.00	0.00	0.00				
06/01/92	0	0.00	0.00	0.00				
23/01/92	19060091	1.33	0.00	0.00			MOULT	
23/01/92	19060550	2.05	15.10	36.00			STARTING MOULT	
06/02/92	19060091	1.10	0.00	0.00			FINISHED MOULT	
06/02/92	19060550	1.25	0.00	0.00			FINISHED MOULT	
20/02/92	0	0.00	0.00	0.00				
20/03/92	0	0.00	0.00	0.00				
02/07/91	0	0.00	0.00	0.00				
17/07/91	0	0.00	0.00	0.00				
01/08/91	0	0.00	0.00	0.00				
14/08/91	0	0.00	0.00	0.00				
28/08/91	0	0.00	0.00	0.00				
11/09/91	19060522	0.00	12.80	36.00	E			
03/10/91	19055457	1.22	14.20	39.00	E			
24/10/91	0	0.00	0.00	0.00				
07/11/91	0	0.00	0.00	0.00				
15/11/91	19060056	1.15	14.50	37.00				
02/12/91	0	0.00	0.00	0.00				
23/12/91	0	0.00	0.00	0.00				
06/01/92	0	0.00	0.00	0.00				
23/01/92	0	0.00	0.00	0.00				
06/02/92	0	0.00	0.00	0.00				
20/02/92	0	0.00	0.00	0.00				
20/03/92	0	0.00	0.00	0.00				
02/07/91	19049659	0.00	0.00	0.00				

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGBGS	CHICKS	COM1	COM2
17/07/91	19049659	1.07	14.70	38.00	Y			
01/08/91	19055455	0.00	0.00	0.00	Y			
14/08/91	19049659	0.00	0.00	0.00	Y			
28/08/91	19049659	0.99	0.00	0.00	C			
11/09/91		0.00	0.00	0.00				
03/10/91		0.00	0.00	0.00				
24/10/91	19049659	0.00	0.00	0.00	E			
07/11/91	19055455	0.87	0.00	0.00	E			
15/11/91	19049659	1.20	0.00	0.00	E			
02/12/91		0.00	0.00	0.00				
23/12/91		0.00	0.00	0.00				
06/01/92	19060543	1.75	0.00	0.00		BEGINNING MOULT		
23/01/92	19055455	1.52	12.30	36.00		MOULT		
23/01/92	19060551	1.55	14.60	37.00		MOULT		
06/02/92		0.00	0.00	0.00				
20/02/92		0.00	0.00	0.00				
20/03/92		0.00	0.00	0.00				
02/07/91		0.00	0.00	0.00				
17/07/91		0.00	0.00	0.00				
01/08/91	19060092	0.00	14.40	36.00				
14/08/91		0.00	0.00	0.00				
28/08/91		0.00	0.00	0.00				
11/09/91		0.00	0.00	0.00				
03/10/91		0.00	0.00	0.00	E			
24/10/91		0.00	0.00	0.00				
07/11/91		0.00	0.00	0.00				
15/11/91		0.00	0.00	0.00				
02/12/91		0.00	0.00	0.00				
23/12/91		0.00	0.00	0.00				
06/01/92		0.00	0.00	0.00				
23/01/92		0.00	0.00	0.00				
06/02/92		0.00	0.00	0.00				
20/02/92		0.00	0.00	0.00				
20/03/92		0.00	0.00	0.00				
02/07/91	19060055	0.00	0.00	0.00	Y			
17/07/91	19060065	1.19	15.20	49.70	Y			
01/08/91		0.00	0.00	0.00	Y			
14/08/91		0.00	0.00	0.00				
28/08/91		0.00	0.00	0.00				
11/09/91		0.00	0.00	0.00				
03/10/91		0.00	0.00	0.00				
24/10/91		0.00	0.00	0.00				
07/11/91		0.00	0.00	0.00				
15/11/91		0.00	0.00	0.00				
02/12/91		0.00	0.00	0.00				
23/12/91		0.00	0.00	0.00				
06/01/92		0.00	0.00	0.00				
23/01/92	19060067	1.18	15.50	38.00		MOULT		

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2	
6	06/02/92	0	0.00	0.00	0.00			
6	20/02/92	0	0.00	0.00	0.00			
6	20/03/92	0	0.00	0.00	0.00			
7	02/07/91	19060056	0.00	0.00	0.00 Y		CHICK CHEEPING IN EGG	
7	17/07/91	19060066	0.90	11.60	34.00 Y			
7	01/08/91	0	0.00	0.00	0.00 Y			
7	14/08/91	0	0.00	0.00	0.00 Y			
7	28/08/91	0	0.00	0.00	0.00 C			
7	11/09/91	0	0.00	0.00	0.00			
7	03/10/91	19060066	0.92	12.70	36.00 1			
7	24/10/91	19060065	0.00	15.10	38.00 E			
7	24/10/91	19060066	0.00	0.00	0.00 E			
7	07/11/91	0	0.00	0.00	0.00 E			
7	15/11/91	0	0.00	0.00	0.00 E		EGGS COLD	
7	02/12/91	0	0.00	0.00	0.00			
7	23/12/91	0	0.00	0.00	0.00			
7	06/01/92	0	0.00	0.00	0.00			
7	23/01/92	19060056	1.25	13.20	36.00		MOULT	
7	06/02/92	0	0.00	0.00	0.00			
7	20/02/92	0	0.00	0.00	0.00			
7	20/03/92	19060055	0.00	0.00	0.00			
7	20/03/92	19060065	1.30	0.00	0.00			
8	02/07/91	0	0.00	0.00	0.00			
8	17/07/91	0	0.00	0.00	0.00			
8	01/08/91	0	0.00	0.00	0.00			
8	14/08/91	0	0.00	0.00	0.00			
8	28/08/91	0	0.00	0.00	0.00			
8	11/09/91	0	0.00	0.00	0.00			
8	03/10/91	0	0.00	0.00	0.00			
8	24/10/91	0	0.00	0.00	0.00			
8	07/11/91	0	0.00	0.00	0.00			
8	15/11/91	0	0.00	0.00	0.00			
8	02/12/91	0	0.00	0.00	0.00			
8	23/12/91	0	0.00	0.00	0.00			
8	06/01/92	0	0.00	0.00	0.00			
8	23/01/92	0	0.00	0.00	0.00		BEEN USED	
8	06/02/92	0	0.00	0.00	0.00			
8	20/02/92	0	0.00	0.00	0.00			
8	20/03/92	0	0.00	0.00	0.00			
9	02/07/91	19049660	0.00	0.00	0.00 Y			
9	17/07/91	19060067	1.06	14.60	39.60 Y			
9	01/08/91	19049660	0.00	12.30	38.00 Y			
9	14/08/91	0	0.00	0.00	0.00 Y			
9	28/08/91	0	0.00	0.00	0.00 C			
9	11/09/91	0	0.00	0.00	0.00 C			
9	03/10/91	0	0.00	0.00	0.00			
9	24/10/91	0	0.00	0.00	0.00			
9	07/11/91	19060067	1.17	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
15/11/91	19049660	1.04	0.00	0.00	E			
02/12/91	19049660	0.00	0.00	0.00				
02/12/91	19060067	0.00	0.00	0.00				
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91	19055440	1.21	14.50	36.00				
17/07/91	19060064	1.01	13.00	37.50				
01/08/91	19055440	0.00	0.00	0.00				
01/08/91	19060064	0.00	0.00	0.00				
14/08/91		0	0.00	0.00	0.00			
28/08/91	19055440	1.17	0.00	0.00				
11/09/91	19055440	0.00	0.00	0.00	E			
03/10/91		1	0.00	0.00	0.00	E	ADULT NOT REACHED	
24/10/91	19055440	0.00	0.00	0.00	E			
07/11/91		0	0.00	0.00	0.00			
15/11/91	19060064	1.13	0.00	0.00				
02/12/91		1	0.00	0.00	0.00	E	ADULT NOT REACHED	
23/12/91		1	0.00	0.00	0.00	E	ADULT NOT REACHED	
06/01/92	19055440	1.15	0.00	0.00	C		CHICKS NOT REACHED	
23/01/92	19055440	1.11	0.00	0.00	C			
06/02/92	19055440	0.00	0.00	0.00				
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00		RECENTLY MOULTED IN BURROW	
02/07/91	19060058	0.00	0.00	0.00	Y			
17/07/91		0	0.00	0.00	0.00	Y		
01/08/91	19049663	0.00	11.10	34.60				
14/08/91	19060058	0.00	0.00	0.00				
28/08/91		0	0.00	0.00	0.00			
11/09/91	19060523	0.00	12.10	39.00	E			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91	19060058	1.25	13.60	39.00				
07/11/91	19060523	1.15	0.00	0.00				
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
01/08/91		0	0.00	0.00	0.00			
14/08/91		1	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
01/08/91	19060094	0.00	14.50	37.70				
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91	19055462	0.00	13.70	37.00				
03/10/91	19055462	1.10	13.50	37.00	E			
03/10/91	19060094	1.16	14.50	37.00	E			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055463	0.00	0.00	0.00				
02/07/91	19060057	0.00	0.00	0.00				
17/07/91	19060057	0.00	0.00	0.00		EGG SHELL PRESENT		
01/08/91	19060057	0.00	0.00	0.00	Y			
14/08/91	19060057	0.00	0.00	0.00	Y			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91	19055463	1.26	14.70	37.00				
24/10/91	19055463	0.00	0.00	0.00				
24/10/91	19060057	0.00	12.20	35.00				
07/11/91		0	0.00	0.00	0.00			
15/11/91	19055463	1.14	0.00	0.00				
15/11/91	19060057	0.95	0.00	0.00				
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			

BAND #1 BDEPTH BLGHT EGGS CHICKS.COM
APPENDIX : ENCOUNTER BY PENGUIN MONITORING DATABASE 91/92 - ADULTS
DEPARTMENT OF ENVIRONMENT AND PLANNING
COM2

COM2

BAND WI BDEPTH BELT EGGS CHICKS COMI

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060059	0.00	0.00	0.00				
17/07/91		0	0.00	0.00	0.00			
01/08/91		1	0.00	0.00	0.00			
01/08/91	19060059	0.00	13.70	40.00			2. ADULTS PRESENT SECOND NOT REACHED	
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91	19060059	0.00	0.00	0.00			BLOOD ON BAND AND BEAK; NO INJURY OBSERVED	
07/11/91		0	0.00	0.00	0.00			
15/11/91		1	0.00	0.00	0.00		ADULT NOT REACHED	
15/11/91	19060059	1.26	0.00	0.00				
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060060	0.00	0.00	0.00	Y			
17/07/91		0	0.00	0.00	0.00			
01/08/91	19060060	0.00	14.10	38.00				
01/08/91	19060095	0.00	11.60	35.50				
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

BROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
17/07/91		0	0.00	0.00	0.00			
01/08/91	19060096	0.00	15.00	35.00				
01/08/91	19060097	0.00	12.20	37.00				
14/08/91		1	0.00	0.00	0.00			
14/08/91		2	0.00	0.00	0.00			
28/08/91	19060096	1.17	0.00	0.00	E			
11/09/91	19060096	0.00	0.00	0.00	E			
03/10/91	19060097	0.97	12.60	38.00	E			
24/10/91		0	0.00	0.00	0.00			
07/11/91	19060096	1.20	0.00	0.00				
15/11/91	19060096	1.24	0.00	0.00	E			
02/12/91	19060097	0.00	0.00	0.00	E			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19049669	0.97	14.10	41.00			MOULT	
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
01/08/91	19060090	0.00	13.70	0.00				
14/08/91		0	0.00	0.00	0.00			
28/08/91	19060090	1.05	13.70	36.00	E			
11/09/91	19060090	0.00	0.00	0.00	E			
03/10/91	19060529	0.85	12.00	36.00	E			
24/10/91	19060529	0.00	0.00	0.00				
07/11/91	19060090	1.07	0.00	0.00	E			
15/11/91	19060529	0.82	0.00	0.00	E			
02/12/91	19060529	0.00	0.00	0.00	Y		1 EGG 1 CHICK	
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055468	0.00	0.00	0.00				
17/07/91		0	0.00	0.00	0.00			
01/08/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91	19029695	1.28	13.80	35.00				
07/11/91	19055468	0.98	13.20	38.00				
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055516	0.00	0.00	0.00	Y			
17/07/91	19055515	0.83	11.00	34.40	Y			
01/08/91	19055515	0.00	11.30	0.00	Y			
14/08/91	19055515	0.00	0.00	0.00	Y			
28/08/91		0	0.00	0.00	0.00	C		
11/09/91		0	0.00	0.00	0.00			
03/10/91	19055515	1.02	11.20	35.00				
03/10/91	19055516	1.18	13.70	38.00				
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91	19060070	1.11	12.00	37.40	Y			
01/08/91	19060070	0.00	0.00	0.00	Y			
14/08/91	19060070	0.00	0.00	0.00	Y			
28/08/91	19060514	1.11	14.60	40.00	C			
11/09/91		0	0.00	0.00	0.00	C		
03/10/91		0	0.00	0.00	0.00	C		
24/10/91		0	0.00	0.00	0.00	C		
07/11/91	19060537	1.33	14.00	38.00				
07/11/91	19060538	1.27	11.70	35.00				
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19060552	1.16	14.30	42.00		MOULT		
06/02/92	19060514	1.39	0.00	0.00		MOULT		
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060061	0.00	0.00	0.00	Y			
17/07/91	19060071	1.00	12.20	34.20	Y			
01/08/91	19060061	0.00	15.80	0.00	Y			
14/08/91		0	0.00	0.00	0.00	Y		
28/08/91		0	0.00	0.00	0.00	C		
11/09/91		0	0.00	0.00	0.00	C		
03/10/91		0	0.00	0.00	0.00			
24/10/91	19060071	0.00	0.00	0.00	E			
07/11/91	19051111	1.16	15.10	38.00	E			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055562	0.00	0.00	0.00	Y			
17/07/91	19055520	0.98	14.00	37.00	Y			
01/08/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00	Y		
28/08/91		0	0.00	0.00	0.00	C		
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91	19055520	0.00	14.80	37.00	E			
07/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91	11111111	0.00	0.00	0.00			BIRD PRESENT ; NOT REACHED	NO EGGS FELT
01/08/91	19055521	0.00	14.00	38.00			2 ADULTS PRESENT OTHER NOT REACHED	
14/08/91		0	0.00	0.00	0.00			
28/08/91	19055521	1.29	0.00	0.00				
28/08/91	19055522	1.21	15.70	36.00			MAYBE 1 EGG PRESENT THOUGH COULD NOT REACH TO CONFIRM	
11/09/91		1	0.00	0.00	0.00	E	ADULT PRESENT NOT REACHED	
03/10/91		1	0.00	0.00	0.00		ADULT NOT REACHED AND WAS NOT ABLE TO VERIFY IF EGGS/CHICKS WERE PRESENT	
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19055521	1.54	13.70	37.00			MOULT	
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92	19055523	1.19	0.00	0.00				
20/03/92	19060538	1.06	0.00	0.00				
02/07/91		0	0.00	0.00	0.00			
17/07/91	19055524	1.01	12.50	36.00				
01/08/91	19055523	0.00	0.00	0.00	Y			
01/08/91	19055524	0.00	0.00	0.00	Y			
14/08/91		0	0.00	0.00	0.00			
28/08/91	19055523	1.14	14.00	37.50				
11/09/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
6		0	0.00	0.00	0.00			
6	24/10/91	19055523	0.00	13.80	38.00			
5	24/10/91	19055524	0.00	13.20	36.00			
5	07/11/91		0	0.00	0.00	0.00		
6	02/12/91		0	0.00	0.00	0.00		
6	23/12/91		0	0.00	0.00	0.00		
6	06/01/92	19060544	1.82	0.00	0.00		BEGINNING MOULT	
6	23/01/92		0	0.00	0.00	0.00		
6	06/02/92		0	0.00	0.00	0.00		
6	20/02/92		0	0.00	0.00	0.00		
6	20/03/92		0	0.00	0.00	0.00		
7	02/07/91		0	0.00	0.00	0.00		
7	17/07/91	19060072	1.14	14.00	42.00	Y		
7	01/08/91	19060098	0.00	12.00	36.60	Y		
7	14/08/91		0	0.00	0.00	0.00		
7	28/08/91	19060072	1.29	0.00	0.00			
7	28/08/91	19060517	1.27	12.70	36.00			
7	11/09/91		0	0.00	0.00	0.00		
7	03/10/91	19060072	1.18	14.20	42.00			
7	03/10/91	19060517	1.02	12.60	36.00			
7	24/10/91	19060072	0.00	0.00	0.00			
7	24/10/91	19060517	0.00	0.00	0.00			
7	07/11/91	19060517	1.09	0.00	0.00	E		
7	02/12/91		0	0.00	0.00	0.00		
7	23/12/91		0	0.00	0.00	0.00		
7	06/01/92	19060098	1.56	0.00	0.00		BEGINNING MOULT	
7	23/01/92	19060553	1.30	15.00	38.00		MOULT	
7	06/02/92		0	0.00	0.00	0.00		
7	20/02/92		0	0.00	0.00	0.00		
7	20/03/92		0	0.00	0.00	0.00		
8	02/07/91	19060062	0.00	0.00	0.00	Y		
8	17/07/91	19060062	1.25	12.50	36.70		EGG NOT FOUND	
8	01/08/91		0	0.00	0.00	0.00		
8	14/08/91		1	0.00	0.00	0.00		
8	14/08/91	19060062	0.00	0.00	0.00			
8	28/08/91	19060062	1.23	0.00	0.00			
8	28/08/91	19060518	1.37	15.30	36.00			
8	11/09/91	19060518	0.00	0.00	0.00	E		
8	03/10/91		0	0.00	0.00	0.00		
8	24/10/91		0	0.00	0.00	0.00		
8	07/11/91		0	0.00	0.00	0.00		
8	02/12/91	19060062	0.00	0.00	0.00			
8	23/12/91		0	0.00	0.00	0.00		
8	06/01/92		0	0.00	0.00	0.00		
8	23/01/92	19055520	1.72	14.40	37.00		MOULT	
8	06/02/92	19060554	1.33	12.10	39.00		MOULT	
8	20/02/92		0	0.00	0.00	0.00		
8	20/03/92	19060062	1.09	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
20/03/92	19060518	1.35	0.00	0.00				
02/07/91		0	0.00	0.00	0.00			
17/07/91	19055528	1.11	14.80	40.50	Y		1 EGG FELT (MAY HAVE BEEN A ROCK)?	
01/08/91	19055528	0.00	0.00	0.00				
14/08/91		0	0.00	0.00	0.00			
28/08/91	19055527	1.30	12.90	40.00				
28/08/91	19055528	1.29	0.00	0.00				
11/09/91	19055527	0.00	0.00	0.00				
03/10/91	19055528	1.14	15.10	40.00	?			
24/10/91		0	0.00	0.00	0.00	C		
07/11/91		0	0.00	0.00	0.00	C		
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92	19055527	1.21	0.00	0.00			FINISHED MOULT	
20/02/92		0	0.00	0.00	0.00			
20/03/92	19055527	1.07	0.00	0.00				
20/03/92	19055528	1.38	0.00	0.00				
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
01/08/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00		RECENTLY MOULTED IN BURROW	
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
01/08/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00			
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		0	0.00	0.00	0.00			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS.

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91		0	0.00	0.00	0.00			
17/07/91		0	0.00	0.00	0.00			
01/08/91		0	0.00	0.00	0.00			
14/08/91		0	0.00	0.00	0.00			
28/08/91	19055443	1.10	14.50	38.00	E			
11/09/91	19055444	0.00	12.50	37.00	E			
03/10/91	19055443	1.09	15.00	37.00	C			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91	19055444	1.18	0.00	0.00				
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19055443	1.50	0.00	0.00		MOULTE		
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060048	0.00	0.00	0.00				
17/07/91		0	0.00	0.00	0.00			
01/08/91		0	0.00	0.00	0.00			
14/08/91		1	0.00	0.00	0.00		NO BIRDS BANDED ON 14/8/91	
28/08/91	19060509	1.17	15.00	37.50	E			
11/09/91	19060509	0.00	15.00	38.00	E			
03/10/91		0	0.00	0.00	0.00	C	CHICK DEAD	
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19060049	0.00	0.00	0.00				
02/07/91	19060050	0.00	0.00	0.00				
17/07/91		0	0.00	0.00	0.00			
01/08/91	19060050	0.00	12.80	37.00				
14/08/91	19060049	0.00	0.00	0.00				
28/08/91		0	0.00	0.00	0.00			
11/09/91	19060050	0.00	0.00	0.00	E			
03/10/91		1	0.00	0.00	0.00	E	ADULT NOT REACHED	
24/10/91	19060050	0.00	0.00	0.00	C			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

BROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
07/11/91	19060049	0.89	14.20	39.00	C			
15/11/91	19060050	1.11	0.00	0.00	C			
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92	19060050	1.36	0.00	0.00			MOULT	
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			RECENTLY MOULTED IN BURROW
02/07/91	19060051	0.00	0.00	0.00				
02/07/91	19060052	0.00	0.00	0.00				
17/07/91		0	0.00	0.00	0.00			
01/08/91		0	0.00	0.00	0.00			
14/08/91	19060051	0.00	0.00	0.00				
14/08/91	19060052	0.00	0.00	0.00				
28/08/91		0	0.00	0.00	0.00			
11/09/91	19060051	0.00	16.30	38.00	E			
03/10/91	19060051	1.24	15.70	38.00	E			
03/10/91	19060052	1.02	12.50	37.00	E			
24/10/91		0	0.00	0.00	0.00			
07/11/91		0	0.00	0.00	0.00			
15/11/91	19060052	1.26	0.00	0.00				
02/12/91	19060051	0.00	0.00	0.00	E			
23/12/91		0	0.00	0.00	0.00			
06/01/92	19060542	1.82	0.00	0.00			BEGINNING MOULT	
23/01/92	19060051	1.57	0.00	0.00			MOULT	
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
02/07/91	19055449	0.00	0.00	0.00				
02/07/91	19060053	0.00	0.00	0.00				
17/07/91		0	0.00	0.00	0.00			
01/08/91		0	0.00	0.00	0.00			
14/08/91	19055449	0.00	0.00	0.00				
28/08/91		0	0.00	0.00	0.00			
11/09/91		0	0.00	0.00	0.00			
03/10/91		1	0.00	0.00	0.00			ADULT NOT REACHED
24/10/91		1	0.00	0.00	0.00	E		ADULT PRESENT - NOT REACHED
07/11/91		1	0.00	0.00	0.00	C		PENGUINS NOT REACHED
15/11/91		0	0.00	0.00	0.00	C		
02/12/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
06/01/92		0	0.00	0.00	0.00			
23/01/92		0	0.00	0.00	0.00			
06/02/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
20/03/92		0	0.00	0.00	0.00			
11/05/91	19051114	1.10	13.80	36.00				

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
31/07/91		0	0.00	0.00	0.00	C		
17/08/91		0	0.00	0.00	0.00	Y		
19/09/91		0	0.00	0.00	0.00			
19/10/91	19060487	1.06	12.20	38.00	E			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91	19055548	1.31	14.00	0.00				
31/07/91		0	0.00	0.00	0.00			
17/08/91	19055479	1.11	11.30	37.00				
19/09/91	19055548	1.25	0.00	38.00	E			
19/10/91		0	0.00	0.00	0.00		1 EGG & 1 DEAD CHICK	
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91	19051113	1.21	14.50	36.60				
31/07/91	19060105	0.00	13.60	0.00			LARGE DEAD CHICK OUTSIDE BURROW - LOSING DOWN	
31/07/91	19060106	0.00	11.40	0.00				
17/08/91	19060106	0.96	12.50	36.00				
17/08/91	19060112	1.11	14.10	36.00				
19/09/91		0	0.00	0.00	0.00			
19/10/91	19046334	1.18	12.00	36.00				
19/10/91	19049688	1.22	15.80	38.00				
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92	19049688	1.48	0.00	0.00			IN MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00	C		
17/08/91	19049751	0.96	12.90	36.00	Y			
17/08/91	19051099	1.14	39.00	0.00	Y			
19/09/91	19051099	0.00	0.00	0.00	C		CHICK DEAD	
19/10/91	19049878	1.00	12.20	35.00				
19/10/91	19060488	1.32	13.90	36.00				
15/11/91	19049878	0.95	0.00	0.00				
15/11/91	19060488	1.14	0.00	0.00				
23/12/91		0	0.00	0.00	0.00			
18/01/92	19049878	1.12	0.00	0.00			FINISHED MOULT	
18/01/92	19060488	0.90	0.00	0.00			FINISHED MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91	19055480	1.21	11.80	35.60				
31/07/91	19055598	0.00	0.00	0.00	E			
17/08/91	19055598	1.14	14.40	37.00	Y			
19/09/91		0	0.00	0.00	0.00	C		
19/10/91	19055215	1.14	15.20	40.00				
19/10/91	19055216	1.00	12.10	37.00				

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW	DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
1	15/11/91	19049656	1.11	12.00	38.00				
1	15/11/91	19055598	1.26	0.00	0.00				
2	23/12/91		0	0.00	0.00	0.00			
3	18/01/92	19060496	1.59	13.10	40.00			IN MOULT	
3	20/02/92		0	0.00	0.00	0.00			
4	11/05/91	19045798	1.14	12.00	35.10				
4	11/05/91	19049691	1.38	13.50	35.20				
5	31/07/91		0	0.00	0.00	0.00			
5	17/08/91		0	0.00	0.00	0.00			
5	19/09/91		0	0.00	0.00	0.00			
5	19/10/91		0	0.00	0.00	0.00			
5	15/11/91		0	0.00	0.00	0.00			
5	23/12/91		0	0.00	0.00	0.00			
5	18/01/92		0	0.00	0.00	0.00			
5	20/02/92		0	0.00	0.00	0.00			
5	11/05/91		0	0.00	0.00	0.00			
6	31/07/91	19045943	0.00	11.20	0.00	E			
6	17/08/91		0	0.00	0.00	0.00	Y		
6	19/09/91		0	0.00	0.00	0.00	E		
6	19/10/91	19060489	0.93	11.70	35.00				
6	15/11/91		0	0.00	0.00	0.00			
6	23/12/91		0	0.00	0.00	0.00			
6	18/01/92		0	0.00	0.00	0.00			
6	20/02/92		0	0.00	0.00	0.00			
6	11/05/91		0	0.00	0.00	0.00			
6	31/07/91		0	0.00	0.00	0.00			
6	17/08/91		0	0.00	0.00	0.00			
6	19/09/91		0	0.00	0.00	0.00			
6	19/10/91		0	0.00	0.00	0.00			
6	15/11/91		0	0.00	0.00	0.00			
6	23/12/91		0	0.00	0.00	0.00			
6	18/01/92		0	0.00	0.00	0.00			
6	20/02/92		0	0.00	0.00	0.00			
7	11/05/91		0	0.00	0.00	0.00			
7	31/07/91		0	0.00	0.00	0.00			
7	17/08/91	19049651	1.07	12.40	35.00				
7	17/08/91	19055481	1.18	14.40	39.00				
7	19/09/91	19055481	1.27	0.00	0.00				
7	19/10/91		0	0.00	0.00	0.00			
7	15/11/91		0	0.00	0.00	0.00			
7	23/12/91		0	0.00	0.00	0.00			
7	18/01/92	19060497	1.66	14.30	38.00		IN MOULT		
7	20/02/92		0	0.00	0.00	0.00			
8	11/05/91		0	0.00	0.00	0.00			
8	31/07/91		0	0.00	0.00	0.00			
8	17/08/91		0	0.00	0.00	0.00			
8	19/09/91		0	0.00	0.00	0.00			
8	19/10/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
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BROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92	19060498	1.95	14.00	39.00			STARTING MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
17/08/91		0	0.00	0.00	0.00			
19/09/91	19055483	1.25	15.00	40.00	E			
19/10/91		0	0.00	0.00	0.00	Y	1 EGG & DEAD CHICK	
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91	19046334	0.00	12.00	0.00				
17/08/91	19049825	1.14	14.30	38.00				
17/08/91	19055210	1.06	13.30	38.00				
19/09/91		0	0.00	0.00	0.00	E		
19/10/91		0	0.00	0.00	0.00			
15/11/91	19049825	1.02	0.00	0.00				
15/11/91	19055210	1.02	0.00	0.00				
23/12/91		0	0.00	0.00	0.00			
18/01/92	19060495	1.76	13.00	37.00			STARTING MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
17/08/91	19046343	1.17	0.00	0.00				
19/09/91		0	0.00	0.00	0.00		BROKEN EGG NEAR BURROW ENTRANCE, ADJACENT BURR OW	CONTAINED ONE EGG.
19/10/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91	19051115	1.00	12.80	36.00				
31/07/91		0	0.00	0.00	0.00	Y		
17/08/91		0	0.00	0.00	0.00	Y		
19/09/91	19051115	1.12	0.00	0.00				
19/09/91	19055484	1.22	16.00	40.00				
19/10/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92	19051115	1.75	0.00	0.00			IN MOULT	
18/01/92	19055484	1.21	0.00	0.00			FINISHED MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91	19055485	1.19	14.00	36.50				
11/05/91	19055486	1.01	13.00	36.50				
31/07/91		0	0.00	0.00	0.00			
17/08/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
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ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
19/09/91	19055485	1.22	0.00	0.00	E		SMALL DRIED UP CHICK OUTSIDE BURROW, MAY BE	REMNANT OF FIRST CLUTCH
19/10/91		0	0.00	0.00	0.00			
15/11/91	19051115	1.00	12.70	37.00	E		BURROW JOINED WITH PREVIOUSLY ADJACENT BURROW	
23/12/91		0	0.00	0.00	0.00			
18/01/92	19055485	1.30	0.00	0.00			IN MOULT	
18/01/92	19055486	1.20	0.00	0.00			IN MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91	19045737	1.20	11.30	36.50				
11/05/91	19055552	1.45	14.00	37.00				
31/07/91		0	0.00	0.00	0.00		LARGE DEAD CHICK OUTSIDE BURROW - ALMOST FLEDGED	
17/08/91	19045737	1.08	12.50	38.00	Y			
19/09/91	19055552	1.06	0.00	0.00				
19/10/91		0	0.00	0.00	0.00	C		
15/11/91		0	0.00	0.00	0.00	C		
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
17/08/91		0	0.00	0.00	0.00	Y		
19/09/91		0	0.00	0.00	0.00	C		
19/10/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92	19055487	1.42	13.00	35.00			MOULT	
18/01/92	19060499	1.78	14.40	41.00			MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
17/08/91	19049694	1.22	13.00	38.00				
19/09/91		0	0.00	0.00	0.00			
19/10/91	19049695	1.03	14.80	37.00				
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
17/08/91		0	0.00	0.00	0.00			
19/09/91		0	0.00	0.00	0.00			
19/10/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92	19049683	1.65	13.00	38.00			MOULT	
18/01/92	19055490	1.98	15.80	38.00			STARTING MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91	19049683	1.22	12.60	35.30				
11/05/91	19055490	1.37	14.80	39.60				

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ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
31/07/91		0	0.00	0.00	0.00	E		
17/08/91	19055490	1.11	15.80	39.00				
19/09/91		0	0.00	0.00	0.00	C		
19/10/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92	19055489	1.25	14.00	38.00			MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
17/08/91		0	0.00	0.00	0.00			
19/09/91	19055321	1.23	16.30	38.00	E			
19/10/91	19045321	1.20	16.00	38.00	E			
15/11/91	19045321	1.17	0.00	0.00				
15/11/91	19055219	1.15	12.20	36.00				
23/12/91		0	0.00	0.00	0.00			
18/01/92	19060500	1.45	14.60	39.00			MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91	19051010	0.00	12.40	0.00				
17/08/91		0	0.00	0.00	0.00			
19/09/91		0	0.00	0.00	0.00			
19/10/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92	19051010	0.92	0.00	36.00			FINISHED MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91	19060103	0.00	12.30	0.00	E			
19/09/91		1	0.00	0.00	0.00	E	ADULT PRESENT - NOT REACHED	ONE EGG BROKEN OTHER ROTTEN
19/10/91		1	0.00	0.00	0.00		1 ADULT NOT REACHED	
15/11/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		1	0.00	0.00	0.00	Y	band no. not known as it was not written	down at the time
17/08/91	19060116	1.08	14.00	38.00	Y			
19/09/91		0	0.00	0.00	0.00	C		
19/10/91	19049652	1.37	14.40	38.00				
19/10/91	19060490	1.19	13.10	38.00				
15/11/91	19060116	1.24	0.00	0.00				
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
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BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
1	17/08/91	0	0.00	0.00	0.00		
1	19/09/91	0	0.00	0.00	0.00		
1	19/10/91	0	0.00	0.00	0.00		
1	15/11/91	0	0.00	0.00	0.00		
1	23/12/91	0	0.00	0.00	0.00		
1	18/01/92	0	0.00	0.00	0.00		
1	20/02/92	0	0.00	0.00	0.00		
2	11/05/91	19055495	1.30	14.50	37.50		
2	31/07/91	0	0.00	0.00	0.00		
2	17/08/91	0	0.00	0.00	0.00		
2	19/09/91	0	0.00	0.00	0.00		
2	19/10/91	0	0.00	0.00	0.00		
2	15/11/91	0	0.00	0.00	0.00		
2	23/12/91	0	0.00	0.00	0.00		
2	18/01/92	19051116	1.02	15.00	42.00	MOULT	
2	20/02/92	0	0.00	0.00	0.00		
3	11/05/91	0	0.00	0.00	0.00		
3	31/07/91	0	0.00	0.00	0.00		
3	17/08/91	0	0.00	0.00	0.00		
3	19/09/91	0	0.00	0.00	0.00		
3	19/10/91	0	0.00	0.00	0.00		
3	15/11/91	0	0.00	0.00	0.00		
3	23/12/91	0	0.00	0.00	0.00		
3	18/01/92	0	0.00	0.00	0.00		
3	20/02/92	0	0.00	0.00	0.00		
4	11/05/91	19051116	1.25	14.00	41.30		
4	11/05/91	19055497	1.34	12.50	36.00		
4	31/07/91	0	0.00	0.00	0.00 C		
4	17/08/91	0	0.00	0.00	0.00 Y		
4	19/09/91	0	0.00	0.00	0.00 C		
4	19/10/91	0	0.00	0.00	0.00 C	DEAD CHICK	
4	15/11/91	0	0.00	0.00	0.00		
4	23/12/91	0	0.00	0.00	0.00		
4	18/01/92	0	0.00	0.00	0.00		
4	20/02/92	0	0.00	0.00	0.00		
5	11/05/91	19055555	1.15	13.00	38.00		
5	31/07/91	0	0.00	0.00	0.00 C		
5	17/08/91	0	0.00	0.00	0.00 Y		
5	19/09/91	19049755	1.33	14.60	37.00		
5	19/10/91	0	0.00	0.00	0.00		
5	15/11/91	19049696	1.24	14.40	37.00		
5	15/11/91	19055555	1.02	0.00	0.00		
5	23/12/91	0	0.00	0.00	0.00		
5	18/01/92	19049696	0.96	0.00	0.00	FINISHED MOULT	
5	18/01/92	19055555	1.10	0.00	0.00	FINISHED MOULT	
5	20/02/92	0	0.00	0.00	0.00		
6	11/05/91	0	0.00	0.00	0.00		
6	31/07/91	0	0.00	0.00	0.00		

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
17/08/91		0	0.00	0.00	0.00			
19/09/91		0	0.00	0.00	0.00			
19/10/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91	19049696	1.33	15.50	37.00				
31/07/91		0	0.00	0.00	0.00			
17/08/91	19049696	1.17	14.40	38.00				
17/08/91	19055499	1.08	12.20	38.00				
19/09/91	19049696	1.32	0.00	0.00				
19/10/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
17/08/91	19055556	1.20	14.30	39.00				
17/08/91	19060120	1.12	12.20	38.00				
19/09/91		0	0.00	0.00	0.00			
19/10/91		0	0.00	0.00	0.00 E		1 EGG -HOLE PECKED IN TOP	
15/11/91	19055556	1.16	13.60	40.00 E				
23/12/91		0	0.00	0.00	0.00			
18/01/92	19055556	1.79	0.00	0.00			STARTING MOULT	
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00 C			
17/08/91		0	0.00	0.00	0.00 Y			
19/09/91		0	0.00	0.00	0.00			
19/10/91	19049708	1.00	13.20	36.00 E				
15/11/91	19049708	1.21	0.00	0.00 E				
23/12/91		0	0.00	0.00	0.00 C			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
17/08/91	19051015	1.31	12.20	39.00				
17/08/91	19055474	1.20	13.80	34.50				
19/09/91	19051015	1.01	0.00	0.00 E				
19/10/91	19051015	1.15	0.00	0.00 E				
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91	19055513	0.00	13.70	0.00				

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

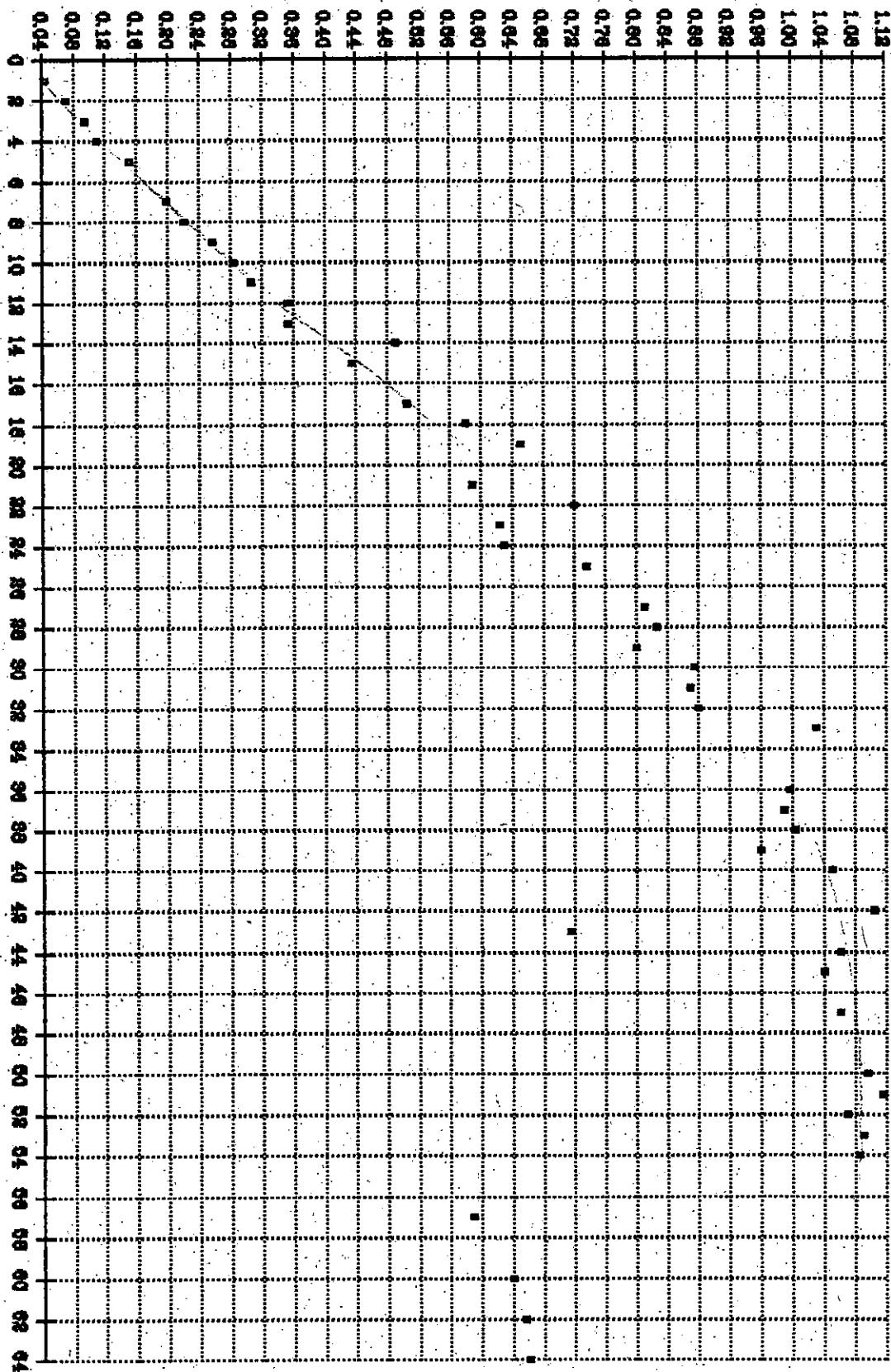
ROW DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
31/07/91	19060109	0.00	12.30	0.00				
17/08/91	19060122	1.15	11.90	38.00	Y			
19/09/91		0	0.00	0.00	0.00			
19/10/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00			
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91	19060104	0.00	13.50	0.00	Y			
17/08/91		0	0.00	0.00	0.00	Y		
19/09/91		0	0.00	0.00	0.00	C		
19/10/91	19060104	1.21	14.10	39.00				
15/11/91	19060104	1.12	0.00	0.00	E			
23/12/91		0	0.00	0.00	0.00			
18/01/92		0	0.00	0.00	0.00	C		
20/02/92		0	0.00	0.00	0.00			
11/05/91	19051112	1.26	13.60	39.50				
31/07/91		0	0.00	0.00	0.00			
17/08/91		0	0.00	0.00	0.00			
19/09/91		0	0.00	0.00	0.00			
19/10/91	19055475	1.07	12.30	36.00				
15/11/91	19046314	1.18	14.20	37.00				
15/11/91	19055475	1.04	0.00	0.00				
23/12/91		0	0.00	0.00	0.00			
18/01/92	19046314	1.75	0.00	0.00		STARTING MOULT		
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91	19060107	0.00	15.00	0.00	C			
17/08/91	19049826	1.07	11.20	36.00				
17/08/91	19060107	1.17	14.60	38.00				
19/09/91		0	0.00	0.00	0.00			
19/10/91	19049826	0.90	0.00	0.00				
19/10/91	19060107	1.01	0.00	0.00				
15/11/91	19049751	1.01	12.10	36.00				
23/12/91		0	0.00	0.00	0.00			
18/01/92	19051099	1.78	13.70	38.00		STARTING MOULT		
20/02/92		0	0.00	0.00	0.00			
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
17/08/91	19055477	1.17	12.10	36.00				
17/08/91	19055514	1.07	14.50	39.00				
19/09/91		0	0.00	0.00	0.00			
19/10/91	19055477	1.10	0.00	0.00	E			
15/11/91	19055514	1.15	0.00	0.00				
23/12/91		0	0.00	0.00	0.00			
18/01/92	19049689	1.38	13.40	37.00		IN MOULT		
20/02/92		0	0.00	0.00	0.00			

DEPARTMENT OF ENVIRONMENT AND PLANNING
APPENDIX : ENCOUNTER BAY PENGUIN MONITORING DATABASE 91/92 - ADULTS

BIRD DATE	BAND	WT	BDEPTH	BLGTH	EGGS	CHICKS	COM1	COM2
11/05/91		0	0.00	0.00	0.00			
31/07/91		0	0.00	0.00	0.00			
17/08/91	19055478	1.17	14.80	36.00				
17/08/91	19055549	1.38	13.30	36.00				
19/09/91	19055549	0.98	0.00	0.00	E			
19/10/91		0	0.00	0.00	0.00			
15/11/91		0	0.00	0.00	0.00			
23/12/91		0	0.00	0.00	0.00			
18/01/92	19060494	1.44	11.50	34.00		IN MOULT		
20/02/92	19065901	1.16	13.90	38.00		MOULT		
20/02/92	19065902	1.10	11.90	36.00		MOULT		

APPENDIX 2.

CHICK GROWTH
AVG'D WTS FOR CHS < 5 KGS > 1 MEAT



BANDING RESULTS 90-92: GRANITE & WEST ISLANDS

1

DATE	BAND BURROW		
29/10/90	19055401 A1	31/10/90	19055456 B15
29/10/90	19055402 A2	31/10/90	19055457 B16
29/10/90	19055403 A4	31/10/90	19055458 B17
29/10/90	19055404 A5	31/10/90	19055460 B20
29/10/90	19055405 A6	31/10/90	19055461 B21
29/10/90	19055406 A7	31/10/90	19055462 B22
29/10/90	19055407 A8	31/10/90	19055463 B23
29/10/90	19055408 A9	31/10/90	19055464 B24
29/10/90	19055409 A10	31/10/90	19055465 B25
29/10/90	19055411 A12	31/10/90	19055466 B27
29/10/90	19055412 A14	05/11/90	19046341 C6
30/10/90	19029684 A22	06/11/90	19045737 C23
30/10/90	19055413 A16	06/11/90	19045798 C14
30/10/90	19055414 A16	06/11/90	19046871 C26
30/10/90	19055415 A17	06/11/90	19049418 C3
30/10/90	19055416 A18	06/11/90	19049751 C12
30/10/90	19055417 A19	06/11/90	19049753 C37
30/10/90	19055418 A19	06/11/90	19049755 C15
30/10/90	19055419 A20	06/11/90	19051010 C29
30/10/90	19055420 A21	06/11/90	19051081 C29
30/10/90	19055421 A23	06/11/90	19051099 C12
30/10/90	19055422 A23	06/11/90	19055469 C20
30/10/90	19055423 A24	06/11/90	19055473 C3
30/10/90	19055424 A25	06/11/90	19055474 C4
30/10/90	19055425 A26	06/11/90	19055475 C6
30/10/90	19055426 A27	06/11/90	19055477 C8
30/10/90	19055427 A30	06/11/90	19055478 C9
30/10/90	19055428 A32	06/11/90	19055479 C10
30/10/90	19055429 A33	06/11/90	19055480 C13
30/10/90	19055431 A35	06/11/90	19055481 C17
30/10/90	19055434 A37	06/11/90	19055482 C18
30/10/90	19055435 A38	06/11/90	19055483 C19
30/10/90	19055436 A39	06/11/90	19055484 C21
30/10/90	19055437 A39	06/11/90	19055485 C22
30/10/90	19055438 A40	06/11/90	19055486 C22
30/10/90	19055534 A17	06/11/90	19055487 C24
31/10/90	19029695 B30	06/11/90	19055488 C25
31/10/90	19055439 B1	06/11/90	19055489 C26
31/10/90	19055440 B2	06/11/90	19055490 C27
31/10/90	19055441 B3	06/11/90	19055493 C30
31/10/90	19055442 B4	06/11/90	19055494 C30
31/10/90	19055443 B5	06/11/90	19055495 C32
31/10/90	19055444 B5	06/11/90	19055496 C33
31/10/90	19055445 B6	06/11/90	19055497 C34
31/10/90	19055447 B8	06/11/90	19055499 C37
31/10/90	19055448 B8	06/11/90	19055500 C38
31/10/90	19055449 B9	06/11/90	19055513 C40
31/10/90	19055450 B10	06/11/90	19055514 C2
31/10/90	19055451 B11	07/11/90	19055401 A1
31/10/90	19055452 B12	07/11/90	19055402 A2
31/10/90	19055453 B12	07/11/90	19055405 A6
31/10/90	19055454 B13	07/11/90	19055407 A8
31/10/90	19055455 B14	07/11/90	19055416 A18

BANDING RESULTS 90-92: GRANITE & WEST ISLANDS

2

07/11/90	19055420	A21		17/01/91	19049652	C30
07/11/90	19055427	A30		17/01/91	19049653	C30
07/11/90	19055429	A33		17/01/91	19049656	C24
07/11/90	19055434	A37		17/01/91	19049658	B1
07/11/90	19055435	A38		17/01/91	19049659	B14
07/11/90	19055515	B31		17/01/91	19049660	B19
07/11/90	19055516	B31		17/01/91	19049661	B20
07/11/90	19055518	B32		17/01/91	19049662	B20
07/11/90	19055520	B34		17/01/91	19049663	B20
07/11/90	19055521	B35		17/01/91	19049664	B20
07/11/90	19055522	B35		17/01/91	19049665	B20
07/11/90	19055523	B36		17/01/91	19049666	B20
07/11/90	19055524	B36		17/01/91	19049667	B11
07/11/90	19055525	B37		17/01/91	19049668	B12
07/11/90	19055526	B38		17/01/91	19049670	B21
07/11/90	19055527	B39		17/01/91	19049671	B40
07/11/90	19055528	B39		17/01/91	19049878	C6
07/11/90	19055529	B40		17/01/91	19055458	B17
07/11/90	19055530	A1		17/01/91	19055461	B21
07/11/90	19055531	A4		17/01/91	19055468	B30
07/11/90	19055532	A7		17/01/91	19055484	C21
07/11/90	19055533	A12		17/01/91	19055485	C22
07/11/90	19055535	A18		17/01/91	19055486	C22
07/11/90	19055536	A23		17/01/91	19055548	C10
07/11/90	19055537	A24		17/01/91	19055595	C5
07/11/90	19055538	A25		17/01/91	19055596	C12
07/11/90	19055539	A26		17/01/91	19055597	C12
07/11/90	19055540	A27		17/01/91	19055598	C13
07/11/90	19055541	A29		17/01/91	19055599	C17
07/11/90	19055544	A36		17/01/91	19055600	C19
28/11/90	19055480	C13		17/01/91	19055669	B29
28/11/90	19055490	C27		24/01/91	19049672	A15
28/11/90	19055514	C2		24/01/91	19049673	A16
28/11/90	19055548	C9		24/01/91	19049674	A23
28/11/90	19055549	C10		24/01/91	19049675	A23
28/11/90	19055552	C23		24/01/91	19049676	A26
28/11/90	19055553	C37		24/01/91	19049677	A30
28/11/90	19055554	C35		24/01/91	19049678	A32
28/11/90	19055555	C35		24/01/91	19049679	A32
28/11/90	19055556	C38		24/01/91	19049680	A36
29/11/90	19055401	A1		24/01/91	19049681	A34
29/11/90	19055423	A24		24/01/91	19049682	A34
29/11/90	19055522	B35		24/01/91	19055436	A39
29/11/90	19055528	B39		24/01/91	19055437	A39
29/11/90	19055557	B2		24/01/91	19055540	A26
29/11/90	19055559	B7		24/01/91	19055544	A36
29/11/90	19055562	B34		27/02/91	11111111	A29
29/11/90	19055574	A14		05/03/91	19045737	C23
09/12/90	19049751	C7		05/03/91	19049683	C27
09/12/90	19049809	C28		05/03/91	19055490	C27
09/12/90	19055552	C23		05/03/91	19055549	C9
09/12/90	19055583	C4		05/03/91	19055552	C23
19/12/90	19055527	B39		26/03/91	19029684	A22
17/01/91	19029695	B30		26/03/91	19049676	A27
17/01/91	19045321	C28		26/03/91	19049680	A36

APPENDIX 4

CHICKS BANDED 91/92

19060079	28/08/91	A11
19060084	14/08/91	A30
19060088	31/07/91	A34
19060093	28/08/91	B17
19060101	31/07/91	C1
19060102	17/08/91	C1
19060108	17/08/91	C21
19060113	19/09/91	C12
19060114	17/08/91	C12
19060115	19/09/91	C24
19060117	19/10/91	C34
19060118	19/09/91	C34
19060119	17/08/91	C35
19060121	17/08/91	C39
19060481	19/09/91	C5
19060482	19/09/91	C24
19060483	19/09/91	C27
19060484	19/09/91	C27
19060485	19/09/91	C30
19060486	19/09/91	C30
19060493	18/01/92	C5
19060501	28/08/91	A9
19060502	28/08/91	A9
19060505	28/08/91	A31
19060506	28/08/91	A31
19060511	28/08/91	B17
19060512	9/11/91	B19
19060515	9/11/91	B33
19060516	28/08/91	B34
19060521	10/3/91	A24
19060526	10/3/91	A36
19060527	24/10/91	B32
19060528	10/3/91	B32
19060532	12/2/91	A8
19060535	15/11/91	A23
19060540	12/2/91	A18
19060541	15/11/91	B7
19060549	23/01/92	B2

APPENDIX 5 - PENGUIN COUNTS IN NORTH SHORE BURROWS BY M. BOULTER

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
1989 Sept.												25	22	28	30	27	17	18	21	28	24	20	29	28	28	34										
Oct.	28	48	32	30	45	38	42	39	sent	45	37	44	30	37	37	34	37	39	39	49	53	39	38	38	45	39	31	37	36							
Nov.	33	38	35	31	44	45	42	42	40	45	50	41	50	50	48	54	48	41	44	37	44	42	39	35	43	31	33	38								
Dec.	28	34	36	28	37	24	28	26	12	12	12	12	17	16	17	12	10	12	12	9	10	8	13	10	16	16	20									
1990 Jan.	15	15	15	16	30	25	35	49	49	51	52	89	91	87	94	114	100	121	115	116	136	145	134	144	134	130	105	112	89							
Feb.	83	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66							
Mar.	18	6	6	14	9	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	25						
Apr.	21	35	22	21	31	34	42	20	43	24	15	25	11	23	17	6	15	13	28	28	45	68	63													
May	40	39	30	27	18	14	15	7	2	4	4	7	12	35	75	87	Overseas from May 21 - Aug 17																			
Aug.																																				
Sept.	22	33	33	34	37	34	45	47	42	36	32	37	32	30	34	37	30	37	39	45	45	44	49	50	53	56										
Oct.	52	48	40	50	51	39	40	50	40	40	39	40	36	45	39	43	56	56	61	63	51	53	45	41	42	40	48									
Nov.	56	48	51	58	53	61	65	63	54	47	52	34	30	33	43	48	41	39	33	31	31	24	30	32	39	29	23	27	28							
Dec.	24	20	22	18	18	16	12	14	11	15	11	11	8	10	4	5	2	1	1	1	2	1	4	3	1	2	3	4	2							
1991 Jan.	4	4	2	6	6	12	15	16	25	24	33	43	53	46	64	67	85	96	94	97	102	110	122	127	127	122	124	115	104	121	129					
Feb.	12	13	105	95	90	83	78	68	61	42	47	33	30	31	26	away in Melbourne	.	.	5	.	3															
Mar.	17	4	2	0	10	10	10	10	10	13	28	28	49	33	39	38	44	51	40	34	41	23	31	29	18	16	10	19								
Apr.	10	10	19	22	27	38	51	52	56	52	62	58	48	20	28	16	12	18	6	7	4	6	7	9	19	23	35	42	48							
May	58	55	89	88	63	75	30	26	15	19	8	11	10	17	20	14	28	43	55	62	65	83	87	93	95	77	67	47	39							
June	30	25	15	17	22	23	32	42	45	47	53	69	74	75	79	80	54	57	61	55	56	46	40	35	30	31	27	34	38							
July	38	54	46	48	60	50	54	52	55	37	42	36	30	29	20	26	24	20	21	37	44	46	50	52	43	55	72	60	48							
Aug.	47	42	32	30	25	22	19	22	23	22	25	33	21	48	51	51	43	42	44	41	47	46	48	41	32	34	33	46	43							
Sep.	43	46	44	44	44	46	50	46	..	38	44	49	43	46	43	47	40	48	39	50	52	57	55	58	60	48	47									
Oct.	49	50	45	44	43	43	41	40	41	45	47	40	44	44	32	41	32	36	40	45	41	40	42	34	41	30	32	27	24							
Nov.	21	22	22	30	35	24	24	42	29	42	47	46	38	47	41	25	16	16	26	27	25	31	27	10	30	26	14	20	16							
Dec.	20	17	14	9	12	14	15	11	13	8	9	6	5	6	4	8	4	4	7	6	5	3	5	5	5	4	5	6								
1992 Jan.	11	7	10	13	21	21	22	30	31	36	37	45	55	62	75	78	88	94	96	10	125	135	139	140	146	140	145	136	135	141	130					
Feb.	120	120	114	87	83	70	55	54	55	31	30	21	18	14	14	16	12	9	11	12	13	10	9	10	10											
Mar.	10	11	•	9	•	20	19	27	27	23	31	35	46	33	45	41	40	31																		

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Appendix 5