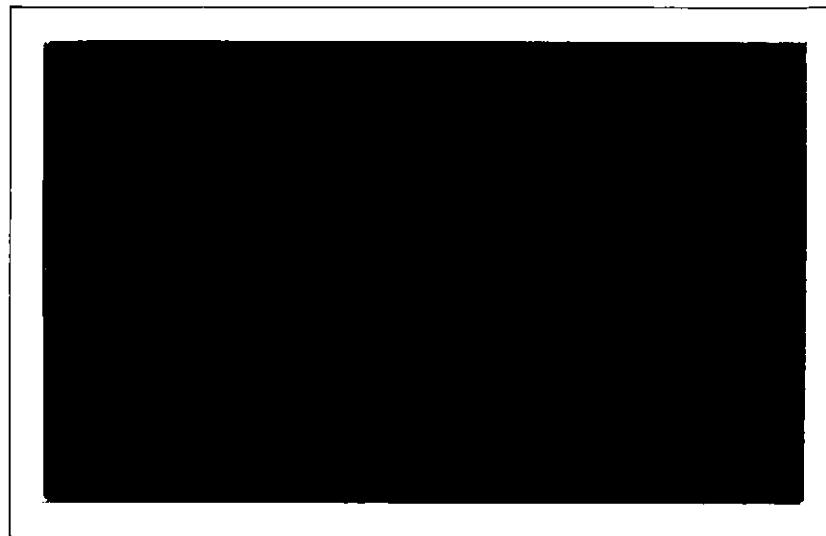


Robert Brandk
W23719
1990/1991



DEPARTMENT OF ENVIRONMENT AND PLANNING

ENCOUNTER BAY PENGUIN STUDY 1990/91

**REPORT FOR THE
GRANITE ISLAND MANAGEMENT AUTHORITY**

ROBERT BRANDLE

ENCOUNTER BAY PENGUIN STUDY 1990/1991

REPORT FOR THE GRANITE ISLAND MANAGEMENT AUTHORITY.

EXECUTIVE SUMMARY

The first year of data collection for the Encounter Bay Penguin Monitoring Program was completed in April 1991.

The study was jointly commissioned by the district council of Victor Harbor, the National Parks & Wildlife Service (NPWS) and the Greater Granite Island Development Syndicate. The project was managed by the NPWS Fleurieu Region.

The Encounter Bay population is now estimated at about 7000 birds. In 1990/91 the population successfully bred within the normal limits observed in other Australian colonies.

Differences did exist between the study sites. Penguins on West Island appeared to be almost twice as successful in raising chicks to fledging age than on Granite Island.

CAUTION:

Care should be taken not to interpret the first years data as "the final word". The data still remains limited over time. In addition this study began late and much of the early breeding season information is absent.

RECOMMENDATION:

The study has produced valuable information for future management. The baseline data should continue to be collected to establish whether this year represents a good or a poor breeding year and to determine whether indications observed this year remain consistent.

PRINCIPAL RESULTS:

Of the estimated population of 7000 Little Penguins resident within the Encounter Bay group of colonies approximately 60% breed on West Island. About 20% breed on Granite Island with approximately 5% occurring in the North Shore development area.

The breeding season began in August and lasted until January with the majority of egg laying occurring before the end of October.

Breeding success within the study sites indicated that:

- * West Island fledged 1 chick per breeding pair,
- * Granite Island reserve fledged 0.46 chicks per breeding pair, and
- * North Shore development area fledged 0.56 chicks per breeding pair.

However, a significant percentage (up to 30%) fledged with low body weights.

- A marked food shortage was indicated for December with many chicks loosing weight. Adults maintained body weights within normal limits. A total of 243 birds were banded amongst them 58 chicks. One bird previously banded on West Island was recovered from Granite Island indicating that movement between the colonies does occur.

Higher and longer levels of burrow occupancy was noted on West Island compared to Granite Island.

The moult started in late December and lasted until April. The majority moulted in January/February.

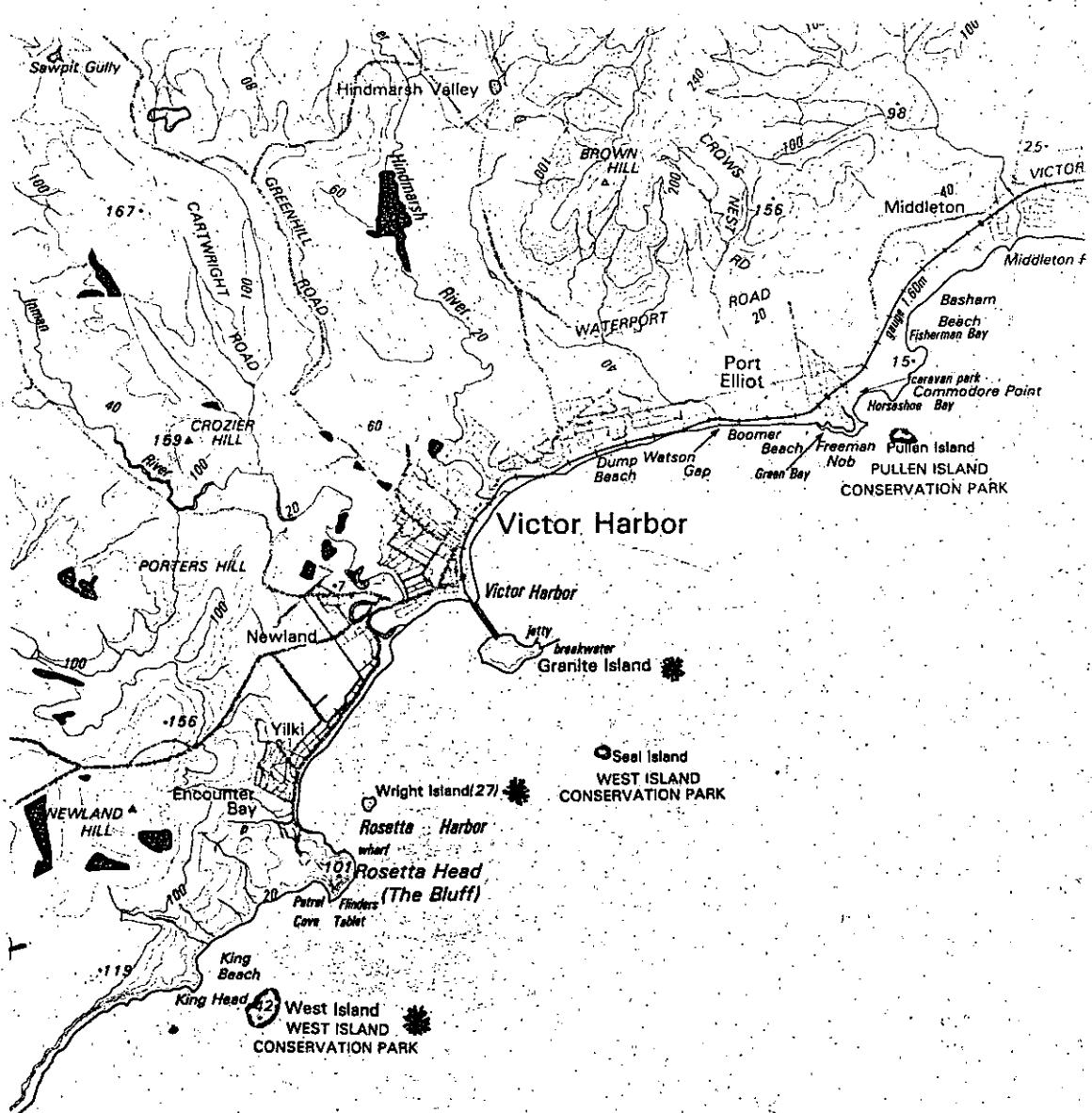
Construction/development work should not occur before March and should cease in May/June

INITIAL INDICATIONS FOR MANAGEMENT:

Two weak indicators from this study support perceived and anecdotal evidence that penguin colony disturbance by visitors is too high. Readers are again cautioned to conservatively interpret the data.

1. The fledging success per pair was higher on West Island principally due to birds in that location continuing to breed for a longer period of time than on Granite Island. The Granite Island data may be a result of increased interference and disturbance from October onwards.
2. Burrow occupancy - higher and longer levels of occupancy are noticed on West Island compared to Granite Island. This reluctance by Granite Island birds to remain in burrows may also be a weak indicator of disturbance. It was noted that during the breeding season many burrows on the North Shore available to penguins were in fact not being used.

MAP 1 : ENCOUNTER BAY, SA.



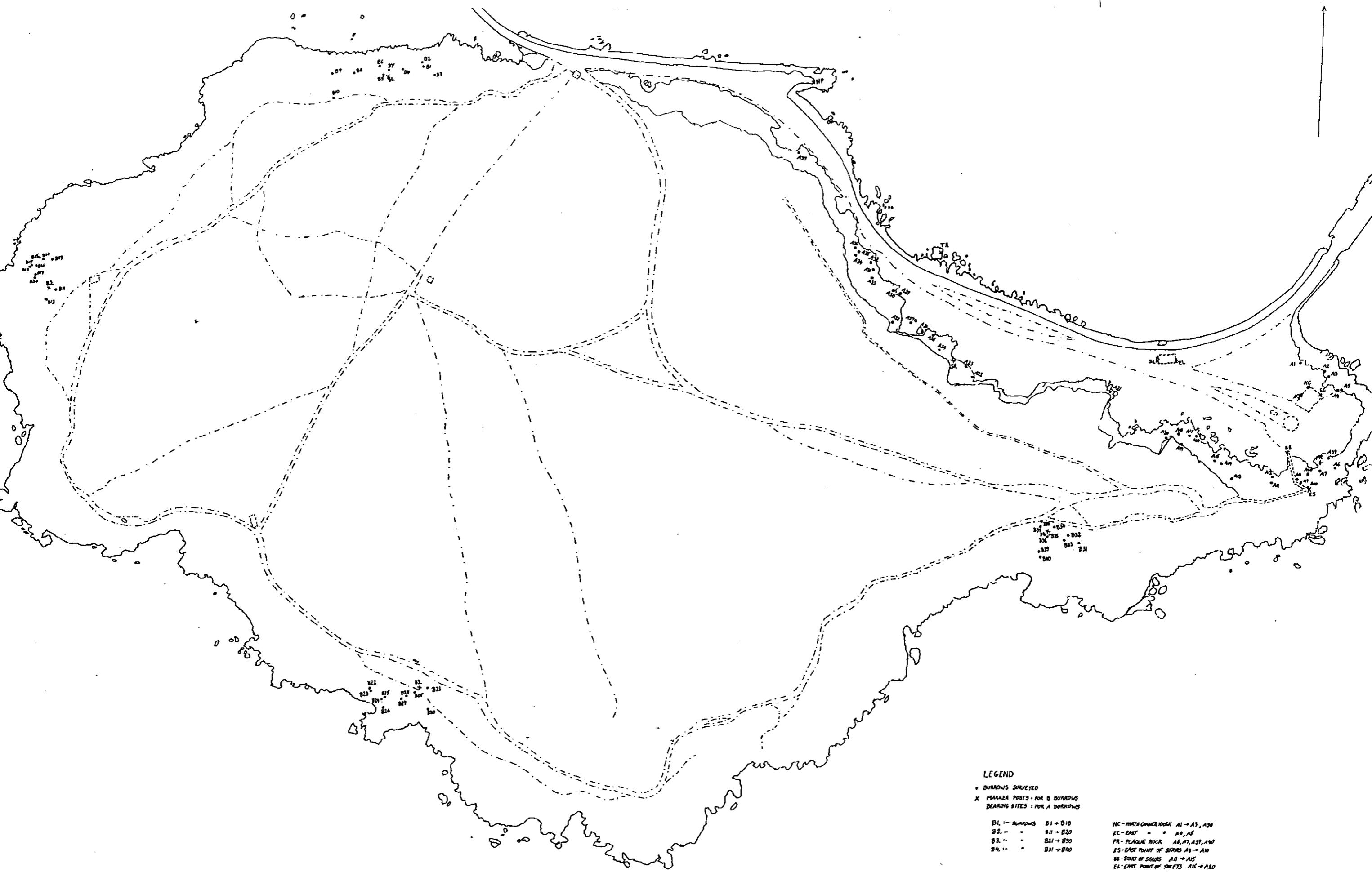
* Islands involved
in this study

SCALE 1 : 100000

Map source : A Floristic Vegetation Map of the South Mount Lofty Ranges
Systems Information Branch, Dept Environment & Planning

MAP 2.

GRANITE ISLAND BURROW MONITORING AREAS



SCALE APPROX. 1 : 2000

MAJOR TRACKS & ROADS

MILITARY TRENCHES

MAP 3 -

ENCOUNTER BAY PENGUIN MONITORING STUDY

GRANITE ISLAND

NORTH SHORE

1990/91

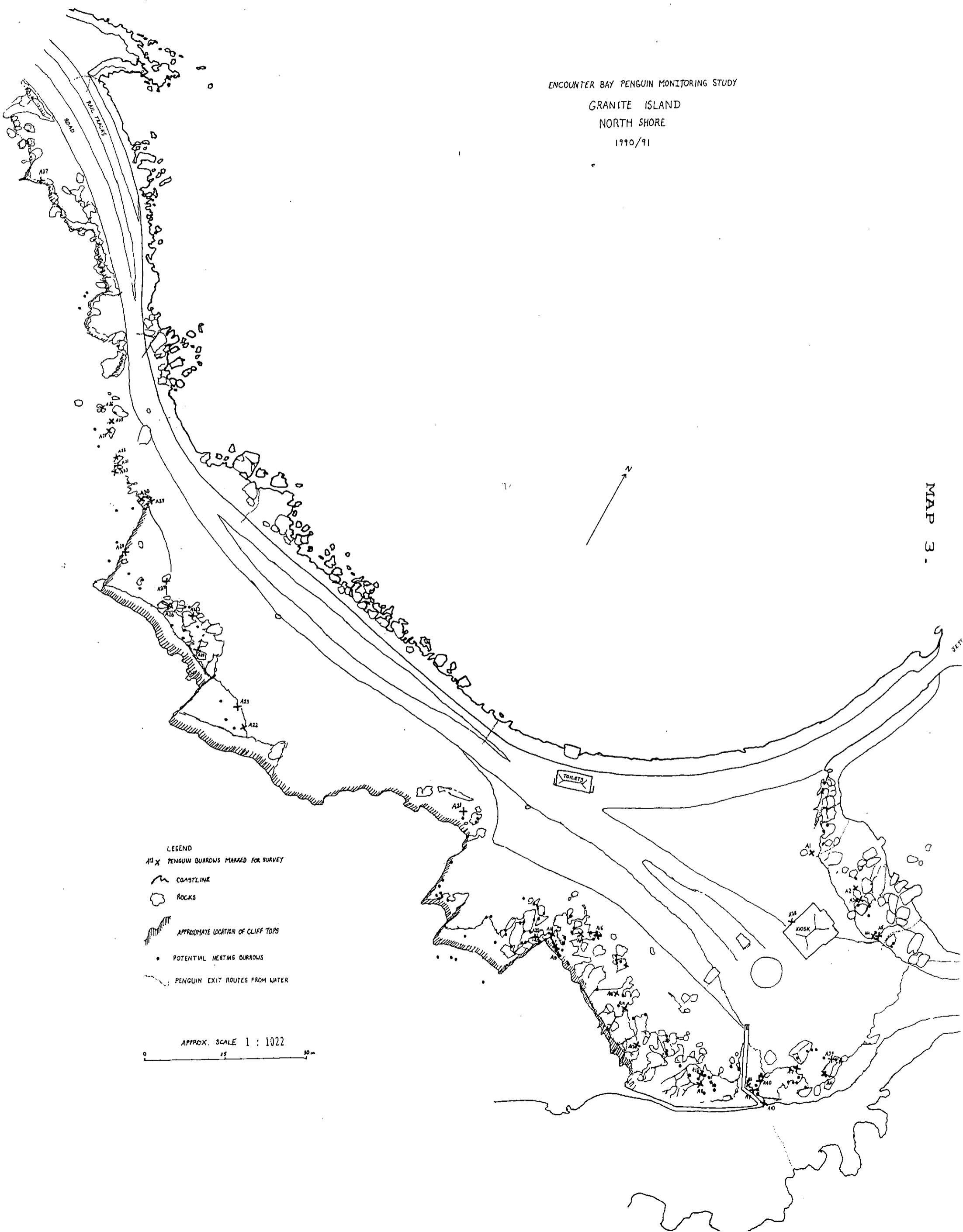


LEGEND

- 10 X PENGUIN BURROWS MARKED FOR SURVEY
- COASTLINE
- ROCKS
- APPROXIMATE LOCATION OF CLIFF TOPS
- POTENTIAL NESTING BURROWS
- PENGUIN EXIT ROUTES FROM WATER

APPROX. SCALE 1 : 1022

0 15 30m

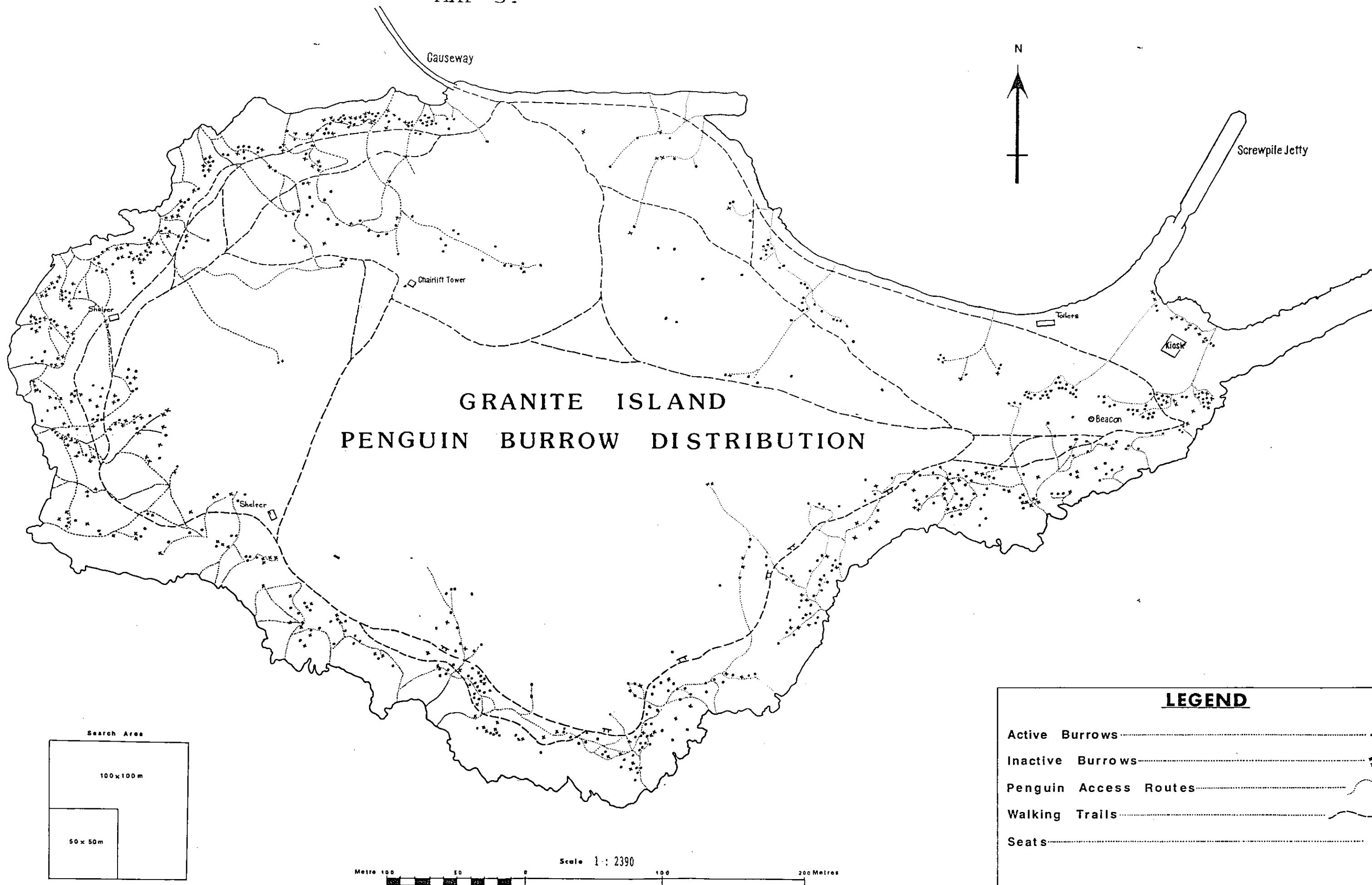


MAP 4.

ENCOUNTER BAY PENGUIN MONITORING STUDY - WEST ISLAND
1990/91



MAP 5.



NPWS SURVEY

INTRODUCTION

This study was commissioned in response to the perceived threat to the Little Penguin (*Eudyptula minor*) population in the Encounter Bay region of a proposed tourist development on the north shore of Granite Island. The methodology was developed to provide baseline data to enable future development impacts to be assessed.

This study is the first year of research of an ongoing monitoring program to identify biologically significant impacts on the Little Penguin population on Granite Island. The Granite Island population forms part of the larger Encounter Bay penguin population which also has nesting areas on Pullen, Wright and West Islands. This study has included monitoring a sample of the population on West Island to highlight fluctuations in breeding success which may be due to other factors (eg. food availability). The monitoring will establish burrow occupancy, number of breeding pairs, fledgling success, and chart the start and finish of the breeding season and moult.

The Study Sites

Encounter Bay (map 1)

Granite Island (map 2)

Location : 1 km south east of the town centre for Victor Harbor.

Size : 25 ha

Description : Granite Island is listed as a geological monument and is characterised by an altered landscape, both physical and biological. However, the island is still able to support a sizeable population of nesting penguins with 541 burrows on the island being noted as being visited by penguins during 1990 by NPWS Rangers. Another 201 burrows were identified but thought not to be in use at this time (map 5).

Study Area A was located along the north shore which has been substantially altered from its natural state through quarrying. This area is also the area for most development on the island including the modification of much of the shore line into a concreted sea wall. Most of the 120 Burrows identified by the NPWS along this section occur in the quarry areas at the base of cliffs (map 2 & 3).

Study Area B covers the rest of Granite Island (Granite Island Reserve) which apart from the vegetative cover, has largely been left undeveloped (map 2).

West Island (map 4)

Location : 1.5 km south west of Rosetta Head.

Size : 10 ha

Description : See "Island Conservation Parks of Backstairs Passage and Encounter Bay Management Plans" - West Island Conservation Park on Page 11 for a detailed description. West Island supports the highest population of breeding pairs in the region, estimated to be over 2500 breeding pairs. Approximately 2500 penguins have been banded on West Island by volunteers for the Australian Bird Banding Scheme. The majority of nesting burrows occur northern and western sides of the island, the slope of which is more suitable for nest sites and easier for penguins to access.

METHODOLOGY

Burrow Location and Recording

Forty burrows were selected in each area. Given the late start of the survey into the breeding season (end of October) burrows were chosen on the basis of the presence of chicks, eggs or adult pairs, and access to nesting birds for weighing and banding (many holes are deeper than the length of a human arm). In some cases nests only containing adults were chosen due to the lack of active nesting burrows at the start of the survey 29/10/1990.

All burrows were given an alpha numeric coding from 1 to 40 depending on the study area in which they were located, ie. A, B, or C. The code number was stamped into a steel tag which was wired and glued onto a 30 mm x 5 mm steel rod inserted into the ground or rock in the vicinity of the burrow entrance. Photographs were taken of individual burrows in Area A and groups of burrows in Areas B & C (refer to separate appendix - photo album held at Victor Harbor Office NPWS).

Area A - Granite Island North Shore

Burrows were chosen all along the nesting area (map 4). These have been mapped in detail to enable them to be located in the future. Accuracy was particularly important given the vandalism of marker posts in this high visitation area. Obvious features such as buildings and cliffs may be modified by the development in future. The burrows are also locatable by directions and distances from obvious features (see appendix 1 for all burrow location information).

Area B - Granite Island Reserve

Four areas with ten marked burrows each were chosen to monitor breeding success on the north-west, west, south-west and south-east coasts of the Island (map 2).

The areas have been marked with a steel post tagged B1 (NW), B2 (W), B3 (SW) and B4 (SE). All burrows are referenced to the appropriate post with a bearing and distance from post to burrow. Posts are referenced to salient features in the environment in the same manner (see appendix 1 for all burrow location information).

Area C - West Island

The forty burrows were located in groups of 20 and referenced by direction and distance to 1 of the 2 marker posts labelled C1 and C2 (map 2). C1 is similarly referenced to the north-west corner of the research station and C2 is referenced to C1 (for full details see appendix 1).

Monitoring the occupancy of burrows

Each burrow was checked for adults, eggs and chicks on a monthly basis starting from the 29th October 90 on Granite Island and the 5th of September 1990 on West Island until the end of March. All birds were weighed, had their bill depth and length (from tip to gape) 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 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 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

Three Islands were searched on the night of the 8/12/1990 : Granite Island; West Island; and Wright Island (a small, approx. 2.5 ha island located between West and Granite Island). Searching occurred between dusk (approximately 8.40pm) and midnight. Both chicks and adults were counted. Burrows were not individually checked and birds in them were therefore only counted when visible.

A parallel line style search methodology was used on all islands (see appendix 2 for information sheets given to searchers). A total of 28 volunteers were involved in the searching from dusk until midnight: 16 on Granite Island (lead by P Macrow from the Resources Conservation Branch of the NPWS; 3 on Wright Island lead by R de Groot from Victor Harbor NPWS; and 9 on West Island lead by Robert Brandle. Search methodology as described in appendix 2 had to be modified on each island to suit the terrain. On West Island approximately 2 ha were unsearched due to the presence of nesting terns on the north of the island and the condition of volunteers when approaching the top of the Island. This latter area generally has few penguins. On Wright Island the abundance of boxthorn made searching difficult in parts. All of Granite Island was searched, however the large number of novice searchers in this group made their coordination difficult.

RESULTS

Occupancy Status of Burrows

The number of burrows that were recorded unoccupied, with one, two or more different individuals in them over the study period are summarised for adults, chicks and eggs in Tables 1 to 3 below. This indicates the differences in breeding activity between the three study areas over the surveyed period. Full details of burrow occupancy in all areas are provided on the field data sheets 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	6	15%	22	55%	26	65%
1	15	37.5%	6	15%	4	10%
2	16	40%	12	30%	10	25%
2+	5	12.5%	0	0%	0	0%
TOTALS	40	100%	40	100%	40	100%

Table 2. AREA B

BURROW STATS.	ADULT PENGUINS		PENGUIN CHICKS		EGGS	
EMPTY	3	7.5%	28	70%	16	40%
1	17	42.5%	6	15%	7	17.5%
2	16	40%	5	12.5%	16	40%
2+	4	10%	1	2.5%	12	2.5%
TOTALS	40	100%	40	100%	40	100%

? = Three chicks were found in burrow B20 on a subsequent visit though only two eggs were noted.

Table 3. AREA C

BURROW STATS.	ADULT PENGUINS		PENGUIN CHICKS		EGGS	
EMPTY	5	12.5%	17	42.5%	23	57.5%
1	12	30%	7	17.5%	5	12.5%
2	11	27.5%	16	40%	12	30%
2+	12	30%	0	0%	0	0%
TOTALS	40	100%	40	100%	40	100%

BURROW OCCUPANCY OVER TIME

The following figures indicate total numbers and burrow occupancy of adult penguins, chicks and eggs on the occasions that burrows were searched over the length of the study. Area A burrows received seven visits, the first visit being excluded as there was no comparable sample taken for Areas B & C which received six visits. Because it was not practical to sample all three areas simultaneously, the dates for each sample period have been grouped and are numbered 1 to 6, the dates of which area as follows: 1. EARLY NOVEMBER 6/11/90 C, 7/11/90 A & B; 2. LATE NOVEMBER 28/11/90 C, 29/11/90 A & B; 3. DECEMBER 9/12/90 C, 19/12/90 A & B; 4. JANUARY 17/1/91 B & C, 24/1/91 A; 5. LATE FEBRUARY 27/2/91 A & B, 5/3/91 C; 6. LATE MARCH 26/3/91 A, 3/4/91 B & C. This data is tabulated in Appendix 3.

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

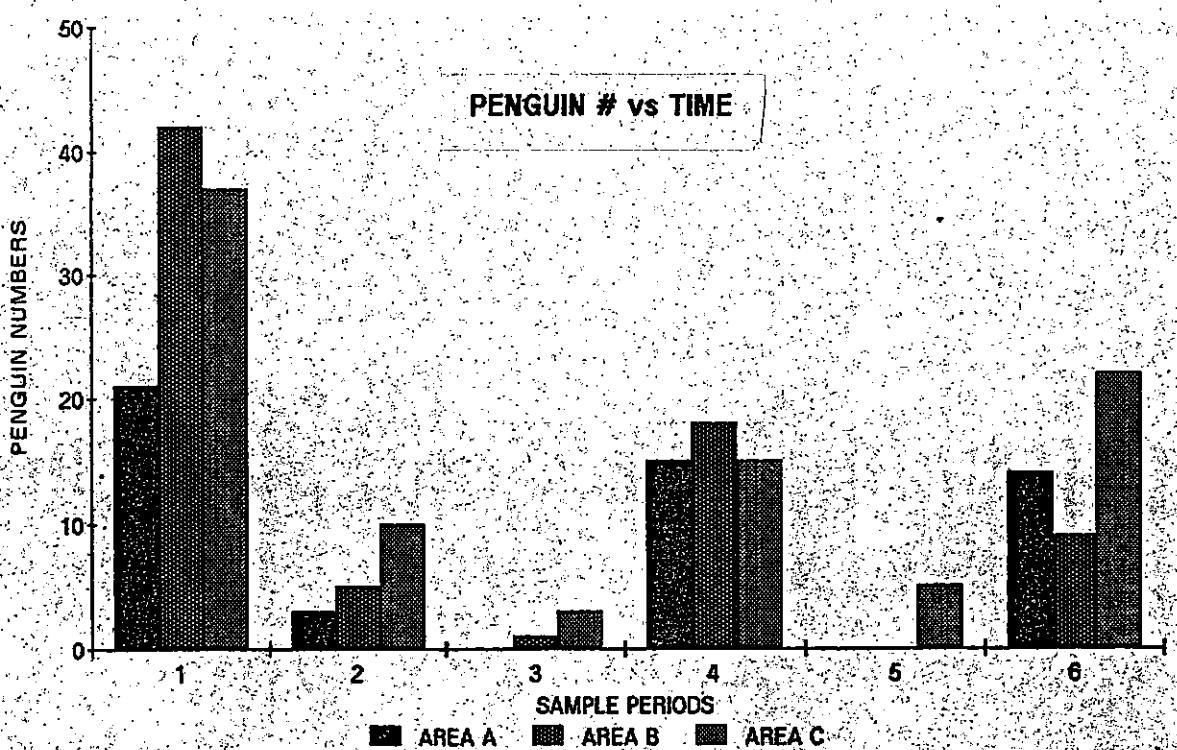


FIGURE 2. Burrows occupied by adult penguins in each sample period

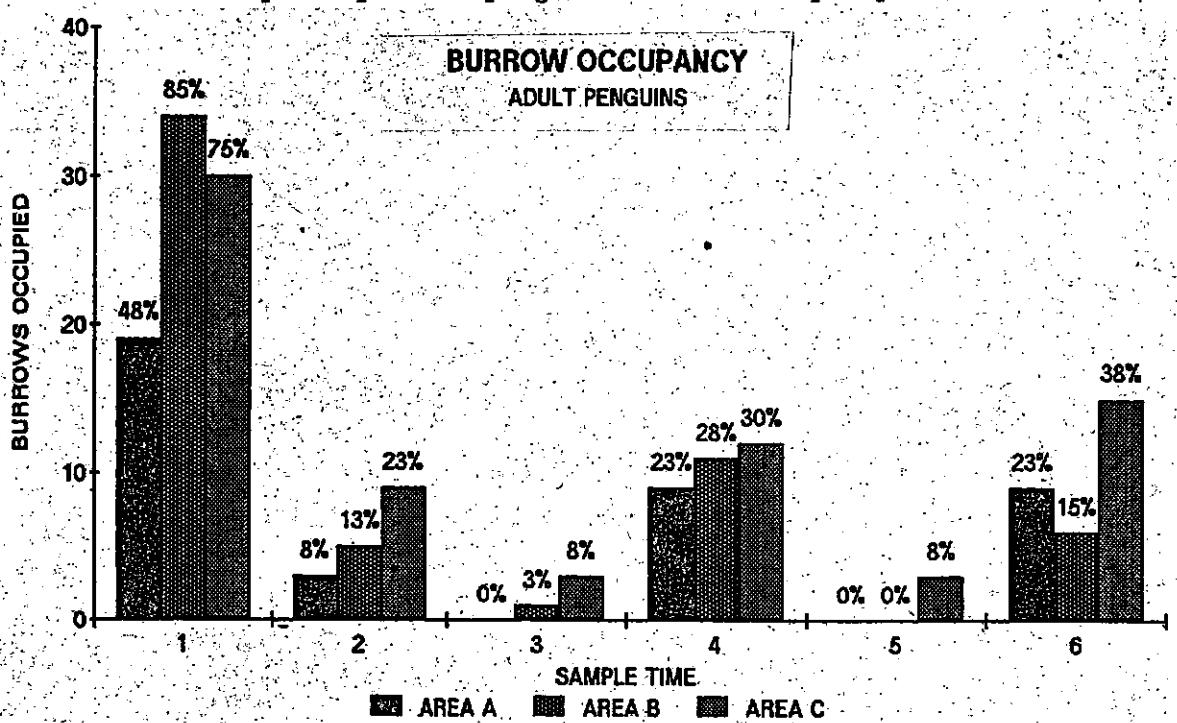


FIGURE 3. The number of chicks recorded in each sample period

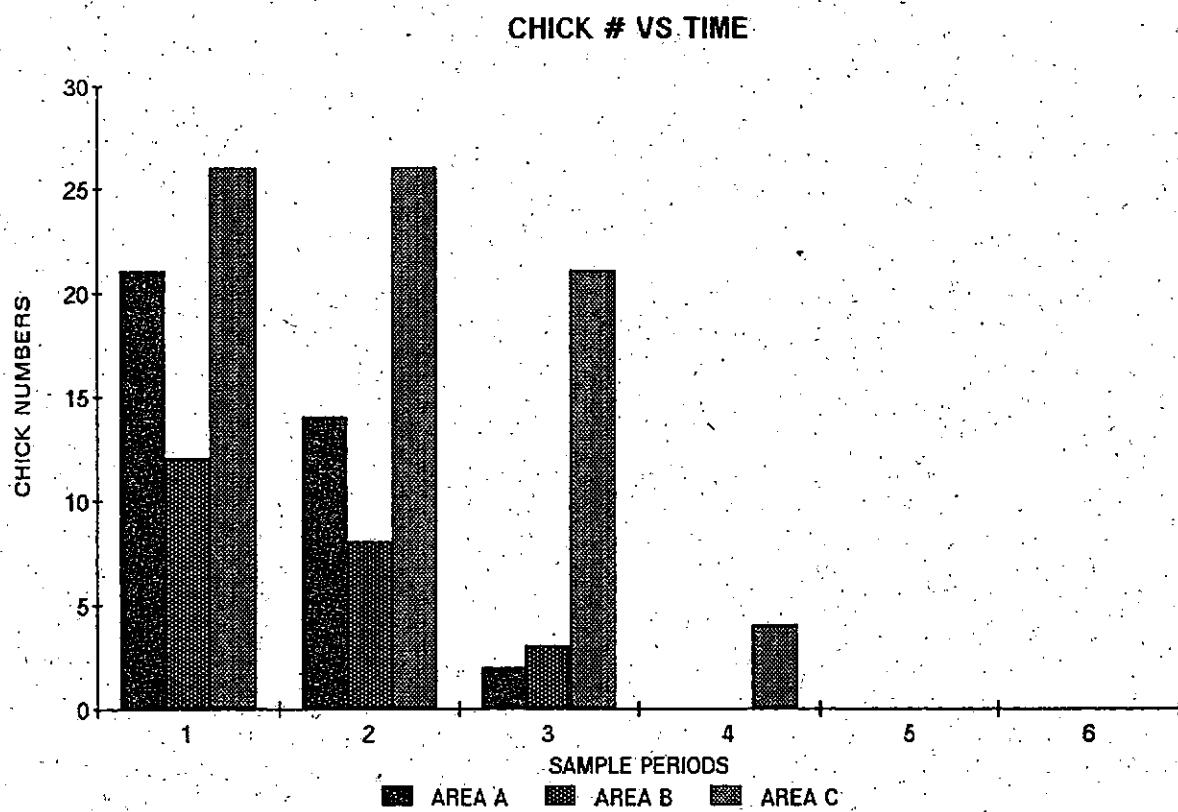


FIGURE 4. Burrows occupied by chicks in each sample period.

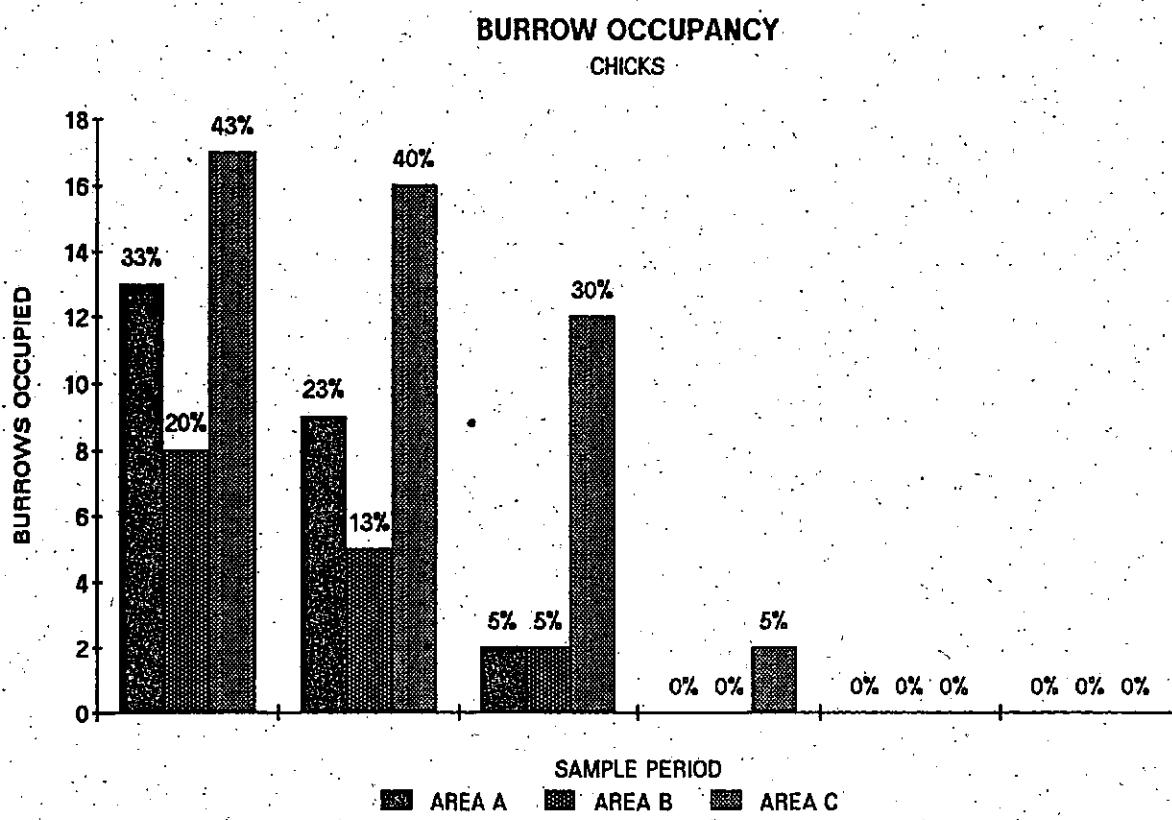


FIGURE 5. The number of eggs recorded in each sample period

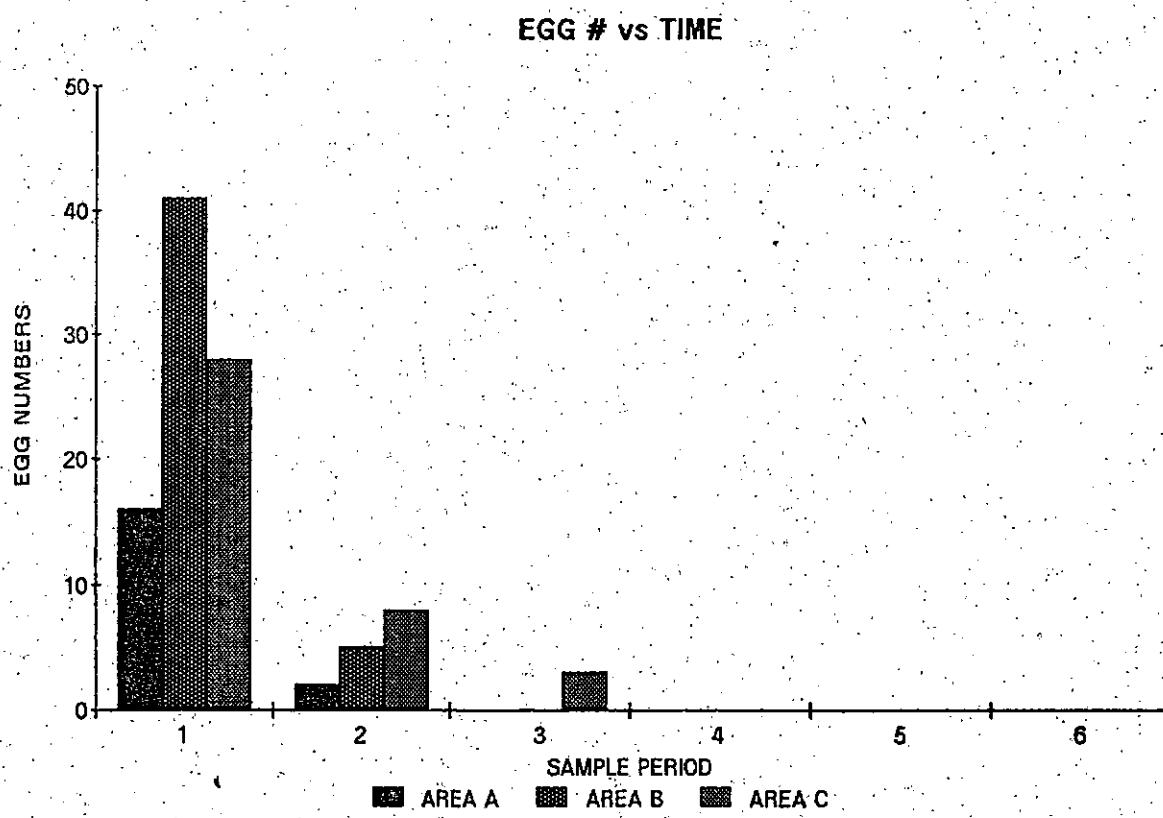
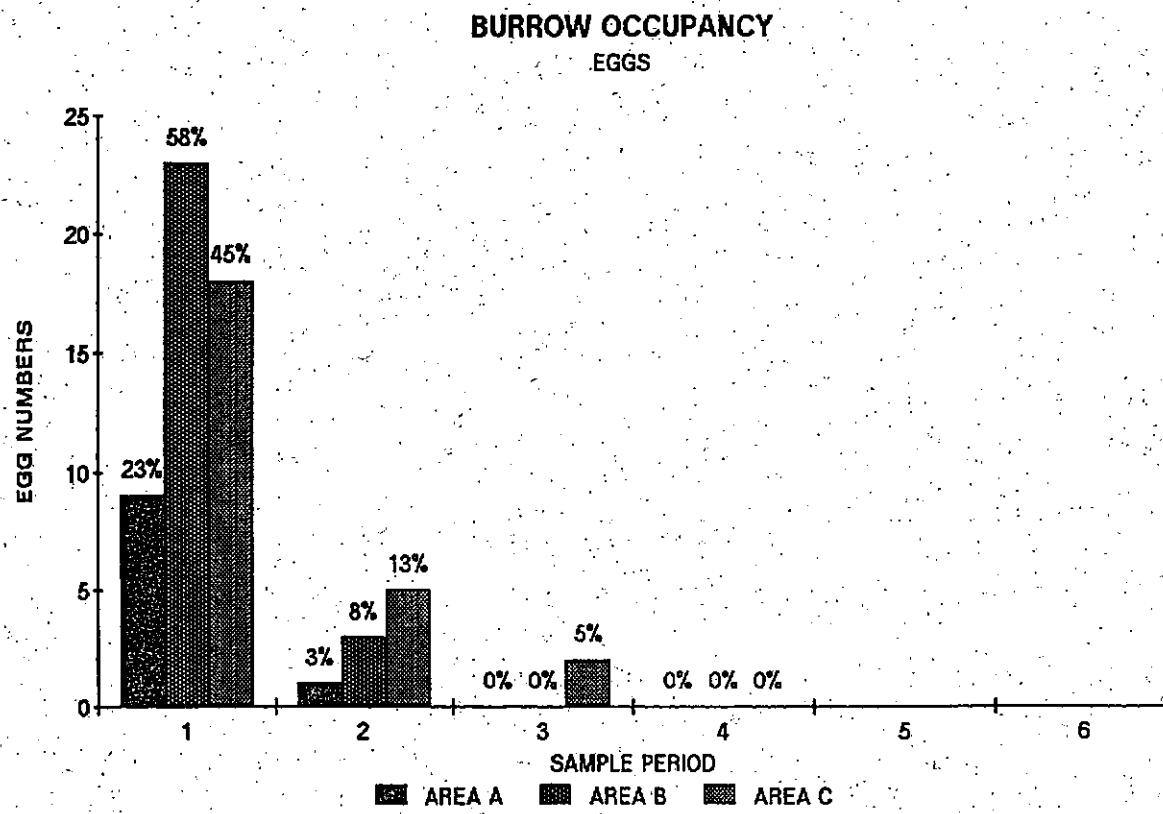


FIGURE 6. Burrow occupancy by eggs over the sample periods



Some burrows had no penguins recorded in them whilst others had up to five different individuals recorded in them over the sample periods. This is shown in the # column of table 4. The second column in table 4 (labelled D) shows burrow occupancy in terms of days occupied. No burrow was occupied for more than 4 of the sample periods.

Table 4. Percentage of burrows being used by X number of adults during the sampling period & the percentage of days sampled in which burrows were occupied.

= percentage of burrows with X individuals

D = percentage of burrows occupied by penguins on X of the days visited.

(Burrows A received 7 visits whilst burrows B & C received 6 visits)

X	0	1	2	3	4	5					
AREA	#	D	#	D	#	D	#	D	#	D	TOTAL
A	10	10	35	25	43	43	5	18	5	5	202%
B	8	8	43	48	40	43	8	3	0	0	204%
C	13	13	30	35	28	20	15	20	10	13	202%
AVERAGES	10	10	36	36	37	35	9	13	5	6	201%

Percent variations from 200% in the TOTALS column for all Areas represent the rounding up of half percentage points.

Table 4 indicates that more burrows were occupied for more days in Area C, which also had more different individuals using a particular burrow.

BREEDING SUCCESS

1. EGG HATCHING & SURVIVAL SUMMARIES

Of the 93 eggs found in 54 clutches (average of 1.7 eggs per clutch), 18% hatched with one of these chicks making it to leaving age.

Tables 5 to 7 summarise the fates of eggs found in the three study areas. This includes hatching and the ultimate survival of chicks after hatching to fledging (approx. 56 days).

The following tables also present 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	4	10	14	24
FAILED	4	10	14	24
	1 egg	2 eggs		
HATCHED	0	1	2	3 21%
SURVIVED	0	0	0	0

Table 6. EGGS RECORDED AREA B

CLUTCHES	EGGS PRESENT		TOTALS	
	1 EGG	2+ EGGS	CLUTCHES	EGGS
RECORDED	7	16	23	40
FAILED	7	15 94%	22 96%	39 98%
	1 egg	2 eggs		
HATCHED	0	2	1	3 13%
SURVIVED	0	0	1?	1?

? = Burrows B14 had one chick which may have reached leaving age (approx. 56 days). This chick somehow missed weighing on the 29/11/90.

Table 7. EGGS RECORDED AREA C

CLUTCHES	EGGS PRESENT		TOTALS	
	1 EGG	2 EGGS	CLUTCHES	EGGS
RECORDED	5	12	17	29
FAILED	5	11	16 94%	28 97%
	1 egg	2 eggs		
HATCHED	0	1	3	4 24%
SURVIVED	0	0	1	1

2. CHICK SURVIVAL

Of the 90 chicks recorded 45 (42%) survived to nest leaving stage (no downy feathers). A further 22 chicks survived to nest leaving stage but were severely underweight (between 20 and 40 percent less than expected from previous studies (Reilly, ; etc). These are highlighted with a ? as it is not known if these chicks would survive. 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. In cases where the fate of the chick was unclear a ? has been assigned.

Table 8. CHICKS RECORDED AREA A

CLUTCHES	CHICKS PRESENT		TOTALS	
	1 CHICK	2 CHICKS	CLUTCH	CHICKS
RECORDED	6	12	18	30
FAILED	2 33%	4 33%	6 33%	12 40%
SURVIVED	1 chick 3, 1?	2 chicks 1, 1?	56% 10, 2?	53% 16, 2?
NO ACTIVITY	10 25%		11%?	7%?

? = A28 & A38 both not found before the average leaving age of 56 days however they may have left a few days earlier and therefore could be considered successful. Chick 190 55571 was found dead in March 1991 and may have starved (small size, but no mesoptyle down), though desiccated carcass was mutilated.

Table 9. CHICKS RECORDED AREA B

CLUTCHES	CHICKS PRESENT		TOTALS	
	1 CHICK	2 CHICKS	CLUTCH	CHICKS
RECORDED	6	6	12	19
FAILED	1 17%	0 0%	1 8%	4 21%
SURVIVED	1 chick 4, 1?	2 chicks 3, 1?	75% 9, 2?	63% 12, 3?
NO ACTIVITY	8 20%		17%?	16%?

? = Burrow B14 1 chick - probably successful. Burrow B20 2 chicks were under weight when 44 days old and therefore may have failed.

Table 10. CHICKS RECORDED AREA C

CLUTCHES	CHICKS PRESENT		TOTALS	
	1 CHICK	2 CHICKS	CLUTCH	CHICKS
RECORDED	7	17	24	41
FAILED	1 14%	2 12%	3 13%	6 15%
		1 chick 2 chicks	46%	41%
SURVIVED	6	0, 1? 5, 9?	11, 10? 17, 18?	
NO ACTIVITY	5 13%		41%?	44%?

? = 10 burrows had chicks which had developed slowly and were underweight when last recorded. It is probable that chicks from burrow C34 survived whilst those in the other burrows (C15, C20, C23, C24, C25, C27; C5, C6, C8) may have failed. One dead banded chick (190 55580) was found in area C and appears to have starved. Other dead, fully developed and under weight chicks were also noted in the area. Chicks over 30 days old were occasionally found in burrows other than the one they were born in. This was apparent for 2 chicks in Area B and 2 Chicks in Areas C. These chicks were born in unstudied burrows but have been included in the summary tables above as survived and ? for one in Area B.

CHICK GROWTH

An average chick growth rate was established from the growth of those chicks which were recorded over successive periods. This gave an average chick growth for chicks between 0.06 kg to 0.74 kg of between 0.032 and 0.035 kg per day with 95% confidence. From this we can determine approximately when the chicks with measured weights between 0.045 and .74 kg were born, given that the average chick weight at birth is likely to be close to 0.045 kg (RAOU, 1990). Figure 7 displays the relationship between weight and age of birds. The high correlation, up to approximately 20 days, reflects the basis on which we obtained the growth rate used to estimate the ages for these birds. The spread in weights after age 20 days is associated with the slowing in growth (adult weights are reached after approximately 30 days) and food shortage during December, made estimation of ages from chicks over 0.8 kg unreliable. This later phenomenon is clearly depicted in figure 8 which compares the actual weights with those estimated from our growth relationship against date of sampling. Low growth rates were first noticeable on the 28/11/1990, and after December some chicks declined in weight (see appendix 4 for details of chick growth and age estimates). The weights of the heaviest chicks were 1.4 kg on the 6/11/1990, 1.17 kg on the 28/11/90, and 0.92 kg on the 9 and 19/12/1990 as the breeding season ended.

FIGURE 7. Weights of chicks and estimated age

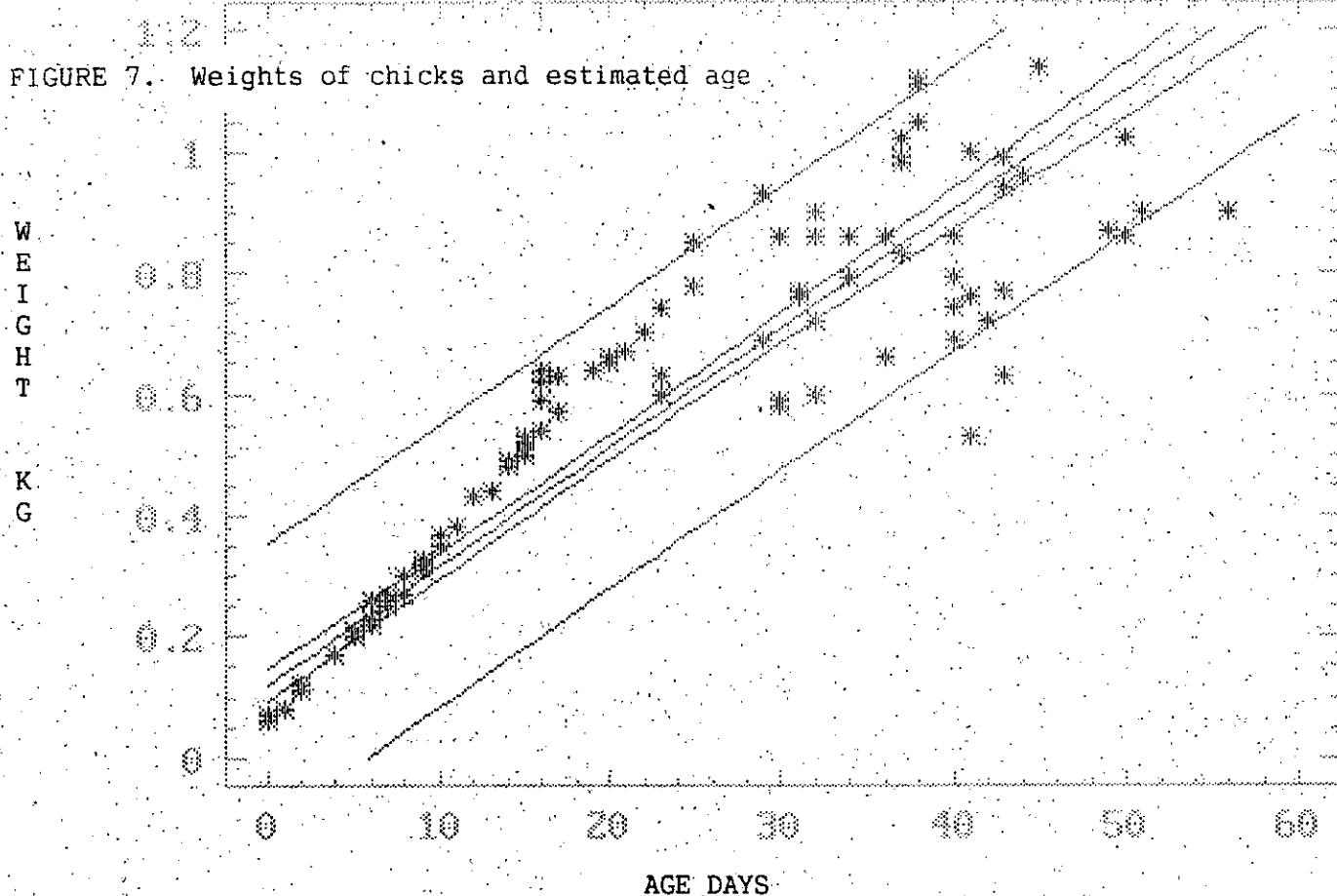
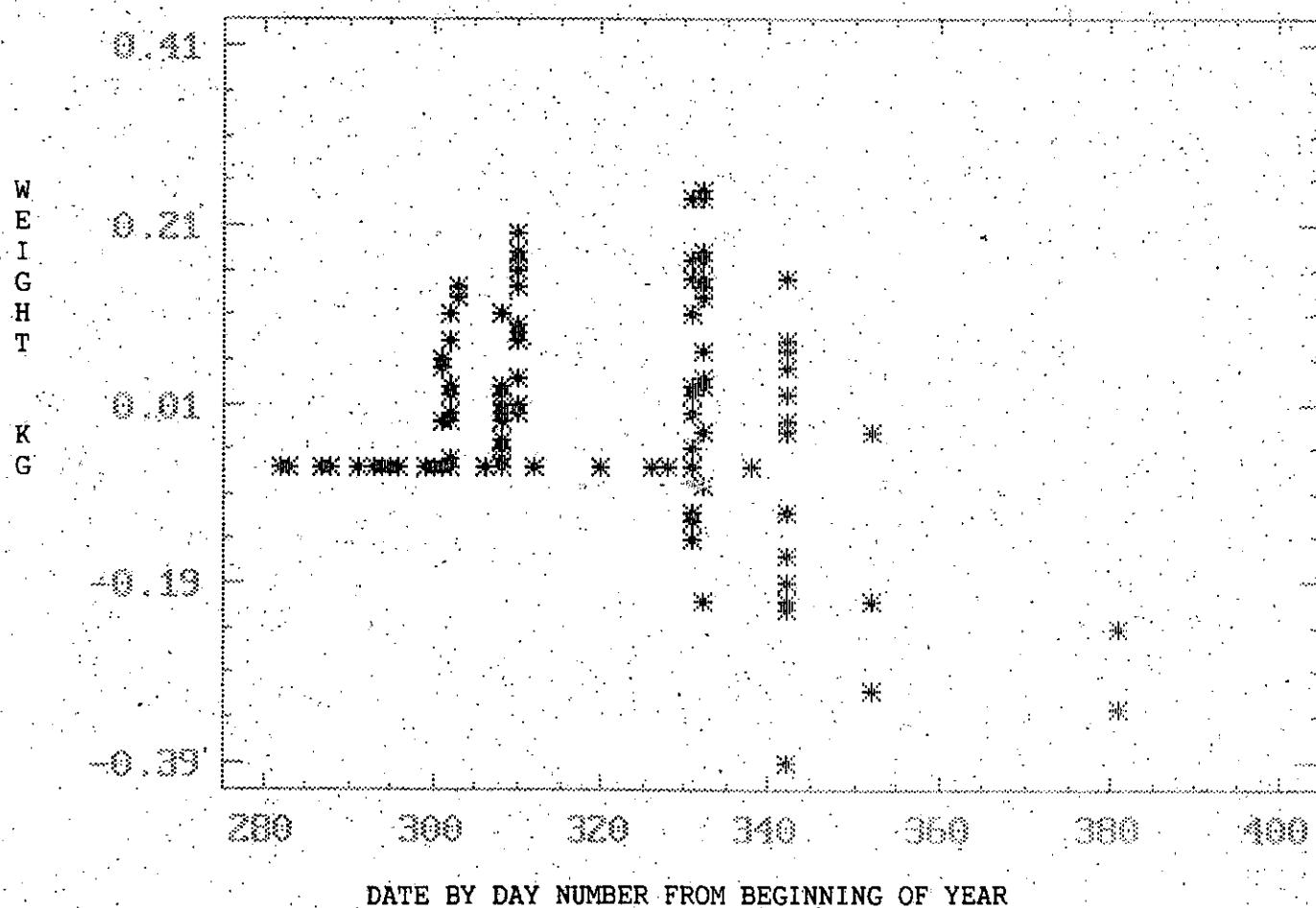


FIGURE 8. Weight differences between actual weights and estimated weights



MOULTING

Moulted Birds were first noted in Areas B & C on 17/1/1991, and in Area A on 24/1/91. Very few penguins or chicks were recorded on Granite Island on the 19/12/1990. No penguins were recorded on Granite Island on 27/2/1991, however some moulted birds were recorded on West Island a week later on the 5/3/1991 and again on the 3/4/1991. A moulted bird was also recorded in Area A on the 26/3/1991. The peak moulted period is highlighted in figures 1 and 4 with low penguin numbers and burrow occupancy during sample periods in December 1990 and February 1991 (before and after moulted, penguins undertake intensive feeding periods to compensate for the three weeks confinement to land during moulted).

BANDING RESULTS

A total of 243 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. Eighteen adults monitored in the study were banded on previous occasions by ABBBS volunteers and 185 were banded this study. Therefore, 203 separate adult penguins were recorded in this study. Of the 90 chicks recorded 58 were banded this study.

Bands sequences used were 190 :

49651 to 49700; 51106 to 51111; 55401 to 55500; & 55511 to 55700.

RECAPTURE OF BANDED BIRDS (Put in details of the 17 banded birds not banded this study as appendix 5)

Table 11. Recapture rates of banded birds during the study as a percentage of the total number of adults or chicks. Many chicks recaptured were not banded until later recaptures as banding depended chick size. Also chicks which disappeared before banding are not represented in the percentage.

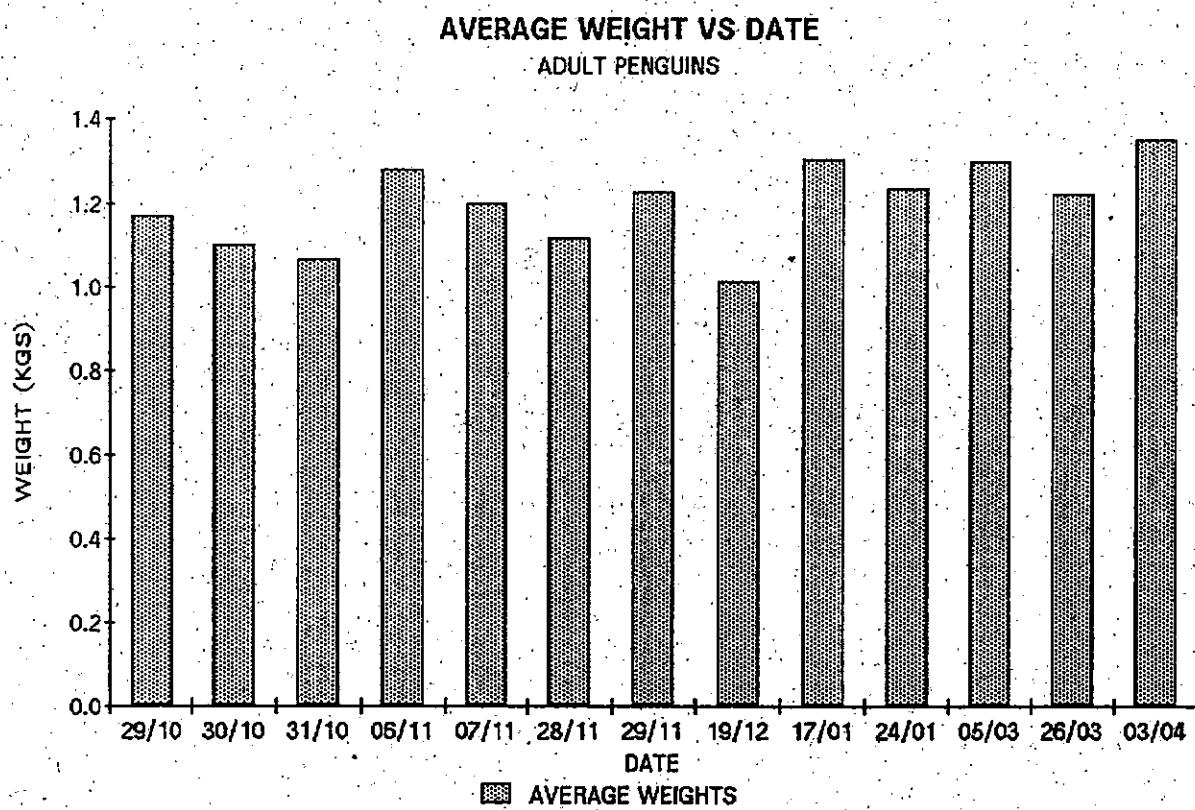
NUMBER OF TIMES RECAPTURED

	0	1	2	3	TOTALS
ADULTS	76%	21%	2%	<1%	100%
CHICKS	49%	24%	23%	3%	100%

ADULT WEIGHTS

Adult weights were recorded on thirteen occasions over the later part of the breeding season and also the moult and post moult periods (see figure 9). Weights ranged from a 0.71 to 2 kg during the moulted period on 17/1/1991. 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 where sampling occasions were a few days apart). Average weight over the study period was 1.198 kg with a standard deviation of 0.098. By Area these were: "A" 1.21 kg; "B" 1.19 kg; and "C" 1.22, however none of these differences are significant. Over the season averages were: breeding 1.16 kg; moulted 1.38 kg; post moult 1.2 kg. These differences were not significant given the fluctuations in weight during breeding and moulted.

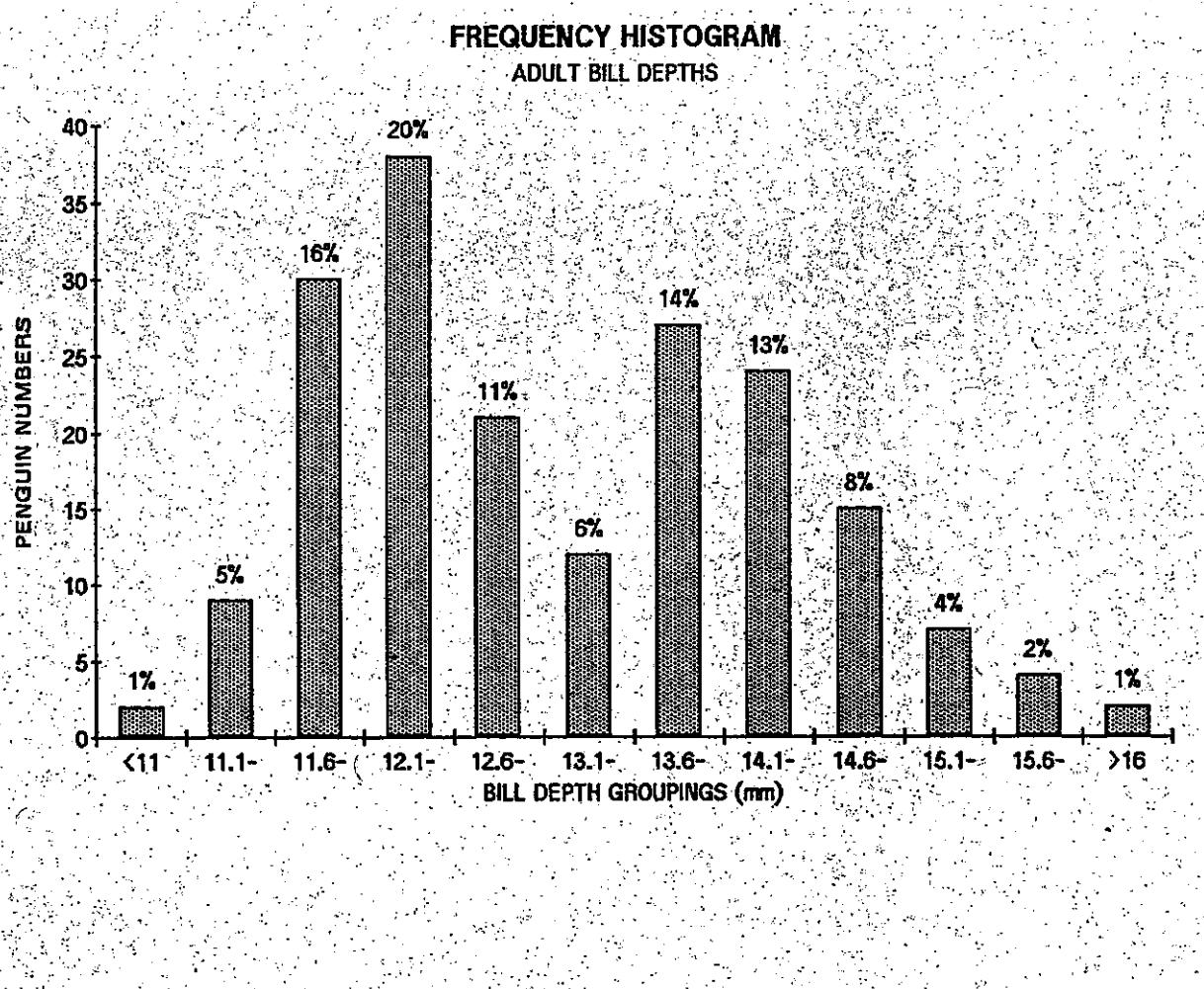
FIGURE 9. Average adult weights on dates sampled



SEX OF ADULT PENGUINS

The sex of adult birds was estimated from bill depth and appearance, and the perceived sex of a partner, where there were two adults in a burrow. In cases where the sex couldn't be confidently determined it was not noted. The ratio of males to females noted in the field was 96 Females to 101 males. The frequency histogram, figure 10, shows that bill depths do not constitute a normal distribution for the whole population. There are two peaks for most abundant bill depth sizes.

FIGURE 10. The numbers of adult penguins with bill depths grouped into size categories of 0.5 mm



BURROWS IN THE NORTH SHORE REGION WITHIN THE DEVELOPMENT ZONE.

183 potential penguin nesting burrows were identified within the development zone as plotted on Map 3. The forty burrows selected for monitoring are distributed throughout the lower section of this area. More than half of the 183 potential burrows did not appear to be in use during the survey period. During the middle of the 1990 nesting season in September, the burrow survey done by NPWS Rangers identified 101 apparently active burrows and 26 inactive burrows in this area (see map 3).

PENGUIN COUNTS ON THE 8/12/1990

Granite Island : Approximately 90% of the area was searched and 535 penguins were counted

West Island : Approximately 60 % of the Island was searched and 1362 penguins were counted.

Wright Island : Whole Island was searched with searchers indicating they missed counting approximately 35% due to inaccessible bushes. A total of 447 penguins were counted.

The North shore of Granite Island penguins have been regularly counted since September 1989 by Mrs Boulter, a resident of Victor Harbour. Table 11 summarises her findings which are presented in appendix 6.

Table 12. North Shore Penguin Count Averages

MONTH	1989			1990			1991		
	AVG	MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX
JAN				85.4	15	145	67.6	2	127
FEB				36.1	9	83**	60.1	3	113*
MAR				15.1	4	37*	27	0	44
APR				28.3	6	68	28.8	4	62
MAY				26	2	87*	70.6	58	89**
JUN					NOT				
JUL					COUNTED				
AUG				23.3	21	25**			
SEP	25.3	17	34	39.2	22	56			
OCT	38.8	28	53	46.2	36	63			
NOV	41.5	31	54	41.5	23	65			
DEC	17.5	8	36	8.1	1	24			

First egg seen on the 23/8/1990 and on the 4/5/1991.

First chick seen on the 13/9/1990.

First signs of moult seen on the 24/11/1989 (not noted for 1990/91)

First egg seen on 4/5/1991; also several on West Island on 10/5/1991.

** average of numbers over one week period only.

* average of numbers over less than three weeks.

Burrow occupancy during December 1990 up to the 8th was relatively low with an average of 18 +/- 4, 61% less than peak nesting season in October. Fourteen penguins were recorded on the north shore on the day of the 8th.

DISCUSSION

The aims of the study as a baseline for determining breeding success has been somewhat compromised by the late beginning of the program in late October (ie it will not be possible to determine the breeding success in the marked burrows over the entire breeding season). However, useful data has been gathered for comparisons between monitoring areas. The aim of setting up the monitoring areas, determining the start and finish of the moulting season were all achieved.

BURROW OCCUPANCY

All burrows were selected for study on the basis of being occupied by eggs, chicks or adults on the first date of recording for each area. No breeding activity (eggs or chicks) was recorded in 10, 8 and 5 burrows in Areas A, B and C respectively. Whilst there is a marked decline from area A to C, some of this trend reflects the ease with which breeding burrows were found in each area, Area A having the fewest burrows whilst Area C had the most. There was marked variation in numbers of burrows containing eggs and chicks between areas as well as within areas. It was not possible to select burrows at the end of October which were all in a similar stage of breeding as this would have made location of 40 burrows difficult in Area A and would have meant a random dispersal of monitoring burrows in the other areas. This in turn would greatly decrease efficiency of burrow relocation and future monitoring.

Tables 1 to 3 show that Area C has a greater number of penguins visiting burrows other than one breeding pair (more than 2 individuals recorded over the study time). This is likely to be due to the larger and denser population of penguins using West Island.

Figures 1 to 6 show burrow occupancy by adults, chicks and eggs over the six sample periods. The higher levels of activity for longer periods of time may reflect the relatively undisturbed nature of the West Island colony when compared to highly visited Granite Island. The low chick numbers in Area B were somewhat compensated by the larger numbers of eggs. These trends should not be analyzed with caution as they represent only a segment of the 1990 breeding season. More useful is the analysis of clutch survivorship for comparing differences between Areas.

BREEDING SUCCESS

The success of clutches (combining egg and chick data) over the study were: Area A 33-41%; Area B 28-34%; and Area C 31-60%. This implies a reproductive rate of 0.53-0.56, 0.38-0.46 and 0.49-1.00 chicks per breeding pair in the respective study areas over the study period. Some of these latter clutches are likely to have been second clutches for some pairs, this was noted in only one burrow. Breeding success fluctuates widely as evidenced from studies in other regions. Bruny Island 0.32 chicks per pair to 1.6 chicks per pair in a season at Otago (RAOU, 1990). The major differences between study areas indicate a trend to greater breeding success with decreased disturbance if number of clutches, hatching, fledging and chicks per pair are considered as per table 13. Only maximum success numbers are shown for this comparison table and should not be used for comparisons with other studies. However it is useful for between areas comparison as low fledging weights related mostly to Area C but were not due to colony disturbance (food shortage to parents). If it is assumed that all fledglings survived to leave the islands then the West Island colony had twice the success of the highly disturbed Granite Island Colonies.

Table 13. Results summary

AREA	CLUTCHES	HATCHING	FLEDGING	#/PAIR
A	30%	21%	58%	0.56
B	32%	13%	79%	0.46
C	35%	24%	85%	1.00

During her daily count of penguins on the North Shore of Granite Island, Boulter noted the onset of egg laying and hatching for 1990 which enables us to put the breeding success into context for the whole season. The first eggs were laid in late August with chicks hatching in mid September. The monitoring program began at the end of October. Given that the average fledging period takes approximately 2 months and incubation about 1 month it is likely that the chicks which were fully fledged at the end of October resulted from the earliest eggs laid. The current survey therefore is likely to have surveyed the bulk of the chicks which survived to fledging. This creates a bias towards success per pair as all the failures in the first three months were not recorded. However the actual numbers of chicks surviving are possibly an accurate reflection of total breeding success from those burrows. Unfortunately similar data is not available for the other two areas, though a trip to West Island in *May* 1990 saw penguins in the process of nest building. Boulter has observed the first egg in a nest on 4/5/1991 in the north shore area.

EGGS

The Hatching rate of 18% (Areas: A 21%; B 13%; & C 24%) is somewhat lower than the 60% reported in Stahel & Gales (1987) for most studies in Australia & New Zealand. It is likely that eggs laid late in the season are less successful, particularly second clutches. The consistency in poor hatching success across our study areas supports this theory. It is quite probable that the hatching success over the whole season would have been close to 60% as chick numbers were relatively high at the start of monitoring. Of the 17 eggs which hatched only one was regarded as a success (reaching a weight and age sufficient for it to leave the nest). The other was a probable success but may have not been born in B14 as no eggs or chicks were recorded on the prior visit.

Given the low percentage of hatching eggs disappeared at approximately the same rate as if they were hatching in all the areas, however there was rarely any trace of an egg or its shell after its disappearance from the hole. It is possible that the adult penguins clear out nests once they are abandoned, however the evicted egg, or shell fragments should be visible in the vicinity of the burrow.

CHICKS

Fledgling success of chicks for: Area A 52-58%; Area B 63-79%; and Area C 41-85%, are within the range of other research from Tasmania & Victoria which ranged from 23% to 94% depending on location and season (RAOU, 1990). The high range in percentages within one study area, particularly Area C, has been shown to highlight the low weights of fully fledged chicks at the end of the season, whilst only two bands were recovered of fully fledged chicks (these were thus not recorded as successfully fledged) some of the other chicks are likely to have perished.

Of the 91 chicks recorded, 23 (25%) failed of which only seven were found. Chicks disappeared from all islands. This indicates that they either wandered off or were taken. On West Island, Ospreys and Sea eagles present potential threat to chicks and adults. This is confirmed on the top of the island where small concentrated areas of penguin carcasses have accumulated. The island also supports breeding Pacific Gulls which may lead to the loss of some chicks. On Granite Island potential predators of small chicks include Black

Rats Rattus rattus, the Water Rat Hydromys chrysogaster, introduced predators such as dog as well as other factors such as humans. Some evidence of the latter was found at burrow A40 where the chick had been crushed. It is probable that rats were responsible for the mutilation of a chick in burrow A29.

CHICK GROWTH

Chick growth from the data was used to determine the average growth rate of chicks up to 0.9 kgs. This was necessary for estimating birth dates which enabled better estimates of the fate of chicks that were not fully fledged when last recorded. Maximum rate of weight gain is reported to occur at 20 days with a slight lag in the first two days. After 20 days weight gain slows as the chicks approach mean adult weight (at approximately 30 days) and are fully fledged at approximately 56 days (Stahel & Gales, 1987). The marked decrease in growth for chicks over 20 days old in December 1990 indicated a shortage of food gathering capability in the adults. Some chicks during December were loosing body weight. The cause of this may have been abandonment by the adults or the adults were unable to find enough food to feed both themselves and their chicks.

MOULT

The bulk of the colony most likely moulted during January and February 1991. On West Island in particular there seemed to be a time lag in moult which reflected the longer chick rearing of some pairs when compared to birds on Granite Island. Klomp & Wooler (1988a,b) documented moult as early as December to February at Penguin Island WA and Reilly & Culley (1983) reported some birds finishing as late as June on Phillip Island Vic. (though the bulk of that population moulted between February and March (RAOU, 1990)). In most studies penguins take approximately two to three weeks to moult and are landbound at this time (Stahel & Gales, 1987; RAOU, 1990). The penguins in area B all started and completed moult in the 16 weeks between the 9/12/1990 and the 27/2/1991. In Areas A and C a few moulting birds were still present 4 and 5 weeks later. In Area C the late tending of chicks by some pairs (in January when all other penguins found were in moult), would have ensured a late start to their moult.

Moult is the period when birds are most often found in burrows other than the ones in which they breed. The generally higher numbers of burrows having been visited by more than two adults in Area C reflects this movement. Area C is more densely populated than the colonies on Granite Island. In Burrow B20, six moulting adults were recorded sharing the hole.

ADULT WEIGHTS

Figure 9 shows some trends for higher average weights during and after moult than during the breeding season. This is consistent with other research (RAOU, 1990). The general pattern is for weights to drop slightly below average during chick feeding. After a break at sea the birds will come in at weights around 2 kg, which is lost in the 2-3 weeks of moult. After another period at sea penguins return with around average weights (Stahel and Gales, 1987). This pattern explains the weight variations noted in this study.

SEXES

Measurements of bill depths highlighted gave a binomial frequency histogram. Two groups were apparent, one peaking at 13.6-14mm, the other at 12.1-12.5mm. The literature indicates that males generally have the bigger beaks and that this can be used to confidently predict the sex of many birds (Stahel & Gales, 1987). Other reports tabling sexual differences (RAOU, 1990) imply that predictive value of any one sexual dimorphic feature varies with populations. A study by Kinsky & Falla (1976) of skins from all areas of Australia showed

ranges in males and females bill depths completely overlapped whilst averages for both varied by 0.6mm. However individual colonies generally exhibit a more marked dimorphism (RAOU, 1990). The sexing of adults in this study was based on these external features and as thus cannot be used to assess the predictive value of sexing the Encounter Bay population by bill depth.

PENGUIN COUNTS

The proportion of penguins on land on the night of the 8/12/1990 represents chicks and their parents and adults which had not yet gone further out to sea for the intense pre-moult feeding period. It is unlikely that the whole population is resident on the island at any one time. Penguin numbers for the north shore of Granite Island recorded by Boulter (pers. comm.) during moult in late January were more than double the numbers found at any other time of the year. In peak breeding season (September-November), penguin number averages were half of that in January (moult). This implies that during peak breeding months about half of the population are onshore by day whilst the mate is at sea gathering food. At night when the mate returns the population would presumably double. It is not known what percentage of birds which have finished breeding still return to the colony at night. This has the potential to greatly affect total population estimates based on the count on the 8/12/1990 when only 14 birds were counted during the day. The overall population estimate was considered fairly low when compared with the active burrows recorded in September.

Given the number of burrows recorded as active (ie. 541 burrows) during peak breeding season when 70% of the breeding population would be coming ashore to tend to eggs or chicks, the likely population of resident penguins would be in the order of 1000 to 1500 birds. The 1990 penguin count took place on the evening of the 8th December and recorded 535 penguin. At this time the numbers of chicks on Granite Island were about 30% of the levels recorded at the beginning of November and no eggs were present. The number counted need to be viewed in this context.

The number of penguins counted on West Island on 8/12/1990 was 1362. Over 2000 penguins had been banded on West Island during the one and a half years prior to this study, with recapture rates never exceeding 30%. From these recapture rates, the population on West Island was estimated to be between 5000 & 7000 (not accounting for births, deaths, or emigration and immigration). If one considers the 15% of banded birds lost from the population per year through disappearance or death (85% return rate for banded penguins on Phillip Island [Reilly & Balmford, 1975]), the population estimates are between 4250 to 6250.

From the search result of 1362 plus a further 200-300 missed during the search (given that 20% of prime penguin area was not searched, probably containing 200-300 penguins), the estimated 1600 on the 8/12/1990 represents about a third of the estimate derived from prior banding returns. This fraction of the population using the island on the 8/12/1990 compares with the estimated third of the Granite Island population coming ashore on that night.

On Wright Island 447 penguins were counted. Researchers estimated that they missed approximately 150 penguins due to inaccessible bushes. No estimate of the colony size on Wright Island can be made as no other information has been collected. If the same proportion of the colony was resident on 8/12/1990 as on the other two island the population would be comparable to that of Granite Island (Given the size of Write Island the author thinks this unlikely)

Based on these counts, previous banding and burrow counts plus the unstudied population on Pullen Island, the Encounter Bay penguin population is estimated to be in excess of 7000 penguins.

CONCLUSIONS

The results indicate that breeding success (raising chicks to fledging stage) is highest on West Island which is also the most populated and least disturbed island. The number of chicks fledged per pair was approximately double for Area C than the two areas on Granite Island. Whilst this reflects to some degree our burrow selection after mid season, this can be corrected for by looking at the percentage of chicks fledging in each area. A trend to higher fledging in areas of lesser disturbance was apparent. However, given the low numbers of clutches this trend could be coincidental, and should not be extrapolated as a general trend. Chick monitoring is likely to have recorded all successful chicks given that three months is required for egg incubation plus fledging (RAOU, 1990). Approximately 70% of the breeding activity is likely to have started before monitoring started. A high proportion of clutches which failed will therefore not be taken into account in the fledging chicks per pair analysis which found Areas: A=0.56; B=0.46; C=1.00.

Hatching rates of eggs recorded was significantly lower than the 60% recorded in other studies (Stahel & Gales, 1987). This is probably related to the fact that less than half the season was monitored, representing approximately 30% of clutches for the season. Comparison between Areas A, B, C showed marginally higher success in Area C from A with a much lower hatching rate in Area C which had the most eggs.

The breeding season lasted for 5 months, from late August to January with the bulk of activity occurring between September and November. Moult began sometime after 19/12/1990 and continued to 3/4/1991 on West Island with most of the population moulting during January and February 1991.

Chick weight gain declined markedly in December and January and the survival of many of these fledglings is doubtful. This either reflects a decline in food resource in the Encounter Bay region or the inexperience of late breeders which possibly laid a second clutch after failure of the first. Predation was evident on West Island by large sea birds which include Pacific Gulls, Ospreys and White Breasted Sea Eagles and by Rats and possibly humans on Granite Island (other introduced predators may also sporadically affect the population).

The results from the penguin search of 1362 for West Island, 541 for Granite Island and 447 for Wright Island in combination with other methods of estimating the populations give a combined population estimate of over 7000 penguins for the Encounter Bay Region (with West Island having approximately two thirds of the population).

RECOMMENDATIONS

Burrow Monitoring Program

To continue the monitoring program at least once a month throughout the year as commencement of the breeding season will vary. Visits every two to three weeks during the breeding season would improve predicting fledging success. Approximately 2 to 3 days are needed each trip if weighing and other measurements are to be continued.

Notes should be taken on development of chicks observed, and sex of adults recorded where females are observed shortly after egg laying (females have extended cloaca after egg laying [Stahel & Gales, 1987]). This will be useful for determining predictive value of measuring sexual dimorphic features such as bill depth.

Penguin Counts

Short thorough searches beginning 2 hours after dusk (as most penguins come ashore in the first two hours) would provide a good estimate of the percentage of the population which is coming ashore. This can be done on nights when the burrows are monitored on a monthly basis.

and compared with the daily counts Boulter is collecting. Adult penguin counts should be done on the same nights in the four monitoring sites in Area B, to establish the relationship between day numbers and night numbers and how they can be used to estimate total population. West Island could be similarly searched by the ABBBS penguin banding group.

Future Management

Management of Granite Island with respect to penguins would need to control movement of people around penguin breeding areas by day and generally in all areas by night. This would prevent the current chronic disturbance to both adults and chicks. Whilst in conservation terms the Little Penguin as a species does not seem threatened, it is in the long term interest of Victor Harbor that the colony is and is seen to be, by the public, managed properly. People visiting the Island by night should do so with the goal of viewing the wildlife with minimal disturbance in defined areas (at present large numbers of people wandering along the north shore hold up penguins attempting to cross the path to their burrows). The loss of burrows due to building activity could easily be compensated by the provision of artificial burrows provided the penguin access points out of the water are not cut off. The period directly after moult (in 1991 this was late February) would cause the least impact on penguins for building work to occur. If building took place at some other time birds would have to be removed to avoid their destruction.

REFERENCES

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APPENDIX 1.

DEPARTMENT OF ENVIRONMENT AND PLANNING
ENCOUNTER BAY PENGUIN STUDY 1990/91: PENGUIN.DAT - ADULT DATA REPORT

	BURROW	DIRECTION	DISTANCE	DATE	BAND	SEX	WT	BDEPTH	BLGTH	RECORD #
A1	321	NC	13.80	29/10/90	19055401	M	1.23	0.00	0.00	2
A1	321	NC	13.80	07/11/90	19055401	M	1.26	14.50	0.00	9
A1	321	NC	13.80	07/11/90	19055530	F	1.15	12.50	0.00	1
A1	321	NC	13.80	29/11/90	19055401	M	1.22	14.20	52.70	3
A1	321	NC	13.80	19/12/90		0	0.00	0.00	0.00	347
A1	321	NC	13.80	24/01/91		0	0.00	0.00	0.00	519
A1	321	NC	13.80	27/02/91		0	0.00	0.00	0.00	560
A1	321	NC	13.80	26/03/91	19055401	M	1.29	14.20	54.10	680
A1	321	NC	13.80	26/03/91	19055530	F	1.22	12.40	52.50	681
A10	0	ES	0.00	29/10/90	19055409		1.26	0.00	0.00	30
A10	0	ES	0.00	07/11/90		0	0.00	0.00	0.00	31
A10	0	ES	0.00	29/11/90		0	0.00	0.00	0.00	32
A10	0	ES	0.00	19/12/90		0	0.00	0.00	0.00	356
A10	0	ES	0.00	24/01/91		0	0.00	0.00	0.00	29
A10	0	ES	0.00	27/02/91		0	0.00	0.00	0.00	562
A10	0	ES	0.00	26/03/91		0	0.00	0.00	0.00	682
A11	190	SS	20.30	29/10/90		0	0.00	0.00	0.00	561
A11	190	SS	20.30	07/11/90		0	0.00	0.00	0.00	34
A11	190	SS	20.30	29/11/90		0	0.00	0.00	0.00	35
A11	190	SS	20.30	19/12/90		0	0.00	0.00	0.00	357
A11	190	SS	20.30	24/01/91		0	0.00	0.00	0.00	346
A11	190	SS	20.30	27/02/91		0	0.00	0.00	0.00	33
A11	190	SS	20.30	26/03/91		0	0.00	0.00	0.00	683
A12	198	SS	15.50	29/10/90	19055411		1.21	0.00	0.00	36
A12	198	SS	15.50	07/11/90	19055533		1.00	12.30	0.00	37
A12	198	SS	15.50	29/11/90		0	0.00	0.00	0.00	38
A12	198	SS	15.50	19/12/90		0	0.00	0.00	0.00	358
A12	198	SS	15.50	24/01/91		0	0.00	0.00	0.00	345
A12	198	SS	15.50	27/02/91		0	0.00	0.00	0.00	563
A12	198	SS	15.50	26/03/91		0	0.00	0.00	0.00	684
A13	232	SS	50.00	29/10/90		0	0.00	0.00	0.00	39
A13	232	SS	50.00	07/11/90		0	0.00	0.00	0.00	40
A13	232	SS	50.00	29/11/90		0	0.00	0.00	0.00	41
A13	232	SS	50.00	19/12/90		0	0.00	0.00	0.00	359
A13	232	SS	50.00	24/01/91		0	0.00	0.00	0.00	520
A13	232	SS	50.00	27/02/91		0	0.00	0.00	0.00	564
A13	232	SS	50.00	26/03/91		0	0.00	0.00	0.00	685
A14	250	SS	50.00	29/10/90	19055412		1.07	0.00	0.00	42
A14	250	SS	50.00	07/11/90		0	0.00	0.00	0.00	43
A14	250	SS	50.00	29/11/90	19055574		1.26	13.70	51.00	44
A14	250	SS	50.00	19/12/90		0	0.00	0.00	0.00	360
A14	250	SS	50.00	24/01/91		0	0.00	0.00	0.00	521
A14	250	SS	50.00	27/02/91		0	0.00	0.00	0.00	565
A14	250	SS	50.00	26/03/91		0	0.00	0.00	0.00	686
A15	258	SS	55.00	29/10/90		0	0.00	0.00	0.00	45
A15	258	SS	55.00	07/11/90		0	0.00	0.00	0.00	46
A15	258	SS	55.00	29/11/90		0	0.00	0.00	0.00	47
A15	258	SS	55.00	19/12/90		0	0.00	0.00	0.00	361

DEPARTMENT OF ENVIRONMENT AND PLANNING
ENCOUNTER BAY PENGUIN STUDY 1990/91: PENGUIN.DAT - ADULT DATA REPORT

BURROW	DIRECTION	DISTANCE	DATE	BAND	SEX	WT	BDEPTH	BLGTH	RECORD #
A15	258 SS	55.00	24/01/91	19049672	F	1.22	11.60	49.40	522
A15	258 SS	55.00	27/02/91		0	0.00	0.00	0.00	566
A15	258 SS	55.00	26/03/91		0	0.00	0.00	0.00	687
A16	153 EL	40.00	30/10/90	19055413		1.02	13.50	0.00	48
A16	153 EL	40.00	30/10/90	19055414	M	1.10	14.40	0.00	49
A16	153 EL	40.00	07/11/90		0	0.00	0.00	0.00	50
A16	153 EL	40.00	29/11/90		0	0.00	0.00	0.00	51
A16	153 EL	40.00	19/12/90		0	0.00	0.00	0.00	362
A16	153 EL	40.00	24/01/91	19049673	F	1.37	12.60	52.00	523
A16	153 EL	40.00	27/02/91		0	0.00	0.00	0.00	567
A16	153 EL	40.00	26/03/91		0	0.00	0.00	0.00	688
A17	154 EL	35.00	30/10/90	19055415	M	1.10	14.40	0.00	52
A17	154 EL	35.00	30/10/90	19055534	F	1.05	12.70	0.00	53
A17	154 EL	35.00	07/11/90		0	0.00	0.00	0.00	54
A17	154 EL	35.00	29/11/90		0	0.00	0.00	0.00	55
A17	154 EL	35.00	19/12/90		0	0.00	0.00	0.00	363
A17	154 EL	35.00	24/01/91		0	0.00	0.00	0.00	524
A17	154 EL	35.00	27/02/91		0	0.00	0.00	0.00	568
A17	154 EL	35.00	26/03/91		0	0.00	0.00	0.00	689
A18	163 EL	35.00	30/10/90	19055416	M	1.46	16.40	0.00	56
A18	163 EL	35.00	07/11/90	19055416	M	1.30	0.00	0.00	58
A18	163 EL	35.00	07/11/90	19055535	F	1.07	12.20	0.00	57
A18	163 EL	35.00	29/11/90		0	0.00	0.00	0.00	59
A18	163 EL	35.00	19/12/90		0	0.00	0.00	0.00	364
A18	163 EL	35.00	24/01/91		0	0.00	0.00	0.00	525
A18	163 EL	35.00	27/02/91		0	0.00	0.00	0.00	569
A18	163 EL	35.00	26/03/91		0	0.00	0.00	0.00	690
A19	162 EL	37.00	30/10/90	19055417	M	1.43	14.20	0.00	60
A19	162 EL	37.00	30/10/90	19055418	F	1.27	12.20	0.00	61
A19	162 EL	37.00	07/11/90		0	0.00	0.00	0.00	62
A19	162 EL	37.00	29/11/90		0	0.00	0.00	0.00	63
A19	162 EL	37.00	19/12/90		0	0.00	0.00	0.00	365
A19	162 EL	37.00	24/01/91		0	0.00	0.00	0.00	526
A19	162 EL	37.00	27/02/91		0	0.00	0.00	0.00	570
A19	162 EL	37.00	26/03/91		0	0.00	0.00	0.00	691
A2	43 NC	12.20	29/10/90	19055402	M	1.32	14.30	0.00	4
A2	43 NC	12.20	07/11/90	19055402		1.41	14.30	0.00	14
A2	43 NC	12.20	29/11/90		0	0.00	0.00	0.00	10
A2	43 NC	12.20	19/12/90		0	0.00	0.00	0.00	348
A2	43 NC	12.20	24/01/91		0	0.00	0.00	0.00	527
A2	43 NC	12.20	27/02/91		0	0.00	0.00	0.00	571
A2	43 NC	12.20	26/03/91	19049684	F	1.09	11.30	49.00	693
A2	43 NC	12.20	26/03/91	19055402	M	1.22	14.00	53.00	692
A20	170 EL	40.00	30/10/90	19055419		1.10	0.00	0.00	64
A20	170 EL	40.00	07/11/90		0	0.00	0.00	0.00	65
A20	170 EL	40.00	29/11/90		0	0.00	0.00	0.00	66
A20	170 EL	40.00	19/12/90		0	0.00	0.00	0.00	366
A20	170 EL	40.00	24/01/91		0	0.00	0.00	0.00	528

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A20	170 EL	40.00	27/02/91		0	0.00	0.00	0.00	572
A20	170 EL	40.00	26/03/91		0	0.00	0.00	0.00	694
A21	232 SL	30.00	30/10/90	19055420	F	1.16	12.50	0.00	67
A21	232 SL	30.00	07/11/90	19055420	F	1.12	0.00	0.00	68
A21	232 SL	30.00	29/11/90		0	0.00	0.00	0.00	69
A21	232 SL	30.00	19/12/90		0	0.00	0.00	0.00	367
A21	232 SL	30.00	24/01/91		0	0.00	0.00	0.00	529
A21	232 SL	30.00	27/02/91		0	0.00	0.00	0.00	573
A21	232 SL	30.00	26/03/91		0	0.00	0.00	0.00	695
A22	111 SR	20.30	30/10/90	19029684	F	1.32	12.90	0.00	70
A22	111 SR	20.30	07/11/90		0	0.00	0.00	0.00	71
A22	111 SR	20.30	29/11/90		0	0.00	0.00	0.00	72
A22	111 SR	20.30	19/12/90		0	0.00	0.00	0.00	368
A22	111 SR	20.30	24/01/91		0	0.00	0.00	0.00	530
A22	111 SR	20.30	27/02/91		0	0.00	0.00	0.00	574
A22	111 SR	20.30	26/03/91	19029684	F	1.69	12.10	52.00	696
A22	111 SR	20.30	26/03/91	19049685	M	1.30	13.70	50.00	697
A23	100 SR	11.40	30/10/90	19055421	M	1.12	13.80	0.00	73
A23	100 SR	11.40	30/10/90	19055422	F	1.03	12.00	0.00	74
A23	100 SR	11.40	07/11/90	19055536	M	1.24	14.50	0.00	75
A23	100 SR	11.40	29/11/90		0	0.00	0.00	0.00	76
A23	100 SR	11.40	19/12/90		0	0.00	0.00	0.00	369
A23	100 SR	11.40	24/01/91	19049674	M	1.37	14.00	56.50	532
A23	100 SR	11.40	24/01/91	19049675	F	1.85	11.80	50.40	531
A23	100 SR	11.40	27/02/91		0	0.00	0.00	0.00	575
A23	100 SR	11.40	26/03/91		0	0.00	0.00	0.00	698
A24	291 SR	11.70	30/10/90	19055423	M	1.34	13.90	0.00	77
A24	291 SR	11.70	07/11/90	19055537	F	1.18	11.50	0.00	78
A24	291 SR	11.70	29/11/90	19055423	M	1.06	14.00	52.00	79
A24	291 SR	11.70	19/12/90		0	0.00	0.00	0.00	370
A24	291 SR	11.70	24/01/91		0	0.00	0.00	0.00	533
A24	291 SR	11.70	27/02/91		0	0.00	0.00	0.00	576
A24	291 SR	11.70	26/03/91		0	0.00	0.00	0.00	699
A25	295 SR	19.00	30/10/90	19055424	F	1.24	12.20	0.00	80
A25	295 SR	19.00	07/11/90	19055538	M	1.27	14.40	0.00	81
A25	295 SR	19.00	29/11/90		0	0.00	0.00	0.00	82
A25	295 SR	19.00	19/12/90		0	0.00	0.00	0.00	371
A25	295 SR	19.00	24/01/91		0	0.00	0.00	0.00	534
A25	295 SR	19.00	27/02/91		0	0.00	0.00	0.00	577
A25	295 SR	19.00	26/03/91		0	0.00	0.00	0.00	700
A26	180 TR	40.00	30/10/90	19055425	F	1.28	12.30	0.00	83
A26	180 TR	40.00	07/11/90	19055539	F	1.28	12.30	0.00	84
A26	180 TR	40.00	29/11/90		0	0.00	0.00	0.00	85
A26	180 TR	40.00	19/12/90		0	0.00	0.00	0.00	372
A26	180 TR	40.00	24/01/91	19049676	F	1.34	11.00	52.00	703
A26	180 TR	40.00	24/01/91	19055540	M	1.76	13.40	56.00	535
A26	180 TR	40.00	27/02/91		0	0.00	0.00	0.00	578
A26	180 TR	40.00	26/03/91		0	0.00	0.00	0.00	702

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A27	189 TR	37.00	30/10/90	19055426	F	1.01	12.50	0.00	86
A27	189 TR	37.00	07/11/90	19055540	M	1.36	13.70	0.00	87
A27	189 TR	37.00	29/11/90		O	0.00	0.00	0.00	88
A27	189 TR	37.00	19/12/90		O	0.00	0.00	0.00	373
A27	189 TR	37.00	24/01/91		O	0.00	0.00	0.00	536
A27	189 TR	37.00	27/02/91		O	0.00	0.00	0.00	579
A27	189 TR	37.00	26/03/91	19049676	F	1.12	11.70	51.50	704
A27	189 TR	37.00	26/03/91	19049686	M	1.21	13.60	52.00	701
A28	203 TR	35.00	30/10/90		O	0.00	0.00	0.00	89
A28	203 TR	35.00	07/11/90		O	0.00	0.00	0.00	90
A28	203 TR	35.00	29/11/90		O	0.00	0.00	0.00	91
A28	203 TR	35.00	19/12/90		O	0.00	0.00	0.00	374
A28	203 TR	35.00	24/01/91		O	0.00	0.00	0.00	537
A28	203 TR	35.00	27/02/91		O	0.00	0.00	0.00	580
A28	203 TR	35.00	26/03/91		O	0.00	0.00	0.00	705
A29	217 TR	30.00	30/10/90		O	0.00	0.00	0.00	92
A29	217 TR	30.00	07/11/90	19055541		0.00	0.00	0.00	93
A29	217 TR	30.00	29/11/90		O	0.00	0.00	0.00	94
A29	217 TR	30.00	19/12/90		O	0.00	0.00	0.00	376
A29	217 TR	30.00	24/01/91		O	0.00	0.00	0.00	375
A29	217 TR	30.00	27/02/91	11111111		0.00	0.00	0.00	582
A29	217 TR	30.00	26/03/91	19055541		1.15	12.50	50.00	706
A3	60 NC	14.30	29/10/90		O	0.00	0.00	0.00	13
A3	60 NC	14.30	07/11/90		O	0.00	0.00	0.00	5
A3	60 NC	14.30	29/11/90		O	0.00	0.00	0.00	11
A3	60 NC	14.30	19/12/90		O	0.00	0.00	0.00	349
A3	60 NC	14.30	24/01/91		O	0.00	0.00	0.00	538
A3	60 NC	14.30	27/02/91		O	0.00	0.00	0.00	581
A3	60 NC	14.30	26/03/91		O	0.00	0.00	0.00	707
A30	222 TR	32.00	30/10/90	19055427	M	1.07	15.00	0.00	95
A30	222 TR	32.00	07/11/90	19055427	M	1.16	0.00	0.00	96
A30	222 TR	32.00	29/11/90		O	0.00	0.00	0.00	97
A30	222 TR	32.00	19/12/90		O	0.00	0.00	0.00	377
A30	222 TR	32.00	24/01/91	19049677	F	1.27	12.40	56.40	539
A30	222 TR	32.00	27/02/91		O	0.00	0.00	0.00	583
A30	222 TR	32.00	26/03/91	19055427	M	1.39	15.00	55.00	708
A31	244 TR	40.00	07/11/90		O	0.00	0.00	0.00	99
A31	244 TR	40.00	29/11/90		O	0.00	0.00	0.00	100
A31	244 TR	40.00	30/11/90		O	0.00	0.00	0.00	98
A31	244 TR	40.00	19/12/90		O	0.00	0.00	0.00	378
A31	244 TR	40.00	24/01/91		O	0.00	0.00	0.00	540
A31	244 TR	40.00	27/02/91		O	0.00	0.00	0.00	584
A31	244 TR	40.00	26/03/91	19049687	F	1.14	12.40	55.00	709
A32	246 TR	40.00	30/10/90	19055428	F	1.05	12.00	0.00	101
A32	246 TR	40.00	07/11/90		O	0.00	0.00	0.00	102
A32	246 TR	40.00	29/11/90		O	0.00	0.00	0.00	103
A32	246 TR	40.00	19/12/90		O	0.00	0.00	0.00	379
A32	246 TR	40.00	24/01/91	19049678	M	1.47	13.60	50.20	541

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A32	246 TR	40.00	24/01/91	19049679	F	1.26	11.80	50.00	542
A32	246 TR	40.00	27/02/91		0	0.00	0.00	0.00	585
A32	246 TR	40.00	26/03/91		0	0.00	0.00	0.00	710
A33	241 TR	40.00	30/10/90	19055429	M	1.06	13.90	0.00	104
A33	241 TR	40.00	07/11/90	19055429	M	1.00	0.00	0.00	105
A33	241 TR	40.00	29/11/90		0	0.00	0.00	0.00	106
A33	241 TR	40.00	19/12/90		0	0.00	0.00	0.00	380
A33	241 TR	40.00	24/01/91		0	0.00	0.00	0.00	543
A33	241 TR	40.00	27/02/91		0	0.00	0.00	0.00	586
A33	241 TR	40.00	26/03/91		0	0.00	0.00	0.00	711
A34	259 TR	60.00	30/10/90		0	0.00	0.00	0.00	107
A34	259 TR	60.00	07/11/90		0	0.00	0.00	0.00	108
A34	259 TR	60.00	29/11/90		0	0.00	0.00	0.00	109
A34	259 TR	60.00	19/12/90		0	0.00	0.00	0.00	381
A34	259 TR	60.00	24/01/91	19049681	M	1.43	14.30	54.50	544
A34	259 TR	60.00	24/01/91	19049682	F	1.11	12.50	48.30	545
A34	259 TR	60.00	27/02/91		0	0.00	0.00	0.00	587
A34	259 TR	60.00	26/03/91	19049681	M	1.13	14.00	54.50	712
A34	259 TR	60.00	26/03/91	19049682	F	0.93	12.00	49.00	713
A35	261 TR	60.00	30/10/90	19055431		1.05	12.60	0.00	110
A35	261 TR	60.00	07/11/90		0	0.00	0.00	0.00	111
A35	261 TR	60.00	29/11/90		0	0.00	0.00	0.00	112
A35	261 TR	60.00	19/12/90		0	0.00	0.00	0.00	382
A35	261 TR	60.00	24/01/91		0	0.00	0.00	0.00	546
A35	261 TR	60.00	27/02/91		0	0.00	0.00	0.00	588
A35	261 TR	60.00	26/03/91		0	0.00	0.00	0.00	714
A36	265 TR	60.00	30/10/90		0	0.00	0.00	0.00	113
A36	265 TR	60.00	07/11/90	19055544	F	1.08	12.20	0.00	114
A36	265 TR	60.00	29/11/90		0	0.00	0.00	0.00	115
A36	265 TR	60.00	19/12/90		0	0.00	0.00	0.00	383
A36	265 TR	60.00	24/01/91	19049680	M	1.02	13.60	52.00	547
A36	265 TR	60.00	24/01/91	19055544	F	1.39	12.30	53.70	548
A36	265 TR	60.00	27/02/91		0	0.00	0.00	0.00	589
A36	265 TR	60.00	26/03/91	19049680	M	1.15	14.20	56.00	715
A37	170 NP	60.00	30/10/90	19055434		1.05	12.60	0.00	116
A37	170 NP	60.00	07/11/90	19055434		1.08	0.00	0.00	117
A37	170 NP	60.00	29/11/90		0	0.00	0.00	0.00	118
A37	170 NP	60.00	19/12/90		0	0.00	0.00	0.00	384
A37	170 NP	60.00	24/01/91		0	0.00	0.00	0.00	549
A37	170 NP	60.00	27/02/91		0	0.00	0.00	0.00	590
A37	170 NP	60.00	26/03/91		0	0.00	0.00	0.00	716
A38	206 NC	9.60	30/10/90	19055435		1.18	13.10	0.00	119
A38	206 NC	9.60	07/11/90	19055435		1.08	0.00	0.00	120
A38	206 NC	9.60	29/11/90		0	0.00	0.00	0.00	121
A38	206 NC	9.60	19/12/90		0	0.00	0.00	0.00	385
A38	206 NC	9.60	24/01/91		0	0.00	0.00	0.00	550
A38	206 NC	9.60	27/02/91		0	0.00	0.00	0.00	591
A38	206 NC	9.60	26/03/91		0	0.00	0.00	0.00	717

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A39	70 PR	6.50	30/10/90	19055436	F	1.44	12.90	0.00	122
A39	70 PR	6.50	30/10/90	19055437	M	1.35	13.80	0.00	123
A39	70 PR	6.50	07/11/90	0		0.00	0.00	0.00	124
A39	70 PR	6.50	29/11/90	0		0.00	0.00	0.00	125
A39	70 PR	6.50	19/12/90	0		0.00	0.00	0.00	386
A39	70 PR	6.50	24/01/91	19055436	F	1.29	12.50	52.80	551
A39	70 PR	6.50	24/01/91	19055437	M	1.25	13.00	50.40	552
A39	70 PR	6.50	27/02/91	0		0.00	0.00	0.00	592
A39	70 PR	6.50	26/03/91	0		0.00	0.00	0.00	718
A4	60 EC	9.60	29/10/90	19055403		1.03	0.00	0.00	7
A4	60 EC	9.60	07/11/90	19055531	M	1.15	14.40	0.00	8
A4	60 EC	9.60	29/11/90	0		0.00	0.00	0.00	12
A4	60 EC	9.60	19/12/90	0		0.00	0.00	0.00	350
A4	60 EC	9.60	24/01/91	0		0.00	0.00	0.00	553
A4	60 EC	9.60	27/02/91	0		0.00	0.00	0.00	593
A4	60 EC	9.60	26/03/91	0		0.00	0.00	0.00	719
A40	207 PR	12.30	30/10/90	19055438	M	1.18	15.00	0.00	126
A40	207 PR	12.30	07/11/90	0		0.00	0.00	0.00	127
A40	207 PR	12.30	29/11/90	0		0.00	0.00	0.00	128
A40	207 PR	12.30	19/12/90	0		0.00	0.00	0.00	387
A40	207 PR	12.30	24/01/91	0		0.00	0.00	0.00	554
A40	207 PR	12.30	27/02/91	0		0.00	0.00	0.00	594
A40	207 PR	12.30	26/03/91	0		0.00	0.00	0.00	720
A5	62 EC	11.60	29/10/90	19055404		1.24	0.00	0.00	6
A5	62 EC	11.60	07/11/90	0		0.00	0.00	0.00	15
A5	62 EC	11.60	29/11/90	0		0.00	0.00	0.00	16
A5	62 EC	11.60	19/12/90	0		0.00	0.00	0.00	351
A5	62 EC	11.60	24/01/91	0		0.00	0.00	0.00	555
A5	62 EC	11.60	27/02/91	0		0.00	0.00	0.00	595
A5	62 EC	11.60	26/03/91	0		0.00	0.00	0.00	721
A6	123 PR	9.20	29/10/90	19055405		1.26	0.00	0.00	17
A6	123 PR	9.20	07/11/90	19055405		1.21	14.00	0.00	18
A6	123 PR	9.20	29/11/90	0		0.00	0.00	0.00	19
A6	123 PR	9.20	19/12/90	0		0.00	0.00	0.00	352
A6	123 PR	9.20	24/01/91	0		0.00	0.00	0.00	556
A6	123 PR	9.20	27/02/91	0		0.00	0.00	0.00	596
A6	123 PR	9.20	26/03/91	0		0.00	0.00	0.00	722
A7	152 PR	3.60	29/10/90	19055406		1.28	0.00	0.00	20
A7	152 PR	3.60	07/11/90	19055532		1.07	12.40	0.00	21
A7	152 PR	3.60	29/11/90	0		0.00	0.00	0.00	22
A7	152 PR	3.60	19/12/90	0		0.00	0.00	0.00	353
A7	152 PR	3.60	24/01/91	0		0.00	0.00	0.00	557
A7	152 PR	3.60	27/02/91	0		0.00	0.00	0.00	723
A7	152 PR	3.60	26/03/91	0		0.00	0.00	0.00	724
A8	281 ES	10.60	29/10/90	19055407		0.97	0.00	0.00	23
A8	281 ES	10.60	07/11/90	19055407		0.92	11.80	0.00	24
A8	281 ES	10.60	29/11/90	0		0.00	0.00	0.00	25
A8	281 ES	10.60	19/12/90	0		0.00	0.00	0.00	354

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A8	281 ES	10.60	24/01/91		0	0.00	0.00	0.00	558
A8	281 ES	10.60	27/02/91		0	0.00	0.00	0.00	597
A8	281 ES	10.60	26/03/91		0	0.00	0.00	0.00	725
A9	280 ES	6.80	29/10/90	19055408	1.02	0.00	0.00	0.00	26
A9	280 ES	6.80	07/11/90		0	0.00	0.00	0.00	27
A9	280 ES	6.80	29/11/90		0	0.00	0.00	0.00	28
A9	280 ES	6.80	19/12/90		0	0.00	0.00	0.00	355
A9	280 ES	6.80	24/01/91		0	0.00	0.00	0.00	559
A9	280 ES	6.80	27/02/91		0	0.00	0.00	0.00	598
A9	280 ES	6.80	26/03/91		0	0.00	0.00	0.00	726
B1	66 B1	21.10	31/10/90	19055439	M	1.16	15.90	0.00	437
B1	66 B1	21.10	29/11/90		0	0.00	0.00	0.00	130
B1	66 B1	21.10	19/12/90		0	0.00	0.00	0.00	388
B1	66 B1	21.10	17/01/91	19049658	M	1.61	14.20	54.80	129
B1	66 B1	21.10	27/02/91		0	0.00	0.00	0.00	599
B1	66 B1	21.10	03/04/91		0	0.00	0.00	0.00	727
B10	235 B1	35.50	31/10/90	19055450	F	0.99	12.00	0.00	149
B10	235 B1	35.50	29/11/90		0	0.00	0.00	0.00	150
B10	235 B1	35.50	19/12/90		0	0.00	0.00	0.00	438
B10	235 B1	35.50	17/01/91		0	0.00	0.00	0.00	389
B10	235 B1	35.50	27/02/91		0	0.00	0.00	0.00	600
B10	235 B1	35.50	03/04/91	19051105	M	1.34	14.50	54.00	729
B10	235 B1	35.50	03/04/91	19055450	F	1.07	12.00	54.00	728
B11	87 B2	4.70	31/10/90	19055451	F	1.01	11.90	0.00	151
B11	87 B2	4.70	29/11/90		0	0.00	0.00	0.00	152
B11	87 B2	4.70	19/12/90		0	0.00	0.00	0.00	439
B11	87 B2	4.70	17/01/91	19049667	M	1.81	14.80	52.00	390
B11	87 B2	4.70	27/02/91		0	0.00	0.00	0.00	731
B11	87 B2	4.70	03/04/91		0	0.00	0.00	0.00	730
B12	198 B2	7.20	31/10/90	19055452		1.16	0.00	0.00	153
B12	198 B2	7.20	31/10/90	19055453		1.07	0.00	0.00	154
B12	198 B2	7.20	29/11/90		0	0.00	0.00	0.00	440
B12	198 B2	7.20	19/12/90		0	0.00	0.00	0.00	391
B12	198 B2	7.20	17/01/91	19049668	F	0.81	11.80	52.00	155
B12	198 B2	7.20	27/02/91		0	0.00	0.00	0.00	601
B12	198 B2	7.20	03/04/91		0	0.00	0.00	0.00	732
B13	359 B2	16.90	31/10/90	19055454		1.17	13.60	0.00	156
B13	359 B2	16.90	29/11/90		0	0.00	0.00	0.00	157
B13	359 B2	16.90	19/12/90		0	0.00	0.00	0.00	441
B13	359 B2	16.90	17/01/91		0	0.00	0.00	0.00	392
B13	359 B2	16.90	27/02/91		0	0.00	0.00	0.00	602
B13	359 B2	16.90	03/04/91		0	0.00	0.00	0.00	733
B14	337 B2	17.00	31/10/90	19055455	F	0.96	12.20	0.00	158
B14	337 B2	17.00	29/11/90		0	0.00	0.00	0.00	442
B14	337 B2	17.00	19/12/90		0	0.00	0.00	0.00	393
B14	337 B2	17.00	17/01/91	19049659	M	1.66	14.80	56.40	159
B14	337 B2	17.00	27/02/91		0	0.00	0.00	0.00	603
B14	337 B2	17.00	03/04/91		0	0.00	0.00	0.00	734

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B15	331 B2	18.30	31/10/90	19055456	F	1.26	10.90	0.00	160
B15	331 B2	18.30	29/11/90		O	0.00	0.00	0.00	443
B15	331 B2	18.30	19/12/90		O	0.00	0.00	0.00	394
B15	331 B2	18.30	17/01/91		O	0.00	0.00	0.00	161
B15	331 B2	18.30	27/02/91		O	0.00	0.00	0.00	604
B15	331 B2	18.30	03/04/91	19051106		1.14	12.70	52.00	735
B15	331 B2	18.30	03/04/91	19051107	F	1.00	11.90	52.00	737
B16	321 B2	14.80	31/10/90	19055457	M	1.12	15.50	0.00	162
B16	321 B2	14.80	29/11/90		O	0.00	0.00	0.00	444
B16	321 B2	14.80	19/12/90		O	0.00	0.00	0.00	395
B16	321 B2	14.80	17/01/91		O	0.00	0.00	0.00	163
B16	321 B2	14.80	27/02/91		O	0.00	0.00	0.00	605
B16	321 B2	14.80	03/04/91		O	0.00	0.00	0.00	736
B17	314 B2	16.10	31/10/90	19055458	M	1.22	14.30	0.00	445
B17	314 B2	16.10	29/11/90		O	0.00	0.00	0.00	165
B17	314 B2	16.10	19/12/90		O	0.00	0.00	0.00	396
B17	314 B2	16.10	17/01/91	19055458	M	1.69	14.00	55.70	164
B17	314 B2	16.10	27/02/91		O	0.00	0.00	0.00	606
B17	314 B2	16.10	03/04/91		O	0.00	0.00	0.00	738
B18	307 B2	16.80	31/10/90		O	0.00	0.00	0.00	446
B18	307 B2	16.80	29/11/90		O	0.00	0.00	0.00	167
B18	307 B2	16.80	19/12/90		O	0.00	0.00	0.00	397
B18	307 B2	16.80	17/01/91		O	0.00	0.00	0.00	166
B18	307 B2	16.80	27/02/91		O	0.00	0.00	0.00	607
B18	307 B2	16.80	03/04/91		O	0.00	0.00	0.00	739
B19	306 B2	10.80	31/10/90		O	0.00	0.00	0.00	447
B19	306 B2	10.80	29/11/90		O	0.00	0.00	0.00	169
B19	306 B2	10.80	19/12/90		O	0.00	0.00	0.00	399
B19	306 B2	10.80	17/01/91	19049660	F	1.64	12.20	54.00	168
B19	306 B2	10.80	27/02/91		O	0.00	0.00	0.00	608
B19	306 B2	10.80	03/04/91	19051108		1.13	13.10	56.00	740
B19	306 B2	10.80	03/04/91	19051109	M	1.07	13.90	52.00	741
B2	46 B1	21.00	31/10/90	19055440	M	1.30	15.20	0.00	131
B2	46 B1	21.00	29/11/90	19055557	F	1.05	10.90	51.70	132
B2	46 B1	21.00	19/12/90		O	0.00	0.00	0.00	398
B2	46 B1	21.00	17/01/91		O	0.00	0.00	0.00	400
B2	46 B1	21.00	27/02/91		O	0.00	0.00	0.00	609
B2	46 B1	21.00	03/04/91		O	0.00	0.00	0.00	742
B20	302 B2	10.80	31/10/90	19055460	M	1.45	15.20	0.00	170
B20	302 B2	10.80	29/11/90		O	0.00	0.00	0.00	448
B20	302 B2	10.80	19/12/90		O	0.00	0.00	0.00	401
B20	302 B2	10.80	17/01/91	19049661	F	1.19	12.00	51.00	171
B20	302 B2	10.80	17/01/91	19049662		1.07	13.30	52.00	430
B20	302 B2	10.80	17/01/91	19049663	F	1.59	11.80	50.00	431
B20	302 B2	10.80	17/01/91	19049664	F	1.06	11.40	52.00	432
B20	302 B2	10.80	17/01/91	19049665	F	1.11	11.70	51.20	433
B20	302 B2	10.80	17/01/91	19049666	F	1.45	11.80	50.00	434
B20	302 B2	10.80	27/02/91		O	0.00	0.00	0.00	610

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B20	302	B2	10.80	03/04/91		0	0.00	0.00	0.00	743
B21	80	B3	4.30	31/10/90	19055461	F	0.97	12.50	0.00	172
B21	80	B2	4.30	29/11/90		0	0.00	0.00	0.00	173
B21	80	B2	4.30	19/12/90		0	0.00	0.00	0.00	402
B21	80	B3	4.30	17/01/91	19049670	M	1.52	14.00	51.50	435
B21	80	B3	4.30	17/01/91	19055461	F	0.99	12.30	50.00	449
B21	80	B3	4.30	27/02/91		0	0.00	0.00	0.00	611
B21	80	B3	4.30	03/04/91		0	0.00	0.00	0.00	744
B22	260	B3	48.30	31/10/90	19055462		1.14	12.70	0.00	174
B22	260	B3	48.30	29/11/90		0	0.00	0.00	0.00	403
B22	260	B3	48.30	19/12/90		0	0.00	0.00	0.00	450
B22	260	B3	48.30	17/01/91		0	0.00	0.00	0.00	404
B22	260	B3	48.30	27/02/91		0	0.00	0.00	0.00	612
B22	260	B3	48.30	03/04/91		0	0.00	0.00	0.00	745
B23	259	B3	48.00	31/10/90	19055463	M	1.34	14.80	0.00	175
B23	259	B3	48.00	29/11/90		0	0.00	0.00	0.00	176
B23	259	B3	48.00	19/12/90		0	0.00	0.00	0.00	451
B23	259	B3	48.00	17/01/91		0	0.00	0.00	0.00	405
B23	259	B3	48.00	27/02/91		0	0.00	0.00	0.00	613
B23	259	B3	48.00	03/04/91		0	0.00	0.00	0.00	746
B24	243	B3	22.00	31/10/90	19055464	F	1.08	12.00	0.00	177
B24	243	B3	22.00	29/11/90		0	0.00	0.00	0.00	178
B24	243	B3	22.00	19/12/90		0	0.00	0.00	0.00	452
B24	243	B3	22.00	17/01/91		0	0.00	0.00	0.00	406
B24	243	B3	22.00	27/02/91		0	0.00	0.00	0.00	614
B24	243	B3	22.00	03/04/91		0	0.00	0.00	0.00	747
B25	244	B3	20.30	31/10/90	19055465		0.94	12.60	0.00	179
B25	244	B3	20.30	29/11/90		0	0.00	0.00	0.00	180
B25	244	B3	20.30	19/12/90		0	0.00	0.00	0.00	453
B25	244	B3	20.30	17/01/91		0	0.00	0.00	0.00	407
B25	244	B3	20.30	27/02/91		0	0.00	0.00	0.00	615
B25	244	B3	20.30	03/04/91		0	0.00	0.00	0.00	748
B26	231	B3	23.50	31/10/90		0	0.00	0.00	0.00	181
B26	231	B3	23.50	29/11/90		0	0.00	0.00	0.00	182
B26	231	B3	23.50	19/12/90		0	0.00	0.00	0.00	454
B26	231	B3	23.50	17/01/91		0	0.00	0.00	0.00	408
B26	231	B3	23.50	27/02/91		0	0.00	0.00	0.00	616
B26	231	B3	23.50	03/04/91		0	0.00	0.00	0.00	749
B27	215	B3	15.00	31/10/90	19055466		1.23	12.70	0.00	183
B27	215	B3	15.00	29/11/90		0	0.00	0.00	0.00	184
B27	215	B3	15.00	19/12/90		0	0.00	0.00	0.00	455
B27	215	B3	15.00	17/01/91		0	0.00	0.00	0.00	409
B27	215	B3	15.00	27/02/91		0	0.00	0.00	0.00	617
B27	215	B3	15.00	03/04/91		0	0.00	0.00	0.00	750
B28	216	B3	12.40	31/10/90	19055467		1.27	12.50	0.00	185
B28	216	B3	12.40	29/11/90		0	0.00	0.00	0.00	186
B28	216	B3	12.40	19/12/90		0	0.00	0.00	0.00	456
B28	216	B3	12.40	17/01/91		0	0.00	0.00	0.00	410

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B28	216	B3	12.40	27/02/91		0	0.00	0.00	0.00	618
B28	216	B3	12.40	03/04/91	19051110	F	1.03	12.10	52.00	751
B29	205	B3	6.60	31/10/90		0	0.00	0.00	0.00	187
B29	205	B3	6.60	29/11/90		0	0.00	0.00	0.00	188
B29	205	B3	6.60	19/12/90		0	0.00	0.00	0.00	457
B29	205	B3	6.60	17/01/91	19055669		1.04	13.30	56.40	411
B29	205	B3	6.60	27/02/91		0	0.00	0.00	0.00	619
B29	205	B3	6.60	03/04/91		0	0.00	0.00	0.00	752
B3	73	B1	27.00	31/10/90	19055441	F	1.16	11.70	0.00	133
B3	73	B1	27.00	29/11/90		0	0.00	0.00	0.00	134
B3	73	B1	27.00	19/12/90		0	0.00	0.00	0.00	458
B3	73	B1	27.00	17/01/91		0	0.00	0.00	0.00	412
B3	73	B1	27.00	27/02/91		0	0.00	0.00	0.00	620
B3	73	B1	27.00	03/04/91		0	0.00	0.00	0.00	753
B30	154	B3	15.00	31/10/90	19029695	M	1.49	13.90	0.00	460
B30	154	B3	15.00	31/10/90	19055468	F	1.11	13.50	0.00	459
B30	154	B3	15.00	29/11/90		0	0.00	0.00	0.00	191
B30	154	B3	15.00	19/12/90		0	0.00	0.00	0.00	413
B30	154	B3	15.00	17/01/91	19029695	M	1.09	13.50	52.00	190
B30	154	B3	15.00	17/01/91	19055468	F	1.10	13.00	51.00	189
B30	154	B3	15.00	27/02/91		0	0.00	0.00	0.00	621
B30	154	B3	15.00	03/04/91		0	0.00	0.00	0.00	754
B31	97	B4	21.00	07/11/90	19055515	F	1.07	11.80	0.00	192
B31	97	B4	21.00	07/11/90	19055516	M	1.09	13.60	0.00	193
B31	97	B4	21.00	29/11/90		0	0.00	0.00	0.00	194
B31	97	B4	21.00	19/12/90		0	0.00	0.00	0.00	461
B31	97	B4	21.00	17/01/91		0	0.00	0.00	0.00	414
B31	97	B4	21.00	27/02/91		0	0.00	0.00	0.00	622
B31	97	B4	21.00	03/04/91		0	0.00	0.00	0.00	755
B32	87	B4	12.50	07/11/90	19055518	M	1.16	14.60	0.00	195
B32	87	B4	12.50	29/11/90		0	0.00	0.00	0.00	196
B32	87	B4	12.50	19/12/90		0	0.00	0.00	0.00	462
B32	87	B4	12.50	17/01/91		0	0.00	0.00	0.00	415
B32	87	B4	12.50	27/02/91		0	0.00	0.00	0.00	623
B32	87	B4	12.50	03/04/91	19051111	M	1.28	14.80	56.00	756
B33	107	B4	11.70	07/11/90		0	0.00	0.00	0.00	197
B33	107	B4	11.70	29/11/90		0	0.00	0.00	0.00	198
B33	107	B4	11.70	19/12/90		0	0.00	0.00	0.00	463
B33	107	B4	11.70	17/01/91		0	0.00	0.00	0.00	416
B33	107	B4	11.70	27/02/91		0	0.00	0.00	0.00	624
B33	107	B4	11.70	03/04/91		0	0.00	0.00	0.00	757
B34	24	B4	6.60	07/11/90	19055520	M	1.05	14.50	0.00	199
B34	24	B4	6.60	29/11/90	19055562	F	1.02	12.50	55.60	200
B34	24	B4	6.60	19/12/90		0	0.00	0.00	0.00	464
B34	24	B4	6.60	17/01/91		0	0.00	0.00	0.00	417
B34	24	B4	6.60	27/02/91		0	0.00	0.00	0.00	625
B34	24	B4	6.60	03/04/91		0	0.00	0.00	0.00	758
B35	128	B4	1.70	07/11/90	19055521	F	1.03	13.30	0.00	201

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B35	128 B4	1.70	07/11/90	19055522	M	1.17	14.20	0.00	202
B35	128 B4	1.70	29/11/90	19055522	M	1.11	14.50	50.30	203
B35	128 B4	1.70	19/12/90		O	0.00	0.00	0.00	465
B35	128 B4	1.70	17/01/91		O	0.00	0.00	0.00	418
B35	128 B4	1.70	27/02/91		O	0.00	0.00	0.00	626
B35	128 B4	1.70	03/04/91		O	0.00	0.00	0.00	759
B36	163 B4	2.80	07/11/90	19055523	M	1.23	13.60	0.00	204
B36	163 B4	2.80	07/11/90	19055524	F	0.99	12.50	0.00	205
B36	163 B4	2.80	29/11/90		O	0.00	0.00	0.00	206
B36	163 B4	2.80	19/12/90		O	0.00	0.00	0.00	466
B36	163 B4	2.80	17/01/91		O	0.00	0.00	0.00	419
B36	163 B4	2.80	27/02/91		O	0.00	0.00	0.00	627
B36	163 B4	2.80	03/04/91	19055524	F	1.10	12.40	53.00	760
B37	308 B4	4.70	07/11/90	19055525	F	1.16	12.00	0.00	207
B37	308 B4	4.70	29/11/90		O	0.00	0.00	0.00	208
B37	308 B4	4.70	19/12/90		O	0.00	0.00	0.00	467
B37	308 B4	4.70	17/01/91		O	0.00	0.00	0.00	420
B37	308 B4	4.70	27/02/91		O	0.00	0.00	0.00	628
B37	308 B4	4.70	03/04/91		O	0.00	0.00	0.00	761
B38	329 B4	10.40	07/11/90	19055526	M	1.16	14.80	0.00	209
B38	329 B4	10.40	29/11/90		O	0.00	0.00	0.00	210
B38	329 B4	10.40	19/12/90		O	0.00	0.00	0.00	468
B38	329 B4	10.40	17/01/91		O	0.00	0.00	0.00	421
B38	329 B4	10.40	27/02/91		O	0.00	0.00	0.00	629
B38	329 B4	10.40	03/04/91		O	0.00	0.00	0.00	762
B39	172 B4	10.90	07/11/90	19055527	F	1.39	12.60	0.00	211
B39	172 B4	10.90	07/11/90	19055528	M	1.35	14.90	0.00	212
B39	172 B4	10.90	29/11/90	19055528	M	1.11	15.00	57.00	213
B39	172 B4	10.90	19/12/90	19055527	F	1.01	12.30	52.70	469
B39	172 B4	10.90	17/01/91		O	0.00	0.00	0.00	422
B39	172 B4	10.90	27/02/91		O	0.00	0.00	0.00	630
B39	172 B4	10.90	03/04/91		O	0.00	0.00	0.00	763
B4	57 B1	14.70	31/10/90	19055442	F	0.93	11.20	0.00	135
B4	57 B1	14.70	29/11/90		O	0.00	0.00	0.00	136
B4	57 B1	14.70	19/12/90		O	0.00	0.00	0.00	436
B4	57 B1	14.70	17/01/91		O	0.00	0.00	0.00	423
B4	57 B1	14.70	27/02/91		O	0.00	0.00	0.00	631
B4	57 B1	14.70	03/04/91		O	0.00	0.00	0.00	764
B40	162 B4	14.50	07/11/90	19055529		1.14	12.70	0.00	214
B40	162 B4	14.50	29/11/90		O	0.00	0.00	0.00	215
B40	162 B4	14.50	19/12/90		O	0.00	0.00	0.00	470
B40	162 B4	14.50	17/01/91	19049671	M	2.00	14.70	55.50	424
B40	162 B4	14.50	27/02/91		O	0.00	0.00	0.00	632
B40	162 B4	14.50	03/04/91		O	0.00	0.00	0.00	765
B5	244 B1	2.50	31/10/90	19055443	M	1.30	14.00	0.00	137
B5	244 B1	2.50	31/10/90	19055444	F	1.15	12.10	0.00	138
B5	244 B1	2.50	29/11/90		O	0.00	0.00	0.00	139
B5	244 B1	2.50	19/12/90		O	0.00	0.00	0.00	471

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B5	244	B1	2.50	17/01/91		0	0.00	0.00	0.00	425
B5	244	B1	2.50	27/02/91		0	0.00	0.00	0.00	633
B5	244	B1	2.50	03/04/91		0	0.00	0.00	0.00	766
B6	309	B1	7.00	31/10/90	19055445	F	1.10	11.50	0.00	140
B6	309	B1	7.00	29/11/90		0	0.00	0.00	0.00	141
B6	309	B1	7.00	19/12/90		0	0.00	0.00	0.00	472
B6	309	B1	7.00	17/01/91		0	0.00	0.00	0.00	427
B6	309	B1	7.00	27/02/91		0	0.00	0.00	0.00	634
B6	309	B1	7.00	03/04/91		0	0.00	0.00	0.00	767
B7	16	B1	2.80	31/10/90		0	0.00	0.00	0.00	143
B7	16	B1	2.80	29/11/90	19055559	M	1.22	14.90	54.80	142
B7	16	B1	2.80	19/12/90		0	0.00	0.00	0.00	473
B7	16	B1	2.80	17/01/91		0	0.00	0.00	0.00	426
B7	16	B1	2.80	27/02/91		0	0.00	0.00	0.00	635
B7	16	B1	2.80	03/04/91		0	0.00	0.00	0.00	768
B8	258	B1	21.90	31/10/90	19055447	F	1.21	12.10	0.00	144
B8	258	B1	21.90	31/10/90	19055448	M	1.20	14.30	0.00	145
B8	258	B1	21.90	29/11/90		0	0.00	0.00	0.00	146
B8	258	B1	21.90	19/12/90		0	0.00	0.00	0.00	474
B8	258	B1	21.90	17/01/91		0	0.00	0.00	0.00	428
B8	258	B1	21.90	27/02/91		0	0.00	0.00	0.00	636
B8	258	B1	21.90	03/04/91		0	0.00	0.00	0.00	769
B9	259	B1	34.40	31/10/90	19055449		0.97	13.40	0.00	147
B9	259	B1	34.40	29/11/90		0	0.00	0.00	0.00	148
B9	259	B1	34.40	19/12/90		0	0.00	0.00	0.00	475
B9	259	B1	34.40	17/01/91		0	0.00	0.00	0.00	429
B9	259	B1	34.40	27/02/91		0	0.00	0.00	0.00	637
B9	259	B1	34.40	03/04/91		0	0.00	0.00	0.00	770
C1	348	C1	21.00	06/11/90		0	0.00	0.00	0.00	216
C1	348	C1	21.00	28/11/90		0	0.00	0.00	0.00	217
C1	348	C1	21.00	09/12/90		0	0.00	0.00	0.00	218
C1	348	C1	21.00	17/01/91		0	0.00	0.00	0.00	476
C1	348	C1	21.00	05/03/91		0	0.00	0.00	0.00	638
C1	348	C1	21.00	03/04/91		0	0.00	0.00	0.00	771
C10	205	C1	20.50	06/11/90	19055479	F	1.17	11.90	0.00	245
C10	205	C1	20.50	28/11/90	19055549	M	1.23	14.30	48.20	246
C10	205	C1	20.50	09/12/90		0	0.00	0.00	0.00	247
C10	205	C1	20.50	17/01/91	19055548	M	1.74	14.00	51.70	477
C10	205	C1	20.50	05/03/91		0	0.00	0.00	0.00	639
C10	205	C1	20.50	03/04/91	19049688	M	1.26	15.00	52.00	772
C10	205	C1	20.50	03/04/91	19049689	F	1.09	12.70	52.00	817
C11	178	C1	16.80	06/11/90		0	0.00	0.00	0.00	248
C11	178	C1	16.80	28/11/90		0	0.00	0.00	0.00	249
C11	178	C1	16.80	09/12/90		0	0.00	0.00	0.00	250
C11	178	C1	16.80	17/01/91		0	0.00	0.00	0.00	478
C11	178	C1	16.80	05/03/91		0	0.00	0.00	0.00	640
C11	178	C1	16.80	03/04/91		0	0.00	0.00	0.00	773
C12	159	C1	7.30	06/11/90	19049751	F	1.16	12.30	0.00	251

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C12	159	C1	7.30	06/11/90	19051099	M	1.15	13.60	0.00	252
C12	159	C1	7.30	28/11/90		0	0.00	0.00	0.00	253
C12	159	C1	7.30	09/12/90		0	0.00	0.00	0.00	254
C12	159	C1	7.30	17/01/91	19055596	M	1.89	15.70	57.00	480
C12	159	C1	7.30	17/01/91	19055597	F	1.47	12.00	48.80	479
C12	159	C1	7.30	05/03/91		0	0.00	0.00	0.00	641
C12	159	C1	7.30	03/04/91	19049690	F	1.16	12.40	52.50	774
C13	144	C1	13.50	06/11/90	19055480	F	1.14	12.20	0.00	255
C13	144	C1	13.50	28/11/90	19055480	F	0.85	11.70	49.30	256
C13	144	C1	13.50	09/12/90		0	0.00	0.00	0.00	257
C13	144	C1	13.50	17/01/91	19055598		1.85	13.60	48.50	481
C13	144	C1	13.50	05/03/91		0	0.00	0.00	0.00	642
C13	144	C1	13.50	03/04/91	19049656	F	1.03	11.80	49.50	775
C14	142	C1	10.50	06/11/90	19045789	F	0.88	11.80	0.00	258
C14	142	C1	10.50	28/11/90		0	0.00	0.00	0.00	259
C14	142	C1	10.50	09/12/90		0	0.00	0.00	0.00	260
C14	142	C1	10.50	17/01/91		0	0.00	0.00	0.00	482
C14	142	C1	10.50	05/03/91		0	0.00	0.00	0.00	643
C14	142	C1	10.50	03/04/91	19045798	F	1.07	11.60	49.00	776
C14	142	C1	10.50	03/04/91	19049691	M	1.33	13.80	53.40	777
C15	102	C1	5.20	06/11/90	19049755	M	1.12	14.40	0.00	261
C15	102	C1	5.20	28/11/90		0	0.00	0.00	0.00	262
C15	102	C1	5.20	09/12/90		0	0.00	0.00	0.00	263
C15	102	C1	5.20	17/01/91		0	0.00	0.00	0.00	483
C15	102	C1	5.20	05/03/91		0	0.00	0.00	0.00	644
C15	102	C1	5.20	03/04/91	19049755	M	1.20	14.10	52.00	778
C16	102	C1	7.30	06/11/90		0	0.00	0.00	0.00	264
C16	102	C1	7.30	28/11/90		0	0.00	0.00	0.00	265
C16	102	C1	7.30	09/12/90		0	0.00	0.00	0.00	266
C16	102	C1	7.30	17/01/91		0	0.00	0.00	0.00	484
C16	102	C1	7.30	05/03/91		0	0.00	0.00	0.00	645
C16	102	C1	7.30	03/04/91		0	0.00	0.00	0.00	779
C17	29	C1	17.50	06/11/90	19055481	M	1.36	14.50	0.00	267
C17	29	C1	17.50	28/11/90		0	0.00	0.00	0.00	268
C17	29	C1	17.50	09/12/90		0	0.00	0.00	0.00	269
C17	29	C1	17.50	17/01/91	19055599	F	1.76	11.80	54.40	485
C17	29	C1	17.50	05/03/91		0	0.00	0.00	0.00	646
C17	29	C1	17.50	03/04/91	19055481	M	1.45	14.50	53.00	780
C18	25	C1	22.50	06/11/90	19055482	M	1.19	13.90	0.00	270
C18	25	C1	22.50	28/11/90		0	0.00	0.00	0.00	271
C18	25	C1	22.50	09/12/90		0	0.00	0.00	0.00	272
C18	25	C1	22.50	17/01/91		0	0.00	0.00	0.00	486
C18	25	C1	22.50	05/03/91		0	0.00	0.00	0.00	647
C18	25	C1	22.50	03/04/91		0	0.00	0.00	0.00	781
C19	33	C1	22.00	06/11/90	19055483	M	1.30	16.60	0.00	273
C19	33	C1	22.00	28/11/90		0	0.00	0.00	0.00	274
C19	33	C1	22.00	09/12/90		0	0.00	0.00	0.00	275
C19	33	C1	22.00	17/01/91	19055600	F	1.46	13.00	53.00	487

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C19	33	C1	22.00	05/03/91		0	0.00	0.00	0.00	648
C19	33	C1	22.00	03/04/91	19055600		1.11	13.00	52.50	782
C2	204	C1	18.00	06/11/90	19055514	M	1.20	14.00	0.00	219
C2	204	C1	18.00	28/11/90	19055514	M	1.39	14.10	50.80	220
C2	204	C1	18.00	09/12/90		0	0.00	0.00	0.00	221
C2	204	C1	18.00	17/01/91		0	0.00	0.00	0.00	488
C2	204	C1	18.00	05/03/91		0	0.00	0.00	0.00	649
C2	204	C1	18.00	03/04/91	19049825	F	1.10	12.50	51.70	784
C2	204	C1	18.00	03/04/91	19055478	M	1.13	14.20	49.50	783
C20	325	C1	18.10	06/11/90	19055469	M	1.10	13.80	0.00	276
C20	325	C1	18.10	28/11/90		0	0.00	0.00	0.00	277
C20	325	C1	18.10	09/12/90		0	0.00	0.00	0.00	278
C20	325	C1	18.10	17/01/91		0	0.00	0.00	0.00	489
C20	325	C1	18.10	05/03/91		0	0.00	0.00	0.00	650
C20	325	C1	18.10	03/04/91		0	0.00	0.00	0.00	785
C21	138	C2	17.00	06/11/90	19055484	M	1.36	15.90	0.00	279
C21	138	C2	17.00	28/11/90		0	0.00	0.00	0.00	280
C21	138	C2	17.00	09/12/90		0	0.00	0.00	0.00	281
C21	138	C2	17.00	17/01/91	19055484	M	1.85	15.40	55.50	490
C21	138	C2	17.00	05/03/91		0	0.00	0.00	0.00	651
C21	138	C2	17.00	03/04/91		0	0.00	0.00	0.00	786
C22	137	C2	18.40	06/11/90	19055485	M	1.44	14.80	0.00	282
C22	137	C2	18.40	06/11/90	19055486		1.35	13.20	0.00	283
C22	137	C2	18.40	28/11/90		0	0.00	0.00	0.00	284
C22	137	C2	18.40	09/12/90		0	0.00	0.00	0.00	285
C22	137	C2	18.40	17/01/91	19055485	M	1.13	14.50	55.00	491
C22	137	C2	18.40	17/01/91	19055486	F	0.77	12.60	50.70	492
C22	137	C2	18.40	05/03/91		0	0.00	0.00	0.00	652
C22	137	C2	18.40	03/04/91	19049693	F	1.10	11.50	52.00	787
C23	145	C2	8.30	06/11/90	19045737	F	1.06	12.30	0.00	286
C23	145	C2	8.30	28/11/90	19055552	M	1.23	14.60	51.40	287
C23	145	C2	8.30	09/12/90	19055552	M	1.08	15.00	55.00	288
C23	145	C2	8.30	17/01/91		0	0.00	0.00	0.00	493
C23	145	C2	8.30	05/03/91	19045737	F	0.71	0.00	0.00	653
C23	145	C2	8.30	05/03/91	19055552	M	1.50	0.00	0.00	654
C23	145	C2	8.30	03/04/91		0	0.00	0.00	0.00	788
C24	166	C2	11.50	06/11/90	19055487	F	0.94	11.90	0.00	289
C24	166	C2	11.50	28/11/90		0	0.00	0.00	0.00	290
C24	166	C2	11.50	09/12/90		0	0.00	0.00	0.00	291
C24	166	C2	11.50	17/01/91	19049656	F	1.52	11.60	52.10	494
C24	166	C2	11.50	05/03/91		0	0.00	0.00	0.00	655
C24	166	C2	11.50	03/04/91		0	0.00	0.00	0.00	789
C25	166	C2	15.40	06/11/90	19055488	M	1.13	14.90	0.00	292
C25	166	C2	15.40	28/11/90		0	0.00	0.00	0.00	293
C25	166	C2	15.40	09/12/90		0	0.00	0.00	0.00	294
C25	166	C2	15.40	17/01/91		0	0.00	0.00	0.00	495
C25	166	C2	15.40	05/03/91		0	0.00	0.00	0.00	656
C25	166	C2	15.40	03/04/91		0	0.00	0.00	0.00	790

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C26	182 C2	17.00	06/11/90	19046871	M	1.27	14.40	0.00	295
C26	182 C2	17.00	06/11/90	19055489	F	1.06	12.10	0.00	296
C26	182 C2	17.00	28/11/90			0.00	0.00	0.00	297
C26	182 C2	17.00	09/12/90			0.00	0.00	0.00	298
C26	182 C2	17.00	17/01/91			0.00	0.00	0.00	496
C26	182 C2	17.00	05/03/91			0.00	0.00	0.00	657
C26	182 C2	17.00	03/04/91			0.00	0.00	0.00	791
C27	186 C2	17.10	06/11/90	19055490	M	1.34	15.40	0.00	299
C27	186 C2	17.10	28/11/90	19055490	M	1.17	14.90	53.20	300
C27	186 C2	17.10	09/12/90			0.00	0.00	0.00	301
C27	186 C2	17.10	17/01/91			0.00	0.00	0.00	497
C27	186 C2	17.10	05/03/91	19049683	F	1.62	0.00	0.00	659
C27	186 C2	17.10	05/03/91	19055490	M	1.58	0.00	0.00	658
C27	186 C2	17.10	03/04/91	19049694		1.28	13.40	52.00	792
C27	186 C2	17.10	03/04/91	19049695	M	1.23	14.50	52.00	793
C28	187 C2	21.00	06/11/90			0.00	0.00	0.00	302
C28	187 C2	21.00	28/11/90			0.00	0.00	0.00	303
C28	187 C2	21.00	09/12/90	19049809	?	0.00	0.00	0.00	304
C28	187 C2	21.00	17/01/91	19045321	M	1.23	15.20	55.40	498
C28	187 C2	21.00	05/03/91			0.00	0.00	0.00	660
C28	187 C2	21.00	03/04/91			0.00	0.00	0.00	794
C29	212 C2	12.80	06/11/90	19051010	F	1.07	11.70	0.00	306
C29	212 C2	12.80	06/11/90	19051081	M	1.36	14.40	0.00	305
C29	212 C2	12.80	28/11/90			0.00	0.00	0.00	307
C29	212 C2	12.80	09/12/90			0.00	0.00	0.00	308
C29	212 C2	12.80	17/01/91			0.00	0.00	0.00	499
C29	212 C2	12.80	05/03/91			0.00	0.00	0.00	661
C29	212 C2	12.80	03/04/91			0.00	0.00	0.00	795
C3	304 C1	7.80	06/11/90	19049418		1.19	12.60	0.00	223
C3	304 C1	7.80	06/11/90	19055473	F	1.16	12.20	0.00	222
C3	304 C1	7.80	28/11/90			0.00	0.00	0.00	224
C3	304 C1	7.80	09/12/90			0.00	0.00	0.00	225
C3	304 C1	7.80	17/01/91			0.00	0.00	0.00	500
C3	304 C1	7.80	05/03/91			0.00	0.00	0.00	662
C3	304 C1	7.80	03/04/91			0.00	0.00	0.00	796
C30	225 C2	7.50	06/11/90	19055493	F	1.02	12.30	0.00	309
C30	225 C2	7.50	06/11/90	19055494	M	1.13	15.10	0.00	310
C30	225 C2	7.50	28/11/90			0.00	0.00	0.00	311
C30	225 C2	7.50	09/12/90			0.00	0.00	0.00	312
C30	225 C2	7.50	17/01/91	19049652	M	1.20	14.50	56.70	501
C30	225 C2	7.50	17/01/91	19049653	F	1.38	11.50	53.70	502
C30	225 C2	7.50	05/03/91			0.00	0.00	0.00	663
C30	225 C2	7.50	03/04/91			0.00	0.00	0.00	797
C31	0 C2	14.80	06/11/90			0.00	0.00	0.00	313
C31	0 C2	14.80	28/11/90			0.00	0.00	0.00	314
C31	0 C2	14.80	09/12/90			0.00	0.00	0.00	315
C31	0 C2	14.80	17/01/91			0.00	0.00	0.00	503
C31	0 C2	14.80	05/03/91			0.00	0.00	0.00	664

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C31	0	C2	14.80	03/04/91			0	0.00	0.00	0.00	798
C32	20	C2	7.30	06/11/90	19055495	M	1.27	13.80	0.00		316
C32	20	C2	7.30	28/11/90			0	0.00	0.00	0.00	317
C32	20	C2	7.30	09/12/90			0	0.00	0.00	0.00	318
C32	20	C2	7.30	17/01/91			0	0.00	0.00	0.00	504
C32	20	C2	7.30	05/03/91			0	0.00	0.00	0.00	665
C32	20	C2	7.30	03/04/91			0	0.00	0.00	0.00	799
C33	342	C2	7.00	06/11/90	19055496	M	1.09	14.00	0.00		319
C33	342	C2	7.00	28/11/90			0	0.00	0.00	0.00	320
C33	342	C2	7.00	09/12/90			0	0.00	0.00	0.00	321
C33	342	C2	7.00	17/01/91			0	0.00	0.00	0.00	505
C33	342	C2	7.00	05/03/91			0	0.00	0.00	0.00	666
C33	342	C2	7.00	03/04/91			0	0.00	0.00	0.00	800
C34	352	C2	7.50	06/11/90	19055497		1.08	12.60	0.00		322
C34	352	C2	7.50	28/11/90			0	0.00	0.00	0.00	323
C34	352	C2	7.50	09/12/90			0	0.00	0.00	0.00	324
C34	352	C2	7.50	17/01/91			0	0.00	0.00	0.00	506
C34	352	C2	7.50	05/03/91			0	0.00	0.00	0.00	667
C34	352	C2	7.50	03/04/91			0	0.00	0.00	0.00	801
C35	324	C2	8.70	06/11/90			0	0.00	0.00	0.00	327
C35	324	C2	8.70	28/11/90	19055554	M	1.14	15.80	52.30		325
C35	324	C2	8.70	28/11/90	19055555	F	1.14	12.30	50.00		326
C35	324	C2	8.70	09/12/90			0	0.00	0.00	0.00	328
C35	324	C2	8.70	17/01/91			0	0.00	0.00	0.00	507
C35	324	C2	8.70	05/03/91			0	0.00	0.00	0.00	668
C35	324	C2	8.70	03/04/91			0	0.00	0.00	0.00	802
C36	323	C2	11.70	06/11/90			0	0.00	0.00	0.00	329
C36	323	C2	11.70	28/11/90			0	0.00	0.00	0.00	330
C36	323	C2	11.70	09/12/90			0	0.00	0.00	0.00	331
C36	323	C2	11.70	17/01/91			0	0.00	0.00	0.00	508
C36	323	C2	11.70	05/03/91			0	0.00	0.00	0.00	669
C36	323	C2	11.70	03/04/91			0	0.00	0.00	0.00	803
C37	300	C2	7.50	06/11/90	19049753	F	1.14	11.80	0.00		332
C37	300	C2	7.50	06/11/90	19055499	F	1.12	12.00	0.00		333
C37	300	C2	7.50	28/11/90	19055553	M	1.28	13.90	51.00		334
C37	300	C2	7.50	09/12/90			0	0.00	0.00	0.00	335
C37	300	C2	7.50	17/01/91			0	0.00	0.00	0.00	509
C37	300	C2	7.50	05/03/91			0	0.00	0.00	0.00	670
C37	300	C2	7.50	03/04/91	19049696	M	1.31	14.30	54.00		805
C37	300	C2	7.50	03/04/91	19055499	F	1.11	11.50	53.00		804
C38	36	C2	13.00	06/11/90	19055500	F	1.00	12.50	0.00		336
C38	36	C2	13.00	28/11/90	19055556	M	1.02	13.60	52.20		337
C38	36	C2	13.00	09/12/90			0	0.00	0.00	0.00	338
C38	36	C2	13.00	17/01/91			0	0.00	0.00	0.00	510
C38	36	C2	13.00	05/03/91			0	0.00	0.00	0.00	671
C38	36	C2	13.00	03/04/91	19049697	M	1.30	13.20	54.00		806
C38	36	C2	13.00	03/04/91	19049698	F	1.06	12.10	56.00		807
C39	63	C2	15.10	06/11/90			0	0.00	0.00	0.00	339

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BURROW	DIRECTION	DISTANCE	DATE	BAND	SEX	WT	BDEPTH	BLGTH	RECORD #	
C39	63	C2	15.10	28/11/90		0	0.00	0.00	0.00	340
C39	63	C2	15.10	09/12/90		0	0.00	0.00	0.00	341
C39	63	C2	15.10	17/01/91		0	0.00	0.00	0.00	511
C39	63	C2	15.10	05/03/91		0	0.00	0.00	0.00	672
C39	63	C2	15.10	03/04/91	19049699	M	1.27	13.90	52.00	808
C39	63	C2	15.10	03/04/91	19049700		1.15	12.90	53.00	809
C4	305	C1	7.20	06/11/90	19055474	M	1.27	13.50	0.00	226
C4	305	C1	7.20	28/11/90		0	0.00	0.00	0.00	227
C4	305	C1	7.20	09/12/90	19055583	F	0.98	12.40	50.40	228
C4	305	C1	7.20	17/01/91		0	0.00	0.00	0.00	512
C4	305	C1	7.20	05/03/91		0	0.00	0.00	0.00	673
C4	305	C1	7.20	03/04/91		0	0.00	0.00	0.00	810
C40	54	C2	8.50	06/11/90	19055513	M	1.26	13.90	0.00	342
C40	54	C2	8.50	28/11/90		0	0.00	0.00	0.00	343
C40	54	C2	8.50	09/12/90		0	0.00	0.00	0.00	344
C40	54	C2	8.50	17/01/91		0	0.00	0.00	0.00	513
C40	54	C2	8.50	05/03/91		0	0.00	0.00	0.00	674
C40	54	C2	8.50	03/04/91		0	0.00	0.00	0.00	812
C5	291	C1	5.70	06/11/90		0	0.00	0.00	0.00	229
C5	291	C1	5.70	28/11/90		0	0.00	0.00	0.00	230
C5	291	C1	5.70	09/12/90		0	0.00	0.00	0.00	231
C5	291	C1	5.70	17/01/91	19055595	F	1.09	11.70	50.00	514
C5	291	C1	5.70	05/03/91		0	0.00	0.00	0.00	675
C5	291	C1	5.70	03/04/91	19055595	F	1.16	12.40	50.00	811
C6	258	C1	14.00	05/11/90	19046341	M	1.27	15.80	0.00	232
C6	258	C1	14.00	06/11/90	19055475	F	0.99	12.60	0.00	233
C6	258	C1	14.00	28/11/90		0	0.00	0.00	0.00	235
C6	258	C1	14.00	09/12/90		0	0.00	0.00	0.00	234
C6	258	C1	14.00	17/01/91	19049878	F	1.00	11.50	48.90	515
C6	258	C1	14.00	05/03/91		0	0.00	0.00	0.00	676
C6	258	C1	14.00	03/04/91		0	0.00	0.00	0.00	813
C7	195	C1	9.00	06/11/90		0	0.00	0.00	0.00	237
C7	195	C1	9.00	28/11/90		0	0.00	0.00	0.00	238
C7	195	C1	9.00	09/12/90	19049751	F	1.05	12.50	51.80	236
C7	195	C1	9.00	17/01/91		0	0.00	0.00	0.00	516
C7	195	C1	9.00	05/03/91		0	0.00	0.00	0.00	677
C7	195	C1	9.00	03/04/91		0	0.00	0.00	0.00	814
C8	180	C1	10.40	06/11/90	19055477		1.10	12.70	0.00	239
C8	180	C1	10.40	28/11/90		0	0.00	0.00	0.00	240
C8	180	C1	10.40	09/12/90		0	0.00	0.00	0.00	241
C8	180	C1	10.40	17/01/91		0	0.00	0.00	0.00	517
C8	180	C1	10.40	05/03/91		0	0.00	0.00	0.00	678
C8	180	C1	10.40	03/04/91		0	0.00	0.00	0.00	815
C9	206	C1	17.80	06/11/90	19055478	M	1.29	14.30	0.00	242
C9	206	C1	17.80	28/11/90	19055548	F	1.00	12.50	52.20	243
C9	206	C1	17.80	09/12/90		0	0.00	0.00	0.00	244
C9	206	C1	17.80	17/01/91		0	0.00	0.00	0.00	518
C9	206	C1	17.80	05/03/91	19055549	M	1.08	0.00	0.00	679

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BURROW	DIRECTION	DISTANCE	DATE	BAND	SEX	WT	BDEPTH	BLGTH	RECORD #	
C9	206	C1	17.80	03/04/91	19055549		1.36	13.00	51.60	816

TOTALS

DEPARTMENT OF ENVIRONMENT AND PLANNING
ENCOUNTER BAY PENGUIN STUDY 1990/91 : CLUTCH.DAT - CHICK DATA REPORT

BURROW	DATE	EGGS	CHICKS	BAND	WT	BDEPTH	BLGTH	RECORD #	COMMENTS
A1	29/10/90	2	0		0	0.00	0.00	0.00	1
A1	07/11/90	2	0		0	0.00	0.00	0.00	2
A1	29/11/90	2	0		0	0.00	0.00	0.00	392
A1	19/12/90	0	0		0	0.00	0.00	0.00	393
A1	24/01/91	0	0		0	0.00	0.00	0.00	553
A1	27/02/91	0	0		0	0.00	0.00	0.00	601
A1	26/03/91	0	0		0	0.00	0.00	0.00	713
A10	29/10/90	0	0		0	0.00	0.00	0.00	28
A10	07/11/90	0	0		0	0.00	0.00	0.00	29
A10	29/11/90	0	0		0	0.00	0.00	0.00	30
A10	19/12/90	0	0		0	0.00	0.00	0.00	394
A10	27/02/91	0	0		0	0.00	0.00	0.00	475
A10	24/01/91	0	0		0	0.00	0.00	0.00	562
A10	26/03/91	0	0		0	0.00	0.00	0.00	722
A11	29/10/90	0	1	19055410	1.27	0.00	0.00	0.00	31
A11	07/11/90	0	0		0	0.00	0.00	0.00	32 successful
A11	29/11/90	0	0		0	0.00	0.00	0.00	33
A11	19/12/90	0	0		0	0.00	0.00	0.00	395
A11	27/02/91	0	0		0	0.00	0.00	0.00	476
A11	24/01/91	0	0		0	0.00	0.00	0.00	563
A11	26/03/91	0	0		0	0.00	0.00	0.00	723
A12	29/10/90	0	0		0	0.00	0.00	0.00	34
A12	07/11/90	0	0		0	0.00	0.00	0.00	35
A12	29/11/90	0	0		0	0.00	0.00	0.00	36
A12	19/12/90	0	0		0	0.00	0.00	0.00	396
A12	27/02/91	0	0		0	0.00	0.00	0.00	477
A12	24/01/91	0	0		0	0.00	0.00	0.00	564
A12	26/03/91	0	0		0	0.00	0.00	0.00	724
A13	29/10/90	1	0		0	0.00	0.00	0.00	37
A13	07/11/90	0	0		0	0.00	0.00	0.00	38 unsuccessful
A13	29/11/90	0	0		0	0.00	0.00	0.00	39
A13	19/12/90	0	0		0	0.00	0.00	0.00	397
A13	27/02/91	0	0		0	0.00	0.00	0.00	478
A13	24/01/91	0	0		0	0.00	0.00	0.00	565
A13	26/03/91	0	0		0	0.00	0.00	0.00	725
A14	29/10/90	0	1	19055575	0.37	0.00	0.00	0.00	40
A14	29/11/90	0	2	19055576	0.94	9.80	41.30	41	

A14	07/11/90	0	1	19055575	0.64	0.00	0.00	42
A14	29/11/90	0	2	19055575	1.00	10.60	42.00	43
A14	19/12/90	0	1	19055576	0.92	10.20	43.10	398
A14	27/02/91	0	0	0	0.00	0.00	0.00	479
A14	24/01/91	0	0	0	0.00	0.00	0.00	566
A14	26/03/91	0	0	0	0.00	0.00	0.00	726
A15	29/10/90	0	2	19055573	0.20	0.00	0.00	44
A15	29/10/90	0	2	19055572	0.44	0.00	0.00	45
A15	07/11/90	0	2	19055573	0.49	0.00	0.00	46
A15	07/11/90	0	2	19055572	0.70	0.00	0.00	47
A15	29/11/90	0	2	19055573	0.86	10.50	43.00	48
A15	29/11/90	0	2	19055572	0.96	9.50	48.80	49
A15	19/12/90	0	1	19055573	0.90	11.00	46.40	399
A15	27/02/91	0	0	0	0.00	0.00	0.00	480
A15	24/01/91	0	0	0	0.00	0.00	0.00	567
A15	26/03/91	0	0	0	0.00	0.00	0.00	727
A16	30/10/90	0	0	0	0.00	0.00	0.00	50
A16	07/11/90	0	0	0	0.00	0.00	0.00	51
A16	29/11/90	0	0	0	0.00	0.00	0.00	52
A16	19/12/90	0	0	0	0.00	0.00	0.00	400
A16	27/02/91	0	0	0	0.00	0.00	0.00	481
A16	24/01/91	0	0	0	0.00	0.00	0.00	568
A16	26/03/91	0	0	0	0.00	0.00	0.00	728
A17	30/10/90	0	0	0	0.00	0.00	0.00	53
A17	07/11/90	1	0	0	0.00	0.00	0.00	54
A17	29/11/90	0	0	0	0.00	0.00	0.00	55 unsuccessful
A17	19/12/90	0	0	0	0.00	0.00	0.00	401
A17	27/02/91	0	0	0	0.00	0.00	0.00	503
A17	24/01/91	0	0	0	0.00	0.00	0.00	569
A17	26/03/91	0	0	0	0.00	0.00	0.00	729
A18	30/10/90	0	0	0	0.00	0.00	0.00	56
A18	07/11/90	0	0	0	0.00	0.00	0.00	57
A18	29/11/90	0	0	0	0.00	0.00	0.00	58
A18	19/12/90	0	0	0	0.00	0.00	0.00	402
A18	27/02/91	0	0	0	0.00	0.00	0.00	482
A18	24/01/91	0	0	0	0.00	0.00	0.00	570
A18	26/03/91	0	0	0	0.00	0.00	0.00	730
A19	30/10/90	0	0	0	0.00	0.00	0.00	59
A19	07/11/90	0	0	0	0.00	0.00	0.00	60
A19	29/11/90	0	0	0	0.00	0.00	0.00	61
A19	19/12/90	0	0	0	0.00	0.00	0.00	403
A19	27/02/91	0	0	0	0.00	0.00	0.00	483
A19	24/01/91	0	0	0	0.00	0.00	0.00	571
A19	26/03/91	0	0	0	0.00	0.00	0.00	731

A2	29/10/90	2	0	0	0.00	0.00	0.00	3
A2	07/11/90	2	0	0	0.00	0.00	0.00	4
A2	29/11/90	0	0	0	0.00	0.00	0.00	9
A2	19/12/90	0	0	0	0.00	0.00	0.00	404
A2	24/01/91	0	0	0	0.00	0.00	0.00	554
A2	27/02/91	0	0	0	0.00	0.00	0.00	598
A2	26/03/91	0	0	0	0.00	0.00	0.00	714
A20	30/10/90	0	2	1	0.32	0.00	0.00	62
A20	30/10/90	0	2	2	0.22	0.00	0.00	63
A20	07/11/90	0	1	1	0.63	0.00	0.00	64
A20	29/11/90	0	0	0	0.00	0.00	0.00	65
A20	19/12/90	0	0	0	0.00	0.00	0.00	405
A20	27/02/91	0	0	0	0.00	0.00	0.00	484
A20	24/01/91	0	0	0	0.00	0.00	0.00	572
A20	26/03/91	0	0	0	0.00	0.00	0.00	732
A21	30/10/90	2	0	0	0.00	0.00	0.00	66
A21	07/11/90	0	2	1	0.06	0.00	0.00	67
A21	07/11/90	0	2	2	0.06	0.00	0.00	68
A21	29/11/90	0	0	0	0.00	0.00	0.00	69
A21	19/12/90	0	0	0	0.00	0.00	0.00	406
A21	27/02/91	0	0	0	0.00	0.00	0.00	485
A21	24/01/91	0	0	0	0.00	0.00	0.00	573
A21	26/03/91	0	0	0	0.00	0.00	0.00	733
A22	30/10/90	0	0	0	0.00	0.00	0.00	70
A22	07/11/90	0	0	0	0.00	0.00	0.00	71
A22	29/11/90	0	0	0	0.00	0.00	0.00	72
A22	19/12/90	0	0	0	0.00	0.00	0.00	407
A22	27/02/91	0	0	0	0.00	0.00	0.00	486
A22	24/01/91	0	0	0	0.00	0.00	0.00	574
A22	26/03/91	0	0	0	0.00	0.00	0.00	734
A23	30/10/90	0	0	0	0.00	0.00	0.00	73
A23	07/11/90	0	0	0	0.00	0.00	0.00	74
A23	29/11/90	0	0	0	0.00	0.00	0.00	75
A23	19/12/90	0	0	0	0.00	0.00	0.00	408
A23	27/02/91	0	0	0	0.00	0.00	0.00	487
A23	24/01/91	0	0	0	0.00	0.00	0.00	575
A23	26/03/91	0	0	0	0.00	0.00	0.00	735
A24	30/10/90	1	0	0	0.00	0.00	0.00	76
A24	07/11/90	1	0	0	0.00	0.00	0.00	77
A24	29/11/90	0	0	0	0.00	0.00	0.00	78

A24	19/12/90	0	0	0	0.00	0.00	0.00	409
A24	27/02/91	0	0	0	0.00	0.00	0.00	488
A24	24/01/91	0	0	0	0.00	0.00	0.00	576
A24	26/03/91	0	0	0	0.00	0.00	0.00	736
A25	30/10/90	2	0	0	0.00	0.00	0.00	79
A25	07/11/90	2	0	0	0.00	0.00	0.00	80
A25	29/11/90	0	0	0	0.00	0.00	0.00	81
A25	19/12/90	0	0	0	0.00	0.00	0.00	410
A25	27/02/91	0	0	0	0.00	0.00	0.00	489
A25	24/01/91	0	0	0	0.00	0.00	0.00	577
A25	26/03/91	0	0	0	0.00	0.00	0.00	737
A26	30/10/90	2	0	0	0.00	0.00	0.00	82
A26	07/11/90	0	0	0	0.00	0.00	0.00	83
A26	29/11/90	0	0	0	0.00	0.00	0.00	84
A26	19/12/90	0	0	0	0.00	0.00	0.00	411
A26	27/02/91	0	0	0	0.00	0.00	0.00	490
A26	24/01/91	0	0	0	0.00	0.00	0.00	578
A26	26/03/91	0	0	0	0.00	0.00	0.00	738
A27	30/10/90	0	0	0	0.00	0.00	0.00	85
A27	07/11/90	0	0	0	0.00	0.00	0.00	86
A27	29/11/90	0	0	0	0.00	0.00	0.00	87
A27	19/12/90	0	0	0	0.00	0.00	0.00	412
A27	27/02/91	0	0	0	0.00	0.00	0.00	491
A27	24/01/91	0	0	0	0.00	0.00	0.00	579
A27	26/03/91	0	0	0	0.00	0.00	0.00	739
A28	30/10/90	0	1	0	0.64	0.00	0.00	88
A28	07/11/90	0	1	0	0.00	0.00	0.00	89 chick present but out of reach
A28	29/11/90	0	0	0	0.00	0.00	0.00	90
A28	19/12/90	0	0	0	0.00	0.00	0.00	413
A28	27/02/91	0	0	0	0.00	0.00	0.00	504
A28	24/01/91	0	0	0	0.00	0.00	0.00	580
A28	26/03/91	0	0	0	0.00	0.00	0.00	740
A29	30/10/90	0	2	19055571	0.26	0.00	0.00	91
A29	30/10/90	0	2	2	0.35	0.00	0.00	92
A29	07/11/90	0	0	0	0.00	0.00	0.00	93 no live chicks, one dead and mutilated
A29	29/11/90	0	1	19055571	0.86	10.80	45.00	94
A29	19/12/90	0	0	0	0.00	0.00	0.00	414
A29	27/02/91	0	0	0	0.00	0.00	0.00	492 ADULT PENGUIN HEARD, NOT REACHABLE
A29	24/01/91	0	0	0	0.00	0.00	0.00	581
A29	26/03/91	0	0	19055571	0.00	0.00	0.00	741 FOUND DEAD 6M NE OF BURROW, DESSICATED
A3	29/10/90	2	0	0	0.00	0.00	0.00	5
A3	07/11/90	2	0	0	0.00	0.00	0.00	6
A3	29/11/90	0	0	0	0.00	0.00	0.00	10
A3	19/12/90	0	0	0	0.00	0.00	0.00	415

A3	24/01/91	0	0	0	0.00	0.00	0.00	555
A3	27/02/91	0	0	0	0.00	0.00	0.00	597
A3	26/03/91	0	0	0	0.00	0.00	0.00	715
A30	30/10/90	0	2	19055570	0.50	0.00	0.00	95
A30	30/10/90	0	2	2	0.48	0.00	0.00	96
A30	07/11/90	0	1	19055570	0.74	0.00	0.00	97
A30	29/11/90	0	1	19055570	1.14	10.80	45.00	98
A30	19/12/90	0	0	0	0.00	0.00	0.00	416
A30	27/02/91	0	0	0	0.00	0.00	0.00	493
A30	24/01/91	0	0	0	0.00	0.00	0.00	582
A30	26/03/91	0	0	0	0.00	0.00	0.00	742
A31	30/10/90	0	2	19055542	0.98	0.00	0.00	99
A31	30/10/90	0	2	19055543	0.94	0.00	0.00	100
A31	07/11/90	0	2	19055542	1.16	0.00	0.00	101
A31	07/11/90	0	2	19055543	1.15	0.00	0.00	102
A31	29/11/90	0	1	19055542	0.90	11.00	50.80	103
A31	19/12/90	0	0	0	0.00	0.00	0.00	417
A31	27/02/91	0	0	0	0.00	0.00	0.00	494
A31	24/01/91	0	0	0	0.00	0.00	0.00	583
A31	26/03/91	0	0	0	0.00	0.00	0.00	743
A32	30/10/90	0	0	0	0.00	0.00	0.00	104
A32	07/11/90	0	0	0	0.00	0.00	0.00	105
A32	29/11/90	0	0	0	0.00	0.00	0.00	106
A32	19/12/90	0	0	0	0.00	0.00	0.00	418
A32	27/02/91	0	0	0	0.00	0.00	0.00	495
A32	24/01/91	0	0	0	0.00	0.00	0.00	584
A32	26/03/91	0	0	0	0.00	0.00	0.00	744
A33	30/10/90	0	2	19055568	0.30	0.00	0.00	107
A33	30/10/90	0	2	19055569	0.25	0.00	0.00	108
A33	07/11/90	0	2	19055568	0.54	0.00	0.00	109
A33	07/11/90	0	2	19055569	0.50	0.00	0.00	110
A33	29/11/90	0	2	19055568	1.12	10.20	47.00	111
A33	29/11/90	0	2	19055569	0.98	10.70	44.00	112
A33	19/12/90	0	0	0	0.00	0.00	0.00	419 SUCCESSFUL
A33	27/02/91	0	0	0	0.00	0.00	0.00	496
A33	24/01/91	0	0	0	0.00	0.00	0.00	585
A33	26/03/91	0	0	0	0.00	0.00	0.00	745
A34	30/10/90	0	1	19055430	1.19	0.00	0.00	113
A34	07/11/90	0	1	19055430	1.10	0.00	0.00	114
A34	29/11/90	0	0	0	0.00	0.00	0.00	115 SUCCESSFUL

A34	19/12/90	0	0	0	0.00	0.00	0.00	420
A34	24/01/91	0	0	0	0.00	0.00	0.00	586
A34	27/02/91	0	0	0	0.00	0.00	0.00	627
A34	26/03/91	0	0	0	0.00	0.00	0.00	746
A35	30/10/90	0	2	19055566	0.26	0.00	0.00	116
A35	30/10/90	0	2	19055567	0.25	0.00	0.00	117
A35	07/11/90	0	2	19055566	0.53	0.00	0.00	118
A35	07/11/90	0	2	19055567	0.52	0.00	0.00	119
A35	29/11/90	0	2	19055566	1.02	10.80	43.30	120
A35	29/11/90	0	2	19055567	0.99	10.00	41.80	121
A35	19/12/90	0	0	0	0.00	0.00	0.00	421 SUCCESSFUL
A35	27/02/91	0	0	0	0.00	0.00	0.00	498
A35	24/01/91	0	0	0	0.00	0.00	0.00	587
A35	26/03/91	0	0	0	0.00	0.00	0.00	747
A36	30/10/90	0	1	19055432	1.12	0.00	0.00	122
A36	07/11/90	0	1	19055432	1.17	0.00	0.00	123
A36	29/11/90	0	0	0	0.00	0.00	0.00	124 SUCCESSFUL
A36	19/12/90	0	0	0	0.00	0.00	0.00	422
A36	27/02/91	0	0	0	0.00	0.00	0.00	499
A36	24/01/91	0	0	0	0.00	0.00	0.00	588
A36	26/03/91	0	0	0	0.00	0.00	0.00	748
A37	30/10/90	0	2	19055565	0.30	0.00	0.00	125
A37	30/10/90	0	2	19055564	0.30	0.00	0.00	126
A37	07/11/90	0	2	19055565	0.64	0.00	0.00	127
A37	07/11/90	0	2	19055564	0.62	0.00	0.00	128
A37	29/11/90	0	2	19055565	1.11	10.30	43.00	129
A37	29/11/90	0	2	19055564	1.05	10.50	43.00	130
A37	19/12/90	0	0	0	0.00	0.00	0.00	423 SUCCESSFUL
A37	27/02/91	0	0	0	0.00	0.00	0.00	500
A37	24/01/91	0	0	0	0.00	0.00	0.00	589
A37	26/03/91	0	0	0	0.00	0.00	0.00	749
A38	30/10/90	0	2	1	0.08	0.00	0.00	131
A38	30/10/90	0	2	2	0.07	0.00	0.00	132
A38	07/11/90	0	2	1	0.31	0.00	0.00	133
A38	07/11/90	0	2	2	0.27	0.00	0.00	134
A38	29/11/90	0	1	1	0.77	9.10	37.10	135
A38	19/12/90	0	0	0	0.00	0.00	0.00	424 UNSUCCESSFUL
A38	27/02/91	0	0	0	0.00	0.00	0.00	501
A38	24/01/91	0	0	0	0.00	0.00	0.00	590
A38	26/03/91	0	0	0	0.00	0.00	0.00	750
A39	30/10/90	0	0	0	0.00	0.00	0.00	136
A39	07/11/90	0	0	0	0.00	0.00	0.00	137
A39	29/11/90	0	0	0	0.00	0.00	0.00	138
A39	19/12/90	0	0	0	0.00	0.00	0.00	425

A39	27/02/91	0	0	0	0.00	0.00	0.00	505
A39	24/01/91	0	0	0	0.00	0.00	0.00	591
A39	26/03/91	0	0	0	0.00	0.00	0.00	751
A4	07/11/90	2	0	0	0.00	0.00	0.00	7
A4	29/10/90	2	0	0	0.00	0.00	0.00	8
A4	29/11/90	0	0	0	0.00	0.00	0.00	11
A4	19/12/90	0	0	0	0.00	0.00	0.00	426
A4	27/02/91	0	0	0	0.00	0.00	0.00	508
A4	24/01/91	0	0	0	0.00	0.00	0.00	556
A4	26/03/91	0	0	0	0.00	0.00	0.00	716
A40	30/10/90	0	1	0	0.67	0.00	0.00	139
A40	07/11/90	0	0	0	0.00	0.00	0.00	140 CHICK DEAD CRUSHED HEAD, UNSUCCESSFUL
A40	29/11/90	0	0	0	0.00	0.00	0.00	141
A40	19/12/90	0	0	0	0.00	0.00	0.00	427
A40	27/02/91	0	0	0	0.00	0.00	0.00	502
A40	24/01/91	0	0	0	0.00	0.00	0.00	592
A40	26/03/91	0	0	0	0.00	0.00	0.00	752
A5	29/10/90	1	0	0	0.00	0.00	0.00	12
A5	07/11/90	0	0	0	0.00	0.00	0.00	13
A5	29/11/90	0	0	0	0.00	0.00	0.00	14
A5	19/12/90	0	0	0	0.00	0.00	0.00	428
A5	24/01/91	0	0	0	0.00	0.00	0.00	557
A5	27/02/91	0	0	0	0.00	0.00	0.00	600
A5	26/03/91	0	0	0	0.00	0.00	0.00	717
A6	29/10/90	2	0	0	0.00	0.00	0.00	15
A6	07/11/90	2	0	0	0.00	0.00	0.00	16
A6	29/11/90	0	0	0	0.00	0.00	0.00	17
A6	19/12/90	0	0	0	0.00	0.00	0.00	429
A6	27/02/91	0	0	0	0.00	0.00	0.00	471
A6	24/01/91	0	0	0	0.00	0.00	0.00	558
A6	26/03/91	0	0	0	0.00	0.00	0.00	718
A7	29/10/90	2	0	0	0.00	0.00	0.00	18
A7	07/11/90	2	0	0	0.00	0.00	0.00	19
A7	29/11/90	0	0	0	0.00	0.00	0.00	20 1 dry dead chick present
A7	19/12/90	0	0	0	0.00	0.00	0.00	430
A7	27/02/91	0	0	0	0.00	0.00	0.00	472
A7	24/01/91	0	0	0	0.00	0.00	0.00	559
A7	26/03/91	0	0	0	0.00	0.00	0.00	719
A8	29/10/90	2	0	0	0.00	0.00	0.00	21
A8	07/11/90	0	2	0	0.10	0.00	0.00	22

A8	07/11/90	0	2	0	0.08	0.00	0.00	23
A8	29/11/90	0	0	0	0.00	0.00	0.00	24 unsuccessful
A8	19/12/90	0	0	0	0.00	0.00	0.00	431
A8	27/02/91	0	0	0	0.00	0.00	0.00	473
A8	24/01/91	0	0	0	0.00	0.00	0.00	560
A8	26/03/91	0	0	0	0.00	0.00	0.00	720
A9	29/10/90	0	1	0	0.54	0.00	0.00	25
A9	07/11/90	0	0	0	0.00	0.00	0.00	26 unsuccessful
A9	29/11/90	0	0	0	0.00	0.00	0.00	27
A9	19/12/90	0	0	0	0.00	0.00	0.00	432
A9	27/02/91	0	0	0	0.00	0.00	0.00	474
A9	24/01/91	0	0	0	0.00	0.00	0.00	561
A9	26/03/91	0	0	0	0.00	0.00	0.00	721

AREA B

BURROW	DATE	EGGS	CHICKS	BAND	WT	BDEPTH	BLGTH	RECORD #	COMMENTS
B1	31/10/90	2	0	0	0.00	0.00	0.00	142	
B1	29/11/90	0	0	0	0.00	0.00	0.00	143	
B1	19/12/90	0	0	0	0.00	0.00	0.00	470	
B1	17/01/91	0	0	0	0.00	0.00	0.00	593	
B1	27/02/91	0	0	0	0.00	0.00	0.00	633	
B1	03/04/91	0	0	0	0.00	0.00	0.00	753	
B10	31/10/90	2	0	0	0.00	0.00	0.00	160	
B10	29/11/90	0	0	0	0.00	0.00	0.00	161 UNSUCCESSFUL	
B10	19/12/90	0	0	0	0.00	0.00	0.00	433	
B10	17/01/91	0	0	0	0.00	0.00	0.00	602	
B10	27/02/91	0	0	0	0.00	0.00	0.00	642	
B10	03/04/91	0	0	0	0.00	0.00	0.00	762	
B11	31/10/90	2	0	0	0.00	0.00	0.00	162	
B11	29/11/90	0	0	0	0.00	0.00	0.00	163 UNSUCCESSFUL	
B11	19/12/90	0	0	0	0.00	0.00	0.00	434	
B11	17/01/91	0	0	0	0.00	0.00	0.00	603	
B11	27/02/91	0	0	0	0.00	0.00	0.00	643	
B11	03/04/91	0	0	0	0.00	0.00	0.00	763	
B12	31/10/90	1	0	0	0.00	0.00	0.00	164	
B12	29/11/90	0	0	0	0.00	0.00	0.00	165 UNSUCCESSFUL	
B12	19/12/90	0	0	0	0.00	0.00	0.00	435	
B12	17/01/91	0	0	0	0.00	0.00	0.00	604	
B12	27/02/91	0	0	0	0.00	0.00	0.00	644	
B12	03/04/91	0	0	0	0.00	0.00	0.00	764	
B13	31/10/90	2	0	0	0.00	0.00	0.00	166	
B13	29/11/90	0	0	0	0.00	0.00	0.00	167 UNSUCCESSFUL	
B13	19/12/90	0	0	0	0.00	0.00	0.00	436	
B13	17/01/91	0	0	0	0.00	0.00	0.00	605	

B13	27/02/91	0	0	0	0.00	0.00	0.00	645
B13	03/04/91	0	0	0	0.00	0.00	0.00	765
B14	31/10/90	2	0	0	0.00	0.00	0.00	168
B14	29/11/90	0	0	0	0.00	0.00	0.00	169 UNSUCCESSFUL
B14	19/12/90	0	1	19055592	0.86	10.20	43.80	389
B14	17/01/91	0	0	0	0.00	0.00	0.00	606
B14	27/02/91	0	0	0	0.00	0.00	0.00	646
B14	03/04/91	0	0	0	0.00	0.00	0.00	766
B15	31/10/90	0	0	0	0.00	0.00	0.00	170
B15	29/11/90	0	0	0	0.00	0.00	0.00	171
B15	19/12/90	0	0	0	0.00	0.00	0.00	437
B15	17/01/91	0	0	0	0.00	0.00	0.00	607
B15	27/02/91	0	0	0	0.00	0.00	0.00	647
B15	03/04/91	0	0	0	0.00	0.00	0.00	767
B16	31/10/90	2	0	0	0.00	0.00	0.00	172
B16	29/11/90	0	0	0	0.00	0.00	0.00	173 UNSUCCESSFUL
B16	19/12/90	0	0	0	0.00	0.00	0.00	438
B16	17/01/91	0	0	0	0.00	0.00	0.00	608
B16	27/02/91	0	0	0	0.00	0.00	0.00	648
B16	03/04/91	0	0	0	0.00	0.00	0.00	768
B17	31/10/90	1	0	0	0.00	0.00	0.00	174
B17	29/11/90	0	0	0	0.00	0.00	0.00	175 UNSUCCESSFUL
B17	19/12/90	0	0	0	0.00	0.00	0.00	439
B17	17/01/91	0	0	0	0.00	0.00	0.00	609
B17	27/02/91	0	0	0	0.00	0.00	0.00	649
B17	03/04/91	0	0	0	0.00	0.00	0.00	769
B18	31/10/90	0	1	19055459	1.10	0.00	0.00	176
B18	29/11/90	0	0	0	0.00	0.00	0.00	177 SUCCESSFUL
B18	19/12/90	0	0	0	0.00	0.00	0.00	440
B18	17/01/91	0	0	0	0.00	0.00	0.00	610
B18	27/02/91	0	0	0	0.00	0.00	0.00	650
B18	03/04/91	0	0	0	0.00	0.00	0.00	770
B19	31/10/90	0	2	1	1.04	0.00	0.00	178
B19	31/10/90	0	2	2	0.91	0.00	0.00	179
B19	29/11/90	0	0	0	0.00	0.00	0.00	180 SUCCESSFUL
B19	19/12/90	0	0	0	0.00	0.00	0.00	441
B19	17/01/91	0	0	0	0.00	0.00	0.00	611
B19	27/02/91	0	0	0	0.00	0.00	0.00	651
B19	03/04/91	0	0	0	0.00	0.00	0.00	771
B2	31/10/90	1	0	0	0.00	0.00	0.00	144

B2	29/11/90	1	0	0	0.00	0.00	0.00	145
B2	19/12/90	0	0	0	0.00	0.00	0.00	442
B2	17/01/91	0	0	0	0.00	0.00	0.00	594
B2	27/02/91	0	0	0	0.00	0.00	0.00	634
B2	03/04/91	0	0	0	0.00	0.00	0.00	754
B20	31/10/90	2	0	0	0.00	0.00	0.00	181
B20	29/11/90	0	3	19055594	0.64	9.80	39.50	182
B20	29/11/90	0	3	19055593	0.65	8.30	33.00	183
B20	29/11/90	0	3	3	0.43	8.00	35.20	184 PROBABLY MISSED COUNTING 3RD EGG ON 31/10
B20	19/12/90	0	2	19055593	0.69	8.80	44.00	390
B20	19/12/90	0	2	19055594	0.72	9.30	41.00	391
B20	17/01/91	0	0	0	0.00	0.00	0.00	612
B20	27/02/91	0	0	0	0.00	0.00	0.00	652
B20	03/04/91	0	0	0	0.00	0.00	0.00	772
B21	31/10/90	1	0	0	0.00	0.00	0.00	185
B21	29/11/90	0	0	0	0.00	0.00	0.00	186 UNSUCCESSFUL
B21	19/12/90	0	0	0	0.00	0.00	0.00	443
B21	17/01/91	0	0	0	0.00	0.00	0.00	613
B21	27/02/91	0	0	0	0.00	0.00	0.00	653
B21	03/04/91	0	0	0	0.00	0.00	0.00	773
B22	31/10/90	2	0	0	0.00	0.00	0.00	187
B22	29/11/90	0	0	0	0.00	0.00	0.00	188 UNSUCCESSFUL
B22	19/12/90	0	0	0	0.00	0.00	0.00	444
B22	17/01/91	0	0	0	0.00	0.00	0.00	614
B22	27/02/91	0	0	0	0.00	0.00	0.00	654
B22	03/04/91	0	0	0	0.00	0.00	0.00	774
B23	31/10/90	2	0	0	0.00	0.00	0.00	189
B23	29/11/90	0	0	0	0.00	0.00	0.00	190 UNSUCCESSFUL
B23	19/12/90	0	0	0	0.00	0.00	0.00	445
B23	17/01/91	0	0	0	0.00	0.00	0.00	615
B23	27/02/91	0	0	0	0.00	0.00	0.00	655
B23	03/04/91	0	0	0	0.00	0.00	0.00	775
B24	31/10/90	1	0	0	0.00	0.00	0.00	191
B24	29/11/90	0	0	0	0.00	0.00	0.00	192 UNSUCCESSFUL
B24	19/12/90	0	0	0	0.00	0.00	0.00	446
B24	17/01/91	0	0	0	0.00	0.00	0.00	616
B24	27/02/91	0	0	0	0.00	0.00	0.00	656
B24	03/04/91	0	0	0	0.00	0.00	0.00	776
B25	31/10/90	2	0	0	0.00	0.00	0.00	193
B25	29/11/90	0	0	0	0.00	0.00	0.00	194 UNSUCCESSFUL
B25	19/12/90	0	0	0	0.00	0.00	0.00	447
B25	17/01/91	0	0	0	0.00	0.00	0.00	617
B25	27/02/91	0	0	0	0.00	0.00	0.00	657
B25	03/04/91	0	0	0	0.00	0.00	0.00	777

B26	31/10/90	0	2	1	0.97	0.00	0.00	195
B26	31/10/90	0	2	2	0.86	0.00	0.00	196
B26	29/11/90	0	0	0	0.00	0.00	0.00	197 PROBABLY SUCCESSFUL
B26	19/12/90	0	0	0	0.00	0.00	0.00	448
B26	17/01/91	0	0	0	0.00	0.00	0.00	618
B26	27/02/91	0	0	0	0.00	0.00	0.00	658
B26	03/04/91	0	0	0	0.00	0.00	0.00	778
B27	31/10/90	2	0	0	0.00	0.00	0.00	198
B27	29/11/90	0	0	0	0.00	0.00	0.00	199 UNSUCCESSFUL
B27	19/12/90	0	0	0	0.00	0.00	0.00	449
B27	17/01/91	0	0	0	0.00	0.00	0.00	619
B27	27/02/91	0	0	0	0.00	0.00	0.00	659
B27	03/04/91	0	0	0	0.00	0.00	0.00	779
B28	31/10/90	0	0	0	0.00	0.00	0.00	200
B28	29/11/90	0	0	0	0.00	0.00	0.00	201
B28	19/12/90	0	0	0	0.00	0.00	0.00	450
B28	17/01/91	0	0	0	0.00	0.00	0.00	620
B28	27/02/91	0	0	0	0.00	0.00	0.00	660
B28	03/04/91	0	0	0	0.00	0.00	0.00	780
B29	31/10/90	0	2	19055560	0.67	0.00	0.00	202
B29	31/10/90	0	2	19055561	0.66	0.00	0.00	203
B29	29/11/90	0	2	19055560	1.02	11.30	49.00	204
B29	29/11/90	0	2	19055561	0.87	11.00	44.00	205
B29	19/12/90	0	0	0	0.00	0.00	0.00	451 SUCCESSFUL
B29	17/01/91	0	0	0	0.00	0.00	0.00	621
B29	27/02/91	0	0	0	0.00	0.00	0.00	661
B29	03/04/91	0	0	0	0.00	0.00	0.00	781
B31	31/10/90	1	0	0	0.00	0.00	0.00	146
B31	29/11/90	0	0	0	0.00	0.00	0.00	147
B31	19/12/90	0	0	0	0.00	0.00	0.00	452
B31	17/01/91	0	0	0	0.00	0.00	0.00	595
B31	27/02/91	0	0	0	0.00	0.00	0.00	635
B31	03/04/91	0	0	0	0.00	0.00	0.00	755
B30	31/10/90	0	0	0	0.00	0.00	0.00	206
B30	29/11/90	0	0	0	0.00	0.00	0.00	207
B30	19/12/90	0	0	0	0.00	0.00	0.00	453
B30	17/01/91	0	0	0	0.00	0.00	0.00	622
B30	27/02/91	0	0	0	0.00	0.00	0.00	662
B30	03/04/91	0	0	0	0.00	0.00	0.00	782
B31	07/11/90	0	0	0	0.00	0.00	0.00	208

B31	29/11/90	0	0	0	0.00	0.00	0.00	209
B31	19/12/90	0	0	0	0.00	0.00	0.00	454
B31	17/01/91	0	0	0	0.00	0.00	0.00	623
B31	27/02/91	0	0	0	0.00	0.00	0.00	663
B31	03/04/91	0	0	0	0.00	0.00	0.00	783
B32	07/11/90	0	1	19055517	0.92	0.00	0.00	210
B32	29/11/90	0	0	0	0.00	0.00	0.00	211
B32	19/12/90	0	0	0	0.00	0.00	0.00	455
B32	17/01/91	0	0	0	0.00	0.00	0.00	624
B32	27/02/91	0	0	0	0.00	0.00	0.00	664
B32	03/04/91	0	0	0	0.00	0.00	0.00	784
B33	07/11/90	0	2	19055519	1.24	0.00	0.00	212
B33	29/11/90	0	0	0	0.00	0.00	0.00	213
B33	19/12/90	0	0	0	0.00	0.00	0.00	456
B33	17/01/91	0	0	0	0.00	0.00	0.00	625
B33	27/02/91	0	0	0	0.00	0.00	0.00	665
B33	03/04/91	0	0	0	0.00	0.00	0.00	785
B34	07/11/90	2	0	0	0.00	0.00	0.00	214
B34	29/11/90	0	1	0	0.42	7.70	28.60	215
B34	19/12/90	0	0	0	0.00	0.00	0.00	457
B34	17/01/91	0	0	0	0.00	0.00	0.00	626
B34	27/02/91	0	0	0	0.00	0.00	0.00	666
B34	03/04/91	0	0	0	0.00	0.00	0.00	786
B35	07/11/90	0	0	0	0.00	0.00	0.00	216
B35	29/11/90	0	0	0	0.00	0.00	0.00	217
B35	19/12/90	0	0	0	0.00	0.00	0.00	458
B35	17/01/91	0	0	0	0.00	0.00	0.00	497
B35	27/02/91	0	0	0	0.00	0.00	0.00	667
B35	03/04/91	0	0	0	0.00	0.00	0.00	787
B36	07/11/90	0	0	0	0.00	0.00	0.00	218
B36	29/11/90	0	0	0	0.00	0.00	0.00	219
B36	19/12/90	0	0	0	0.00	0.00	0.00	459
B36	17/01/91	0	0	0	0.00	0.00	0.00	628
B36	27/02/91	0	0	0	0.00	0.00	0.00	668
B36	03/04/91	0	0	0	0.00	0.00	0.00	788
B37	07/11/90	0	0	0	0.00	0.00	0.00	220
B37	29/11/90	0	0	0	0.00	0.00	0.00	221
B37	19/12/90	0	0	0	0.00	0.00	0.00	460
B37	17/01/91	0	0	0	0.00	0.00	0.00	629
B37	27/02/91	0	0	0	0.00	0.00	0.00	669
B37	03/04/91	0	0	0	0.00	0.00	0.00	789
B38	07/11/90	0	2	19055563	0.51	0.00	0.00	222
B38	07/11/90	0	2	0	0.38	0.00	0.00	223
B38	29/11/90	0	1	19055563	1.02	10.50	44.10	224

B38	19/12/90	0	0	0	0.00	0.00	0.00	461
B38	17/01/91	0	0	0	0.00	0.00	0.00	630
B38	27/02/91	0	0	0	0.00	0.00	0.00	670
B38	03/04/91	0	0	0	0.00	0.00	0.00	790
B39	07/11/90	2	0	0	0.00	0.00	0.00	225
B39	29/11/90	2	0	0	0.00	0.00	0.00	226
B39	19/12/90	0	0	0	0.00	0.00	0.00	462
B39	17/01/91	0	0	0	0.00	0.00	0.00	631
B39	27/02/91	0	0	0	0.00	0.00	0.00	671
B39	03/04/91	0	0	0	0.00	0.00	0.00	791
B4	31/10/90	0	0	0	0.00	0.00	0.00	148
B4	29/11/90	0	1	19055558	1.23	10.90	48.50	149 PROBABLE VAGRANT
B4	19/12/90	0	0	0	0.00	0.00	0.00	463
B4	17/01/91	0	0	0	0.00	0.00	0.00	596
B4	27/02/91	0	0	0	0.00	0.00	0.00	636
B4	03/04/91	0	0	0	0.00	0.00	0.00	756
B40	07/11/90	2	0	0	0.00	0.00	0.00	227
B40	29/11/90	0	0	0	0.00	0.00	0.00	228 UNSUCCESSFUL
B40	19/12/90	0	0	0	0.00	0.00	0.00	464
B40	17/01/91	0	0	0	0.00	0.00	0.00	632
B40	27/02/91	0	0	0	0.00	0.00	0.00	672
B40	03/04/91	0	0	0	0.00	0.00	0.00	792
B5	31/10/90	0	0	0	0.00	0.00	0.00	150
B5	29/11/90	0	0	0	0.00	0.00	0.00	151
B5	19/12/90	0	0	0	0.00	0.00	0.00	465
B5	17/01/91	0	0	0	0.00	0.00	0.00	506
B5	27/02/91	0	0	0	0.00	0.00	0.00	637
B5	03/04/91	0	0	0	0.00	0.00	0.00	757
B6	31/10/90	2	0	0	0.00	0.00	0.00	152
B6	29/11/90	0	0	0	0.00	0.00	0.00	153
B6	19/12/90	0	0	0	0.00	0.00	0.00	466
B6	17/01/91	0	0	0	0.00	0.00	0.00	507
B6	27/02/91	0	0	0	0.00	0.00	0.00	638
B6	03/04/91	0	0	0	0.00	0.00	0.00	758
B7	31/10/90	0	1	19055446	1.27	0.00	0.00	154
B7	29/11/90	2	0	0	0.00	0.00	0.00	155 SUCCESSFUL, FOLLOWED UP BY SECOND CLUTCH
B7	19/12/90	0	0	0	0.00	0.00	0.00	467
B7	17/01/91	0	0	0	0.00	0.00	0.00	599
B7	27/02/91	0	0	0	0.00	0.00	0.00	639
B7	03/04/91	0	0	0	0.00	0.00	0.00	759

B8	31/10/90	1	0	0	0.00	0.00	0.00	156
B8	29/11/90	0	0	0	0.00	0.00	0.00	157
B8	19/12/90	0	0	0	0.00	0.00	0.00	468
B8	17/01/91	0	0	0	0.00	0.00	0.00	509
B8	27/02/91	0	0	0	0.00	0.00	0.00	640
B8	03/04/91	0	0	0	0.00	0.00	0.00	760
B9	31/10/90	2	0	0	0.00	0.00	0.00	158
B9	29/11/90	0	0	0	0.00	0.00	0.00	159 UNSUCCESSFUL
B9	19/12/90	0	0	0	0.00	0.00	0.00	469
B9	17/01/91	0	0	0	0.00	0.00	0.00	510
B9	27/02/91	0	0	0	0.00	0.00	0.00	641
B9	03/04/91	0	0	0	0.00	0.00	0.00	761

AREA C

BURROW	DATE	EGGS	CHICKS	BAND	WT	BDEPTH	BLGTH	RECORD #	COMMENTS
C1	05/11/90	0	2	19055472	1.29	0.00	0.00	229	
C1	05/11/90	0	2	19055471	1.14	0.00	0.00	230	
C1	06/11/90	0	2	19055472	1.40	0.00	0.00	231	
C1	06/11/90	0	2	19055471	1.17	0.00	0.00	232	
C1	28/11/90	0	0	0	0.00	0.00	0.00	233 SUCCESSFUL	
C1	09/12/90	0	0	0	0.00	0.00	0.00	234	
C1	17/01/91	0	0	0	0.00	0.00	0.00	511	
C1	05/03/91	0	0	0	0.00	0.00	0.00	673	
C1	03/04/91	0	0	0	0.00	0.00	0.00	793	
C10	06/11/90	10	0	0	0.00	0.00	0.00	270	
C10	28/11/90	0	0	0	0.00	0.00	0.00	271	
C10	09/12/90	0	0	0	0.00	0.00	0.00	272 UNSUCCESSFUL	
C10	17/01/91	0	0	0	0.00	0.00	0.00	520	
C10	05/03/91	0	0	0	0.00	0.00	0.00	682	
C10	03/04/91	0	0	0	0.00	0.00	0.00	802	
C11	05/11/90	0	1	19055550	0.84	0.00	0.00	273	
C11	28/11/90	0	1	19055550	1.05	11.70	48.40	274 SUCCESSFUL	
C11	09/12/90	0	0	0	0.00	0.00	0.00	275 SUCCESSFUL	
C11	17/01/91	0	0	0	0.00	0.00	0.00	521	
C11	05/03/91	0	0	0	0.00	0.00	0.00	683	
C11	03/04/91	0	0	0	0.00	0.00	0.00	803	
C12	06/11/90	0	0	0	0.00	0.00	0.00	276	
C12	28/11/90	0	0	0	0.00	0.00	0.00	277	
C12	09/12/90	0	0	0	0.00	0.00	0.00	278	
C12	17/01/91	0	0	0	0.00	0.00	0.00	522	
C12	05/03/91	0	0	0	0.00	0.00	0.00	684	
C12	03/04/91	0	0	0	0.00	0.00	0.00	804	
C13	05/11/90	1	0	0	0.00	0.00	0.00	279	
C13	28/11/90	2	0	0	0.00	0.00	0.00	280	

C13	09/12/90	0	0	0	0.00	0.00	0.00	281	UNSUCCESSFUL
C13	17/01/91	0	0	0	0.00	0.00	0.00	523	
C13	05/03/91	0	0	0	0.00	0.00	0.00	685	
C13	03/04/91	0	0	0	0.00	0.00	0.00	805	
C14	05/11/90	0	1	19055551	0.57	0.00	0.00	282	
C14	28/11/90	0	1	19055551	0.86	9.90	43.60	283	
C14	09/12/90	0	1	19055551	0.90	9.90	47.30	284	
C14	17/01/91	0	0	0	0.00	0.00	0.00	524	
C14	05/03/91	0	0	0	0.00	0.00	0.00	686	
C14	03/04/91	0	0	0	0.00	0.00	0.00	806	
C15	05/11/90	0	2	19055579	0.33	0.00	0.00	285	
C15	05/11/90	0	2	19055580	0.22	0.00	0.00	286	
C15	28/11/90	0	2	19055579	0.90	9.00	39.80	287	
C15	28/11/90	0	2	19055580	0.69	9.50	39.00	288	
C15	09/12/90	0	2	19055579	0.77	9.50	41.00	289	
C15	09/12/90	0	2	19055580	0.74	9.80	42.00	290	
C15	17/01/91	0	0	0	0.00	0.00	0.00	525	
C15	05/03/91	0	0	0	0.00	0.00	0.00	687	
C15	03/04/91	0	1	19055580	0.00	0.00	0.00	807	DEAD - DESSICATED, APPEARS STARVED
C16	06/11/90	0	0	0	0.00	0.00	0.00	291	
C16	28/11/90	0	0	0	0.00	0.00	0.00	292	
C16	09/12/90	0	0	0	0.00	0.00	0.00	293	
C16	17/01/91	0	0	0	0.00	0.00	0.00	526	
C16	05/03/91	0	0	0	0.00	0.00	0.00	688	
C16	03/04/91	0	0	0	0.00	0.00	0.00	808	
C17	05/11/90	1	0	0	0.00	0.00	0.00	294	
C17	28/11/90	0	0	0	0.00	0.00	0.00	295	
C17	09/12/90	0	0	0	0.00	0.00	0.00	296	UNSUCCESSFUL
C17	17/01/91	0	0	0	0.00	0.00	0.00	527	
C17	05/03/91	0	0	0	0.00	0.00	0.00	689	
C17	03/04/91	0	0	0	0.00	0.00	0.00	809	
C18	05/11/90	2	0	0	0.00	0.00	0.00	297	
C18	28/11/90	0	1	0	0.10	7.40	22.80	298	
C18	09/12/90	0	0	0	0.00	0.00	0.00	299	UNSUCCESSFUL
C18	17/01/91	0	0	0	0.00	0.00	0.00	528	
C18	05/03/91	0	0	0	0.00	0.00	0.00	690	
C18	03/04/91	0	0	0	0.00	0.00	0.00	810	
C19	05/11/90	2	0	0	0.00	0.00	0.00	300	
C19	28/11/90	0	0	0	0.00	0.00	0.00	301	
C19	09/12/90	0	0	0	0.00	0.00	0.00	302	UNSUCCESSFUL

C19	17/01/91	0	0	0	0.00	0.00	0.00	529
C19	05/03/91	0	0	0	0.00	0.00	0.00	691
C19	03/04/91	0	0	0	0.00	0.00	0.00	812
C2	06/11/90	1	0	0	0.00	0.00	0.00	235
C2	28/11/90	0	0	0	0.00	0.00	0.00	236 UNSUCCESSFUL
C2	09/12/90	0	0	0	0.00	0.00	0.00	237
C2	17/01/91	0	0	0	0.00	0.00	0.00	512
C2	05/03/91	0	0	0	0.00	0.00	0.00	674
C2	03/04/91	0	0	0	0.00	0.00	0.00	794
C20	05/11/90	1	1	19055577	0.23	0.00	0.00	303
C20	28/11/90	0	2	19055577	0.93	10.10	40.00	304
C20	28/11/90	0	2	19055578	0.71	9.00	40.00	305
C20	09/12/90	0	2	19055577	0.79	9.60	42.40	306
C20	09/12/90	0	2	19055578	0.78	9.40	44.40	307
C20	17/01/91	0	0	0	0.00	0.00	0.00	530
C20	05/03/91	0	0	0	0.00	0.00	0.00	692
C20	03/04/91	0	0	0	0.00	0.00	0.00	811
C21	05/11/90	2	0	0	0.00	0.00	0.00	308
C21	28/11/90	0	0	0	0.00	0.00	0.00	309
C21	09/12/90	0	0	0	0.00	0.00	0.00	310 UNSUCCESSFUL
C21	17/01/91	0	0	0	0.00	0.00	0.00	531
C21	05/03/91	0	0	0	0.00	0.00	0.00	693
C21	03/04/91	0	0	0	0.00	0.00	0.00	813
C22	06/11/90	0	0	0	0.00	0.00	0.00	311
C22	28/11/90	0	0	0	0.00	0.00	0.00	312
C22	09/12/90	0	0	0	0.00	0.00	0.00	313
C22	17/01/91	0	0	0	0.00	0.00	0.00	532
C22	05/03/91	0	0	0	0.00	0.00	0.00	694
C22	03/04/91	0	0	0	0.00	0.00	0.00	814
C23	05/11/90	2	0	0	0.00	0.00	0.00	314
C23	28/11/90	1	1	19049657	0.06	6.80	16.80	315
C23	09/12/90	0	2	19059657	0.30	7.60	23.00	316
C23	09/12/90	0	2	2	0.17	7.70	25.00	317
C23	17/01/91	0	2	19049657	0.86	9.30	40.00	533
C23	17/01/91	0	2	2	0.63	9.00	41.00	534
C23	05/03/91	0	0	0	0.00	0.00	0.00	695
C23	03/04/91	0	0	0	0.00	0.00	0.00	815
C24	05/11/90	0	2	19055585	0.30	0.00	0.00	318
C24	05/11/90	0	2	19055586	0.27	0.00	0.00	319
C24	28/11/90	0	2	19055585	0.76	9.70	39.80	320
C24	28/11/90	0	2	19055586	0.58	8.60	38.10	321
C24	09/12/90	0	2	19055585	0.72	9.80	46.10	322
C24	09/12/90	0	2	19055586	0.53	8.90	39.40	323
C24	17/01/91	0	0	0	0.00	0.00	0.00	535

C24	05/03/91	0	0	0	0.00	0.00	0.00	696
C24	03/04/91	0	0	0	0.00	0.00	0.00	816
C25	05/11/90	0	2	1	0.31	0.00	0.00	324
C25	05/11/90	0	2	19055584	0.27	0.00	0.00	325
C25	28/11/90	0	2	1	0.60	8.70	40.00	326
C25	28/11/90	0	2	19055584	0.59	8.00	37.80	327
C25	09/12/90	0	1	19055584	0.76	9.20	37.00	328
C25	17/01/91	0	0	0	0.00	0.00	0.00	536
C25	05/03/91	0	0	0	0.00	0.00	0.00	697
C25	03/04/91	0	0	0	0.00	0.00	0.00	817
C26	06/11/90	0	0	0	0.00	0.00	0.00	329
C26	28/11/90	0	0	0	0.00	0.00	0.00	330
C26	09/12/90	0	0	0	0.00	0.00	0.00	331
C26	17/01/91	0	0	0	0.00	0.00	0.00	537
C26	05/03/91	0	0	0	0.00	0.00	0.00	698
C26	03/04/91	0	0	0	0.00	0.00	0.00	818
C27	05/11/90	2	0	0	0.00	0.00	0.00	332
C27	28/11/90	1	1	1	0.21	7.80	24.80	333
C27	09/12/90	0	2	1	0.59	8.50	33.80	334
C27	09/12/90	0	2	2	0.48	9.00	31.00	335
C27	17/01/91	0	0	0	0.00	0.00	0.00	538
C27	05/03/91	0	0	0	0.00	0.00	0.00	699
C27	03/04/91	0	0	0	0.00	0.00	0.00	819
C28	05/11/90	0	2	19055492	1.09	0.00	0.00	336
C28	05/11/90	0	2	19055491	0.87	0.00	0.00	337
C28	06/11/90	0	2	19055492	1.03	0.00	0.00	338
C28	06/11/90	0	2	19055491	0.99	0.00	0.00	339
C28	28/11/90	0	0	0	0.00	0.00	0.00	340
C28	09/12/90	0	0	0	0.00	0.00	0.00	341 SUCCESSFUL
C28	17/01/91	0	2	19049654	0.83	9.80	44.70	539 RING IN
C28	17/01/91	0	2	19049655	0.82	9.40	46.40	540 RING IN
C28	05/03/91	0	0	0	0.00	0.00	0.00	700
C28	03/04/91	0	0	0	0.00	0.00	0.00	820
C29	05/11/90	1	0	0	0.00	0.00	0.00	342
C29	28/11/90	0	0	0	0.00	0.00	0.00	343
C29	09/12/90	0	0	0	0.00	0.00	0.00	344 UNSUCCESSFUL
C29	17/01/91	0	0	0	0.00	0.00	0.00	541
C29	05/03/91	0	0	0	0.00	0.00	0.00	701
C29	03/04/91	0	0	0	0.00	0.00	0.00	821
C3	06/11/90	0	1	19055547	0.97	0.00	0.00	238

C3	28/11/90	0	1	19055547	1.17	10.70	49.00	239	
C3	09/12/90	0	0	0	0.00	0.00	0.00	240	SUCCESSFUL
C3	17/01/91	0	0	0	0.00	0.00	0.00	513	
C3	05/03/91	0	0	0	0.00	0.00	0.00	675	
C3	03/04/91	0	0	0	0.00	0.00	0.00	795	
C30	05/11/90	1	0	0	0.00	0.00	0.00	345	
C30	28/11/90	0	0	0	0.00	0.00	0.00	346	
C30	09/12/90	0	0	0	0.00	0.00	0.00	347	UNSUCCESSFUL
C30	17/01/91	0	0	0	0.00	0.00	0.00	542	
C30	05/03/91	0	0	0	0.00	0.00	0.00	702	
C30	03/04/91	0	0	0	0.00	0.00	0.00	822	
C31	05/11/90	0	1	1	1.08	0.00	0.00	348	
C31	28/11/90	0	0	0	0.00	0.00	0.00	349	
C31	09/12/90	0	0	0	0.00	0.00	0.00	350	SUCCESSFUL
C31	17/01/91	0	0	0	0.00	0.00	0.00	543	
C31	05/03/91	0	0	0	0.00	0.00	0.00	703	
C31	03/04/91	0	0	0	0.00	0.00	0.00	823	
C32	05/11/90	2	0	0	0.00	0.00	0.00	351	
C32	28/11/90	0	2	1	0.24	7.10	27.40	352	
C32	28/11/90	0	2	2	0.27	7.30	29.70	353	
C32	09/12/90	0	0	0	0.00	0.00	0.00	354	UNSUCCESSFUL
C32	17/01/91	0	0	0	0.00	0.00	0.00	544	
C32	05/03/91	0	0	0	0.00	0.00	0.00	704	
C32	03/04/91	0	0	0	0.00	0.00	0.00	824	
C33	05/11/90	2	0	0	0.00	0.00	0.00	355	
C33	28/11/90	0	0	0	0.00	0.00	0.00	356	
C33	09/12/90	0	0	0	0.00	0.00	0.00	357	UNSUCCESSFUL
C33	17/01/91	0	0	0	0.00	0.00	0.00	545	
C33	05/03/91	0	0	0	0.00	0.00	0.00	705	
C33	03/04/91	0	0	0	0.00	0.00	0.00	825	
C34	05/11/90	0	2	1	0.84	0.00	0.00	358	
C34	05/11/90	0	2	2	0.79	0.00	0.00	359	
C34	28/11/90	0	0	0	0.00	0.00	0.00	360	
C34	09/12/90	0	2	19055587	0.84	10.00	45.00	361	
C34	09/12/90	0	2	19055588	0.90	10.30	45.10	362	
C34	17/01/91	0	0	0	0.00	0.00	0.00	546	
C34	05/03/91	0	0	0	0.00	0.00	0.00	706	
C34	03/04/91	0	0	0	0.00	0.00	0.00	826	
C35	05/11/90	0	1	19055498	1.07	0.00	0.00	363	
C35	06/11/90	0	1	19055498	1.07	0.00	0.00	364	
C35	28/11/90	0	0	0	0.00	0.00	0.00	365	SUCCESSFUL
C35	09/12/90	0	0	0	0.00	0.00	0.00	366	
C35	17/01/91	0	0	0	0.00	0.00	0.00	547	
C35	05/03/91	0	0	0	0.00	0.00	0.00	707	

C35	03/04/91	0	0	0	0.00	0.00	0.00	827
C36	05/11/90	0	0	0	0.00	0.00	0.00	367
C36	28/11/90	0	0	0	0.00	0.00	0.00	368
C36	09/12/90	0	0	0	0.00	0.00	0.00	369
C36	17/01/91	0	0	0	0.00	0.00	0.00	548
C36	05/03/91	0	0	0	0.00	0.00	0.00	708
C36	03/04/91	0	0	0	0.00	0.00	0.00	828
C37	05/11/90	1	0	0	0.00	0.00	0.00	370
C37	06/11/90	2	0	0	0.00	0.00	0.00	371
C37	28/11/90	2	0	0	0.00	0.00	0.00	372
C37	09/12/90	2	0	0	0.00	0.00	0.00	373
C37	17/01/91	0	0	0	0.00	0.00	0.00	549
C37	05/03/91	0	0	0	0.00	0.00	0.00	709
C37	03/04/91	0	0	0	0.00	0.00	0.00	829
C38	05/11/90	2	0	0	0.00	0.00	0.00	374
C38	28/11/90	2	0	0	0.00	0.00	0.00	375
C38	09/12/90	1	0	0	0.00	0.00	0.00	376
C38	17/01/91	0	0	0	0.00	0.00	0.00	550
C38	05/03/91	0	0	0	0.00	0.00	0.00	710
C38	03/04/91	0	0	0	0.00	0.00	0.00	830
C39	05/11/90	0	2	19055511	1.20	0.00	0.00	377
C39	05/11/90	0	2	19055512	1.07	0.00	0.00	378
C39	06/11/90	0	2	19055511	1.23	0.00	0.00	379
C39	06/11/90	0	2	19055512	1.12	0.00	0.00	380
C39	28/11/90	0	0	0	0.00	0.00	0.00	381 SUCCESSFUL
C39	09/12/90	0	0	0	0.00	0.00	0.00	382
C39	17/01/91	0	0	0	0.00	0.00	0.00	551
C39	05/03/91	0	0	0	0.00	0.00	0.00	711
C39	03/04/91	0	0	0	0.00	0.00	0.00	831
C4	06/11/90	2	0	0	0.00	0.00	0.00	241
C4	28/11/90	0	0	0	0.00	0.00	0.00	242 UNSUCCESSFUL
C4	09/12/90	0	0	0	0.00	0.00	0.00	243
C4	17/01/91	0	0	0	0.00	0.00	0.00	514
C4	05/03/91	0	0	0	0.00	0.00	0.00	676
C4	03/04/91	0	0	0	0.00	0.00	0.00	796
C40	05/11/90	0	2	19055590	0.32	0.00	0.00	383
C40	05/11/90	0	2	19055591	0.31	0.00	0.00	384
C40	28/11/90	0	2	19055590	0.90	9.70	41.50	385
C40	28/11/90	0	2	19055591	0.86	9.40	39.80	386
C40	09/12/90	0	2	19055590	0.94	11.00	43.00	387

C40	09/12/90	0	2	19055591	0.99	10.30	43.00	388
C40	17/01/91	0	0	0	0.00	0.00	0.00	552
C40	05/03/91	0	0	0	0.00	0.00	0.00	712
C40	03/04/91	0	0	0	0.00	0.00	0.00	832
C5	05/11/90	0	1	19055545	0.80	0.00	0.00	244
C5	06/11/90	0	2	19055545	0.83	0.00	0.00	245
C5	06/11/90	0	2	19055546	0.75	0.00	0.00	246
C5	28/11/90	0	2	19055545	1.01	10.40	40.00	247
C5	28/11/90	0	2	19055546	0.86	9.50	42.30	248
C5	09/12/90	0	1	19055545	0.92	11.10	41.40	249
C5	17/01/91	0	0	0	0.00	0.00	0.00	515
C5	05/03/91	0	0	0	0.00	0.00	0.00	677
C5	03/04/91	0	0	0	0.00	0.00	0.00	797
C6	05/11/90	0	2	1	0.12	0.00	0.00	250
C6	05/11/90	0	2	2	0.11	0.00	0.00	251
C6	28/11/90	0	2	1	0.85	10.20	37.40	252
C6	28/11/90	0	2	2	0.78	9.30	38.00	253
C6	09/12/90	0	2	1	0.83	10.30	45.70	254
C6	09/12/90	0	2	2	0.66	9.50	41.50	255
C6	17/01/91	0	0	0	0.00	0.00	0.00	516
C6	05/03/91	0	0	0	0.00	0.00	0.00	678
C6	03/04/91	0	0	0	0.00	0.00	0.00	798
C7	05/11/90	0	1	19055476	0.90	0.00	0.00	256
C7	06/11/90	0	1	19055476	1.27	0.00	0.00	257
C7	28/11/90	0	0	0	0.00	0.00	0.00	258
C7	SUCCESSFUL							
C7	09/12/90	0	0	0	0.00	0.00	0.00	259
C7	17/01/91	0	0	0	0.00	0.00	0.00	517
C7	05/03/91	0	0	0	0.00	0.00	0.00	679
C7	03/04/91	0	0	0	0.00	0.00	0.00	799
C8	05/11/90	0	2	19055582	0.07	0.00	0.00	260
C8	05/11/90	0	2	19055581	0.06	0.00	0.00	261
C8	28/11/90	0	2	19055582	0.63	8.70	36.00	262
C8	28/11/90	0	2	19055581	0.60	9.10	35.20	263
C8	09/12/90	0	2	19055582	0.79	9.00	38.60	264
C8	09/12/90	0	2	19055581	0.86	9.40	43.60	265
C8	17/01/91	0	0	0	0.00	0.00	0.00	518
C8	05/03/91	0	0	0	0.00	0.00	0.00	680
C8	03/04/91	0	0	0	0.00	0.00	0.00	800
C9	06/11/90	2	0	0	0.00	0.00	0.00	266
C9	28/11/90	0	2	1	0.33	7.60	26.40	267
C9	28/11/90	0	2	2	0.27	7.90	25.30	268
C9	09/12/90	0	0	0	0.00	0.00	0.00	269
C9	UNSUCCESSFUL							
C9	17/01/91	0	0	0	0.00	0.00	0.00	519
C9	SMALL DEAD CHICK IN BURROW							
C9	05/03/91	0	0	0	0.00	0.00	0.00	681

C9 03/04/91

0

0

0

0.00

0.00 0.00

801.

RECORDS PRINTED = 832

APPENDIX 2.

ENCOUNTER BAY ISLANDS PENGUIN COUNT

8/12/1990

BACKGROUND

Little Penguins, Eudyptula minor, use Granite, Wright and West Islands for breeding and moulting. The breeding season can start as early as May and finish as late as March. The Moultng period usually begins after birds have finished breeding and had time enough to double their weight. During these periods of feeding penguins are usually absent from the island for a few weeks. Moultng is usually in full swing by Februaury and takes about 3 weeks for an individual bird to be able to take to sea again. Penguins spend most of thier days in the sea and will only come to shore in the evening or during the night. Many penguins come ashore even if they are not nesting.

AIM

To determine the numbers of penguins on the three islands on the 8/12/90. This will provide an estimate of the total population of penguins currently using the Encounter Bay area.

METHODOLOGY

Searching will be conducted in systematic strips/bands by groups of searchers equipped with torches spread out in a line. The line will be the width of the strip at right angle to the direction of the strip (width of the strip is determined by the number of searchers).

Search lines should move along the strip at the pace of the slowest searcher in the line. At the start of the search the number 1 searcher will be nearest the coast. #1 responsibility will therefore be to count all the penguins between him/her and the sea. #2 will therefore count all penguins between themselves and #1...etc up to the last searcher who is responsible for laying out strip boundary markers as well as counting. At the end of a strip the searchers will collect to the boundary that has just been marked and space themselves out forming the next search strip in the opposite direction to the previous one. At this stage the searchers can count the penguins between themselves and the sea, being careful not to overlap with other peoples counting areas. As the line progresses along the strip #1 will be responsible for following and collecting the boundary marker and should not count any birds encountered. (the birds between #1 & #2 are ther responsibility of #2, & the birds on the other side of #1 should have been counted in the previous strip).

10 m spacing between searchers should be adequate, however, this should be quite flexible depending on terrain. In some instances searchers methods will need to be flexible and count birds on their other sides where it is obvious that the next # searcher could not possibly count them (ie if the benguins are behind rocks,cliffs etc. Care should be taken to avoid double counting.

MATERIALS

Searchers will need - strong reliable torches
- pencils and notepaper

A written tally of birds counted should be kept by all searches as they are counting. ie count all the birds in a group and write the number down, likewise with birds that are more separated, do not attempt to remember a cumulative total, ie when you reach the end of a strip or a large group of penguins record your count and then start again from 1. Record sheets are provided with this information please use them or a note book set up in a similar fashion.

SPECIAL CONSIDERATIONS FOR EACH ISLAND

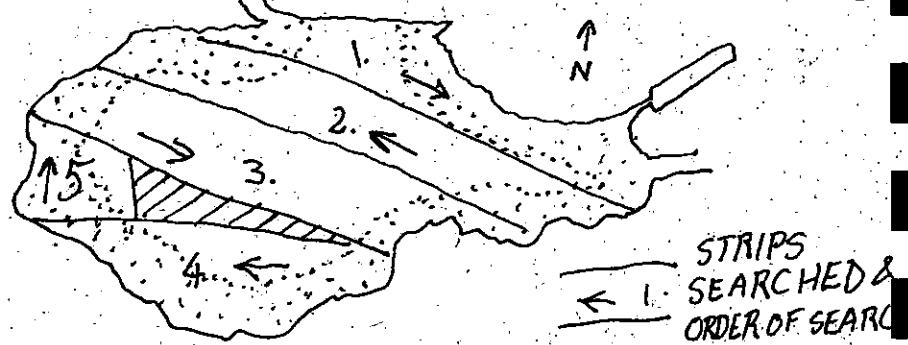
Granite Island.

Access will be by the bridge. Minimum of 8 searchers. Search strips should move parallel to the North shore which is the ideal place for the search to begin. See Map 1. This Island should be covered in about 5 or 6 strips approximately 100 m wide.

Area not searched



Main colony areas



Wright Island.

Access will be by NPWS boat. Minimum of 3 searchers. Group leader will have to decide on a different methodology due to the difficult terrain.



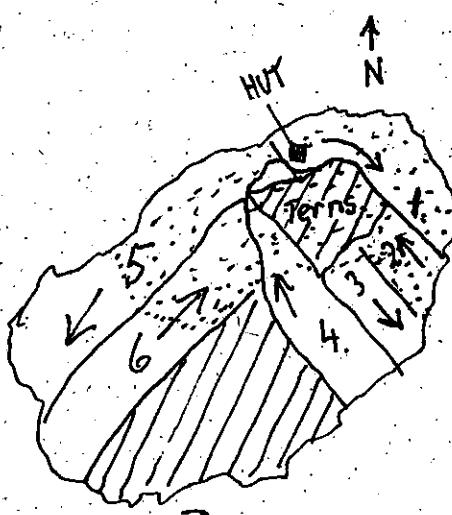
West Island:

Access by NPWS boat 2 Trips. Minimum 8 searchers. Special care will be needed during searching to avoid disturbing the Crested Tern colony behind and above the field station, this area won't be searched.

Areas not searched



Main colony area



APPENDIX 3

DATES AREA	ADULTS	BIRD, EGG & CLUTCH NUMBERS					BURROWS
		BURROWS	CHICKS	BURROWS	EGGS		
29/10/90 A	11	11	5	4	16	9	
30/10/90 A	25	20	20	12	7	4	
COMBINED A	36	31	25	16	23	13	
31/10/90 B	29	25	8	5	34	20	
07/11/90 B	13	9	4	3	7	3	
COMBINED B	42	34	12	8	41	23	
05/11/90 C	N/A	N/A	26	17	22	14	
06/11/90 C	37	30	N/A	N/A	6	4	
COMBINED C	37	30	26	17	28	18	
TOTALS A,B,C	115	95	58	37	92	54	
07/11/90 A	21	19	21	13	16	9	
28/11/90 C	10	9	26	16	8	5	
29/11/90 A	3	3	14	9	2	1	
29/11/90 B	5	5	8	5	5	3	
TOTALS	18	17	48	30	15	9	
09/12/90 C	3	3	21	12	3	2	
19/12/90 A	0	0	2	2			
19/12/90 B	1	1	3	2			
TOTALS	4	4	26	16	3	2	
17/01/91 B	18	11					
17/01/91 C	15	12	4	2			
24/01/91 A	15	9					
TOTALS	48	32	4	2	0	0	
27/02/91 A	0	0					
27/02/91 B	0	0					
05/03/91 C	5	3					
TOTALS	5	3	0	0	0	0	
26/03/91 A	14	9					
03/04/91 B	9	6					
03/04/91 C	22	15					
TOTLAS	45	30	0	0	0	0	

Early burrow details were sometimes gathered for a whole area, consequently the dates had to be combined to provide the information on an area during a sampling period.

APPENDIX 4 - CHICK GROWTH & FATE

BURROW	DATE REC.	CHICK #	BAND #	ESTIMATED FATE			
				WEIGHT KG	BIRTH DAY	COMMENTS	
A11	29/10/90	1	19055410	1.27	?	SUCCESS	
A14	29/10/90	1	19055575	0.37	19-20/10	LAST MEASURED 45 DAYS OLD,	SUCCESS
A14	29/11/90	2	19055576	0.94	?	SUCCESS	
A14	11/7/90	1	19055575	0.64			
A14	29/11/90	2	19055575	1			
A14	19/12/90	1	19055576	0.92			
A15	29/10/90	2	19055573	0.2	24-25/10	SUCCESS	
A15	29/10/90	2	19055572	0.44	16-19/10	SUCCESS	
A15	11/7/90	2	19055573	0.49			
A15	11/7/90	2	19055572	0.7			
A15	29/11/90	2	19055573	0.86			
A15	29/11/90	2	19055572	0.96			
A15	19/12/90	1	19055573	0.9			
A20	30/10/90	2	1	0.32	21-22/10	FAILED	
A20	30/10/90	2	2	0.22	24-25/10	FAILED	
A20	11/7/90	1	1	0.63			
A21	11/7/90	2	1	0.06	6-7/11	FAILED	
A21	11/7/90	2	2	0.06	6-7/11	FAILED	
A28	30/10/90	1	0	0.64	11-13/10	? SUCCESS	
A29	30/10/90	2	19055571	0.26	24-25/10	FAILED, FOUND DEAD	
A29	30/10/90	2	2	0.35	20-22/10	FAILED FOUND DEAD	
A29	29/11/90	1	19055571	0.86			
A30	30/10/90	2	19055570	0.5	15-17/10	SUCCESS	
A30	30/10/90	2	2	0.48	16-18/10	FAILED	
A30	11/7/90	1	19055570	0.74			
A30	29/11/90	1	19055570	1.14			
A31	30/10/90	2	19055542	0.98	31/9-3/10	SUCCESS	
A31	30/10/90	2	19055543	0.94	1/9-4/10	SUCCESS	
A31	11/7/90	2	19055542	1.16			
A31	11/7/90	2	19055543	1.15			
A31	29/11/90	1	19055542	0.9			
A33	30/10/90	2	19055568	0.3	22-23/10	SUCCESS	
A33	30/10/90	2	19055569	0.25	23-24/10	SUCCESS	
A33	11/7/90	2	19055568	0.54			
A33	11/7/90	2	19055569	0.5			
A33	29/11/90	2	19055568	1.12			
A33	29/11/90	2	19055569	0.98			
A34	30/10/90	1	19055430	1.19		SUCCESS	
A34	11/7/90	1	19055430	1.1		SUCCESS	

A35	30/10/90	2	19055566	0.26	23-24/10	SUCCESS
A35	30/10/90	2	19055567	0.25	23-24/10	SUCCESS
A35	11/7/90	2	19055566	0.53		
A35	11/7/90	2	19055567	0.52		
A35	29/11/90	2	19055566	1.02		
A35	29/11/90	2	19055567	0.99		
A36	30/10/90	1	19055432	1.12		SUCCESS
A36	11/7/90	1	19055432	1.17		SUCCESS
A37	30/10/90	2	19055565	0.3	22-23/10	SUCCESS
A37	30/10/90	2	19055564	0.3	22-23/10	SUCCESS
A37	11/7/90	2	19055565	0.64		
A37	11/7/90	2	19055564	0.62		
A37	29/11/90	2	19055565	1.11		
A37	29/11/90	2	19055564	1.05		
A38	30/10/90	2	1	0.08	28-29/10	? FAILED
A38	30/10/90	2	2	0.07	28-29/10	FAILED
A38	11/7/90	2	1	0.31		
A38	11/7/90	2	2	0.27		
A38	29/11/90	1	1	0.77		
A40	30/10/90	1	0	0.67	10-12/10	FAILED, FOUND DEAD
A8	11/7/90	2	1	0.1	5-6/11	FAILED
A8	11/7/90	2	2	0.08	5-6/11	FAILED
A9	29/10/90	1	0	0.54	13-15/10	FAILED
B14	19/12/90	1	19055592	0.86	23-26/11?	? SUCCESS
B18	31/10/90	1	19055459	1.1?		SUCCESS
B19	31/10/90	2	1	1.04?		SUCCESS
B19	31/10/90	2	2	0.91?		SUCCESS
B20	29/11/90	3	19055594	0.64	10-12/11	?
B20	29/11/90	3	19055593	0.65	10-12/11	?
B20	29/11/90	3	3	0.43	17-19/11	FAILED
B20	19/12/90	2	19055593	0.69		
B20	19/12/90	2	19055594	0.72		
B26	31/10/90	2	1	0.97	1-4/11?	SUCCESS
B26	31/10/90	2	2	0.86	5-8/11?	SUCCESS
B29	31/10/90	2	19055560	0.67	11-13/10	SUCCESS
B29	31/10/90	2	19055561	0.66	11-13/10	SUCCESS
B29	29/11/90	2	19055560	1.02		
B29	29/11/90	2	19055561	0.87		

B32	11/7/90	1	19055517	0.92 ?	SUCCESS
B33	11/7/90	2	19055519	1.24 ?	SUCCESS, OTHER CHICK DEAD ON FIRST VISIT
B34	29/11/90	1	0	0.42 17-18/11	FAILED
B38	11/7/90	2	19055563	0.51 22-24/10	SUCCESS
B38	11/7/90	2	0	0.38 26-27/10	FAILED
B38	29/11/90	1	19055563	1.02	
B4	29/11/90	1	19055558	1.23 ?	SUCCESS
B7	31/10/90	1	19055446	1.27 ?	SUCCESS, FOLLOWED BY SECOND CLUTCH THOUGH UNSUCCESS
C1	11/5/90	2	19055472	1.29 ?	SUCCESS
C1	11/5/90	2	19055471	1.14 ?	SUCCESS
C1	11/6/90	2	19055472	1.4	
C1	11/6/90	2	19055471	1.17	
C11	11/5/90	1	19055550	0.84 ?	SUCCESS
C11	28/11/90	1	19055550	1.05	
C14	11/5/90	1	19055551	0.57 9-11/10	SUCCESS
C14	28/11/90	1	19055551	0.86	
C14	12/9/90	1	19055551	0.9	
C15	11/5/90	2	19055579	0.33 28-29/10	? SUCCESS
C15	11/5/90	2	19055580	0.22 30-31/10	FAILED, FOUND DEAD
C15	28/11/90	2	19055579	0.9	
C15	28/11/90	2	19055580	0.69	
C15	12/9/90	2	19055579	0.77	
C15	12/9/90	2	19055580	0.74	
C18	28/11/90	1	0	0.1 26/11	FAILED
C20	11/5/90	1	19055577	0.23 30-31/10	? SUCCESS
C20	28/11/90	2	19055577	0.93	
C20	28/11/90	2	19055578	0.71 6-8/11	? SUCCESS
C20	12/9/90	2	19055577	0.79	
C20	12/9/90	2	19055578	0.78	
C23	28/11/90	1	19049657	0.06 28/11	? SUCCESS
C23	12/9/90	2	19059657	0.3	
G23	12/9/90	2	2	0.17 5-6/12	? SUCCESS
C23	17/01/91	2	19049657	0.86	
C23	17/01/91	2	2	0.63	

C24	11/5/90	2	19055585	0.3	28-29/10	? SUCCESS
C24	11/5/90	2	19055586	0.27	29-30/10	? SUCCESS
C24	28/11/90	2	19055585	0.76		
C24	28/11/90	2	19055586	0.58		
C24	12/9/90	2	19055585	0.72		
C24	12/9/90	2	19055586	0.53		
C25	11/5/90	2	19055581	0.31	28-29/10	? SUCCESS
C25	11/5/90	2	19055584	0.27	29-30/10	? SUCCESS
C25	28/11/90	2	19055581	0.6		
C25	28/11/90	2	19055584	0.59		
C25	12/9/90	1	19055584	0.76		
C27	28/11/90	1		1	0.21	23-24/11 ? SUCCESS
C27	12/9/90	2		1	0.59	
C27	12/9/90	2		2	0.48	25-27/11 ? FAILED
C28	11/5/90	2	19055492	1.09	?	SUCCESS
C28	11/5/90	2	19055491	0.87	?	SUCCESS
C28	11/6/90	2	19055492	1.03		
C28	11/6/90	2	19055491	0.99		
C28	17/01/91	2	19049654	0.83		
C28	17/01/91	2	19049655	0.82		
C3	11/6/90	1	19055547	0.97	?	SUCCESS
C3	28/11/90	1	19055547	1.17	?	SUCCESS
C31	11/5/90	1		1	1.08	?
C31						SUCCESS
C32	28/11/90	2		1	0.24	22-23/11 FAILED
C32	28/11/90	2		2	0.27	21-22/11 FAILED
C34	11/5/90	2		1	0.84	11-13/10 ?
C34	11/5/90	2		2	0.79	13-15/10 ?
C34	12/9/90	2	19055587	0.84		
C34	12/9/90	2	19055588	0.9		
C35	11/5/90	1	19055498	1.07	?	SUCCESS
C35	11/6/90	1	19055498	1.07	?	SUCCESS
C39	11/5/90	2	19055511	1.2	?	SUCCESS
C39	11/5/90	2	19055512	1.07	?	SUCCESS
C39	11/6/90	2	19055511	1.23		
C39	11/6/90	2	19055512	1.12		
C40	11/5/90	2	19055590	0.32	27-28/10	SUCCESS
C40	11/5/90	2	19055591	0.31	27-28/10	SUCCESS
C40	28/11/90	2	19055590	0.9		
C40	28/11/90	2	19055591	0.86		
C40	12/9/90	2	19055590	0.94		
C40	12/9/90	2	19055591	0.99		

C5	11/5/90	1	19055545	0.8	12-14/10	? SUCCESS, LAST RECORDED 58 DAYS
C5	11/6/90	2	19055545	0.83	12-14/10	? SUCCESS, LAST RECORDED 58 DAYS
C5	11/6/90	2	19055546	0.75		
C5	28/11/90	2	19055545	1.01		
C5	28/11/90	2	19055546	0.86		
C5	12/9/90	1	19055545	0.92		
C6	11/5/90	2		1	0.12	2-3/11
C6	11/5/90	2		2	0.11	2-3/11
C6	28/11/90	2		1	0.85	
C6	28/11/90	2		2	0.78	
C6	12/9/90	2		1	0.83	
C6	12/9/90	2		2	0.66	
C7	11/5/90	1	19055476	0.9		SUCCESS
C7	11/6/90	1	19055476	1.27		SUCCESS
C8	11/5/90	2	19055582	0.07	3-4/11	? SUCCESS
C8	11/5/90	2	19055581	0.06	3-4/11	? SUCCESS
C8	28/11/90	2	19055582	0.63		
C8	28/11/90	2	19055581	0.6		
C8	12/9/90	2	19055582	0.79		
C8	12/9/90	2	19055581	0.86		
C9	28/11/90	2		1	0.33	19-20/11
C9	28/11/90	2		2	0.27	21-22/11
						FAILED

AVERAGE GROWTH RATES FOR CHICKS LESS THAN 0.74 KG WERE CALCULATED TO BE BETWEEN 0.31 & 0.35 KG PER DAY WITH 95% CONFIDENCE FROM THE 14 AVERAGES USED WHICH RANGED FROM 0.28 TO 0.43 MOST MEASUREMENT INTERVALS BEING 8-9 DAYS APPART

THE RELATIONSHIP $Y = (0.031 \text{ OR } 0.035)X + 0.045$ WAS USED TO ESTIMATE BIRTH DATES

APPENDIX 5.

PENGUIN BANDING AND RECAPTURE DATA - ENCOUNTER BAY PENGUIN STUDY 1990/91

ADULT PENGUINS

BAND,"	19049658,"	"A26"	03/04/91",	"C6"
DATE",	17/01/91",	19049676,"	"C12"	19051010,"
"BURROW"	"B1"	26/03/91",	19049691,"	06/11/90",
19029684,"	19049659,"	"A27"	03/04/91",	"C29"
26/03/91",	17/01/91",	19049677,"	"C14"	19051081,"
"A22"	"B14"	24/01/91",	19049693,"	06/11/90",
19029684,"	19049660,"	"A30"	03/04/91",	"C29"
30/10/90",	17/01/91",	19049678,"	"C22"	19051099,"
"A22"	"B19"	24/01/91",	19049694,"	06/11/90",
19029695,"	19049661,"	"A32"	03/04/91",	"C12"
17/01/91",	17/01/91",	19049679,"	"C27"	
"B30"	"B20"	24/01/91",	19049695,"	19051105,"
19029695,"	19049662,"	"A32"	03/04/91",	03/04/91",
31/10/90",	17/01/91",	19049680,"	"C27"	"B10"
"B30"	"B20"	24/01/91",	19049696,"	19051106,"
19045321,"	19049663,"	"A36"	03/04/91",	03/04/91",
17/01/91",	17/01/91",	19049680,"	"C37"	"B15"
"B20"	"B20"	26/03/91",	19049697,"	19051107,"
"C28"	19049664,"	"A36"	03/04/91",	03/04/91",
19045737,"	17/01/91",	19049681,"	"C38"	"B15"
05/03/91",	"B20"	24/01/91",	19049698,"	19051108,"
"C23"	19049665,"	"A34"	03/04/91",	03/04/91",
19045737,"	17/01/91",	19049681,"	"C38"	"B19"
06/11/90",	"B20"	26/03/91",	19049699,"	19051109,"
"C23"	19049666,"	"A34"	03/04/91",	03/04/91",
19045789,"	17/01/91",	19049682,"	"C39"	"B19"
06/11/90",	"B20"	24/01/91",	19049700,"	19051110,"
"C14"	19049667,"	"A34"	03/04/91",	03/04/91",
19045798,"	17/01/91",	19049682,"	"C39"	"B28"
03/04/91",	"B11"	26/03/91",		19051111,"
"C14"	19049668,"	"A34"	19049751,"	03/04/91",
19046341,"	17/01/91",	19049683,"	06/11/90",	"B32"
05/11/90",	"B12"	05/03/91",	"C12"	19055401,"
"C6"	19049670,"	"C27"	19049751,"	07/11/90",
19046871,"	17/01/91",	19049684,"	09/12/90",	"A1"
06/11/90",	"B21"	26/03/91",	"C7"	19055401,"
"C26"	19049671,"	"A2"	19049753,"	26/03/91",
19049418,"	17/01/91",	19049685,"	06/11/90",	"A1"
06/11/90",	"B40"	26/03/91",	"C37"	19055401,"
"C3"	19049672,"	"A22"	19049755,"	29/10/90",
	24/01/91",	19049686,"	03/04/91",	"A1"
19049652,"	"A15"	26/03/91",	"C15"	19055401,"
17/01/91",	19049673,"	"A27"	19049755,"	29/11/90",
"C30"	24/01/91",	19049687,"	06/11/90",	"A1"
19049653,"	"A16"	26/03/91",	"C15"	19055402,"
17/01/91",	19049674,"	"A31"	19049809,"	07/11/90",
"C30"	24/01/91",	19049688,"	09/12/90",	"A2"
19049656,"	"A23"	03/04/91",	"C28"	19055402,"
03/04/91",	19049675,"	"C10"	19049825,"	26/03/91",
"C13"	24/01/91",	19049689,"	03/04/91",	"A2"
19049656,"	"A23"	03/04/91",	"C2"	19055402,"
17/01/91",	19049676,"	"C10"	19049878,"	29/10/90",
"C24"	24/01/91",	19049690,"	17/01/91",	"A2"

19055403,"	07/11/90",	"A38"	19055453,"	06/11/90",
29/10/90",	"A21"	19055436,"	31/10/90",	"C3"
"A4"	19055420,"	24/01/91",	"B12"	19055474,"
19055404,"	30/10/90",	"A39"	19055454,"	06/11/90",
29/10/90",	"A21"	19055436,"	31/10/90",	"C4"
"A5"	19055421,"	30/10/90",	"B13"	19055475,"
19055405,"	30/10/90",	"A39"	19055455,"	06/11/90",
07/11/90",	"A23"	19055437,"	31/10/90",	"C6"
"A6"	19055422,"	24/01/91",	"B14"	19055477,"
19055405,"	30/10/90",	"A39"	19055456,"	06/11/90",
29/10/90",	"A23"	19055437,"	31/10/90",	"C8"
"A6"	19055423,"	30/10/90",	"B15"	19055478,"
19055406,"	29/11/90",	"A39"	19055457,"	03/04/91",
29/10/90",	"A24"	19055438,"	31/10/90",	"C2"
"A7"	19055423,"	30/10/90",	"B16"	19055478,"
19055407,"	30/10/90",	"A40"	19055458,"	06/11/90",
07/11/90",	"A24"	19055439,"	17/01/91",	"C9"
"A8"	19055424,"	31/10/90",	"B17"	19055479,"
19055407,"	30/10/90",	"B1"	19055458,"	06/11/90",
29/10/90",	"A25"	19055440,"	31/10/90",	"C10"
"A8"	19055425,"	31/10/90",	"B17"	19055480,"
19055408,"	30/10/90",	"B2"	19055460,"	06/11/90",
29/10/90",	"A26"	19055441,"	31/10/90",	"C13"
"A9"	19055426,"	31/10/90",	"B20"	19055480,"
19055409,"	30/10/90",	"B3"	19055461,"	28/11/90",
29/10/90",	"A27"	19055442,"	17/01/91",	"C13"
"A10"	19055427,"	31/10/90",	"B21"	19055481,"
19055411,"	07/11/90",	"B4"	19055461,"	03/04/91",
29/10/90",	"A30"	19055443,"	31/10/90",	"C17"
"A12"	19055427,"	31/10/90",	"B21"	19055481,"
19055412,"	26/03/91",	"B5"	19055462,"	06/11/90",
29/10/90",	"A30"	19055444,"	31/10/90",	"C17"
"A14"	19055427,"	31/10/90",	"B22"	19055482,"
19055413,"	30/10/90",	"B5"	19055463,"	06/11/90",
30/10/90",	"A30"	19055445,"	31/10/90",	"C18"
"A16"	19055428,"	31/10/90",	"B23"	19055483,"
19055414,"	30/10/90",	"B6"	19055464,"	06/11/90",
30/10/90",	"A32"	19055447,"	31/10/90",	"C19"
"A16"	19055429,"	31/10/90",	"B24"	19055484,"
19055415,"	07/11/90",	"B8"	19055465,"	06/11/90",
30/10/90",	"A33"	19055448,"	31/10/90",	"C21"
"A17"	19055429,"	31/10/90",	"B25"	19055484,"
19055416,"	30/10/90",	"B8"	19055466,"	17/01/91",
07/11/90",	"A33"	19055449,"	31/10/90",	"C21"
"A18"	19055431,"	31/10/90",	"B27"	19055485,"
19055416,"	30/10/90",	"B9"	19055467,"	06/11/90",
30/10/90",	"A35"	19055450,"	31/10/90",	"C22"
"A18"	19055434,"	03/04/91",	"B28"	19055485,"
19055417,"	07/11/90",	"B10"	19055468,"	17/01/91",
30/10/90",	"A37"	19055450,"	17/01/91",	"C22"
"A19"	19055434,"	31/10/90",	"B30"	19055486,"
19055418,"	30/10/90",	"B10"	19055468,"	06/11/90",
30/10/90",	"A37"	19055451,"	31/10/90",	"C22"
"A19"	19055435,"	31/10/90",	"B30"	19055486,"
19055419,"	07/11/90",	"B11"	19055469,"	17/01/91",
30/10/90",	"A38"	19055452,"	06/11/90",	"C22"
"A20"	19055435,"	31/10/90",	"C20"	19055487,"
19055420,"	30/10/90",	"B12"	19055473,"	06/11/90",

"C24"	19055520,"	30/10/90",	"C23"	
19055488,"	07/11/90",	"A17"	19055533,"	Band #'s 29684 &
06/11/90",	"B34"	19055535,"	28/11/90",	29685 were
"C25"	19055521,"	07/11/90",	"C37"	banded on
19055489,"	07/11/90",	"A18"	19055554,"	
06/11/90",	"B35"	19055536,"	28/11/90",	at
"C26"	19055522,"	07/11/90",	"C35"	
19055490,"	07/11/90",	"A23"	19055555,"	Band #'s 45321
05/03/91",	"B35"	19055537,"	28/11/90",	to 49418 were
"C27"	19055522,"	07/11/90",	"C35"	banded at West
19055490,"	29/11/90",	"A24"	19055556,"	Island in 1989
06/11/90",	"B35"	19055538,"	28/11/90",	
"C27"	19055523,"	07/11/90",	"C38"	
19055490,"	07/11/90",	"A25"	19055557,"	
28/11/90",	"B36"	19055539,"	29/11/90",	Band #'s 49751
"C27"	19055524,"	07/11/90",	"B2"	to 51099 were
19055493,"	03/04/91",	"A26"	19055559,"	also banded on
06/11/90",	"B36"	19055540,"	29/11/90",	West Island in
"C30"	19055524,"	07/11/90",	"B7"	1989.
19055494,"	07/11/90",	"A27"	19055562,"	
06/11/90",	"B36"	19055540,"	29/11/90",	
"C30"	19055525,"	24/01/91",	"B34"	
19055495,"	07/11/90",	"A26"	19055574,"	
06/11/90",	"B37"	19055541,"	29/11/90",	
"C32"	19055526,"	07/11/90",	"A14"	
19055496,"	07/11/90",	"A29"	19055583,"	
06/11/90",	"B38"	19055541,"	09/12/90",	
"C33"	19055527,"	26/03/91",	"C4"	
19055497,"	07/11/90",	"A29"	19055595,"	
06/11/90",	"B39"	19055544,"	03/04/91",	
"C34"	19055527,"	07/11/90",	"C5"	
19055499,"	19/12/90",	"A36"	19055595,"	
03/04/91",	"B39"	19055544,"	17/01/91",	
"C37"	19055528,"	24/01/91",	"C5"	
19055499,"	07/11/90",	"A36"	19055596,"	
06/11/90",	"B39"	19055548,"	17/01/91",	
"C37"	19055528,"	17/01/91",	"C12"	
19055500,"	29/11/90",	"C10"	19055597,"	
06/11/90",	"B39"	19055548,"	17/01/91",	
"C38"	19055529,"	28/11/90",	"C12"	
19055513,"	07/11/90",	"C9"	19055598,"	
06/11/90",	"B40"	19055549,"	17/01/91",	
"C40"	19055530,"	03/04/91",	"C13"	
19055514,"	07/11/90",	"C9"	19055599,"	
06/11/90",	"A1"	19055549,"	17/01/91",	
"C2"	19055530,"	05/03/91",	"C17"	
19055514,"	26/03/91",	"C9"	19055600,"	
28/11/90",	"A1"	19055549,"	03/04/91",	
"C2"	19055531,"	28/11/90",	"C19"	
19055515,"	07/11/90",	"C10"	19055600,"	
07/11/90",	"A4"	19055552,"	17/01/91",	
"B31"	19055532,"	05/03/91",	"C19"	
19055516,"	07/11/90",	"C23"	19055669,"	
07/11/90",	"A7"	19055552,"	17/01/91",	
"B31"	19055533,"	09/12/90",	"B29"	
19055518,"	07/11/90",	"C23"		
07/11/90",	"A12"	19055552,"		
"B32"	19055534,"	28/11/90",		

C H I C K	19055491,"	28/11/90",	"A37"	19055571,"
RECORDS	06/11/90",	"C5"	19055565,"	29/11/90",
	"C28"	19055546,"	07/11/90",	"A29"
	19055492,"	06/11/90",	"A37"	19055571,"
19049654,"	05/11/90",	"C5"	19055565,"	30/10/90",
17/01/91",	"C28"	19055546,"	29/11/90",	"A29"
"C28"	19055492,"	28/11/90",	"A37"	19055572,"
19049655,"	06/11/90",	"C5"	19055565,"	07/11/90",
17/01/91",	"C28"	19055547,"	30/10/90",	"A15"
"C28"	19055498,"	06/11/90",	"A37"	19055572,"
19049657,"	05/11/90",	"C3"	19055566,"	29/10/90",
17/01/91",	"C35"	19055547,"	07/11/90",	"A15"
"C23"	19055498,"	28/11/90",	"A35"	19055572,"
19049657,"	06/11/90",	"C3"	19055566,"	29/11/90",
28/11/90",	"C35"	19055550,"	29/11/90",	"A15"
"C23"	19055511,"	05/11/90",	"A35"	19055573,"
19055410,"	05/11/90",	"C11"	19055566,"	07/11/90",
29/10/90",	"C39"	19055550,"	30/10/90",	"A15"
"A11"	19055511,"	28/11/90",	"A35"	19055573,"
19055430,"	06/11/90",	"C11"	19055567,"	19/12/90",
07/11/90",	"C39"	19055551,"	07/11/90",	"A15"
"A34"	19055512,"	05/11/90",	"A35"	19055573,"
19055430,"	05/11/90",	"C14"	19055567,"	29/10/90",
30/10/90",	"C39"	19055551,"	29/11/90",	"A15"
"A34"	19055512,"	09/12/90",	"A35"	19055573,"
19055432,"	06/11/90",	"C14"	19055567,"	29/11/90",
07/11/90",	"C39"	19055551,"	30/10/90",	"A15"
"A36"	19055517,"	28/11/90",	"A35"	19055575,"
19055432,"	07/11/90",	"C14"	19055568,"	07/11/90",
30/10/90",	"B32"	19055558,"	07/11/90",	"A14"
"A36"	19055519,"	29/11/90",	"A33"	19055575,"
19055446,"	07/11/90",	"B4"	19055568,"	29/11/90",
31/10/90",	"B33"	19055560,"	29/11/90",	"A14"
"B7"	19055542,"	29/11/90",	"A33"	19055575,"
19055459,"	07/11/90",	"B29"	19055568,"	29/10/90",
31/10/90",	"A31"	19055560,"	30/10/90",	"A14"
"B18"	19055542,"	31/10/90",	"A33"	19055576,"
19055471,"	29/11/90",	"B29"	19055569,"	19/12/90",
05/11/90",	"A31"	19055561,"	07/11/90",	"A14"
"C1"	19055542,"	29/11/90",	"A33"	19055576,"
19055471,"	30/10/90",	"B29"	19055569,"	29/11/90",
06/11/90",	"A31"	19055561,"	29/11/90",	"A14"
"C1"	19055543,"	31/10/90",	"A33"	19055577,"
19055472,"	07/11/90",	"B29"	19055569,"	05/11/90",
05/11/90",	"A31"	19055563,"	30/10/90",	"C20"
"C1"	19055543,"	07/11/90",	"A33"	19055577,"
19055472,"	30/10/90",	"B38"	19055570,"	09/12/90",
06/11/90",	"A31"	19055563,"	07/11/90",	"C20"
"C1"	19055545,"	29/11/90",	"A30"	19055577,"
19055476,"	05/11/90",	"B38"	19055570,"	28/11/90",
05/11/90",	"C5"	19055564,"	29/11/90",	"C20"
"C7"	19055545,"	07/11/90",	"A30"	19055578,"
19055476,"	06/11/90",	"A37"	19055570,"	09/12/90",
06/11/90",	"C5"	19055564,"	30/10/90",	"C20"
"C7"	19055545,"	29/11/90",	"A30"	19055578,"
19055491,"	09/12/90",	"A37"	19055571,"	28/11/90",
05/11/90",	"C5"	19055564,"	26/03/91",	"C20"
"C28"	19055545,"	30/10/90",	"A29"	19055579,"

05/11/90", "C24"
"C15" 19055586,"
19055579," 09/12/90",
09/12/90", "C24"
"C15" 19055586,"
19055579," 28/11/90",
28/11/90", "C24"
"C15" 19055587,"
19055580," 09/12/90",
03/04/91", "C34"
"C15" 19055588,"
19055580," 09/12/90",
05/11/90", "C34"
"C15" 19055590,"
19055580," 05/11/90",
09/12/90", "C40"
"C15" 19055590,"
19055580," 09/12/90",
28/11/90", "C40"
"C15" 19055590,"
19055581," 28/11/90",
05/11/90", "C40"
"C8" 19055591,"
19055581," 05/11/90",
09/12/90", "C40"
"C8" 19055591,"
19055581," 09/12/90",
28/11/90", "C40"
"C8" 19055591,"
19055582," 28/11/90",
05/11/90", "C40"
"C8" 19055592,"
19055582," 19/12/90",
09/12/90", "B14"
"C8" 19055593,"
19055582," 19/12/90",
28/11/90", "B20"
"C8" 19055593,"
19055584," 29/11/90",
05/11/90", "B20"
"C25" 19055594,"
19055584," 19/12/90",
09/12/90", "B20"
"C25" 19055594,"
19055584," 29/11/90",
28/11/90", "B20"
"C25" 19059657,"
19055585," 09/12/90",
05/11/90", "C23"
"C24"
19055585,"
09/12/90",
"C24"
19055585,"
28/11/90",
"C24"
19055586,"
05/11/90",

1989

TEALBIRD (NIS: Mrs. W. Coulter Ph. 524797)

APPENDIX 6.

OCT	NOV	DEC	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	MAY	JUNE
28	33	28	15	8	21					32	32	56	24	4	112		10	58	
48	38	34	15	83	6	35	40	2		33	48	20	4	113	4		55		
35	36	15	66	6		39	3			48	51	22	2	105	2	19	89		
32	31	28		4		30	4			50	53	18	6	95		22	88	Egg	
30		30	63	9	22	27	2			34	51		16	12	83	0	38		
45	45	24	25		21	18	6			39	61	12	15	78			51		
38	28	35		6	31	14	7			37	40	65	14	16	18		52		
42	42		49	7	34	15	8			34	50	63	11	25	61		56		
39	42	26	49	4	42		9			45	40	54	15	24	42	13	52		
25	40	12	51	4		7	10			40	47		33	47	28	62			
45	43		52	4	2		11			47	39	52		43	33		58		
23	50	12		3	4	4	12			42	40	34	11	53	30	28			
22			89	2	2	20	4	13		36	36	30	8	46	31	40	48		
30		12	91	7	6	43	7	14		32	33	10	64	26	33	30			
30	50		87	3	3	12	13			37	45	43	4	67		39	28		
37	50	17	94	1	2	15	16			32	39	48	5	83		38	16		
21		16	114	3	1	25	35	17		30	43	41	2	96		44	12		
37		17	100	2		11		18		34	39	1	94		51	18			
17	39	48	12	121	35	23	75	19	21	37	56	33	1	97			6		
10	39	41	10	115	30		67	20		30	56	31	1	102		40	7		
24	49	44	12	116	26	17		2		37	61	31	1	110			4		
18	53	37	12	136	31	6		12		39	63	24	2	122		34	6		
24	39	47	9	125	12	28	15	23	25	45	51	30	1	127		44	7		
10	38	42	10	134	10	18		24	25	45	53	33	4	127		23	9		
13	38	39		144	10	20	13	25	25	44	45	39	3	122	5	31	19		
17	45	35	8	134	13	28	17	26	23	49	41	29	1	124		29	23		
13	39	43	13	130	7	9	25	26	27	49	41	23	2	115	3	18	35		
28	31	31	10	105	7	14	5	28		50	42	23	2	115					
37	33	16	112		11	68		29		53	40	27	3	104		16	42		
24		38	16		9	63		30		56	40	28	4	121		10	48		
36		20	39		75			31				2	129	Ave:	19	Ave:			
Sept 1					Ave:	Ave:	Ave:												
					31.6	17.5	86.4												
Aug 22					ave:	5.1	28.2	26.12											
Aug 23					ave:	8.2	43.3	10.8	15.6										
Aug 24					ave:	6.5													
Oct					6.8														

Sept 1

Aug 22

Aug 23

Aug 24

ave:

5.1

8.2

6.5

ave:

43.3

43.3

-

ave:

17.5

17.5

-

ave:

86.4

86.4

-

ave:

28.2

28.2

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ave:

26.12

26.12

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ave:

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Ave=

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