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A COMPILATION OF HISTORICAL MONK SEAL, *Monachus schauinslandi*, COUNTS

Lisa M. Hiruki
Timothy J. Ragen

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center

NOAA Technical Memorandum NMFS

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NOAA Technical Memorandum NMFS

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Lisa M. Hiruki
Timothy J. Ragen

Honolulu Laboratory, SWFSC
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

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U.S. DEPARTMENT OF COMMERCE
Barbara H. Franklin, Secretary
National Oceanic and Atmospheric Administration
John A. Knauss, Under Secretary for Oceans and Atmosphere
National Marine Fisheries Service
William W. Fox, Jr., Assistant Administrator for Fisheries

ABSTRACT

The history of the Hawaiian monk seal (*Monachus schauinslandi*) is poorly known. Sources of historical data for this species are either not published or, if published, are often not readily accessible. The lack of availability of these data impedes review of past population trends, yet analysis of past trends may provide information important to current management of this endangered species. To facilitate such analysis and review, historical counts of the Hawaiian monk seal are compiled in this document. Counts are presented in tables ordered on an island-by-island or atoll-by-atoll basis; records begin in the early 1800s and continue to the early 1980s. Sources of the historical data for this species are also listed.

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INTRODUCTION

The historical distribution and abundance of the Hawaiian monk seal (*Monachus schauinslandi*) is poorly known; virtually no information exists on this species prior to the early 1800s. The first reference in the literature is from Lisiansky (1814) who reported that in 1805 he found seals on the island that now bears his name. Sealing activities began shortly thereafter, as revealed by reports from the *Aiona* in 1824 (cited in Bryan 1915) and the *Gambia* in 1859 (The Polynesian, 13 August 1859). The paucity of sightings in the late 1800s and early 1900s suggests that by the turn of the century, monk seal populations had been decimated by sealers, crews from exploring (and sometimes wrecked) vessels (The Friend, Honolulu, 4 January and 1 February 1871; Wetmore 1925), and feather, egg, and guano collectors (Dill and Bryan 1912).

Evidence of monk seal distribution and abundance from the early to mid 1900s is primarily anecdotal or incidental (see Bailey 1952, Kenyon and Rice 1959 for reviews; also see Balazs and Whittow 1979 for bibliography). However, the evidence indicates that in spite of considerable military activity at certain locations (Bailey and Niedrach 1951, Bailey 1952, Amerson 1971, Amerson et al. 1974), the total population must have grown substantially during the first half of this century.

Extensive, reliable counts of Hawaiian monk seals over the entire Northwestern Hawaiian Island chain (Fig. 1) began in the late 1950s (Kenyon and Rice 1959, Rice 1960, Wirtz 1968). Assessments continued through the 1960s and 1970s but, in general, these counts were not standardized with respect to season, time of day, counting method, differentiation of size and sex classes, weather conditions, or completeness (i.e., partial versus full island or atoll coverage). The results varied widely and are difficult to compare.

In spite of this shortcoming, the census data were sufficient to demonstrate that after the period of growth in the first half of the century, the Hawaiian monk seal suffered a severe decline between the late 1950s and the late 1970s (Johnson et al. 1982). In 1976 they were declared endangered under the Endangered Species Act of 1973 (Federal Register, 21 December 1976, 41FR51661). Intensive monitoring of monk seal populations began in the late 1970s at Laysan Island (Johnson and Johnson 1978) and French Frigate Shoals (Schulmeister 1981), and early 1980s at Kure Atoll, Lisianski Island, and Pearl and Hermes Reef (Gilmartin et al. 1986., DeLong et al. 1984, NMFS, unpubl. data[1]).

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[1]Southwest Fisheries Science Center, Honolulu Laboratory, National Marine Fisheries Service, 2570 Dole Street, Honolulu, HI 96822-2396.

Although the history of the Hawaiian monk seal is not well known, review and reconstruction of this history may reveal the nature of past population changes. Such information is important to current and future management efforts to enhance the recovery of this seal. For example, previous assessments at Midway and Kure atolls suggested those populations probably declined because of poor juvenile survival resulting from human disturbance (Kenyon 1972, Gerrodette and Gilmartin 1990). Subsequent management programs to reduce disturbance and enhance survival of young females have greatly facilitated the recovery of the Kure population (Gerrodette and Gilmartin 1990, Van Toorenburg et al., in press). Studies of historical changes may also provide information on population levels prior to extensive disturbance by human activities; such information would be useful in establishing a goal for the recovery of the species.

The nature and extent of past population changes cannot be assessed without review of historical information on this species and, unfortunately, much of this information is not readily available. In many cases data were not published or were published in literature that is not easily accessible. Locating and collecting these data are onerous tasks that discourage further study. To facilitate investigation, known sources of historical population data collected between 1805 and 1980 are tabulated in this document. With the exception of information from Necker and Nihoa Islands, data collected after 1980-81 are not included because they have been published in annual NOAA Technical Memoranda and scientific journals which are readily available from the Protected Species Investigation of the National Marine Fisheries Service, Southwest Fisheries Science Center, Honolulu Laboratory, 2570 Dole Street, Honolulu, HI 96822-2396.

METHODS

All known sources of historical information on Hawaiian monk seals were collected and reviewed for evidence of past population levels. These sources (see Appendix A) included newspaper and magazine reports of early sealing expeditions, unpublished field notes and correspondence of scientists visiting the Northwestern Hawaiian Islands, trip reports from the U.S. Fish and Wildlife Service, the Pacific Ocean Biological Survey Program of the Smithsonian Institution, State of Hawaii Department of Land and Natural Resources (Division of Fish and Game), and papers published in scientific journals. Where original sources were not available, such as logbooks from various vessels, secondary citations were used.

Population data were then tabulated on an atoll-by-atoll and island-by-island basis (Appendixes B-L; maps are also provided). For each island or atoll, data were arranged in chronological order beginning with the earliest records and

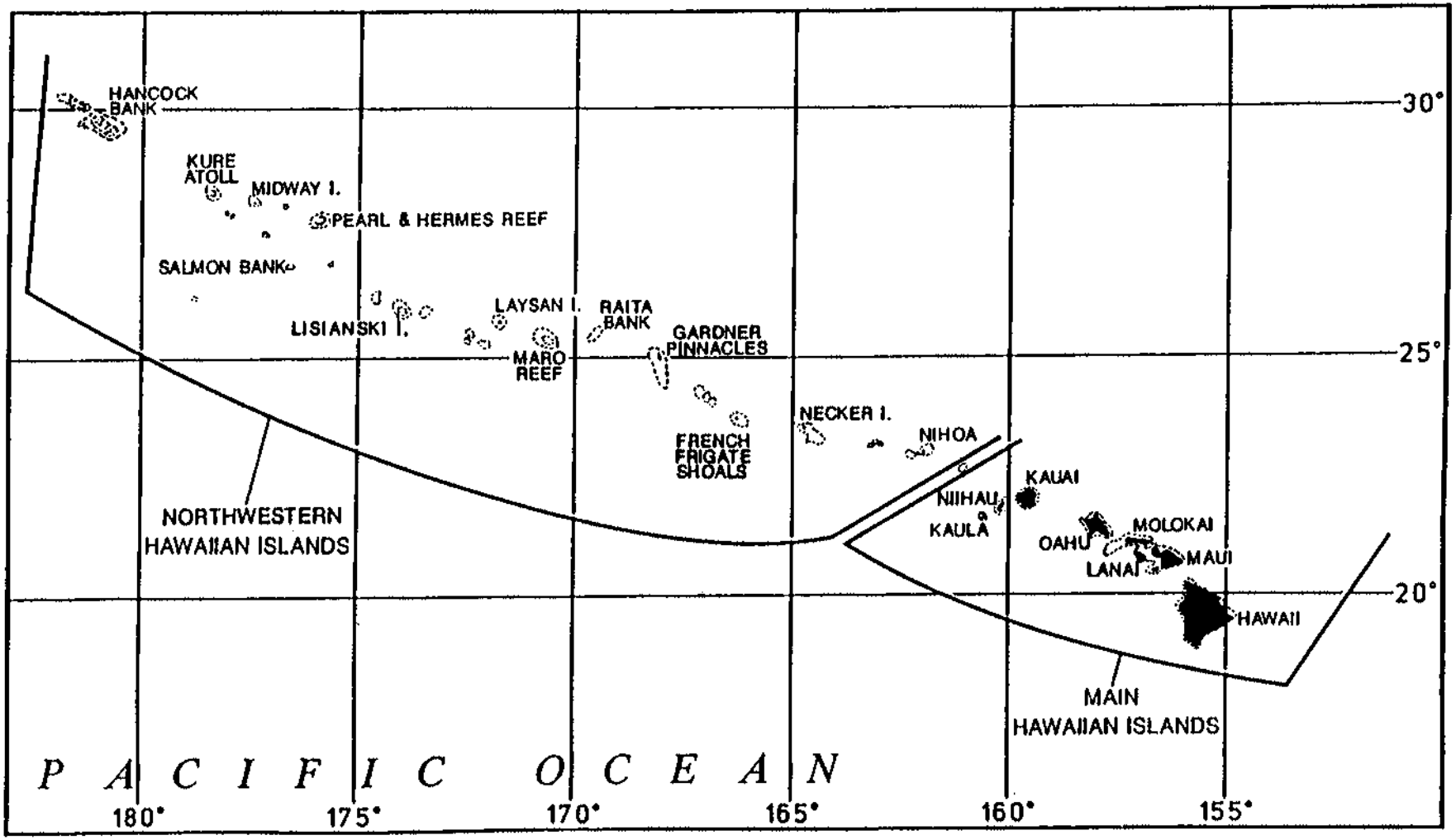

Figure 1.--Hawaiian Islands

continuing to counts conducted in 1980-81. For atolls, counts for the whole atoll were given first, followed by counts for individual islands.

Each entry included the available information on date of count, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for the source of the information. See Appendix M for abbreviations used throughout Appendixes B-L.

Islands, particularly within atolls, were not always named consistently. For example, at Kure Atoll, the sand islets west of Green Island (currently named Sand and Shark Islands, see Appendix E) apparently disappeared and appeared over time, and varied in number from 1 to 5. Here, all these sand islets were collectively referred to as Sand Island, and qualifying notes were included under Comments. Similarly, at French Frigate Shoals and Pearl and Hermes Reef, temporary sand islets were grouped according to location when sufficient information was provided in the report; if names were given for these islets, the names were listed under Comments. In some reports, counts were combined for adjacent islands and such combined counts were listed in a section separate from the counts of the individual islands. Finally, where adjacent but separate islands eventually joined, two counts were listed until the year in which the islands joined and, thereafter, a single count was given for the combined island. For example, Whale and Skate Islands at French Frigate Shoals became Whale-Skate Island in 1956 (Appendix B).

If the exact date of a count was not stated, the month or year was used depending on the information available in the reference. Methods and terminology for differentiating size classes varied widely. Where possible, counts were given by size classes as described in Stone (1984). Adults were considered reproductively active seals or seals approximately the same size as known mature seals. Subadults were less robust seals estimated to be 3 to 5 yrs old and with lighter pelage than adults. Juveniles included seals estimated to be 1 to 3 yrs old, similar in length or slightly longer than weaned pups, but thinner and with brown pelage. Pups were defined as young of the year, whether nursing or weaned. Where the sex of pups was given, or nursing and weaned pups were separated, this was noted under Comments. In addition to Stone's (1984) classification, several references included a yearling class, which was interpreted as small juveniles estimated to be approximately 1 yr old. Where no size classes were given, the counts were listed under the heading UNCL (unclassified).

Size classes were not always used consistently. For example, in some counts the adult size class referred to all seals that were not nursing pups. Size class descriptions

differing from those of Stone (1984) were listed in the tables under Comments.

Counts were conducted from the ground, air, offshore vessels, or adjacent islands (and on two occasions from underwater during a diving survey). In some cases a combination of methods was used. Ground surveys involved the observers counting seals from the same island. Aerial surveys were done while observers flew over the island or atoll without landing. These counts were distinguished from helicopter surveys, where the observer was lowered to the island from a helicopter and conducted a ground count after landing. Boat surveys were conducted without landing on the island. Counts from adjacent islands were done using binoculars or a spotting scope.

Counts were described as either partial or full. Where information was available, a note in the Comments indicated why a count was classified as partial (e.g., some islands were not included on atoll counts; no population estimate was made; only females and pups were counted).

Notes in the Comments included clarifying statements as indicated above, as well as the time of the count (if available), keywords (Appendix N), qualitative estimates of seals (such as "abundant"), further detail on counting method, and comments on errors or inconsistencies between reports.

RESULTS AND DISCUSSION

The results of this literature review are presented in Appendixes B-L. Many counts may not be comparable because the data collection process was not standardized. Frequently, counting procedures were not described; in these cases, the results must be used with caution.

As mentioned above, a number of factors may have affected the counts. Monk seal hauling patterns are known to vary by season and time of day (Gerrodette 1985). The method, itself, may also have altered results. Where binoculars or spotting scopes were used to count seals on an adjacent island, the reported total was a minimum count because the entire island may not have been visible to the observer. Also, disturbance may have resulted in lower totals when counters gained access to small islands by helicopter or attempted to distinguish the sex of seals. Size and sex classification varied substantially and, to make interpretation more difficult, the individual reports rarely described the criteria used to separate these classes. Frequently the extent of the count was not stated.

These factors make the interpretation of historical data more difficult. However, the purpose here is not to interpret the data, but rather to consolidate it into a single source

which will facilitate indepth review of the history of the Hawaiian monk seal. All sources of the data listed in Appendixes B-L are available from the Protected Species Investigation, National Marine Fisheries Service, Southwest Fisheries Science Center, Honolulu Laboratory, 2570 Dole Street, Honolulu, HI 96822-2396.

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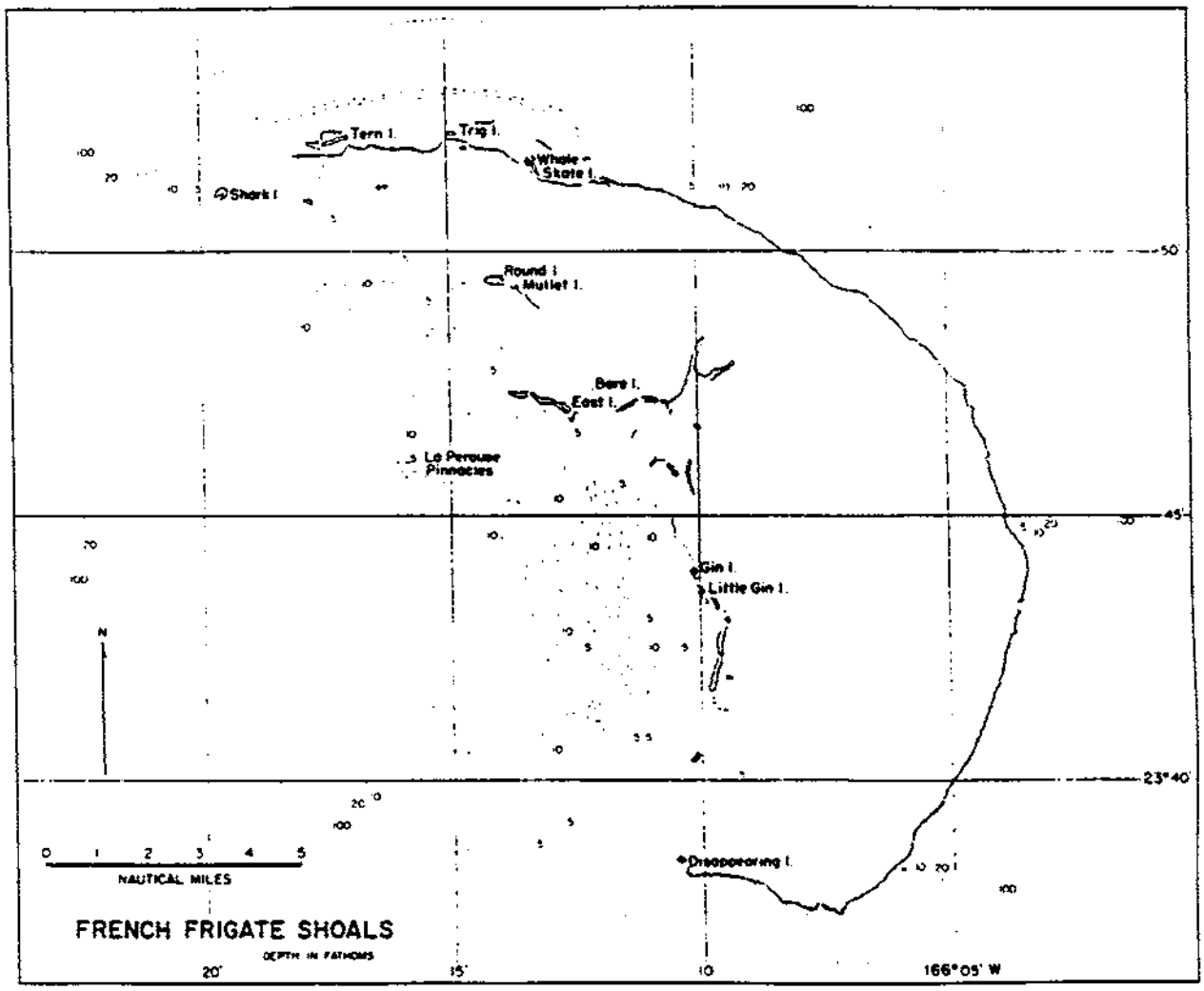
Appendix B.--Map of French Frigate Shoals followed by a tabular compilation of historical Hawaiian monk seal counts at FFS. Entries are in chronological order beginning with the earliest counts. Listed information includes date, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for each source of the information. Sources are listed in Appendix A, abbreviations in Appendix M, and keywords in Appendix N.



Appendix B.--Continued.

Hawaiian Monk Seal Numbers
FFS

FRENCH FRIGATE SHOALS
Whole atoll
1859

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR whole atoll																			
1859																			
JAN 4															1	GROUND	N	NO POPULATION ESTIMATE MADE 1 SEALSKIN OBTAINED	7
MAY																GROUND	N	NO POPULATION ESTIMATE MADE "...ABOUNDED IN SEAL..."	3
1886																			
FALL																GROUND	N	NO POPULATION ESTIMATE MADE "...SEALS PRESENT..."	3
1893																			
?																GROUND	N	NO POPULATION ESTIMATE MADE "...SEALS SEEN AT FFS..."	9
1944																			
JUN-JUL														2	2	BOAT	N	NOT ALL ISLETS COUNTED SEALS SEEN IN WATER	57
1950																			
JUN														8	8	GROUND?	N	UNKNOWN IF FULL COUNT; NO ISLETS NAMED	136
1951																			
JUN-JUL														9	9	GROUND?	N	UNKNOWN IF FULL COUNT; NO ISLETS NAMED	136
JUN-JUL														12	12	GROUND	N	UNKNOWN IF FULL COUNT; NO ISLETS NAMED	136
1956																			
?														16	16	UNKNOWN	N	UNKNOWN IF FULL COUNT; NO ISLETS NAMED "PREVIOUS COUNT...OCCURRING ON FFS WAS 16." Keywords = BEHAVIOR	135
FEB 21														32	32	AERIAL	N	NOT ALL ISLETS SEEN	136
1957																			
JUL 20														35	35	AERIAL	Y	Keywords = ENVIRONMENT	58
1958																			
MAY 28	0	0	39										4		43	BOAT	N	NOT ALL ISLETS CENSUSED ADULTS= OLDER THAN PUPS Keywords = POPULATION DYNAMICS	122

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Whole atoll
1961

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1961																			
MAR 4	0	0	13							0	0	1	1	4	19	GROUND	N	ONLY SHARK & EAST I. COUNTED COUNT ON SHARK I. INCOMPLETE	154
1962																			
JUN 11	0	0	26										1		27	AERIAL	Y	ALL ISLANDS SURVEYED NURSING PUPS: M=0 , F= 0 , U= 1	68
1963																			
JUN 7														55	55	GROUND	N	NO EXACT COUNT >55 SEALS SEALS PRESENT ON ALL BUT TERN I.& LA PEROUSE	6
1967																			
DEC 9													0	51	51	AERIAL	N	DISAPPEARING,ROUND,MULLET NOT COUNTED NO PUPS	75, 77
1968																			
JUN 15										0	0	16	49		65	GROUND	N	ONLY TAGGED SEALS COUNTED Keywords = TAGGING	81, 65
1969																			
AUG-SEP	0	0	49	0	0	42							18	50	159	GROUND	Y	Keywords = TAGGING,MOVEMENTS	85
1970																			
JUL 9														166	166	AERIAL	N	TERN, MULLET I. NOT COUNTED Keywords = TAGGING,MOVEMENTS	86
JUL 9													54		54	AERIAL	N	ONLY PUPS COUNTED PUPS TAGGED (31 M, 23 F) THIS YEAR'S PUPS (UNSURE IF NURSING OR WEANED) Keywords = TAGGING,MOVEMENTS	86
1971																			
MAY 13														149	149	AERIAL	Y	3 OBSERVERS CONDUCTED CENSUS Keywords = TAGGING,MOVEMENTS	106

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Whole atoll
1971

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAY 13													41		41	AERIAL	N	ONLY PUPS COUNTED PUPS TAGGED (22 M, 19 F) Keywords = TAGGING,MOVEMENTS,MORTALITY, SURVIVAL	106
AUG 26	0	0	41	0	0	35							18	68	162	GROUND/ AERIAL	N	MULLET I. NOT COUNTED SUBADULTS & YEARLINGS COMBINED Keywords = TAGGING,MOVEMENTS	105
1972																			
JAN 20														43	43	AERIAL	N	DISAPPEARING, WHALE-SKATE I. NOT COUNTED	109
MAY 4														162	162	AERIAL	N	TRIG,WHALE-SKATE,MULLET NOT COUNTED	147
MAY 5	0	0	76	0	0	30							35	63	204	GROUND/ AERIAL	Y	YEARLING AND SUBADULTS COMBINED NURSING PUPS: M=17, F= 16, U= 2 Keywords = TAGGING,MOVEMENTS	108
JUN 15														201	201	AERIAL	N	ROUND & MULLET ESTIMATED Keywords = TAGGING,MOVEMENTS	107
SEP 14	0	0	41	0	0	16							5		62	GROUND	N	ONLY TRIG,WHALE-SKATE,EAST I. COUNTED Keywords = TAGGING,MOVEMENTS	91
1973																			
APR 24	0	0	45	0	0	15							29	117	206	GROUND/ AERIAL	Y	Keywords = TAGGING,MOVEMENTS	110
JUN 1														196	196	AERIAL	Y		112
1975																			
MAY														274	274	UNKNOWN	N	UNKNOWN IF FULL COUNT	140
1976																			
MAR 22	35	41	22	23	18	16	5	14	5				16		195	GROUND	Y	1 DEAD PUP NOT INCLUDED IN COUNT Keywords = METHODS	30, 28
MAY 7														65	65	GROUND	N	ONLY DISAPPEARING,LITTLE GIN,WHALE-SKATE, AND TERN I. COUNTED	157
JUN 15	0	37	0										37		74	GROUND	N	ONLY ADULT FEMALES & NURSING PUPS COUNTED NURSING PUPS: M=0 , F= 0 , U= 37	27
1977																			
FEB 17	26	10	8	12	6	3	13	6	3				1		88	GROUND	N	GIN,LITTLE GIN,DISAPPEARING,SHARK NOT COUNTED Keywords = METHODS	38, 121
MAR 9	17	16	19	3	4	7	11	10	4				7		98	GROUND/ BOAT	Y	SIZING DIFFERENT FROM REF 57 NURSING PUPS: M=0 , F= 0 , U= 4 WEANED PUPS: M=1 , F= 1 , U= 1 Keywords = METHODS	121

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Whole atoll
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAR 9	15	14	20	5	5	7	11	10	4				7		98	GROUND/ BOAT	Y	SIZING DIFFERENT FROM REF 121 NURSING PUPS: M=0 , F= 0 , U= 4 WEANED PUPS: M=1 , F= 1 , U= 1 Keywords = METHODS	57
MAR 28	27	28	15	4	7	4	17	8	13				8	56	189	GROUND	Y	INCLUDES AERIAL SURVEY, MAR 31/77 REF 57 HAD SLIGHTLY DIFFERENT SIZING NURSING PUPS: M=0 , F= 0 , U= 6 WEANED PUPS: M=1 , F= 1 , U= 0 Keywords = METHODS	121, 57
APR 10	49	55	28	5	8	18	6	8	18				28		223	GROUND/ BOAT	Y	TOTAL DIFFERENT FROM REF 121 SIZE/SEX DIFF FROM REF 121 NURSING PUPS: M=0 , F= 0 , U= 27 WEANED PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	29
APR 10	43	59	31	3	11	9	8	18	11				28		221	GROUND/ BOAT	Y	TOTAL DIFFERENT FROM REF 29 LA PEROUSE NOT INCLUDED IN COUNT SIZE/SEX DIFF FROM REF 29 NURSING PUPS: M=0 , F= 0 , U= 26 WEANED PUPS: M=1 , F= 1 , U= 0 Keywords = METHODS	121
APR 24	17	41	14	1	5	13	7	6	12				32		148	GROUND/ BOAT	N	DISAPPEARING, SHARK NOT COUNTED Time of count = 1050-1630 NURSING PUPS: M=0 , F= 0 , U= 28 WEANED PUPS: M=2 , F= 1 , U= 1 Keywords = METHODS	121
MAY 11	9	46	39	3	2	7	7	6	9				40		166	GROUND/ BOAT	N	DISAPPEARING, SHARK NOT COUNTED 1 DEAD & 1 STILLBORN PUP NOT IN TOTAL Time of count = 1020-1930 NURSING PUPS: M=0 , F= 0 , U= 34 WEANED PUPS: M=1 , F= 2 , U= 3 Keywords = METHODS	121
MAY 27	17	41	34	1	1	8	4	5	9				47	33	200	GROUND/ BOAT / AERIAL	Y	MAY 25 & 27 SURVEYS NURSING PUPS: M=0 , F= 0 , U= 23 WEANED PUPS: M=4 , F= 3 , U= 17 Keywords = METHODS	121
JUL 7	5	49	31	9	11	26	15	7	21				47		221	GROUND	N	SHARK I. NOT COUNTED INCLUDES LA PEROUSE; HIGH COUNT, EAST I. NURSING PUPS: M=0 , F= 0 , U= 22 WEANED PUPS: M=0 , F= 0 , U= 25 Keywords = MOLT,INJURY,MOVEMENTS	41

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Whole atoll
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
AUG 13	7	32	75	5	14	55							30		218	GROUND/ BOAT	Y	W/ HIGH COUNTS, GIN & LITTLE GIN; AUG 11-13 SUBADULT & JUVENILE COMBINED NURSING PUPS: M=0 , F= 0 , U= 11 WEANED PUPS: M=0 , F= 0 , U= 19 Keywords = MOLT,INJURY,MOVEMENTS	41
1978																			
MAY 10													52	147	199	GROUND/ BOAT	Y	NURSING PUPS: M=0 , F= 0 , U= 40 WEANED PUPS: M=0 , F= 0 , U= 12	35
JUL 15	12	35	21	6	11	12	7	5	11				50	27	197	GROUND/ BOAT	Y	NURSING PUPS: M=1 , F= 1 , U= 8 WEANED PUPS: M=8 , F= 10, U= 22	35
AUG 10	0	0	110	0	0	49							41		200	GROUND	N	DISAPPEARING I. NOT COUNTED COUNT BY R.COLEMAN SUBADULTS AND JUVENILES COMBINED NURSING PUPS: M=0 , F= 0 , U= 5 WEANED PUPS: M=0 , F= 0 , U= 36 Keywords = INJURY	44
1979																			
MAY 18	29	56	33	9	4	15	12	9	23				50	1	241	GROUND/ BOAT	Y	NURSING PUPS: M=0 , F= 0 , U= 35 WEANED PUPS: M=4 , F= 0 , U= 11	119
1980																			
JUNE 3	0	0	131	0	0	62							61	4	258	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULT CLASSED AS "IMMATURE"	45
1981																			
MAY 25	0	0	100	0	0	16	0	0	54				51		221	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F= 0 , U= 40 WEANED PUPS: M=0 , F= 0 , U= 11 Keywords = METHODS	120
MAY 25	0	0	180										34		214	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 34 Keywords = METHODS	120
MAY 28	0	0	93	0	0	24	0	0	41				56		214	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO (ADDITION ERROR IN TOTALS IN REPORT) NURSING PUPS: M=0 , F= 0 , U= 37 WEANED PUPS: M=0 , F= 0 , U= 19 Keywords = METHODS	120

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Whole atoll
1981

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAY 28	0	0	182										36		218	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 36 Keywords = METHODS	120
**********																			
FOR islet = BARE																			
1957																			
MAY 11														1	1	GROUND	Y		3
1963																			
JUN 8																GROUND	N	NO EXACT COUNT "SEALS PRESENT"	6
1967																			
JUN 9	0	0	1												1	GROUND	Y		3
1977																			
MAR 9	1	1	0	0	0	2									4	BOAT	Y	Time of count = 1310-1315 Keywords = METHODS	57, 121
MAR 28															0	BOAT	Y	NO SEALS; ISLET AWASH Time of count = 1500 Keywords = METHODS	121
APR 9	0	2	1	0	1	0	0	1	1						6	GROUND	Y	SIZE/SEX DIFFERENT FROM REFS 29, 39 Time of count = 1715-1720 Keywords = METHODS	121
APR 9	0	2	1	0	1	1	0	1	0						6	GROUND	Y	SIZE/SEX DIFFERENT FROM REF 121 Keywords = METHODS	29, 39
APR 24	0	0	1	0	0	4									5	BOAT	Y	Time of count = 1225 Keywords = METHODS	121
MAY 11	0	0	5												5	BOAT	Y	Time of count = 1205 Keywords = METHODS	121
MAY 25	0	0	3	0	0	2									5	BOAT	Y	Time of count = 1420 Keywords = METHODS	121
AUG 13	0	0	3	0	0	1									4	BOAT?	Y	SUBADULT & JUVENILE COMBINED Keywords = MOLT,INJURY,MOVEMENTS	41
1978																			
JUL 15	0	0	2												2	BOAT	Y		35
AUG 10															0	BOAT	Y	AWASH NO SEALS SEEN. COUNT BY R.COLEMAN SUBADULTS AND JUVENILES COMBINED Keywords = INJURY	44

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Bare Island
1980

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1980																			
MAY 30	0	0	1	0	0	1									2	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULTS CLASSED AS "IMMATURE"	45
**********																			
FOR islet = DISAPPEARING																			
1957																			
DEC 28														4	4	AERIAL	Y	RICE AND KENYON PHOTOGRAPH	3
1963																			
JUN 9																GROUND	N	NO EXACT COUNT "SEALS PRESENT"	6
1969																			
JUN 7																UNKNOWN	N	NO EXACT COUNT "SEALS PRESENT"	3
SEP 4														37	37	AERIAL	Y		85
1970																			
JUL 9														38	38	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	86
1971																			
MAY 13														32	32	AERIAL	Y	3 OBSERVERS CONDUCTED CENSUS Keywords = TAGGING,MOVEMENTS	106
AUG 26														50	50	AERIAL	Y	SUBADULTS & YEARLINGS COMBINED Keywords = TAGGING,MOVEMENTS	105
1972																			
MAY 4														48	48	AERIAL	Y		147
MAY 5														45	45	AERIAL	Y	YEARLING AND SUBADULTS COMBINED Keywords = TAGGING,MOVEMENTS	108
JUN 15														31	31	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	107
1973																			
APR 24														42	42	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	110
JUN 1														30	30	AERIAL	Y		112

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Disappearing Island
1976

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1976																			
MAR 20	0	0	19										2		21	BOAT	Y	Time of count = 1030-1100 Keywords = METHODS	30, 28
MAY 7														38	38	BOAT?	Y		157
1977																			
MAR 31														32	32	AERIAL	Y	Keywords = METHODS	121
APR 10	8	9	5	1	5	0	1	6	2				1		38	GROUND	Y	SIZE/SEX DIFFERENT FROM REF 29 Time of count = 1235 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	121
APR 10	9	6	5	1	4	3	1	5	3				1		38	GROUND	Y	TOTAL DIFFERENT FROM REF 121 SIZE/SEX DIFFERENT FROM REF 121 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	29
MAY 27														20	20	AERIAL	Y	Keywords = METHODS	121
JUL 9	2	9	5	4	3	5	4	0	3						35	GROUND	Y	Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 12	0	0	20	0	0	15									35	BOAT?	Y	SUBADULT & JUVENILE COMBINED Keywords = MOLT,INJURY,MOVEMENTS	41
1978																			
JUL 15													4	27	31	BOAT	Y	AWASH WEANED PUPS: M=0 , F= 0 , U= 4	35
1979																			
MAY 20	6	6	8	0	1	4	3	2	2				2		34	GROUND	Y	Time of count = 1900-1920 NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 0 , U= 1	119
1980																			
JUNE 3	0	0	23	0	0	18							3		44	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULT CLASSED AS "IMMATURE"	45
1981																			
MAY 25	0	0	12	0	0	4	0	0	12				4		32	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F= 0 , U= 4 Keywords = METHODS	120
MAY 25	0	0	31										1		32	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	120

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Disappearing Island
1981

	ADULT			SUBADULT			JUVENILE			YEARLING			PUPS	UNCL	TOTAL		Full		
Date	M	F	U	M	F	U	M	F	U	M	F	U				Method	count?	Comments	Ref No.
MAY 28	0	0	13	0	0	11	0	0	10				2		36	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	120
MAY 28	0	0	35										1		36	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	120
**********																			
FOR islet = EAST																			
1956																			
FEB 21														1	1	AERIAL	Y		135
APR 11	0	1	0										1		2	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1	3
1957																			
APR 24														3	3	GROUND	Y		3
MAY 11														1	1	GROUND	Y		3
DEC 28														1	1	AERIAL	Y	COUNTED FROM KENYON AND RICE PHOTOGRAPH	3
1961																			
FEB 9	0	0	3										1		4	GROUND	Y		3
FEB 18	0	0	4										0		4	GROUND	Y		3
MAR 4	0	0	13							0	0	1	1		15	GROUND	Y		154
JUL 13	0	0	7										0		7	GROUND	Y		3
1963																			
JUN 7														5	5	GROUND	N	NO POPULATION ESTIMATE MADE "UNCOMMON"	6
1964																			
JUL 27	0	2	0										2	5	9	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 2	69
SEP 27	2	2	0							1	1	0	1		7	GROUND	Y	NURSING PUPS: M=1 , F= 0 , U= 0	70
1965																			
AUG 5	0	0	15										1		16	GROUND	N	NO EXACT COUNTS 2-15 ADULTS DAILY; 1 PUP	3

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
East Island
1966

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1966																			
MAR 23	0	4	1							1	0	0	3		9	GROUND	Y	ERROR: TOTAL WRONG IN REPORT (8 INSTEAD OF 9) Time of count = 1030 NURSING PUPS: M=1 , F= 0 , U= 2	74, 72
JUN 10	0	0	5	0	0	10							1		16	GROUND	N	NO EXACT COUNT 2-5 ADULTS DAILY; 2-10 SUBADULTS DAILY; 1 PUP	3
AUG 18	0	0	7							0	0	2	1		10	GROUND	N	NO EXACT COUNT 4-7 ADULTS, 1-2 YRLGS DAILY; 1 NURSING PUP NURSING PUPS: M=0 , F= 0 , U= 1	3
SEP 13	3	2	0										2		7	GROUND	Y	REF 52 HAD 8 SEALS FOR SAME DAY Time of count = 1425 NURSING PUPS: M=0 , F= 2 , U= 0	73, 52
SEP 13	2	2	0	1	0	1							2		8	GROUND	Y	SEE REF 73 FOR SAME DAY COUNT NURSING PUPS: M=1 , F= 1 , U= 0	52, 73
1967																			
MAR 11	2	4	4	1	0	4							5		20	GROUND	Y	NURSING PUPS: M=3 , F= 2 , U= 0	3
MAY 26	0	0	10	0	0	5									15	GROUND	N	NO EXACT COUNT	3
SEP 17	0	7	0	1	1	0				1	0	0			10	GROUND	Y	Time of count = 1545	75, 76
DEC 9													0	5	5	AERIAL	Y	NO PUPS	75, 77
1968																			
JUN 6														25	25	GROUND	N	NO EXACT COUNT 5-25 SEALS FROM JUNE 6-11,14-16,25	3
JUN 6																GROUND	N	ONLY PUPS & YEARLINGS 53 PUPS & YEARLINGS TAGGED AT EAST,TRIG, AND WHALE-SKATE; 12 TAGGED AT ROUND	65, 81
1969																			
MAR 22													4		4	GROUND	N	ONLY PUPS COUNTED	83
JUN 5														35	35	GROUND	Y	ADULTS, SUBADULTS, & PUPS PRESENT	3
AUG 22	0	0	4	0	0	4							6		14	GROUND	Y		85
AUG 30	0	0	5	0	0	9							2		16	GROUND	Y		85
1970																			
JUL 9														13	13	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	86
1971																			
MAY 13														17	17	AERIAL	Y	3 OBSERVERS CONDUCTED CENSUS Keywords = TAGGING,MOVEMENTS	106
AUG 24	0	0	5	0	0	4							3		12	GROUND	Y	SUBADULTS & YEARLINGS COMBINED Keywords = TAGGING,MOVEMENTS	105
SEP 13	2	3	6	1	0	2							3		17	GROUND	Y	NURSING PUPS: M=2 , F= 1 , U= 0 Keywords = TAGGING,MOLT	89

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
East Island
1972

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1972																			
JAN 20														5	5	AERIAL	Y		109
MAY 4														50	50	AERIAL	Y		147
MAY 5	0	0	19	0	0	3							16		38	GROUND	Y	YEARLING AND SUBADULTS COMBINED NURSING PUPS: M=7 , F= 7 , U= 2 Keywords = TAGGING,MOVEMENTS	108
JUN 2														22	22	GROUND	Y	Keywords = TAGGING,MOVEMENTS	107
JUN 15														43	43	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	107
1973																			
APR 24	0	0	16	0	0	3							8		27	GROUND	Y	Keywords = TAGGING,MOVEMENTS	110
JUN 1														45	45	AERIAL	Y		112
1976																			
MAR 20	2	7	0	1	2	0	1	4	1				6		24	GROUND	Y	1 DEAD PUP NOT INCLUDED IN COUNT Time of count = 1600-1645 Keywords = METHODS	30, 28
1977																			
FEB 17	3	4	0	1	0	0	2	3	1				1		15	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	38, 57
MAR 9	1	0	0	0	0	1	0	0	1				1		4	GROUND	Y	Time of count = 1215-1300 WEANED PUPS: M=1 , F= 0 , U= 0 Keywords = METHODS	57, 121
MAR 28	2	4	0	0	1	0	3	3	2				2		17	GROUND	Y	Time of count = 1130-1250 NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=1 , F= 0 , U= 0 Keywords = METHODS	121, 57
APR 9	1	9	2	0	0	2	0	1	2				7		24	GROUND	Y	Time of count = 1620-1700 NURSING PUPS: M=0 , F= 0 , U= 6 WEANED PUPS: M=1 , F= 0 , U= 0 Keywords = METHODS	28, 121
APR 24	1	10	1	0	2	2	0	1	0				10		27	GROUND	Y	Time of count = 1125-1220 NURSING PUPS: M=0 , F= 0 , U= 9 WEANED PUPS: M=1 , F= 0 , U= 0 Keywords = METHODS	121
MAY 11	0	13	1	0	0	1	1	1	1				13		31	GROUND	Y	Time of count = 1100-1200 NURSING PUPS: M=0 , F= 0 , U= 13 Keywords = METHODS	121

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
East Island
1977

	ADULT			SUBADULT			JUVENILE			YEARLING			PUPS	UNCL	TOTAL		Full		
Date	M	F	U	M	F	U	M	F	U	M	F	U				Method	count?	Comments	Ref No.
MAY 25	1	10	5	0	0	2	2	1	2				15		38	GROUND	Y	Time of count = 1330-1415 NURSING PUPS: M=0 , F= 0 , U= 8 WEANED PUPS: M=2 , F= 0 , U= 5 Keywords = METHODS	121
JUL 7	0	14	1	0	3	7	2	4	0				15		46	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 10 WEANED PUPS: M=0 , F= 0 , U= 5 Keywords = MOLT,INJURY,MOVEMENTS	41
JUL 9	1	17	6	1	1	3	0	1	1				23		54	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 10 WEANED PUPS: M=0 , F= 0 , U= 13 Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 12	0	9	6	3	5	3							13		39	GROUND	Y	SUBADULT & JUVENILE COMBINED NURSING PUPS: M=0 , F= 0 , U= 4 WEANED PUPS: M=0 , F= 0 , U= 9 Keywords = MOLT,INJURY,MOVEMENTS	41
1978																			
JUL 15	0	10	5				1	1	3				16		36	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 7 WEANED PUPS: M=3 , F= 2 , U= 4	35
AUG 10	0	0	20	0	0	4							17		41	GROUND	Y	COUNT BY R.COLEMAN SUBADULTS AND JUVENILES COMBINED Time of count = 1100 NURSING PUPS: M=0 , F= 0 , U= 5 WEANED PUPS: M=0 , F= 0 , U= 12 Keywords = INJURY	44
1979																			
MAY 18	0	16	2	1	2	1	1	0	2				16		41	GROUND	Y	Time of count = 1230-1330 NURSING PUPS: M=0 , F= 0 , U= 12 WEANED PUPS: M=2 , F= 0 , U= 2	119
AUG 8	0	0	23	0	0	15							4		42	GROUND	Y	SUBADULTS CLASSED AS "INTERMEDIATE ADULTS" Time of count = 1100-1400	19
1980																			
MAY 30	0	0	31	0	0	5							21		57	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULTS CLASSED AS "IMMATURE"	45

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
East Island
1981

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1981																			
MAY 25	0	0	19				0	0	6				18		43	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F= 0 , U= 16 WEANED PUPS: M=0 , F= 0 , U= 2 Keywords = METHODS	120
MAY 25	0	0	27										16		43	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 16 Keywords = METHODS	120
MAY 28	0	0	17	0	0	1	0	0	3				23		44	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F= 0 , U= 15 WEANED PUPS: M=0 , F= 0 , U= 8 Keywords = METHODS	120
MAY 28	0	0	33										12		45	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 12 Keywords = METHODS	120
MAY 29	0	0	22	0	0	5							22		49	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 14 WEANED PUPS: M=0 , F= 0 , U= 8 Keywords = METHODS	120
**********																			
FOR islet = GIN																			
1950																			
JUN 19														2	2	GROUND	Y	"SEA LIONS"	3
1951																			
MAY 8														3	3	GROUND	Y		3
1956																			
APR 11	0	0	1												1	GROUND	Y		3
JUN 4	0	0	4										2		6	GROUND	Y		3
1957																			
APR 25														7	7	GROUND	Y	6 ON GIN; 1 ON NEARBY ISLET (NOT LITTLE GIN)	3
MAY 12	0	0	2							0	0	1			3	GROUND	Y	"2 ADULTS, 1 YOUNG"	3
DEC 28														8	8	GROUND	Y	3 OTHERS ON NEARBY SANDSPIT (NOT LITTLE GIN)	3

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Gin Island
1963

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1963																			
JUN 9																GROUND	N	NO EXACT COUNT "SEALS PRESENT"	6
1965																			
AUG 25	0	0	3												3	GROUND	Y		3
1966																			
MAR 23														1	1	GROUND	Y	Time of count = 1425-1520	74, 72
SEP 14	2	1	0	0	1	0							1		5	GROUND	Y	Time of count = 1530 NURSING PUPS: M=0 , F= 1 , U= 0	73
1967																			
JUN 9	0	0	1	0	0	3									4	GROUND	Y		3
SEP 18	1	0	1							0	2	0			4	GROUND	Y	Keywords = TAGGING	75
DEC 9													0	7	7	AERIAL	Y	NO PUPS	75, 77
1968																			
JUN 7														25	25	GROUND	N	NO EXACT COUNT 5-25 ON JUNE 7	3
1969																			
JUN 7																GROUND	N	NO EXACT COUNT "SEALS PRESENT"	3
AUG 30	0	0	7	0	0	6							3		16	GROUND	Y		85
1970																			
JUL 9														5	5	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	86
1971																			
AUG 24	0	0	2	0	0	0									2	GROUND	Y	"BIG GIN" SUBADULTS & YEARLINGS COMBINED Keywords = TAGGING,MOVEMENTS	105
1972																			
JAN 20														3	3	AERIAL	Y		109
MAY 4														10	10	AERIAL	Y		147
MAY 5	0	0	5	0	0	2									7	GROUND	Y	YEARLING AND SUBADULTS COMBINED Keywords = TAGGING,MOVEMENTS	108
JUN 15														5	5	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	107

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Gin Island
1973

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1973																			
APR 24														5	5	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	110
JUN 1														5	5	AERIAL	Y		112
1976																			
MAR 20	3	2	0	2	1	0	0	0	0				0		8	GROUND	Y	Time of count = 1350-1410 Keywords = METHODS	30, 28
1977																			
MAR 9	1	1	2	0	0	2	0	0	1				1		8	GROUND	Y	REF 121 INCLUDED SANDSPIT IN TOTAL COUNT Time of count = 1145-1155 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	57, 121
MAR 28	2	3	0	1	1	0							1		8	GROUND	Y	Time of count = 1410-1420 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	121, 57
APR 10	0	2	2				0	0	1				3		8	GROUND	Y	SIZE/SEX DIFFERENT FROM REFS 29, 39 Time of count = 1005 NURSING PUPS: M=0 , F= 0 , U= 2 WEANED PUPS: M=0 , F= 1 , U= 0 Keywords = METHODS	121
APR 10	2	2	0	0	0	1							3		8	GROUND	Y	SIZE/SEX DIFFERENT FROM REFS 29, 121 NURSING PUPS: M=0 , F= 0 , U= 3 Keywords = METHODS	39
APR 24	0	2	1				0	0	3				3		9	GROUND	Y	Time of count = 1330-1340 NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 1 , U= 1 Keywords = METHODS	121
MAY 11	0	1	3										1		5	BOAT	Y	Time of count = 1335 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	121
MAY 27														13	13	AERIAL	Y	Keywords = METHODS	121
JUL 9	0	1	0	1	0	2	0	1	0				4		9	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 0 , U= 3 Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 12	0	1	2	0	0	2									5	GROUND	Y	1 DEAD MALE NOT INCLUDED IN COUNT SUBADULT & JUVENILE COMBINED Keywords = MOLT,INJURY,MOVEMENTS	41

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Gin Island
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
AUG 13	0	0	2	0	0	2							3		7	BOAT?	Y	SUBADULT & JUVENILE COMBINED NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 0 , U= 2 Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 13	0	0	7	0	0	4							2		13	BOAT?	Y	SUBADULT & JUVENILE COMBINED WEANED PUPS: M=0 , F= 0 , U= 2 Keywords = MOLT,INJURY,MOVEMENTS	41
1978																			
JUL 15	2	1	0	0	2	0	2	3	2				1		13	GROUND	Y	WEANED PUPS: M=0 , F= 1 , U= 0	35
AUG 10	0	0	2	0	0	5							1		8	GROUND	Y	COUNT BY R.COLEMAN SUBADULTS AND JUVENILES COMBINED Time of count = 1200 WEANED PUPS: M=0 , F= 0 , U= 1 Keywords = INJURY	44
1979																			
MAY 18	4	2	0				3	1	3				3		16	GROUND	Y	Time of count = 1410-1430 NURSING PUPS: M=0 , F= 0 , U= 2 WEANED PUPS: M=1 , F= 0 , U= 0	119
1980																			
MAY 30	0	0	6	0	0	1							2		9	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULT CLASSED AS "IMMATURE"	45
1981																			
MAY 25	0	0	1				0	0	7						8	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO Keywords = METHODS	120
MAY 25	0	0	8												8	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP Keywords = METHODS	120
MAY 28	0	0	5				0	0	4				1		10	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO WEANED PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	120
MAY 28	0	0	10												10	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP Keywords = METHODS	120

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Gin & Little Gin Island
1961

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
FOR islet = GIN & LITTLE GIN																			
1961																			
FEB 18	0	0	8										1		9	GROUND	Y	COMBINED COUNT	3
1971																			
MAY 13														42	42	AERIAL	Y	COMBINED COUNT 3 OBSERVERS CONDUCTED CENSUS Keywords = TAGGING,MOVEMENTS	106
**********																			
FOR islet = GIN & NORTH GIN SPIT																			
1977																			
APR 10	2	2	2	0	0	2	0	0	2				3		13	GROUND	Y	TOTAL IS 1 MORE THAN REFS 39, 121 SIZE/SEX DIFF FROM REFS 39, 121 NURSING PUPS: M=0 , F= 0 , U= 3 Keywords = METHODS	29
**********																			
FOR islet = GIN SPITS																			
1971																			
AUG 24	0	0	7	0	0	3									10	GROUND	Y	"LITTLE LITTLE GIN" SUBADULTS & YEARLINGS COMBINED Keywords = TAGGING,MOVEMENTS	105
1972																			
MAY 4														12	12	AERIAL	Y	SPITS BETWEEN GINS & NORTH OF GIN BETWEEN GINS- 4 SEALS; NORTH OF GIN- 8 SEALS	147
MAY 5	0	0	2	0	0	6									8	GROUND	Y	"LITTLE LITTLE GIN" YEARLING AND SUBADULTS COMBINED Keywords = TAGGING,MOVEMENTS	108
JUN 15														7	7	AERIAL	Y	SANDSPITS NORTH OF GINS Keywords = TAGGING,MOVEMENTS	107
1973																			
APR 24														20	20	AERIAL	Y	SANDSPITS NORTH OF GINS Keywords = TAGGING,MOVEMENTS	110
JUN 1														4	4	AERIAL	Y	SANDSPITS NORTH OF GIN	112

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Gin Spits
1976

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1976																			
MAR 20	0	1	0	4	1	0	0	1	0				0		7	GROUND	Y	ISLET OFF GIN Time of count = 1415-1430 Keywords = METHODS	30, 28
1977																			
MAR 28	0	0	4	0	0	2	0	0	5						11	BOAT	Y	ISLET OFF GIN Time of count = 1421-1424 Keywords = METHODS	121, 57
APR 10	0	0	2	0	0	1	0	0	1						4	BOAT	Y	NORTH GIN SPITS Time of count = 0955 Keywords = METHODS	121, 39
APR 24	0	0	1	0	0	1	0	0	2						4	BOAT	Y	SAND ISLET NEAR GIN Time of count = 1340-1343 Keywords = METHODS	121
MAY 11	0	0	6												6	BOAT	Y	"MARKO I." BETWEEN GINS Time of count = 1325 Keywords = METHODS	121
MAY 11	0	0	4												4	BOAT	Y	"SAND ISLET" NORTH? OF GIN Time of count = 1339 Keywords = METHODS	121
1979																			
MAY 18	0	0	2				0	0	2						4	BOAT	Y	SANDSPIT NEAR GIN Time of count = 1445	119
1980																			
MAY 30	0	0	1	0	0	4									5	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULT CLASSED AS "IMMATURE"	45
MAY 30	0	0	2	0	0	1									3	GROUND	Y	(NORTH OF GINS?) DATA FROM SUSAN SCHULMEISTER SUBADULT CLASSED AS "IMMATURE"	45

****
FOR islet = GIN SPITS, SOUTH

1972																			
MAY 4													11		11	AERIAL	Y	SANDSPITS SOUTH OF GINS	147
JUN 15													10		10	AERIAL	Y	SANDSPITS SOUTH OF GIN Keywords = TAGGING,MOVEMENTS	107

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Gin Spits (South)
1973

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1973																			
APR 24														20	20	AERIAL	Y	SANDSPITS SOUTH OF GINS Keywords = TAGGING,MOVEMENTS	110
JUN 1														17	17	AERIAL	Y	SANDSPITS SOUTH OF GINS	112
**********																			
FOR islet = LITTLE GIN & SPIT																			
1977																			
MAR 9	1	1	0	1	0	1	3	1	1				1		10	GROUND/ BOAT	Y	COMBINED 1 SUBADULT (UNKNOWN SEX) ON SANDSPIT; INCLUDED W/GIN COUNT (REF 121) Time of count = 1105-1135 WEANED PUPS: M=0 , F= 1 , U= 0 Keywords = METHODS	57, 121
1981																			
MAY 25	0	0	5	0	0	4	0	0	5				2		16	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F= 0 , U= 2 Keywords = METHODS	120
MAY 25	0	0	13										1		14	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	120
MAY 26	0	0	5				0	0	4				1		10	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO WEANED PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	120
MAY 28	0	0	10										2		12	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 2 Keywords = METHODS	120
**********																			
FOR islet = LA PEROUSE																			
1964																			
SEP 28														1	1	BOAT	Y		3
1966																			
SEP 5	0	0	1												1	BOAT	Y		3

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
La Perouse Pinnacle
1969

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1969																			
MAY 30														1	1	DIVING	Y	AROUND BASE OF PINNACLE	103
JUN 6														1	1	BOAT	Y		3
SEP 1	0	0	1										1		2	BOAT	Y		85
1971																			
AUG 23	0	0	0	0	1	0									1	GROUND	Y	SUBADULTS & YEARLINGS COMBINED Keywords = TAGGING,MOVEMENTS	105
1972																			
MAY 5	0	0	1												1	GROUND	Y	YEARLING AND SUBADULTS COMBINED Keywords = TAGGING,MOVEMENTS	108
1974																			
SEP														6	6	DIVING	N	INCIDENTAL SIGHTING	141
1975																			
AUG 7													1		1	BOAT	N	INCIDENTAL COUNT WEANED PUPS: M=0 , F= 0 , U= 1	129
1977																			
APR 10	0	0	3												3	GROUND	Y	Time of count = 1400-1500 Keywords = METHODS	121
JUL 9	0	0	1				0	0	1						2	GROUND	Y	Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 12															0	GROUND	Y	NO SEALS SEEN SUBADULT & JUVENILE COMBINED Keywords = MOLT,INJURY,MOVEMENTS	41
**********																			
FOR islet = LITTLE GIN																			
1950																			
JAN 19														1	1	GROUND	Y	"SEA LION"	3
JUN 19														4	4	GROUND	Y		3
1951																			
MAY 8														2	2	GROUND	Y		3
1956																			
APR 11	0	0	2												2	GROUND	Y		3
JUN 4	0	0	6										2		8	GROUND	Y		3

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Little Gin Island
1957

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1957																			
APR 25														3	3	GROUND	Y		3
DEC 28														4	4	AERIAL	Y	RICE AND KENYON AERIAL PHOTO	3
1963																			
JUN 9																GROUND	N	NO EXACT COUNT "SEALS PRESENT"	6
1965																			
AUG 25	0	0	5												5	GROUND	Y		3
1966																			
MAR 23	3	3	0							0	1	0	2		9	GROUND	Y	Time of count = 1425-1520	74, 72
1967																			
JUN 9	0	0	2	0	0	4									6	GROUND	Y		3
SEP 18	2	3	9							1	1	1			17	GROUND	Y		75
DEC 9													0	5	5	AERIAL	Y	NO PUPS	75, 77
1968																			
JUN 7														25	25	GROUND	N	NO EXACT COUNT 5-25 SEALS (SEE ALSO GIN I. FOR 6/7/68)	3
1969																			
JUN 7																GROUND	N	NO EXACT COUNT "SEALS PRESENT"	3
1970																			
JUL 9														12	12	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	86
1971																			
AUG 24	0	0	3	0	0	2									5	GROUND	Y	SUBADULTS & YEARLINGS COMBINED Keywords = TAGGING,MOVEMENTS	105
1972																			
JAN 20														7	7	AERIAL	Y		109
MAY 4														9	9	AERIAL	Y		147
MAY 5	0	0	7												7	GROUND	Y	YEARLING AND SUBADULTS COMBINED Keywords = TAGGING,MOVEMENTS	108
JUN 15														3	3	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	107

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Little Gin Island
1973

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1973																			
APR 24														2	2	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	110
JUN 1														8	8	AERIAL	Y		112
1976																			
MAR 20	6	2	1	3	1	1	0	0	1				2		17	GROUND	Y	Time of count = 1310-1342 Keywords = METHODS	30, 28
MAY 7														6	6	GROUND	Y	1 DEAD SEAL NOT INCLUDED IN COUNT	157
1977																			
MAR 28	4	2	0				2	0	0				1		9	GROUND	Y	Time of count = 1315-1400 WEANED PUPS: M=0 , F= 1 , U= 0 Keywords = METHODS	121, 57
APR 10	1	0	2	0	0	1	0	0	1						5	GROUND	Y	SIZE/SEX DIFFERENT FROM REFS 29, 39 Time of count = 1100-1130 Keywords = METHODS	121
APR 10	1	1	2				0	1	0						5	GROUND	Y	SIZE/SEX DIFFERENT FROM REF 121 Keywords = METHODS	29, 39
APR 24	0	2	1												3	GROUND	Y	Time of count = 1245-1320 Keywords = METHODS	121
MAY 11	1	1	2				0	0	1				1		6	GROUND	Y	Time of count = 1215-1320 WEANED PUPS: M=0 , F= 1 , U= 0 Keywords = METHODS	121
MAY 27															0	AERIAL	Y	NO SEALS SEEN Keywords = METHODS	121
JUL 9	0	1	1	0	2	3	1	1	0						9	GROUND	Y	Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 12	1	0	1	0	0	3									5	GROUND	Y	SUBADULT & JUVENILE COMBINED Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 13	0	0	2	0	0	2.									4	BOAT?	Y	SUBADULT & JUVENILE COMBINED Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 13	0	0	3	0	0	3									6	BOAT?	Y	SUBADULT & JUVENILE COMBINED Keywords = MOLT,INJURY,MOVEMENTS	41
1978																			
JUL 15	2	1	0	1	1	0							3		8	GROUND	Y	NURSING PUPS: M=0 , F= 1 , U= 0 WEANED PUPS: M=1 , F= 1 , U= 0	35
AUG 10	0	0	5	0	0	7									12	GROUND	Y	COUNT BY R.COLEMAN SUBADULTS AND JUVENILES COMBINED Time of count = 1215 Keywords = INJURY	44

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Little Gin Island
1979

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1979																			
MAY 18	1	0	0	0	1	2	0	0	2						6	GROUND	Y	Time of count = 1430-1440	119
1980																			
MAY 30	0	0	3	0	0	5									8	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULT CLASSED AS "IMMATURE"	45
**********																			
FOR islet = MULLET																			
1956																			
FEB 21														3	3	AERIAL	Y		135
JUN 5	0	0	4										2		6	GROUND	Y		3
1959																			
JUL 21	0	0	1												1	GROUND	Y		3
1963																			
JUN 8																GROUND	N	NO EXACT COUNT "SEALS PRESENT"	6
1965																			
AUG 10	0	0	1												1	GROUND	Y		3
1968																			
JUN 25																GROUND	N	NO EXACT COUNT "FEW SEALS"	3
1969																			
JUN 5																GROUND	N	NO EXACT COUNT "SEALS PRESENT"	3
1971																			
MAY 13														17	17	AERIAL	Y	3 OBSERVERS CONDUCTED CENSUS Keywords = TAGGING,MOVEMENTS	106
1972																			
JAN 20														3	3	AERIAL	Y		109
MAY 5	0	0	2	0	0	5									7	GROUND	Y	YEARLING AND SUBADULTS COMBINED Keywords = TAGGING,MOVEMENTS	108
JUN 15														3	3	AERIAL	N	NO EXACT COUNT ESTIMATED POPULATION Keywords = TAGGING,MOVEMENTS	107

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Mullet Island
1973

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1973																			
APR 24														4	4	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	110
JUN 1														7	7	AERIAL	Y		112
1976																			
MAR 22	1	3	0	0	0	2	0	0	0				0		6	GROUND	Y	Time of count = 1215-1225 Keywords = METHODS	30, 28
1977																			
FEB 17															0	GROUND	Y	NO SEALS SEEN Keywords = METHODS	38, 57
MAR 9	0	2	4										2		8	BOAT	Y	Time of count = 1025 NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	121, 57
MAR 28	0	1	3												4	BOAT	Y	DIFFERENT SIZING THAN REF 57 Time of count = 1505 Keywords = METHODS	121
MAR 28	0	1	2	0	0	1									4	BOAT	Y	DIFFERENT SIZING THAN REF 121 Time of count = 1505 Keywords = METHODS	57
APR 9	2	6	0	0	1	0							2		11	GROUND	Y	SIZE/SEX DIFFERENT FROM REFS 29, 39 Time of count = 1530 NURSING PUPS: M=0 , F= 0 , U= 2 Keywords = METHODS	121
APR 9	2	4	2	0	1	0							2		11	GROUND	Y	SIZE/SEX DIFFERENT FROM REF 121 NURSING PUPS: M=0 , F= 0 , U= 2 Keywords = METHODS	29, 39
APR 24	0	2	3	0	0	2							2		9	BOAT	Y	Time of count = 1100 NURSING PUPS: M=0 , F= 0 , U= 2 Keywords = METHODS	121
MAY 11	0	2	3	0	1	0	0	0	1				2		9	BOAT	Y	Time of count = 1037 NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	121
MAY 25	0	1	7										3		11	BOAT	Y	Time of count = 1305 NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 0 , U= 2 Keywords = METHODS	121
JUL 7	0	1	2	0	0	1	0	0	2				1		7	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 13	0	0	3	0	0	2							1		6	BOAT?	Y	SUBADULT & JUVENILE COMBINED WEANED PUPS: M=0 , F= 0 , U= 1 Keywords = MOLT,INJURY,MOVEMENTS	41

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Mullet Island
1978

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1978																			
AUG 10															0	BOAT	Y	AWASH NO SEALS SEEN. COUNT BY R.COLEMAN SUBADULTS AND JUVENILES COMBINED Keywords = INJURY	44
1979																			
MAY 18	1	1	4										2		8	BOAT	Y	1 PREGNANT FEMALE Time of count = 1145-1150 NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 0 , U= 1	119
AUG 25	0	0	3												3	GROUND	Y	SUBADULTS CLASSED AS "INTERMEDIATE ADULTS"	19
1980																			
MAY 30	0	0	3	0	0	3									6	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULT CLASSED AS "IMMATURE"	45
1981																			
MAY 25	0	0	4	0	0	1									5	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO Keywords = METHODS	120
**********																			
FOR islet = MULLET,SPIT																			
1977																			
FEB 17	1	1	7	0	0	2	0	0	1						12	GROUND	Y	SPIT NEAR MULLET Keywords = METHODS	38, 57
**********																			
FOR islet = NEAR																			
1963																			
JUN 8																GROUND	N	NO EXACT COUNT "SEALS PRESENT"	6
1967																			
JUN 9	0	0	1												1	GROUND	Y		3
1977																			
AUG 13															0	BOAT?	Y	NO SEALS SEEN Keywords = MOLT,INJURY,MOVEMENTS	41

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Round Island
1956

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR islet = ROUND																			
1956																			
FEB 21														2	2	AERIAL	Y		135
APR 11	0	0	3										1		4	GROUND	Y		3
1957																			
DEC 28	0	0	3										1		4	AERIAL	Y	RICE AND KENYON AERIAL PHOTOGRAPH	3
1959																			
JUL 21	0	2	0	0	0	1							2		5	GROUND	Y		3
1963																			
JUN 8																GROUND	N	NO EXACT COUNT "SEALS PRESENT"	6
1965																			
AUG 10	0	0	6										1		7	GROUND	Y		3
1966																			
MAR 23														2	2	BOAT	Y	Time of count = 0930	72
AUG 26														2	2	GROUND	Y		3
1967																			
JUN 13	0	3	0										3		6	GROUND	Y		3
1968																			
JUN 6														12	12	GROUND	N	ONLY PUPS & YEARLINGS "SEALS {PUPS AND YEARLINGS} TAGGED"	65, 81
JUN 11																GROUND	Y	"FEW"	3
1969																			
JUN 5																GROUND	Y	"SEALS PRESENT"	3
1970																			
JUL 9														18	18	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	86
1971																			
MAY 13														1	1	AERIAL	Y	3 OBSERVERS CONDUCTED CENSUS Keywords = TAGGING,MOVEMENTS	106
AUG 25	0	0	4	0	0	0							4		8	GROUND	Y	SUBADULTS & YEARLINGS COMBINED NURSING PUPS: M=0 , F= 0 , U= 4 Keywords = TAGGING,MOVEMENTS	105

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Round Island
1972

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1972																			
JAN 20														3	3	AERIAL	Y		109
MAY 4														13	13	AERIAL	Y		147
MAY 5	0	0	12	0	0	2							10		24	GROUND	Y	YEARLING AND SUBADULTS COMBINED NURSING PUPS: M=6 , F= 4 , U= 0 Keywords = TAGGING,MOVEMENTS	108
JUN 15														10	10	AERIAL	N	NO EXACT COUNT ESTIMATED POPULATION Keywords = TAGGING,MOVEMENTS	107
1973																			
APR 24	0	0	13										11		24	GROUND	Y	Keywords = TAGGING,MOVEMENTS	110
JUN 1														15	15	AERIAL	Y		112
1976																			
MAR 22	0	6	0	1	1	1	0	0	0				4		13	GROUND	Y	Time of count = 1200-1210 Keywords = METHODS	30, 28
1977																			
FEB 17															0	GROUND	Y	NO SEALS SEEN Keywords = METHODS	38, 57
MAR 9	0	0	1												1	BOAT	Y	Time of count = 1020 Keywords = METHODS	121, 57
MAR 28	0	2	2										1		5	BOAT	Y	Time of count = 1455 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	121, 57
APR 9	0	7	0	0	0	1	0	0	1				7		16	GROUND	Y	SIZE/SEX DIFFERENT FROM REF 121 NURSING PUPS: M=0 , F= 0 , U= 7 Keywords = METHODS	29, 39
APR 9	0	8	0				0	0	1				7		16	GROUND	Y	SIZE/SEX DIFFERENT FROM REFS 29, 39 Time of count = 1515-1530 NURSING PUPS: M=0 , F= 0 , U= 7 Keywords = METHODS	121
APR 24	0	9	1										10		20	BOAT	Y	Time of count = 1050 NURSING PUPS: M=0 , F= 0 , U= 10 Keywords = METHODS	121
MAY 11	0	11	2										11		24	GROUND	Y	1 DEAD PUP NOT INCLUDED IN TOTAL Time of count = 1020-1035 NURSING PUPS: M=0 , F= 0 , U= 10 Keywords = METHODS	121

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Round Island
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAY 25	0	10	0	0	0	1							15	26	GROUND	Y	Time of count = 1245-1300 NURSING PUPS: M=1 , F= 0 , U= 6 WEANED PUPS: M=2 , F= 1 , U= 5 Keywords = METHODS	121
JUL 7	0	5	0	1	1	1	2	2	5				9	26	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 5 WEANED PUPS: M=0 , F= 0 , U= 4 Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 13	0	3	6	0	0	2							9	20	BOAT?	Y	SUBADULT & JUVENILE COMBINED NURSING PUPS: M=0 , F= 0 , U= 3 WEANED PUPS: M=0 , F= 0 , U= 6 Keywords = MOLT,INJURY,MOVEMENTS	41
1978																		
JUL 15	0	2	2	0	0	4							11	19	GROUND	Y	WEANED PUPS: M=0 , F= 0 , U= 11	35
AUG 10	0	0	1	0	0	0							5	6	GROUND	Y	COUNT BY R. COLEMAN SUBADULTS AND JUVENILES COMBINED Time of count = 1030 WEANED PUPS: M=0 , F= 0 , U= 5 Keywords = INJURY	44
1979																		
MAY 18	0	9	0										14	23	BOAT	Y	Time of count = 1130-1140 NURSING PUPS: M=0 , F= 0 , U= 9 WEANED PUPS: M=0 , F= 0 , U= 5	119
AUG 25	0	0	6	0	0	3								9	GROUND	Y	SUBADULTS CLASSED AS "INTERMEDIATE ADULTS"	19
1980																		
MAY 30	0	0	17	0	0	0							19	36	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULT CLASSED AS "IMMATURE"	45
1981																		
MAY 25	0	0	9										8	17	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F= 0 , U= 4 WEANED PUPS: M=0 , F= 0 , U= 4 Keywords = METHODS	120
MAY 28	0	0	8				0	0	2				11	21	AERIAL	Y	(MULLET INCLUDED?) USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F= 0 , U= 8 WEANED PUPS: M=0 , F= 0 , U= 3 Keywords = METHODS	120

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Round & Mullet Islands
1969

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR islet = ROUND,MULLET																			
1969																			
AUG 25	0	0	5	0	0	2							1		8	GROUND	Y	COMBINED COUNT Keywords = TAGGING	85
1981																			
MAY 25	0	0	20										3		23	AERIAL	Y	COMBINED NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 3 Keywords = METHODS	120
MAY 28	0	0	13										8		21	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 8 Keywords = METHODS	120
**********																			
FOR islet = SANDSPITS																			
1972																			
MAY 5														18	18	AERIAL	Y	OTHER SPITS YEARLING AND SUBADULTS COMBINED Keywords = TAGGING,MOVEMENTS	108
1979																			
MAY 18														1	1	BOAT	Y	"UNMARKED BAR" FROM TIME (1500), LOCATION IS CLOSE TO GINS Time of count = 1500	119
**********																			
FOR islet = SHARK																			
1957																			
MAY 10														1	1	GROUND	Y		3
DEC 28														9	9	AERIAL	Y	RICE AND KENYON PHOTOGRAPH	3
1959																			
JUL 19														9	9	AERIAL?	Y		3

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Shark Island
1961

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1961																			
MAR 4														4	4	UNKNOWN	N	LISTED AS INCOMPLETE	154
APR 22	0	0	10										1		11	GROUND	Y	ADULTS AND SUBADULTS COMBINED	3
JUL 14	0	0	4										4		8	GROUND	Y		3
1963																			
JUN 11																GROUND	N	NO EXACT COUNT "SEALS PRESENT"	6
1966																			
MAR 23														5	5	GROUND	Y		74
SEP 12	0	0	1	0	0	1									2	GROUND	Y		52
1967																			
DEC 9													0	19	19	AERIAL	Y	NO PUPS	77, 75
1969																			
JUN 4	0	0	9												9	GROUND	Y	ADULTS AND SUBADULTS COMBINED	3
SEP 2	0	0	10	0	0	5							1	3	19	GROUND	Y	Keywords = TAGGING	85
1970																			
JUL 9														19	19	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	86
1971																			
MAY 13														8	8	AERIAL	Y	3 OBSERVERS CENSUSED Keywords = TAGGING,MOVEMENTS	106
AUG 26														18	18	AERIAL	Y	SUBADULTS & YEARLINGS COMBINED Keywords = TAGGING,MOVEMENTS	105
1972																			
JAN 20														18	18	AERIAL	Y		109
MAY 4														19	19	AERIAL	Y		147
MAY 5	0	0	5	0	0	3									8	GROUND	Y	YEARLING AND SUBADULTS COMBINED Keywords = TAGGING,MOVEMENTS	108
JUN 15														17	17	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	107
1973																			
APR 24														17	17	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	110
JUN 1														3	3	AERIAL	Y		112
1976																			
MAR 22	10	7	0	3	3	7	1	0	0				0		31	GROUND	Y	Time of count = 1525-1542 Keywords = METHODS	30, 28

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Shark Island
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1977																			
MAR 31														26	26	AERIAL	Y	Keywords = METHODS	121
APR 9	14	3	7	2	3	4	1	1	1						36	GROUND	Y	SAME COUNT AS REF 29 SIZE/SEX BREAKDOWN DIFFERENT FROM REF 29 Time of count = 1005-1100 Keywords = METHODS	121
APR 9	13	4	8	3	1	6	0	0	2				0		37	GROUND	Y	SIZE/SEX BREAKDOWN DIFFERENT FROM REF 121 Time of count = 1010 Keywords = METHODS	29, 39
MAY 25	5	4	2				2	1	2						16	GROUND	Y	Time of count = 1530-1545 Keywords = METHODS	121
AUG 11	0	0	4	0	0	3							2		9	GROUND	Y	SUBADULT & JUVENILE COMBINED NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 0 , U= 1 Keywords = MOLT,INJURY,MOVEMENTS	41
1978																			
JUL 15	2	0	2	2	0	3	1	1	1						12	GROUND	Y		35
AUG 9	0	0	11	0	0	2									13	GROUND	Y	SUBADULTS AND JUVENILES COMBINED Time of count = 1400 Keywords = INJURY	44
1979																			
MAY 19	6	1	1	3	0	1	1	1	3						17	GROUND	Y	Time of count = 1345-1400	119
1980																			
MAY 30														4	4	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULT CLASSED AS "IMMATURE"	45
1981																			
MAY 25	0	0	5	0	0	2	0	0	4						11	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO Keywords = METHODS	120
MAY 25	0	0	11												11	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP Keywords = METHODS	120
MAY 28	0	0	4	0	0	1	0	0	2						7	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO Keywords = METHODS	120
MAY 28	0	0	7												7	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP Keywords = METHODS	120

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Skate Island
1953

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR islet = SKATE																			
1953																			
OCT 28	0	0	1												1	GROUND	N	UNKNOWN IF FULL COUNT "LARGE 7-8 FOOT SEAL...ON BEACH"	124
1956																			
FEB 21														10	10	AERIAL	Y		135
APR 11														1	1	GROUND	Y		3
**********																			
FOR islet = TERN																			
1956																			
FEB 11														4	4	GROUND	Y	IN REF 3, P.311; NOT IN REF 136	135
1959																			
JUL 21														1	1	GROUND	Y		3
1963																			
JUN 11															0	GROUND	Y	NO SEALS SEEN	6
1965																			
AUG 4	0	0	2												2	GROUND	Y		3
1966																			
MAR 21															0	GROUND	Y	NO SEALS SEEN	74, 72
JUN 8	0	0	1	0	0	3									4	GROUND	Y		3
AUG 26										0	0	1			1	GROUND	Y		3
SEP 12															0	GROUND	Y	NO SEALS SEEN	52
1967																			
MAY-JUN	0	0	1	0	0	2									3	GROUND	Y		3
SEP 16															0	GROUND	Y	NO SEALS SEEN	75, 76
DEC 9															0	GROUND	Y	NO SEALS SEEN	75, 77
1968																			
MAR 11	0	0	1												1	GROUND	Y		3
MAR 11														1	1	GROUND	Y		79
MAY-JUN																GROUND	Y	"FEW SEALS"	3
1969																			
MAR 22															0	GROUND	Y	NO SEALS SEEN	83
JUN	0	0	1							0	0	1			2	GROUND	Y		3

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Tern Island
1971

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1971																			
MAY 13														1	1	AERIAL	Y	3 OBSERVERS CONDUCTED CENSUS Keywords = TAGGING,MOVEMENTS	106
AUG 22	0	0	1	0	0	0									1	GROUND	Y	SUBADULTS & YEARLINGS COMBINED Keywords = TAGGING,MOVEMENTS	105
1972																			
JAN 20															0	AERIAL	Y	NO SEALS SEEN	109
MAY 5	0	0	4												4	GROUND	Y	YEARLING AND SUBADULTS COMBINED Keywords = TAGGING,MOVEMENTS	108
JUN 15															0	AERIAL	Y	NO SEALS SEEN Keywords = TAGGING,MOVEMENTS	107
1976																			
MAY 7															0	GROUND	Y	NO SEALS SEEN	157
AUG 20	0	2	1										2		5	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 0 , U= 1	130
OCT 7							0	0	4						4	GROUND	Y		37
1977																			
FEB 17							4	1	0						5	GROUND	Y	Keywords = METHODS	38, 57
FEB 17							1	1	0						2	GROUND	Y	Keywords = METHODS	57, 121
MAR 8							0	1	1						2	GROUND	Y	Time of count = 0800-2200 Keywords = METHODS	121, 57
MAR 28	0	0	1				1	0	0						2	GROUND	Y	Time of count = 0800-2200 Keywords = METHODS	121, 57
APR 9	0	0	1				0	1	0						2	GROUND	Y	Time of count = 0800 Keywords = METHODS	121
APR 24	0	0	1				1	2	2						6	GROUND	Y	Time of count = 1630 Keywords = METHODS	121
MAY 11	0	1	1	1	0	0	0	2	0						5	GROUND	Y	Time of count = 0800-1930 Keywords = METHODS	121
MAY 25	1	1	1				0	1	1						5	GROUND	Y	Time of count = 0800-1600 Keywords = METHODS	121
JUL 7							4	0	0						4	GROUND	Y	Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 11	0	2	1	1	1	1									6	GROUND	Y	SUBADULT & JUVENILE COMBINED Keywords = MOLT,INJURY,MOVEMENTS	41

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Tern Island
1978

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1978																			
JUL 15	0	0	1										1		2	GROUND	Y	WEANED PUPS: M=0 , F= 0 , U= 1	35
AUG 10	0	0	4	0	0	1							1		6	GROUND	Y	COUNT BY R.COLEMAN SUBADULTS AND JUVENILES COMBINED Time of count = 1600 WEANED PUPS: M=0 , F= 0 , U= 1 Keywords = INJURY	44
1979																			
MAY 18	0	0	4				0	1	0						5	GROUND	Y	Time of count = 1430-1500	119
JUL-SEP															10	GROUND	N	NO EXACT COUNT 1-10 PER DAY	19
1980																			
MAY 30	0	0	6	0	0	9									15	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULT CLASSED AS "IMMATURE"	45
NOV 10	5	3	2	1	0	1	1	2	1						16	GROUND	Y	JUVENILES AND PUPS COMBINED	60
1981																			
MAY 25	0	0	13	0	0	3	0	0	4						20	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO Keywords = METHODS	120
MAY 25	0	0	18												18	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP Keywords = METHODS	120
MAY 28	0	0	14	0	0	4	0	0	10						28	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO Keywords = METHODS	120
MAY 28	0	0	11	0	0	8	0	0	8						27	GROUND	Y	Keywords = METHODS	120
MAY 28	0	0	25												25	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP Keywords = METHODS	120
**********																			
FOR islet = TRIG																			
1954																			
MAR 20										0	0	1		1	2	GROUND	Y		125
1956																			
FEB 21														4	4	AERIAL	Y	ALSO 4 ON NEARBY ISLET (SEE TRIGLET)	135
APR 11														3	3	GROUND	Y		3
JUN 5	0	0	1												1	GROUND	Y		3

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Trig Island
1957

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1957																			
MAY 10														6	6	GROUND	Y		3
DEC 28														2	2	AERIAL	Y	FROM RICE AND KENYON PHOTOGRAPH	3
1959																			
JUL 21	0	0	6	0	0	2									8	GROUND	Y		3
1961																			
FEB 18	0	0	6										1		7	GROUND	Y		3
1963																			
JUN 14														20	20	GROUND	N	NO EXACT COUNT "20+ ; SEVERAL WITH YOUNG"	6
1964																			
SEP 27	5	5	1												11	GROUND	Y		70
1965																			
AUG 16	0	0	10										1		11	GROUND	N	NO EXACT COUNT 2-10 ADULTS; 1 PUP	3
1966																			
MAR 22	2	7	1							0	1	0	3		14	GROUND	Y	Time of count = 0950 NURSING PUPS: M=0 , F= 1 , U= 2	74, 72
JUN 10	0	0	3	0	0	7							1		11	GROUND	N	NO EXACT COUNT 2-3 ADULTS, 2-7 SUBADULTS DAILY; 1 PUP	3
AUG 13	0	0	13	0	0	3							1		17	GROUND	N	NO EXACT COUNT 12-13 ADULTS, 2-3 SUBADULTS, 1 WITH PUP WEANED PUPS: M=0 , F= 0 , U= 1	3
SEP 12	3	8	0	1	2	3				1	0	2			20	GROUND	Y	IN REF 3; REF 73 COUNT IS DIFFERENT	3, 73
SEP 12	2	5	1	2	1	6									17	GROUND	Y	DIFFERENT FROM COUNT IN REF 3 SAME DAY Time of count = 1540 Keywords = METHODS	73
SEP 12	2	5	1	1	1	2							5		17	GROUND	Y	Time of count = 1540 NURSING PUPS: M=1 , F= 0 , U= 4	52
1967																			
MAR 13	1	12	0	2	1	0							7		23	GROUND	Y	NURSING PUPS: M=2 , F= 4 , U= 1	3
JUN	0	0	10	0	0	5							1		16	GROUND	N	NO EXACT COUNT 10+ ADULTS; 5+ SUBAD; 1 PUP	3

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Trig Island
1967

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
SEP 17	2	7	9	0	0	4							1		23	GROUND	Y	Time of count = 1000-1115	75, 76
DEC 9													0	7	7	AERIAL	Y	NO PUPS	75, 77
1968																			
JUN														25	25	GROUND	N	NO EXACT COUNT 5-25 SEALS	3
JUN 6																GROUND	N	ONLY PUPS & YEARLINGS 65 PUPS & YEARLINGS TAGGED- AT TRIG, WHALE-SKATE,EAST,ROUND ISLANDS	65, 81
1969																			
FEB 22													1	14	15	GROUND	Y		3
JUN	0	0	27										2		29	GROUND	Y	ADULTS AND SUBADULTS COMBINED	3
AUG 23	0	0	6	0	0	3							2		11	GROUND	Y	Keywords = TAGGING	85
AUG 27	0	0	12	0	0	7							2	8	29	GROUND	Y	Keywords = TAGGING	85
1970																			
JUL 9														24	24	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	86
1971																			
MAY 13														15	15	AERIAL	Y	3 OBSERVERS CONDUCTED CENSUS Keywords = TAGGING,MOVEMENTS	106
AUG 25	0	0	10	0	0	16							I		27	GROUND	Y	SUBADULTS & YEARLINGS COMBINED Keywords = TAGGING,MOVEMENTS	105
SEP 13														20	20	BOAT	N	NO EXACT COUNT APPROXIMATE COUNT, NORTH SHORE OF ISLET Keywords = TAGGING,MOLT	89
1972																			
JAN 20														4	4	AERIAL	Y		109
MAY 5	0	0	3	0	0	2									5	GROUND	Y	YEARLING AND SUBADULTS COMBINED Keywords = TAGGING,MOVEMENTS	108
JUN 3	0	0	8	0	0	3							0		11	GROUND	Y	Keywords = TAGGING,MOVEMENTS	107
JUN 15														20	20	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	107
1973																			
APR 24	0	0	7	0	0	3							1	2	13	GROUND	Y	Keywords = TAGGING,MOVEMENTS	110
JUN 1														20	20	AERIAL	Y		112
1976																			
MAR 22	2	4	0	3	2	0	0	2	1				1		15	GROUND	Y	Time of count = 0852-0925 Keywords = METHODS	30, 28

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Trig Island
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1977																			
FEB 17	15	1	1	3	4	1									25	GROUND	Y	Keywords = METHODS	38, 57
MAR 9	7	6	0	1	2	0	1	1	0						18	GROUND	Y	REF 57 - COMBINED WITH EAST TRIG Time of count = 1500-1530 Keywords = METHODS	121
MAR 28	8	3	0	2	2	2	2	1	1						21	GROUND	Y	Time of count = 1655-1720 Keywords = METHODS	121, 57
APR 9	6	5	0				2	0	0				1		14	GROUND	Y	SIZE/SEX BREAKDOWN DIFFERENT FROM REF 39 Time of count = 1150-1235 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	121
APR 9	7	5	0	1	0	0	1	0	0				1		15	GROUND	Y	SIZE/SEX BREAKDOWN DIFFERENT FROM REF 121 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	39, 40
APR 24	8	4	2	0	2	1	2	0	1						20	GROUND	Y	Time of count = 1550-1605 Keywords = METHODS	121
MAY 11	1	3	5	1	0	2	2	0	2				2		18	GROUND	Y	Time of count = 1530-1600 NURSING PUPS: M=0 , F= 0 , U= 2 Keywords = METHODS	121
MAY 25	3	4	4	1	0	1	0	1	0				1		15	GROUND	Y	Time of count = 1055-1115 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	121
JUL 7	1	2	5	1	1	2	3	1	2						18	GROUND	Y	Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 11	3	4	4	1	1	3									16	GROUND	Y	SUBADULT & JUVENILE COMBINED Keywords = MOLT,INJURY,MOVEMENTS	41
1978																			
JUL 15	3	6	6	0	0	2	1	0	2				3		23	GROUND	Y	ERROR: TOTAL IN REPORT SHOULD BE 23, NOT 22 NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 1 , U= 1	35
AUG 10	0	0	28	0	0	9							6		43	GROUND	Y	COUNT BY R.COLEMAN SUBADULTS AND JUVENILES COMBINED Time of count = 1500 WEANED PUPS: M=0 , F= 0 , U= 6 Keywords = INJURY	44
1979																			
MAY 18	4	4	4	3	0	5	2	1	2						25	GROUND	Y	1 PREGNANT FEMALE Time of count = 1645-1700	119

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Trig Island
1979

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
AUG 7														19	19	GROUND	Y	Time of count = 0945-1030	19
SEP 1															11	GROUND	Y		19
SEP 16															28	GROUND	Y		19
1980																			
MAY 30	0	0	9	0	0	2									11	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULT CLASSED AS "IMMATURE"	45
1981																			
MAY 25	0	0	4	0	0	1	0	0	5				1		11	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO WEANED PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	120
MAY 25	0	0	10												10	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP Keywords = METHODS	120
MAY 28	0	0	5	0	0	3	0	0	2						10	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO Keywords = METHODS	120
MAY 28	0	0	9												9	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP Keywords = METHODS	120

****
FOR islet = TRIG & EAST ISLET

1977																			
MAR 9	5	5	7	3	3	0	1	1	0				1		26	GR/BOAT	Y	COMBINED COUNT ALSO SEE RAUZON ET AL (REF 121) TOTAL SAME AS REF 121 BUT SIZING DIFFERENT Time of count = 1500-1530 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	57 121

****
FOR islet = TRIG & ISLETS

1977																			
APR 9	12	8	1	1	0	0	3	0	2				1		28	GROUND	Y	TRIG & EAST,WEST ISLETS COMBINED TOTAL IS DIFFERENT FROM REFS 121, 39 (29) NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	29

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Trig Island & Islets
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR islet = TRIG (EAST ISLET)																			
1977																			
MAR 9	0	1	6										1		8	BOAT	Y	ISLET EAST OF TRIG Time of count = 1530 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	121
MAR 28	0	0	5												5	BOAT	Y	ISLET EAST OF TRIG Time of count = 1700 Keywords = METHODS	121, 57
APR 9	1	1	0				1	1	0						4	GROUND	Y	Time of count = 1235 Keywords = METHODS	121, 39
APR 24	0	0	1	0	0	1									2	BOAT	Y	Time of count = 1545 Keywords = METHODS	121
MAY 11	1	0	0				0	0	1						2	BOAT	Y	Time of count = 1600 Keywords = METHODS	121
MAY 25	0	0	2				0	0	1						3	BOAT	Y	TRIG ISLET Time of count = 1120 Keywords = METHODS	121
**********																			
FOR islet = TRIG (WEST ISLET)																			
1977																			
MAR 9	0	0	5												5	BOAT	Y	SAND BAR NORTHWEST OF TRIG Time of count = 1538 Keywords = METHODS	121, 57
MAR 28															0	BOAT	Y	ISLET WEST OF TRIG NO SEALS; ISLET AWASH Time of count = 1720 Keywords = METHODS	121
APR 9	5	1	2	0	0		1	1	0	1					11	GROUND	Y	SIZE/SEX BREAKDOWN DIFFERENT FROM REF 39 Time of count = 1235 Keywords = METHODS	121
APR 9	4	2	1				1	0	2						10	GROUND	Y	SIZE/SEX BREAKDOWN DIFFERENT FROM REF 121 Keywords = METHODS	39, 40
MAY 25	0	0	6												6	BOAT	Y	Time of count = 1045 Keywords = METHODS	121

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Trig Island & Islets
1956

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR islet = TRIGLET																			
1956																			
FEB 21														4	4	AERIAL	Y	"SMALL ISLAND IN FRONT OF TRIG"	135
1972																			
JUN 15														3	3	AERIAL	Y	SAND SPITS NEAR TRIG Keywords = TAGGING,MOVEMENTS	107
1973																			
JUN 1														7	7	AERIAL	Y	"TRIG SPITS"	112
1976																			
MAR 22	2	3	0	0	2	0	2	2	0				0		11	GROUND	Y	TRIG ISLET Time of count = 0935-0942 Keywords = METHODS	30, 28
**********																			
FOR islet = WHALE-SKATE SPIT																			
1977																			
MAY 11	0	0	5												5	BOAT	Y	SPIT NEAR WHALE-SKATE I Time of count = 1520 Keywords = METHODS	121
MAY 25	0	0	2												2	BOAT	Y	ISLE BY WHALE-SKATE I Time of count = 1150 Keywords = METHODS	121
**********																			
FOR islet = WHALE																			
1956																			
FEB 21														7	7	AERIAL	Y		135
APR 11														5	5	GROUND	Y		3
**********																			
FOR islet = WHALE-SKATE																			
1956																			
JUN 5	0	0	7										4		11	GROUND	Y	1 DEAD PUP INCLUDED IN COUNT	3

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Whale-Skate Island
1957

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1957																			
MAY 10														12	12	GROUND	Y		3
DEC 28														1	1	AERIAL	Y	RICE & KENYON PHOTOGRAPH	3
1959																			
JUL 21														10	10	GROUND	Y		3
1961																			
FEB 18	0	0	16										2		18	GROUND	Y	1 DEAD ADULT INCLUDED IN COUNT	3
1963																			
JUN 12														30	30	GROUND	N	NO EXACT COUNT "SEALS WERE...COMMON (30+)"	6
1964																			
SEP 27	8	3	6							1	2	3	1		24	GROUND	Y	Time of count = 0930	70
1965																			
AUG-SEP	0	0	15										2		17	GROUND	N	NO EXACT COUNT "2-15 ADULTS DAILY; 2 PUPS"	3
1966																			
MAR 22	6	7	3							1	2	1	5		25	GROUND	Y	Time of count = 1135 NURSING PUPS: M=2 , F= 0 , U= 3	74, 72
JUN-JUL	0	0	10	0	0	10							1		21	GROUND	N	NO EXACT COUNT 2-10 ADULTS, 2-10 SUBAD DAILY; 1 PUP	3
AUG-SEP	0	0	21							0	0	9	3		33	GROUND	N	NO EXACT COUNT 8-21 ADULTS; 8-9 YRLGS; 3 WEANED PUPS WEANED PUPS: M=0 , F= 0 , U= 3	3
SEP 13	5	1	2	4	2	0							9		23	GROUND	Y	DIFFERENT SIZE/SEX BREAKDOWN FROM REF 52 Time of count = 1100-1330 NURSING PUPS: M=2 , F= 2 , U= 5 Keywords = METHODS	73
SEP 13	3	1	2	4	1	1							11		23	GROUND	Y	DIFFERENT SIZE/SEX BREAKDOWN FROM REF 73 NURSING PUPS: M=4 , F= 2 , U= 5	52
1967																			
MAR 14	0	6	1	4	0	0							5		16	GROUND	Y		3
JUN	0	0	15	0	0	10							2		27	GROUND	N	NO EXACT COUNT 15+ ADULTS; 10+ SUBAD; 2 PUPS	3

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Whale-Skate Island
1967

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
SEP 17	6	4	5	1	1	4				0	1	1			23	GROUND	Y	Time of count = 1130-1525 Keywords = TAGGING	76
SEP 17	6	4	5	1	1	1				2	6	0			26	GROUND	Y	2 YEARLING MALES SHOULD BE 3; SEE REF 76 Keywords = TAGGING	75, 76
DEC 9													0	8	8	AERIAL	Y	NO PUPS	75, 77
1968																			
JUN														25	25	GROUND	N	NO EXACT COUNT 5-25 SEALS	3
JUN 6																GROUND	N	ONLY PUPS & YEARLINGS 65 PUPS & YEARLINGS TAGGED- AT TRIG, WHALE-SKATE,EAST, AND ROUND ISLANDS	65, 81
1969																			
FEB 23													1	47	48	GROUND	Y		3
MAR 22													2		2	AERIAL	N	ONLY PUPS COUNTED	83
JUN	0	0	26										10		36	GROUND	Y	ADULTS AND SUBADULTS COMBINED	3
AUG 24	0	0	9	0	0	13							8	2	32	GROUND	Y		85
1970																			
JUL 9														37	37	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	86
1971																			
MAY 13														16	16	AERIAL	Y	3 OBSERVERS CONDUCTED CENSUS Keywords = TAGGING,MOVEMENTS	106
AUG 25	0	0	9	0	0	9							10		28	GROUND	Y	SUBADULTS & YEARLINGS COMBINED Keywords = TAGGING,MOVEMENTS	105
SEP 13	0	3	13	11	2	10							1		40	GROUND	Y	NURSING PUPS: M=1 , F= 0 , U= 0 Keywords = TAGGING,MOLT	89
1972																			
MAY 5	0	0	16	0	0	7							9		32	GROUND	Y	YEARLING AND SUBADULTS COMBINED NURSING PUPS: M=4 , F= 5 , U= 0 Keywords = TAGGING,MOVEMENTS	108
JUN 3	0	0	22	0	0	3							7		32	GROUND	Y	Keywords = TAGGING,MOVEMENTS	107
JUN 15														49	49	AERIAL	Y	Keywords = TAGGING,MOVEMENTS	107
1973																			
APR 24	0	0	9	0	0	9							9	5	32	GROUND	Y	Keywords = TAGGING,MOVEMENTS	110
JUN 1														35	35	AERIAL	Y		112

Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Whale-Skate Island
1976

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1976																			
MAR 22	9	6	2	6	5	5	1	5	2				1		42	GROUND	Y	Time of count = 1007-1130 Keywords = METHODS	30, 28
MAY 7														21	21	GROUND	Y		157
AUG 20	0	3	30							0	0	37	38	2	110	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 3 WEANED PUPS: M=0 , F= 0 , U= 35	130
1977																			
FEB 17	7	4	0	8	2	0	10	2	1						34	GROUND	Y	Keywords = METHODS	38, 57
MAR 9	6	4	1	1	2	1	6	7	1				1		30	GROUND	Y	Time of count = 1345-1430 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = METHODS	57, 121
MAR 28	11	13	0	1	3	0	9	4	5				3		49	GROUND	Y	Time of count = 1520-1635 NURSING PUPS: M=0 , F= 0 , U= 3 Keywords = METHODS	121, 57
APR 9	5	13	7	0	1	0	2	7	0				7		42	GROUND	Y	SIZE/SEX DIFFERENT FROM REFS 29, 39 Time of count = 1315-1430 NURSING PUPS: M=0 , F= 0 , U= 7 Keywords = METHODS	121
APR 9	9	12	5	0	1	1	2	0	6				7		43	GROUND	Y	SIZE/SEX DIFFERENT FROM REF 121 NURSING PUPS: M=0 , F= 0 , U= 7 Keywords = METHODS	29, 39
APR 24	8	12	1	1	1	2	4	3	4				7		43	GROUND	Y	Time of count = 1415-1530 NURSING PUPS: M=0 , F= 0 , U= 6 WEANED PUPS: M=1 , F= 0 , U= 0 Keywords = METHODS	121
MAY 11	6	14	2	1	1	4	4	3	3				10		48	GROUND	Y	STILLBORN PUP NOT INCLUDED IN TOTAL Time of count = 1425-1520 NURSING PUPS: M=0 , F= 1 , U= 6 WEANED PUPS: M=1 , F= 1 , U= 1 Keywords = METHODS	121
MAY 25	7	11	2	0	1	2	0	1	3				13		40	GROUND	Y	Time of count = 1135-1230 NURSING PUPS: M=0 , F= 0 , U= 6 WEANED PUPS: M=0 , F= 2 , U= 5 Keywords = METHODS	121
JUL 7	1	13	11	1	3	8	1	1	7				10		57	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 5 WEANED PUPS: M=0 , F= 0 , U= 5 Keywords = MOLT,INJURY,MOVEMENTS	41
AUG 11	4	14	18	0	7	18							3		64	GROUND	Y	SUBADULT & JUVENILE COMBINED NURSING PUPS: M=0 , F= 0 , U= 3 Keywords = MOLT,INJURY,MOVEMENTS	41

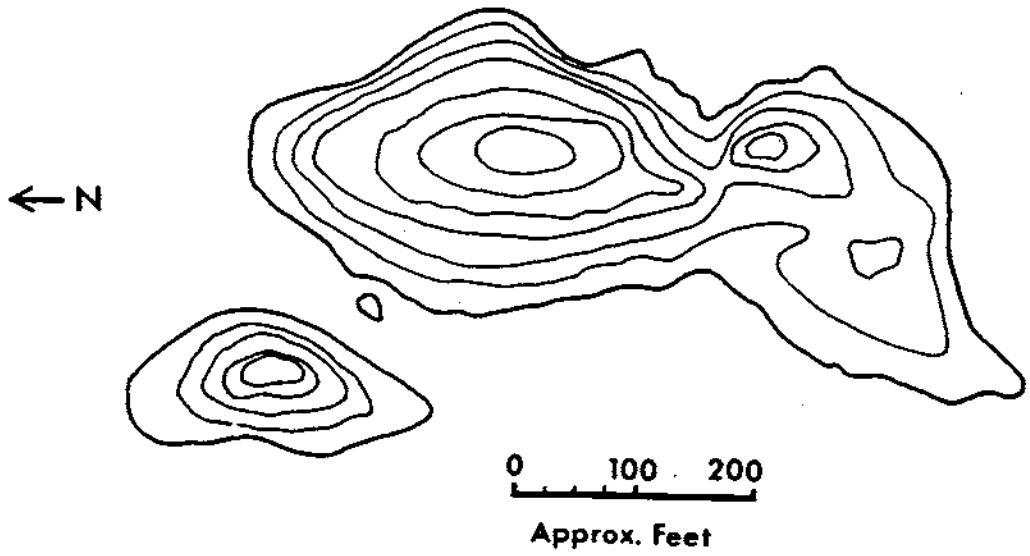
Appendix B.--Continued.

FRENCH FRIGATE SHOALS
Whale-Skate Island
1978

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1978																			
JUL 15	3	15	3	3	8	3	2	0	3				11		51	GROUND	Y	NURSING PUPS: M=1 , F= 0 , U= 0 WEANED PUPS: M=4 , F= 5 , U= 1	35
AUG 10	0	0	39	0	0	21							11		71	GROUND	Y	COUNT BY R.COLEMAN SUBADULTS AND JUVENILES COMBINED Time of count = 1350 WEANED PUPS: M=0 , F= 0 , U= 11 Keywords = INJURY	44
1979																			
MAY 18	7	17	8	2	0	2	2	3	7				13		61	GROUND	Y	2 PREGNANT FEMALES Time of count = 1520-1620 NURSING PUPS: M=0 , F= 0 , U= 10 WEANED PUPS: M=1 , F= 0 , U= 2	119
AUG 7														51	51	GROUND	Y	Time of count = 1100-1330	19
AUG 25	0	0	37	0	0	27								5	69	GROUND	Y	SUBADULTS CLASSED AS "INTERMEDIATE ADULTS"	19
1980																			
MAY 30	0	0	29	0	0	13							16		58	GROUND	Y	DATA FROM SUSAN SCHULMEISTER SUBADULTS CLASSED AS "IMMATURE"	45
NOV 11	8	3	17	0	0	1	6	2	10						47	GROUND	Y	JUVENILES AND PUPS COMBINED	60
1981																			
MAY 25	0	0	28	0	0	1	0	0	11				18		58	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F= 0 , U= 14 WEANED PUPS: M=0 , F= 0 , U= 4 Keywords = METHODS	120
MAY 25	0	0	42										13		55	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 13 Keywords = METHODS	120
MAY 28	0	0	22	0	0	4	0	0	4				18		48	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F= 0 , U= 13 WEANED PUPS: M=0 , F= 0 , U= 5 Keywords = METHODS	120
MAY 28	0	0	40										13		53	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO ADULT= OLDER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 13 Keywords = METHODS	120

Appendix C.--Map of Gardner Pinnacles followed by a tabular compilation of historical Hawaiian monk seal counts. Entries are in chronological order beginning with the earliest counts. Listed information includes date, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for each source of the information. Sources are listed in Appendix A, abbreviations in Appendix M, and keywords in Appendix N.

GARDNER PINNACLES



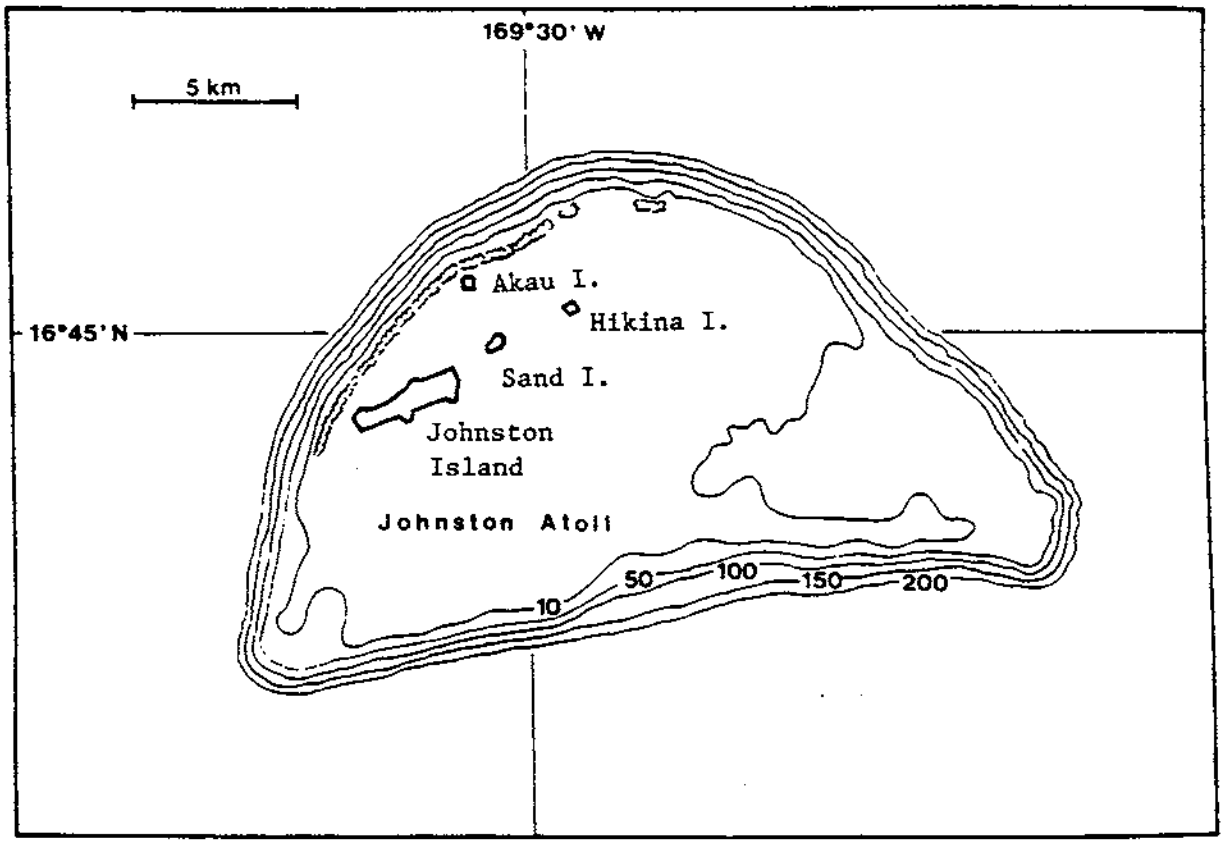
Appendix C.--Continued.

Hawaiian Monk Seal Numbers
GARDNER

GARDNER PINNACLES
1963

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1963																			
JUN																BOAT?	Y	"SEVERAL"	6
1964																			
MAR 8															0	BOAT?	Y	NO SEALS SEEN	144
1966																			
SEP 16	0	0	3	0	0	2									5	BOAT	Y		73, 52
1969																			
MAY														6	6	BOAT	Y		103
1971																			
SEP														4	4	BOAT	Y	1 ON MAIN ISLAND, 3 ON SMALL ISLAND	89
1977																			
JUL 10														6	6	BOAT	Y		41
AUG 10	2	1	1												4	BOAT	Y		41

Appendix D.--Map of Johnston Atoll followed by a tabular compilation of historical Hawaiian monk seal counts. Entries are in chronological order beginning with the earliest counts. Listed information includes date, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for each source of the information. Sources are listed in Appendix A, abbreviations in Appendix M, and keywords in Appendix N.



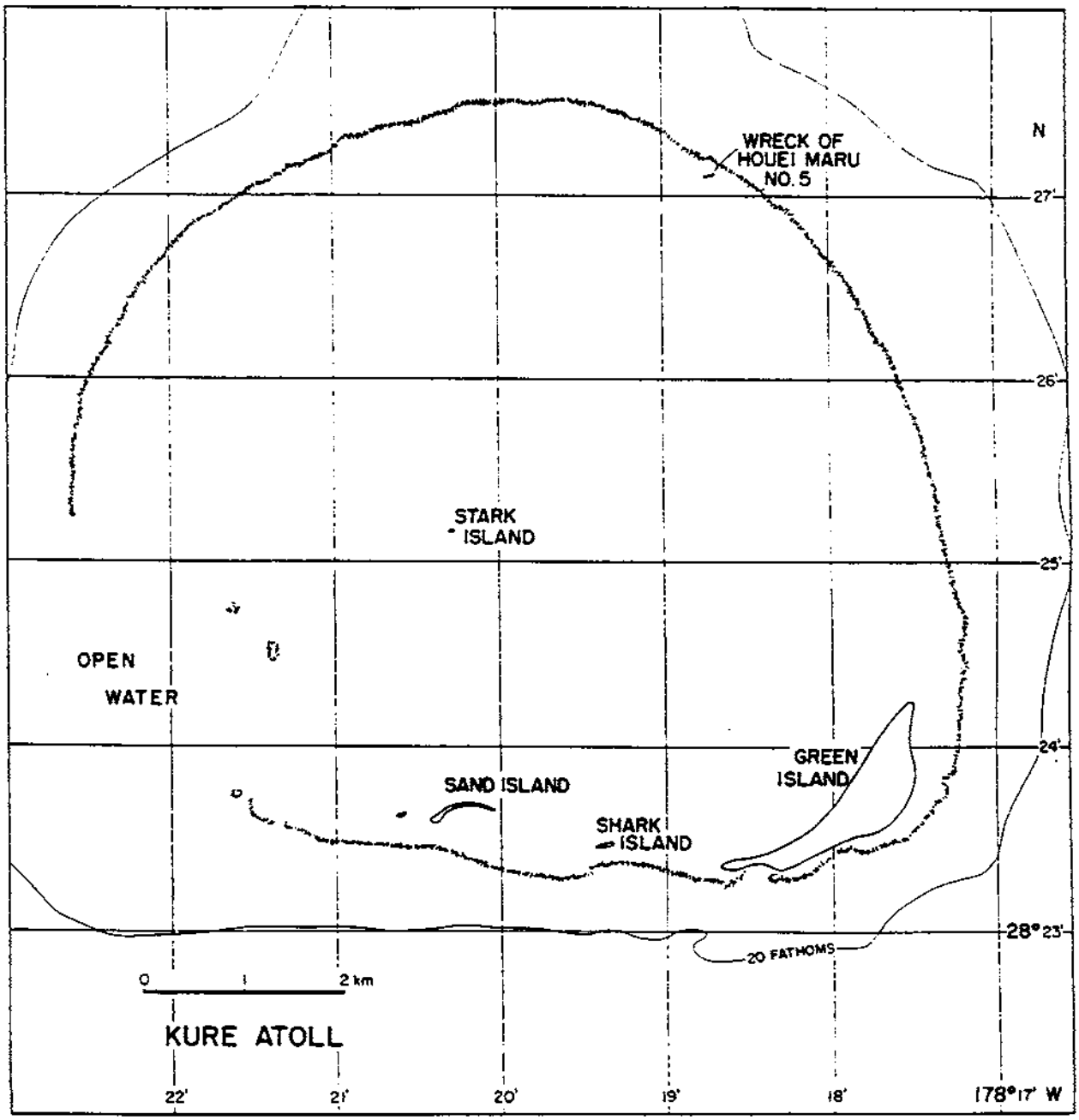
Appendix D.--Continued.

Hawaiian Monk Seal Numbers
JOHNSTON ATOLL

JOHNSTON ATOLL
1968

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1968																			
JUL				0	0	1									1	GROUND	Y	Keywords = MOVEMENTS	127
1969	0	1	0										1		2	GROUND	Y	NURSING PUPS: M=0, F=0, U=1	5

Appendix E.--Map of Kure Atoll, Green Island, and Sand Island followed by a tabular compilation of historical Hawaiian monk seal counts. Entries are in chronological order beginning with the earliest counts. Listed information includes date, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for each source of the information. Sources are listed in Appendix A, abbreviations in Appendix M, and keywords in Appendix N.



Appendix E.--Continued.

Hawaiian Monk Seal Numbers
KURE ATOLL

KURE ATOLL
Whole atoll
1825

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR whole atoll																			
1825																			
JUL 13																GROUND	N	NO POPULATION ESTIMATE MADE "SHORES...WERE LINED W/SEA ELEPHANTS"	156
1837																			
JUL 9																GROUND	N	NO POPULATION ESTIMATE MADE "CONSIDERABLE NUMBER"	156
1842																			
SEP 24														60	60	GROUND	N	NO POPULATION ESTIMATE MADE "KILLED ~60 SEALS"	156
1910																			
JAN 23																GROUND	N	NO POPULATION ESTIMATE MADE "...A NUMBER OF SEA LIONS"	156
1915																			
MAR 28																GROUND	N	NO POPULATION ESTIMATE MADE "LARGE NUMBER...HAULED OUT ON BEACH"	156
1923																			
APR 17													1	49	50	GROUND	N	NO EXACT COUNT 40-50 COUNTED, WITH AT LEAST 1 PUP BORN NURSING PUPS: M=0 , F= 0 , U= 1	156
1934																			
JUN 23														60	60	GROUND	N	NO EXACT COUNT 50-60 COUNTED	156
1936																			
APR 5																GROUND	N	NO POPULATION ESTIMATE MADE A NUMBER OF SEALS IN PHOTOGRAPHS	156
1949																			
SUMMER														30	30	GROUND	N	NO EXACT COUNT 20-30 COUNTED	9

Appendix E.--Continued.

KURE ATOLL
Whole atoll
1951

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1951																			
AUG 2														40	40	AERIAL	N	NO EXACT COUNT 30-40 COUNTED	9
OCT 12														70	70	GROUND	N	NO EXACT COUNT	
1954																			
NOV														60	60	AERIAL	N	ONLY~2/3 COUNTED	136
1957																			
JUN 5	0	0	79	0	0	19				0	0	7	23		128	AERIAL	Y	ERROR IN NUMBER OF PUPS, REF 156 NURSING PUPS: M=0 , F= 0 , U= 23	58
1958																			
APR 14	0	0	60										10		70	AERIAL	Y	PUPS ON WEST TIP OF GREEN I. ADULT= LARGER THAN PUP Time of count = 0910-1005 NURSING PUPS: M=0 , F= 0 , U= 10 Keywords = DISTRIBUTION	54
SPRING	0	0	117										25		142	AERIAL	Y	ADULT= LARGER THAN PUP NURSING PUPS: M=0 , F= 0 , U= 25	122
JUN 29	0	0	67										3		70	AERIAL	Y	ADULT= LARGER THAN PUP Time of count = 1500-1510 NURSING PUPS: M=0 , F= 0 , U= 3 Keywords = DISTRIBUTION	54
1959																			
SEP 28														53	53	GROUND?	Y		156
OCT 3														59	59	GROUND?	Y		156
1960																			
MAR 25														60	60	GROUND?	Y	40-60 COUNTED	156
1961																			
MAR 12														35	35	GROUND?	N	NO EXACT COUNT 35+ SEALS	154
SEP 12														70	70	GROUND	N	NO EXACT COUNT 65-70 COUNTED	139
SEP 12														48	48	GROUND	Y	Keywords = DISTRIBUTION	149
1964																			
MAR 15														125	125	GROUND	Y	TOTAL POPULATION ESTIMATE 110 SEALS TAGGED Keywords = TAGGING,MOVEMENTS	144
MAR														69	69	GROUND	Y	Keywords = TAGGING,MOVEMENTS	144, 149

Appendix E.--Continued.

KURE ATOLL
Whole atoll
1965

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1965																			
JAN														48	48	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR JAN 1965 (N=3)	156
JAN														74	74	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR JAN 1965 (N=3)	156
FEB														53	53	GROUND	N	SAND I. COUNTED FROM GREEN I.	156
MAR														51	51	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR MAR 1965 (N=4)	156
MAR														85	85	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR MAR 1965 (N=4)	156
APR														55	55	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR APR 1965 (N=4)	156
APR														92	92	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR APR 1965 (N=4)	156
MAY														52	52	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR MAY 1965 (N=3)	156
MAY														69	69	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR MAY 1965 (N=3)	156
JUN														32	32	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR JUN 1965 (N=3)	156
JUN														47	47	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR JUN 1965 (N=3)	156
JUL														26	26	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR JUL 1965 (N=2)	156
JUL														33	33	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR JUL 1965 (N=2)	156
AUG														14	14	GROUND	N	SAND I. COUNTED FROM GREEN I.	156
1966																			
APR														22	22	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR APR 1966 (N=2)	156
APR														44	44	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR APR 1966 (N=2)	156
MAY														25	25	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR MAY 1966 (N=4)	156
MAY														46	46	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR MAY 1966 (N=4)	156
JUN														24	24	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR JUN 1966 (N=2)	156
JUN														32	32	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR JUN 1966 (N=2)	156

Appendix E.--Continued.

KURE ATOLL
Whole atoll
1966

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JUL														16	16	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR JUL 1966 (N=2)	156
JUL														22	22	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR JUL 1966 (N=2)	156
AUG														8	8	GROUND	N	SAND I. COUNTED FROM GREEN I.	156
1967																			
APR														24	24	GROUND	N	SAND I. COUNTED FROM GREEN I.	156
MAY														22	22	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR MAY 1967 (N=4)	156
MAY														36	36	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR MAY 1967 (N=4)	156
JUN														15	15	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR JUN 1967 (N=2)	156
JUN														17	17	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR JUN 1967 (N=2)	156
SEP 30														59	59	GROUND	Y	Keywords = DISTRIBUTION	149
1968																			
MAR 28	0	0	61										8		69	AERIAL	Y	Time of count = 1530-1540 NURSING PUPS: M=0 , F= 0 , U= 8 Keywords = DISTRIBUTION	53, 64
MAR 31	0	0	48										10		58	AERIAL	Y	Time of count = 1345-1355 NURSING PUPS: M=0 , F= 0 , U= 10 Keywords = DISTRIBUTION	53
MAY	4	4	53										8		69	GROUND/ AERIAL	Y	NURSING PUPS: M=0 , F= 0 , U= 8	63
JUN 1														22	22	GROUND	Y		116
JUN														7	7	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR JUN 1968 (N=4)	156
JUN														23	23	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR JUN 1968 (N=4)	156
JUL														8	8	GROUND	N	SAND I. COUNTED FROM GREEN I. LOW COUNT FOR JUL 1968 (N=2)	156
JUL														17	17	GROUND	N	SAND I. COUNTED FROM GREEN I. HIGH COUNT FOR JUL 1968 (N=2)	156
JUL 28													0	39	39	GROUND?	Y		54
AUG 14													0	37	37	GROUND?	Y	NO PUPS	54
SEP 8													0	61	61	GROUND?	Y	NO PUPS	54
SEP 26													0	51	51	GROUND?	Y	NO PUPS	54
OCT 4													0	55	55	GROUND?	Y	NO PUPS	54
OCT 18													0	46	46	AERIAL	Y	NO PUPS	53

Appendix E.--Continued.

KURE ATOLL
Whole atoll
1969

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1969																			
APR 10	0	1	39										1		41	AERIAL	N	NOT ALL SEALS COUNTED ADULT=OLDER THAN PUP Time of count = 1200 NURSING PUPS: M=0 , F= 0 , U= 1	146, 145
APR 12	13	20	2	2	1	0							3		41	GROUND	Y	3 DEAD PUPS NOT INCLUDED IN TOTAL NURSING PUPS: M=0 , F= 0 , U= 3 Keywords = HUMAN INTERACTION,BEHAVIOR, DISTRIBUTION	145, 146
1971																			
SEP 3														36	36	AERIAL	Y		89
1972																			
SEP 5														33	33	GROUND/ AERIAL	Y		91, 66
1973																			
MAY 25	0	0	15										1		16	AERIAL	Y	NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = BEHAVIOR,HUMAN INTERACTION	137
MAY 28	9	6	2										1		18	GROUND	Y	Time of count = 1000-1400 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = BEHAVIOR,HUMAN INTERACTION	137
1974																			
MAR 8														25	25	GROUND?	Y		149
1975																			
MAR 11							0	0	1				3	43	47	GROUND	Y	Keywords = FOOD	46
1976																			
MAR 8	0	0	12							0	0	0	1	23	36	GROUND/ AERIAL	Y	NURSING PUPS: M=0 , F= 0 , U= 1	155
APR 7	10	8	8	0	0	0	0	0	0				3		29	GROUND	Y	1 DEAD PUP NOT INCLUDED IN TOTAL Time of count = 1040-1615 NURSING PUPS: M=0 , F= 0 , U= 3	30
SEP 1														41	41	GROUND	Y		149

Appendix E.--Continued.

KURE ATOLL
Whole atoll
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1977																			
APR 25	12	6	1	0	0	0	0	0	1				4		24	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 4	29
DEC 21	2	3	31							0	0	1			37	GROUND	Y	YRLG="YEARLING PUP"- PUPS FROM 1977 Time of count = 1350-1500 Keywords = INJURY,DISTRIBUTION	149, 148
DEC 22	1	0	26							0	0	1			28	GROUND/ AERIAL	Y	YRLG="YEARLING PUP"- PUPS FROM 1977 Time of count = 0800,1800 Keywords = INJURY,DISTRIBUTION	149, 148
1978																			
MAY 28														18	18	GROUND	Y		149
SEP 2	0	0	31				0	0	1						32	GROUND	Y	Time of count = 0830-1300	44
SEP 3	0	0	24										1		25	GROUND	Y	Time of count = 0830-1015 WEANED PUPS: M=0 , F= 0 , U= 1	44
1979																			
MAY 07	7	8	7	0	0	0	1	0	0				5		28	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 3 WEANED PUPS: M=1 , F= 0 , U= 1	119
MAR 18	10	4	23	0	0	0	0	1	0				3		41	GROUND	Y	WEANED PUPS: M=1 , F= 0 , U= 2	119
1981																			
MAY 27	0	0	14	0	0	5	0	0	7				2		28	AERIAL	Y	USFWS COUNTS FROM AERIAL PHOTOS NURSING PUPS: M=0 , F= 0 , U= 2	120
**********																			
FOR islet = GREEN																			
1958																			
APR 14	0	0	33										10		43	AERIAL	Y	PUPS ON WEST TIP OF ISLAND ADULTS: 21 ON NORTH, 12 ON SOUTH SIDE ADULT= LARGER THAN PUP Time of count = 0910-1005 NURSING PUPS: M=0 , F= 0 , U= 10 Keywords = DISTRIBUTION	54
JUN 29	0	0	56										3		59	AERIAL	Y	ADULTS: 28 ON NORTH, 28 ON SOUTH SIDE ADULT= LARGER THAN PUP Time of count = 1500-1510 NURSING PUPS: M=0 , F= 0 , U= 3 Keywords = DISTRIBUTION	54
1961																			
SEP 12														25	25	GROUND	Y		149

Appendix E.--Continued.

KURE ATOLL
Green Island
1964

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1964																			
JAN														22	22	GROUND	Y	LOW COUNT FOR JAN 1964 (N=2)	156
JAN														34	34	GROUND	Y	HIGH COUNT FOR JAN 1964 (N=2)	156
FEB														24	24	GROUND	Y	LOW COUNT FOR FEB 1964 (N=4)	156
FEB														42	42	GROUND	Y	HIGH COUNT FOR FEB 1964 (N=4)	156
MAR														21	21	GROUND	Y	LOW COUNT FOR MAR 1964 (N=4)	156
MAR														30	30	GROUND	Y	HIGH COUNT FOR MAR 1964 (N=4)	156
MAR 16	5	11	0	0	0	1							6		23	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 6 Keywords = TAGGING,MOVEMENTS	144
APR														26	26	GROUND	Y		156
JUN														12	12	GROUND	Y	LOW COUNT FOR JUNE 1964 (N=2)	156
JUN														25	25	GROUND	Y	HIGH COUNT FOR JUNE 1964 (N=2)	156
JUL														17	17	GROUND	Y	LOW COUNT FOR JULY 1964 (N=5)	156
JUL														26	26	GROUND	Y	HIGH COUNT FOR JULY 1964 (N=5)	156
AUG														9	9	GROUND	Y	LOW COUNT FOR AUG 1964 (N=4)	156
AUG														23	23	GROUND	Y	HIGH COUNT FOR AUG 1964 (N=4)	156
SEP														9	9	GROUND	Y	LOW COUNT FOR SEP 1964 (N=4)	156
SEP														19	19	GROUND	Y	HIGH COUNT FOR SEP 1964 (N=4)	156
OCT														2	2	GROUND	Y	LOW COUNT FOR OCT 1964 (N=6)	156
OCT														13	13	GROUND	Y	HIGH COUNT FOR OCT 1964 (N=6)	156
NOV														13	13	GROUND	Y	LOW COUNT FOR NOV 1964 (N=5)	156
NOV														36	36	GROUND	Y	HIGH COUNT FOR NOV 1964 (N=5)	156
DEC														16	16	GROUND	Y	LOW COUNT FOR DEC 1964 (N=5)	156
DEC														78	78	GROUND	Y	HIGH COUNT FOR DEC 1964 (N=5)	156
1965																			
JAN														8	8	GROUND	Y	LOW COUNT FOR JAN 1965 (N=4)	156
JAN														74	74	GROUND	Y	HIGH COUNT FOR JAN 1965 (N=4)	156
FEB														9	9	GROUND	Y	LOW COUNT FOR FEB 1965 (N=4)	156
FEB														35	35	GROUND	Y	HIGH COUNT FOR FEB 1965 (N=4)	156
MAR														31	31	GROUND	Y	LOW COUNT FOR MAR 1965 (N=4)	156
MAR														71	71	GROUND	Y	HIGH COUNT FOR MAR 1965 (N=4)	156
APR														32	32	GROUND	Y	LOW COUNT FOR APR 1965 (N=4)	156
APR														65	65	GROUND	Y	HIGH COUNT FOR APR 1965 (N=4)	156
MAY														25	25	GROUND	Y	LOW COUNT FOR MAY 1965 (N=5)	156
MAY														61	61	GROUND	Y	HIGH COUNT FOR MAY 1965 (N=5)	156
JUN														23	23	GROUND	Y	LOW COUNT FOR JUNE 1965 (N=3)	156
JUN														38	38	GROUND	Y	HIGH COUNT FOR JUNE 1965 (N=3)	156
JUL														23	23	GROUND	Y	LOW COUNT FOR JULY 1965 (N=3)	156
JUL														38	38	GROUND	Y	HIGH COUNT FOR JULY 1965 (N=3)	156
AUG														7	7	GROUND	Y		156

Appendix E.--Continued.

KURE ATOLL
Green Island
1966

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1966																			
AUG														11	11	GROUND	Y		156
SEP														11	11	GROUND	Y	LOW COUNT FOR SEP 1966 (N=2)	156
SEP														31	31	GROUND	Y	HIGH COUNT FOR SEP 1966 (N=2)	156
1967																			
MAR														10	10	GROUND	Y		156
MAR 27	0	5	2	0	0	1							4		12	GROUND	Y	2 ADULT UNKNOWN, 1 SUBADULT IN WATER 1 DEAD ADULT (UNKNOWN SEX) NOT COUNTED NURSING PUPS: M=0 , F= 0 , U= 4	43
MAR 28	1	2	2												5	GROUND	N	ONLY NORTH BEACH COUNTED	43
SEP 30														2	2	GROUND	Y		149
1968																			
MAR 28	0	0	11										4		15	GROUND/ AERIAL	Y	Time of count = 1530-1540 NURSING PUPS: M=0 , F= 0 , U= 4	53, 64
MAR 31	0	0	13										3		16	AERIAL	Y	Time of count = 1345-1355 NURSING PUPS: M=0 , F= 0 , U= 3	53
MAY	4	4	3										4		15	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 4	63
JUN														5	5	GROUND	Y	LOW COUNT FOR JUNE 1968 (N=4)	156
JUN														17	17	GROUND	Y	HIGH COUNT FOR JUNE 1968 (N=4)	156
JUL														0	0	GROUND	Y	LOW COUNT FOR JULY 1968 (N=3)	156
JUL														12	12	GROUND	Y	HIGH COUNT FOR JULY 1968 (N=3)	156
JUL 28													0	9	9	GROUND?	Y	NO PUPS	54
AUG														0	0	GROUND	Y	LOW COUNT FOR AUG 1968 (N=2)	156
AUG														4	4	GROUND	Y	HIGH COUNT FOR AUG 1968 (N=2)	156
AUG 14															0	GROUND?	Y	NO SEALS SEEN	54
SEP 8															0	GROUND?	Y	NO SEALS SEEN	54
SEP 26															0	GROUND?	Y	NO SEALS SEEN	54
OCT 4															0	GROUND?	Y	NO SEALS SEEN	54
OCT 18															0	AERIAL	Y	NO SEALS SEEN	53
DEC														4	4	GROUND	Y		156
1969																			
JAN														1	1	GROUND	Y	LOW COUNT FOR JAN 1969 (N=4)	156
JAN														3	3	GROUND	Y	HIGH COUNT FOR JAN 1969 (N=4)	156
FEB														1	1	GROUND	Y	LOW COUNT FOR FEB 1969 (N=4)	156
FEB														2	2	GROUND	Y	HIGH COUNT FOR FEB 1969 (N=4)	156
MAR														2	2	GROUND	Y	LOW COUNT FOR MAR 1969 (N=4)	156
MAR														8	8	GROUND	Y	HIGH COUNT FOR MAR 1969 (N=4)	156
APR														4	4	GROUND	Y	LOW COUNT FOR APR 1969 (N=5)	156
APR														8	8	GROUND	Y	HIGH COUNT FOR APR 1969 (N=5)	156

Appendix E.--Continued.

KURE ATOLL
Green Island
1969

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
APR 10	0	0	3												3	AERIAL	N	NOT ALL SEALS COUNTED "PERHAPS MORE...ON GREEN" ADULT=OLDER THAN PUP Time of count = 1200	146, 145
APR 10	0	2	3										2		7	GROUND	Y	ADULT=OLDER THAN PUP Time of count = 1800 NURSING PUPS: M=0 , F= 0 , U= 2	145
APR 11	0	2	0										2		4	GROUND	Y	ADULT=OLDER THAN PUP Time of count = 0600 NURSING PUPS: M=0 , F= 0 , U= 2	145
APR 12	1	4	0										2		7	GROUND	Y	1 DEAD PUP NOT INCLUDED IN TOTAL Time of count = 2230 NURSING PUPS: M=0 , F= 0 , U= 2 Keywords = HUMAN INTERACTION,BEHAVIOR, DISTRIBUTION	145, 146
MAY														10	10	GROUND	Y	LOW COUNT FOR MAY 1969 (N=4)	156
MAY														20	20	GROUND	Y	HIGH COUNT FOR MAY 1969 (N=4)	156
JUN														11	11	GROUND	Y	LOW COUNT FOR JUNE 1969 (N=3)	156
JUN														15	15	GROUND	Y	HIGH COUNT FOR JUNE 1969 (N=3)	156
SEP														0	0	GROUND	Y	LOW COUNT FOR SEP 1969 (N=4)	156
SEP														2	2	GROUND	Y	HIGH COUNT FOR SEP 1969 (N=4)	156
1971																			
SEP 3														6	6	AERIAL	Y		89
1972																			
SEP 5														3	3	GROUND	Y		91, 66
1973																			
MAY 25	0	0	4												4	AERIAL	Y	Time of count = 1100 Keywords = BEHAVIOR,HUMAN INTERACTION	137
MAY 27	2	2	0												4	GROUND	Y	Time of count = 1645 Keywords = BEHAVIOR,HUMAN INTERACTION	137
MAY 28	3	3	0												6	GROUND	Y	Time of count = 1000 Keywords = BEHAVIOR,HUMAN INTERACTION	137
1974																			
MAR 8														6	6	GROUND?	Y		149

Appendix E.--Continued.

KURE ATOLL
Green Island
1976

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1976																			
MAR 8	0	0	12							0	0	0	1		13	GROUND	Y	Time of count = 1415-1530 NURSING PUPS: M=0 , F= 0 , U= 1	155
APR 7	7	5	0										1		13	GROUND	Y	Time of count = 1345-1615 NURSING PUPS: M=0 , F= 0 , U= 1	30
SEP 1														20	20	GROUND	Y		149
1977																			
FEB 26	2	4	3	0	0	0	0	0	1				0		10	GROUND	Y	Time of count = 0900 Keywords = DISTRIBUTION	126
FEB 27	2	1	2	0	0	0	0	0	0				0		5	GROUND	Y	Time of count = 0930 Keywords = DISTRIBUTION	126
FEB 28	3	1	3	0	0	0	0	0	0				0		7	GROUND	Y	Time of count = 0830 Keywords = DISTRIBUTION	126
MAR 01	5	0	4	0	0	0	0	0	0				0		9	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
MAR 02	6	4	3	0	0	1	0	0	1				1		16	GROUND	Y	Time of count = 1600 Keywords = DISTRIBUTION	126
MAR 03	14	5	2	0	0	0	0	0	0				1		22	GROUND	Y	Time of count = 1515 Keywords = DISTRIBUTION	126
MAR 04	6	6	1	0	0	0	0	0	0				1		14	GROUND	Y	Time of count = 1745 Keywords = DISTRIBUTION	126
MAR 05	5	3	2	0	0	0	0	0	1				1		12	GROUND	Y	Time of count = 0815 Keywords = DISTRIBUTION	126
MAR 06	3	3	3	0	0	0	0	0	0				1		10	GROUND	Y	Time of count = 1150 Keywords = DISTRIBUTION	126
MAR 06	5	2	1	0	0	0	0	0	0				1		9	GROUND	Y	Time of count = 1815 Keywords = DISTRIBUTION	126
MAR 07	12	2	3	0	0	0	0	0	1				1		19	GROUND	Y	Time of count = 1400 Keywords = DISTRIBUTION	126
MAR 07	5	2	3	0	0	0	0	0	1				1		12	GROUND	Y	Time of count = 1930 Keywords = DISTRIBUTION	126
MAR 08	5	3	1	0	0	0	0	0	0				1		10	GROUND	Y	Time of count = 0830 Keywords = DISTRIBUTION	126
MAR 10	2	3	6	0	0	0	0	0	0				1		12	GROUND	Y	Time of count = 0830 Keywords = DISTRIBUTION	126
MAR 11	4	3	3	0	0	0	0	0	0				1		11	GROUND	Y	Time of count = 0830 Keywords = DISTRIBUTION	126
MAR 12	4	2	4	0	0	0	0	0	0				1		11	GROUND	Y	Time of count = 0830 Keywords = DISTRIBUTION	126
MAR 14	9	3	6	0	0	0	0	0	0				1		18	GROUND	Y	Time of count = 1400 Keywords = DISTRIBUTION	126

Appendix E.--Continued.

KURE ATOLL
Green Island
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAR 15	12	3	4	0	0	0	0	0	1				1		21	GROUND	Y	Time of count = 1400 Keywords = DISTRIBUTION	126
MAR 18	10	3	3	0	0	0	0	0	0				1		17	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
MAR 21	4	1	4	0	0	0	0	0	1				1		11	GROUND	Y	Time of count = 1830 Keywords = DISTRIBUTION	126
MAR 22	5	2	1	0	0	1	0	0	1				1		11	GROUND	Y	Time of count = 1830 Keywords = DISTRIBUTION	126
MAR 25	7	4	2	0	0	0	0	0	0				1		14	GROUND	Y	Time of count = 0900 Keywords = DISTRIBUTION	126
MAR 25	10	4	6	0	0	0	0	0	0				1		21	GROUND	Y	Time of count = 1830 Keywords = DISTRIBUTION	126
MAR 27	8	5	1	0	0	1	0	0	1				1		17	GROUND	Y	Time of count = 1215 Keywords = DISTRIBUTION	126
MAR 29	3	4	2	0	0	0	0	0	0				2		11	GROUND	Y	Time of count = 0830 Keywords = DISTRIBUTION	126
MAR 30	5	2	3	0	0	0	0	0	1				2		13	GROUND	Y	Time of count = 0830 Keywords = DISTRIBUTION	126
MAR 31	1	3	1	0	0	0	0	0	1				2		8	GROUND	Y	Time of count = 0830 Keywords = DISTRIBUTION	126
APR 01	9	5	6	0	0	1	0	0	1				2		24	GROUND	Y	Time of count = 1500 Keywords = DISTRIBUTION	126
APR 02	11	7	1	0	0	0	0	0	1				2		22	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
APR 04	10	7	1	0	0	0	0	0	1				3		22	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
APR 05	6	7	1	0	0	0	0	0	1				3		18	GROUND	Y	Time of count = 1900 Keywords = DISTRIBUTION	126
APR 06	3	5	3	0	0	0	0	0	0				3		14	GROUND	Y	Time of count = 1900 Keywords = DISTRIBUTION	126
APR 07	4	2	5	0	0	0	0	0	0				2		13	GROUND	Y	Time of count = 1930 Keywords = DISTRIBUTION	126
APR 08	1	2	3	0	0	0	0	0	0				2		8	GROUND	Y	Time of count = 0850 Keywords = DISTRIBUTION	126
APR 09	1	3	3	0	0	0	0	0	0				2		9	GROUND	Y	Time of count = 0850 Keywords = DISTRIBUTION	126
APR 10	1	3	4	0	0	0	0	0	1				2		11	GROUND	Y	Time of count = 0900 Keywords = DISTRIBUTION	126
APR 11	10	3	1	0	0	0	0	0	0				2		16	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126

Appendix E.--Continued.

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Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
APR 12	8	2	1	0	0	0	0	0	1				2		14	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
APR 13	10	2	0	0	0	0	0	0	1				2		15	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
APR 14	9	7	0	0	0	0	0	0	1				2		19	GROUND	Y	Time of count = 1930 Keywords = DISTRIBUTION	126
APR 15	5	6	2	0	0	0	0	0	0				2		15	GROUND	Y	Time of count = 1930 Keywords = DISTRIBUTION	126
APR 16	10	4	0	0	0	0	0	0	0				2		16	GROUND	Y	Time of count = 1930 Keywords = DISTRIBUTION	126
APR 18	6	5	3	0	0	0	0	0	0				2		16	GROUND	Y	Time of count = 0900 Keywords = DISTRIBUTION	126
APR 19	3	6	3	0	0	0	0	0	0				2		14	GROUND	Y	Time of count = 0900 Keywords = DISTRIBUTION	126
APR 20	4	6	1	0	0	0	0	0	0				2		13	GROUND	Y	Time of count = 0900 Keywords = DISTRIBUTION	126
APR 21	7	5	0	0	0	0	0	0	1				2		15	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
APR 22	7	5	2	0	0	1	0	0	0				2		17	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
APR 23	4	4	1	0	0	1	0	0	1				2		13	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
APR 25	4	4	0	0	0	0	0	0	1				2		11	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 2	29
APR 25	4	4	0	0	0	0	0	0	1				2		11	GROUND	Y	Time of count = 1500 Keywords = DISTRIBUTION	126
APR 26	3	3	2	0	0	0	0	0	1				2		11	GROUND	Y	Time of count = 1800 Keywords = DISTRIBUTION	126
APR 27	8	7	2	0	0	0	0	0	0				2		19	GROUND	Y	Time of count = 1800 Keywords = DISTRIBUTION	126
APR 28	5	5	2	0	0	0	0	0	0				2		14	GROUND	Y	Time of count = 1800 Keywords = DISTRIBUTION	126
APR 29	2	3	0	0	0	0	0	0	1				2		8	GROUND	Y	Time of count = 0830 Keywords = DISTRIBUTION	126
APR 30	4	5	2	0	0	0	0	0	0				2		13	GROUND	Y	Time of count = 0830 Keywords = DISTRIBUTION	126
MAY 01	3	4	3	0	0	0	0	0	1				2		13	GROUND	Y	Time of count = 0830 Keywords = DISTRIBUTION	126
MAY 02	6	6	0	0	0	0	0	0	1				2		15	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
MAY 03	10	8	0	0	0	0	0	0	1				2		21	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
MAY 04	10	6	2	0	0	1	0	0	0				2		21	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126
MAY 06	11	6	0	0	0	1	0	0	1				2		21	GROUND	Y	Time of count = 1430 Keywords = DISTRIBUTION	126

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Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAY 08	9	6	3	0	0	1	0	0	0				1		20	GROUND	Y	Time of count = 1800 Keywords = DISTRIBUTION	126
MAY 09	7	6	0	0	0	0	0	0	1				0		14	GROUND	Y	Time of count = 1930 Keywords = DISTRIBUTION	126
MAY 12	2	4	2	0	0	0	0	0	1				0		9	GROUND	Y	Time of count = 0900 Keywords = DISTRIBUTION	126
NOV 09	0	3	7	0	1	0									11	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1530	117
NOV 10	3	2	1	1	0	1									8	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0745	117
NOV 10	3	2	2	1	0	1									9	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1400	117
NOV 11	1	2	1	1	0	1									6	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0800	117
NOV 11	3	0	3	1	0	0									7	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1500	117
NOV 12	3	1	2	1	0	1									8	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0840	117
NOV 12	1	0	1	0	0	0									2	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1700	117
NOV 13	1	1	3	1	0	0									6	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0900	117
NOV 14	2	0	3	0	0	0									5	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0800	117
NOV 14	5	0	0	0	0	0									5	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1430	117
NOV 15	2	2	2	0	0	0									6	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0800	117
NOV 15	1	3	6	1	0	1									12	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1530	117
NOV 16	2	2	2	0	1	1									8	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0800	117
NOV 16	1	4	3	1	0	0									9	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1500	117
NOV 17	1	2	3	1	0	0									7	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0800	117
NOV 17	4	4	5	1	0	0									14	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1530	117
NOV 18	3	3	2	1	0	0									9	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0800	117

Appendix E.--Continued.

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Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
NOV 18	4	2	2	0	1	0									9	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1600	117
NOV 19	1	3	4	1	0	0									9	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1200	117
NOV 19	2	3	3	1	0	0									9	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1700	117
NOV 20	4	5	0	1	0	0									10	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1030	117
NOV 20	0	2	4	0	0	0									6	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1730	117
NOV 21	1	0	3	0	0	0									4	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0530	117
NOV 21	3	3	2	0	0	0									8	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1530	117
NOV 22	2	2	3	1	1	0									9	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0815	117
NOV 22	4	3	1	1	0	0									9	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1530	117
NOV 23	1	4	2	1	0	0									8	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0900	117
NOV 23	2	2	3	1	0	0									8	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1530	117
NOV 25	5	2	5	1	1	0									14	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0900	117
NOV 26	6	4	5	1	1	0									17	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1200	117
NOV 27	1	4	10	1	1	0									17	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1200	117
NOV 28	3	1	3	0	0	0									7	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0800	117
NOV 28	2	4	6	0	0	1									13	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1500	117
NOV 29	0	2	4	0	0	1									7	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0800	117
NOV 29	0	2	3	0	0	1									6	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1530	117
NOV 30	2	0	2	1	0	0									5	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0800	117
NOV 30	3	0	3	1	0	0									7	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1500	117
DEC 1	2	1	2	1	1	0									7	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0800	117
DEC 1	3	2	6	1	1	0									13	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1500	117
DEC 2	0	1	6	1	1	0									9	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0930	117

Appendix E.--Continued.

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Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
DEC 2	4	2	3	1	1	0									11	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1500	117
DEC 3	2	0	2	1	0	0									5	GROUND	Y	SUBADULT= NON-ADULT Time of count = 0900	117
DEC 3	1	1	4	0	0	0									6	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1700	117
DEC 4	3	1	2	1	0	0									7	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1300	117
DEC 5	3	3	5	0	0	0									11	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1000	117
DEC 6	3	3	1	1	1	0									9	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1330	117
DEC 7	3	1	2	1	0	0									7	GROUND	Y	SUBADULT= NON-ADULT Time of count = 1245	117
DEC 21	2	3	4							0	0	1			10	GROUND	Y	YRLG="YEARLING PUP"- PUPS FROM 1977 Time of count = 1500 Keywords = INJURY,DISTRIBUTION	149, 148
DEC 22	1	0	5							0	0	1			7	GROUND	Y	YRLG="YEARLING PUP"- PUPS FROM 1977 Time of count = 0800 Keywords = INJURY,DISTRIBUTION	149, 148
1978																			
FEB	0	0	16	0	0	2							2		20	GROUND	N	NO EXACT COUNT 15-20 SEALS IN FEB. SUBAD="SMALL, PROBABLY BORN IN 1977" NURSING PUPS: M=0 , F= 0 , U= 2	12
MAR 9	7	2	7	0	0	0	0	0	0				1		17	GROUND	Y	NURSING PUPS: M=0 , F= 1 , U= 0 Time of count = 1200	118
MAR 10	11	2	8	0	0	0	0	1	1				1		24	GROUND	Y	Time of count = 1430	118
MAR 11	8	3	7	0	0	0	1	0	0				1		20	GROUND	Y	Time of count = 1330	118
MAR 12	1	4	5	0	0	0	0	0	0				1		11	GROUND	Y	Time of count = 1530	118
MAR 13	4	3	4	0	0	0	1	0	0				1		13	GROUND	Y	Time of count = 1530	118
MAR 14	6	5	3	0	0	0	1	0	0				1		16	GROUND	Y	Time of count = 1430	118
MAR 15	8	5	2	0	0	0	0	0	0				1		16	GROUND	Y	Time of count = 1615	118
MAR 16	4	2	6	1	0	0	1	0	0				1		15	GROUND	Y	Time of count = 1600	118
MAR 17	3	1	5	0	0	0	1	1	0				1		12	GROUND	Y	Time of count = 1400	118
MAR 18	4	3	4	0	0	0	0	0	0				1		12	GROUND	Y	Time of count = 1700	118
MAR 19	2	3	7	1	0	0	1	0	0				1		15	GROUND	Y	Time of count = 1400	118
MAR 20	6	3	2	0	0	0	0	0	1				1		13	GROUND	Y	Time of count = 1500	118
MAR 21	3	2	2	0	0	0	1	0	0				1		9	GROUND	Y	Time of count = 1400	118

Appendix E.--Continued.

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Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAR 22	10	2	3	0	0	0	1	0	0				1		17	GROUND	Y	Time of count = 1500	118
MAR 23	6	3	7	0	0	0	1	0	0				2		19	GROUND	Y	NURSING PUPS: M=0 , F= 2 , U= 0	118
																		Time of count = 1530	
MAR 24	7	3	4	0	0	0	1	0	0				2		17	GROUND	Y	Time of count = 1500	118
MAR 25	7	4	5	0	0	0	1	1	0				2		20	GROUND	Y	Time of count = 1400	118
MAR 26	13	4	4	0	0	0	1	1	0				2		25	GROUND	Y	Time of count = 1300	118
MAR 27	13	5	2	0	0	0	1	1	0				2		24	GROUND	Y	Time of count = 1500	118
MAR 28	11	4	5	0	0	1	0	0	0				2		23	GROUND	Y	Time of count = 1330	118
MAR 29	9	5	4	0	0	0	1	1	0				2		22	GROUND	Y	Time of count = 1430	118
MAR 30	6	5	9	0	0	0	0	0	1				2		23	GROUND	Y	Time of count = 1330	118
MAR 31	9	5	1	0	0	1	1	1	0				2		20	GROUND	Y	Time of count = 1430	118
APR 1	13	4	4	0	0	0	1	1	0				2		25	GROUND	Y	Time of count = 1500	118
APR 2	9	4	4	0	0	0	1	1	0				2		21	GROUND	Y	Time of count = 1430	118
APR 3	8	3	3	0	0	0	0	1	0				2		17	GROUND	Y	Time of count = 1330	118
APR 4	3	3	6	0	0	0	0	1	0				2		15	GROUND	Y	Time of count = 1600	118
APR 5	4	2	6	0	0	0	0	1	0				2		15	GROUND	Y	Time of count = 1430	118
APR 6	12	8	4	0	0	0	0	1	0				2		27	GROUND	Y	Time of count = 1430	118
APR 7	7	7	3	0	0	0	0	1	0				2		20	GROUND	Y	Time of count = 1400	118
APR 8	8	4	3	0	0	0	0	1	0				2		18	GROUND	Y	Time of count = 1600	118
APR 9	10	6	3	0	0	0	1	0	0				2		22	GROUND	Y	Time of count = 1300	118
APR 10	5	4	2	0	0	0	0	0	0				2		13	GROUND	Y	Time of count = 1430	118
APR 11	3	3	4	0	0	0	1	0	0				2		13	GROUND	Y	Time of count = 1400	118
APR 12	8	4	2	0	0	0	1	1	0				2		18	GROUND	Y	Time of count = 1400	118
APR 13	9	5	4	0	0	0	1	0	0				2		21	GROUND	Y	Time of count = 1530	118
APR 14	9	5	6	0	0	0	1	0	0				1		22	GROUND	Y	Time of count = 1700	118
APR 15	3	4	8	1	0	0	1	0	0				1		18	GROUND	Y	Time of count = 1500	118
APR 16	7	4	2	0	0	0	0	0	0				1		14	GROUND	Y	Time of count = 1700	118
APR 17	8	7	6	0	0	0	0	0	0				1		22	GROUND	Y	Time of count = 1500	118
APR 18	8	6	1	0	0	0	1	0	0				1		17	GROUND	Y	Time of count = 1500	118
APR 19														6	6	GROUND	Y		17
APR 19	11	4	2	0	0	0	1	0	0				1		19	GROUND	Y	Time of count = 1330	118
APR 20	0	1	2										1		4	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1	17
APR 21														2	2	GROUND	Y		17
MAY 28														6	6	GROUND	Y		149
SEP 2	0	0	17				0	0	1						18	GROUND	Y	Time of count = 1000-1300	44
SEP 3	0	0	14										1		15	GROUND	Y	Time of count = 0900-1015	44
																		WEANED PUPS: M=0 , F= 0 , U= 1	
SEP 4	0	0	16				0	0	1						17	GROUND	Y	Time of count = 0830-0930	44
1979																			
MAY 10	9	4	4												17	GROUND	N	ONLY ADULTS COUNTED	55
MAY 11	5	3	6												14	GROUND	N	ONLY ADULTS COUNTED	55
MAY 12	8	4	0												12	GROUND	N	ONLY ADULTS COUNTED	55
MAY 13	4	2	3												9	GROUND	N	ONLY ADULTS COUNTED	55

Appendix E.--Continued.

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Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAY 14	10	5	5												20	GROUND	N	ONLY ADULTS COUNTED	55
MAY 15	4	2	5												11	GROUND	N	ONLY ADULTS COUNTED	55
MAY 16	6	3	2												11	GROUND	N	ONLY ADULTS COUNTED	55
MAY 17	10	2	4												16	GROUND	N	ONLY ADULTS COUNTED	55
MAY 18	9	3	5												17	GROUND	N	ONLY ADULTS COUNTED	55
MAY 19	10	8	3												21	GROUND	N	ONLY ADULTS COUNTED	55
MAY 20	11	3	3												17	GROUND	N	ONLY ADULTS COUNTED	55
MAY 21	5	4	2 0												9	GROUND	N	ONLY ADULTS COUNTED	55
MAY 22	4	3	1												8	GROUND	N	ONLY ADULTS COUNTED	55
1980																			
JUN 17	9	5	0	1	0	0	0	1	0				2		18	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1440-1640 WEANED PUPS: M=1 , F= 1 , U= 0	56
JUN 18	6	1	5	1	0	0	0	1	0				0		14	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1415-1615	56
JUN 19	7	2	2	1	1	0	0	1	0				0		17	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1210-1415	56
JUN 20	6	5	2	1	1	0	0	1	0				0		16	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1220-1440	56
JUN 21	5	3	2	1	1	0	1	1	0				1		15	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1230-1445 WEANED PUPS: M=1 , F= 0 , U= 0	56
JUN 22	4	3	0	0	1	0	0	0	0				2		10	GROUND	N	NOT COMPLETE COUNT OF GREEN Time of count = 0830-1030 WEANED PUPS: M=2 , F= 0 , U= 0	56
JUN 22	4	1	5	1	1	0	0	1	0				2		15	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1230-1410 WEANED PUPS: M=2 , F= 0 , U= 0	56
JUN 23	3	4	2	1	1	0	0	1	0				0		12	GROUND	N	NOT COMPLETE COUNT OF GREEN Time of count = 0830-0930	56
JUN 23	8	2	1	0	1	0	1	1	0				0		14	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1230-1450	56
JUN 24	5	2	0	1	1	0	0	0	0				0		9	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1245-1445	56
JUN 25	3	2	1	0	0	0	0	0	0				2		8	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1210-1400 WEANED PUPS: M=1 , F= 1 , U= 0	56
JUN 25	3	3	1	0	0	0	0	1	0				0		8	GROUND	N	NOT COMPLETE COUNT OF GREEN Time of count = 2025-2100	56

Appendix E.--Continued.

KURE ATOLL
Green Island
1980

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JUN 26	2	2	1	1	0	0	0	1	0				0		7	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1240-1445	56
JUN 27	5	3	0	1	1	0	0	0	0				0		10	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1215-1450	56
JUN 28	4	3	2	1	0	0	1	1	1				1		14	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 0930-1130 WEANED PUPS: M=0 , F= 1 , U= 0	56
JUN 28	7	3	0	1	0	0	0	0	0				1		12	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1235-1450 WEANED PUPS: M=0 , F= 1 , U= 0	56
JUN 29	5	4	2	1	0	0	0	1	0				1		14	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1315-1450 WEANED PUPS: M=0 , F= 1 , U= 0	56
JUN 30	13	4	0	1	0	0	0	1	0				0		19	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1230-1445	56
JUL 01	8	4	0	1	0	0	0	1	0				2		16	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1215-1400 WEANED PUPS: M=0 , F= 2 , U= 0	56
JUL 02	4	3	0	1	0	0	0	0	0				1		9	GROUND	N	NOT COMPLETE COUNT OF GREEN Time of count = 0945-1030 WEANED PUPS: M=1 , F= 0 , U= 0	56
JUL 02	7	2	0	1	0	0	0	0	0				1		11	GROUND	Y	EXCLUDES BINOCULAR COUNT OF SAND I. Time of count = 1210-1410 WEANED PUPS: M=1 , F= 0 , U= 0	56

****
FOR islet = SAND

1958																			
APR 14	0	0	27												27	AERIAL	Y	SANDSPITS NUMBERED 1-5 ADULT= LARGER THAN PUP Time of count = 0910-1005 Keywords = DISTRIBUTION	54
JUN 29	0	0	11												11	AERIAL	Y	3 SANDSPITS ADULT= LARGER THAN PUP Time of count = 1500-1510 Keywords = DISTRIBUTION	54
1961																			
SEP 12													23		23	GROUND	Y		149
1964																			
MAR 15													46		46	GROUND	Y	Keywords = TAGGING,MOVEMENTS	144
MAY 29													30		30	GROUND	Y		156
AUG 13													47		47	GROUND	Y		156

Appendix E.--Continued.

KURE ATOLL
Sand Island
1965

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1965																			
JAN														0	0	BINOCS	N	COUNTED FROM GREEN I. LOW COUNT FOR JAN 1965 (N=3)	156
JAN														50	50	BINOCS	N	COUNTED FROM GREEN I. HIGH COUNT FOR JAN 1965 (N=3)	156
FEB														16	18	BINOCS	N	COUNTED FROM GREEN I.	156
MAR														14	14	BINOCS	N	COUNTED FROM GREEN I. LOW COUNT FOR MAR 1965 (N=4)	156
MAR														40	40	BINOCS	N	COUNTED FROM GREEN I. HIGH COUNT FOR MAR 1965 (N=4)	156
MAR 27														45	45	GROUND	Y		156
APR														27	27	BINOCS	N	COUNTED FROM GREEN I. LOW COUNT FOR APR 1965 (N=4)	156
APR														33	33	BINOCS	N	COUNTED FROM GREEN I. HIGH COUNT FOR APR 1965 (N=4)	156
MAY														8	8	BINOCS	N	COUNTED FROM GREEN I. LOW COUNT FOR MAY 1965 (N=3)	156
MAY														13	13	BINOCS	N	COUNTED FROM GREEN I. HIGH COUNT FOR MAY 1965 (N=3)	156
MAY 24														49	49	GROUND	Y		156
JUN														9	9	BINOCS	N	COUNTED FROM GREEN I. LOW COUNT FOR JUN 1965 (N=3)	156
JUN														11	11	BINOCS	N	COUNTED FROM GREEN I. HIGH COUNT FOR JUN 1965 (N=3)	156
JUL														5	5	BINOCS	N	COUNTED FROM GREEN I. LOW COUNT FOR JUL 1965 (N=2)	156
JUL														7	7	BINOCS	N	COUNTED FROM GREEN I. HIGH COUNT FOR JUL 1965 (N=2)	156
JUL 30														26	26	GROUND	Y		156
AUG														7	7	BINOCS	N	COUNTED FROM GREEN I.	156
1966																			
AUG 3														31	31	GROUND	Y		156
AUG 25														25	25	GROUND	Y		156
1967																			
MAR 26	0	0	14	0	0	1									15	GROUND	Y		43
JUN 29														13	13	GROUND	Y		156
SEP 30														57	57	GROUND	Y		149

Appendix E.--Continued.

KURE ATOLL
Sand Island
1968

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1968																			
MAR 28	0	0	50										4		54	AERIAL	Y	Time of count = 1530-1540 NURSING PUPS: M=0 , F= 0 , U= 4	53, 64
MAR 31	0	0	35										7		42	AERIAL	Y	Time of count = 1345-1355 NURSING PUPS: M=0 , F= 0 , U= 7	53
MAY	0	0	50										4		54	AERIAL	Y	2 SAND ISLETS 11 SEALS ON ONE ISLET 39 SEALS + 4 PUPS ON OTHER ISLET NURSING PUPS: M=0 , F= 0 , U= 4	63
JUN														2	2	BINOCS	N	COUNTED FROM GREEN I. LOW COUNT FOR JUN 1968 (N=4)	156
JUN														6	6	BINOCS	N	COUNTED FROM GREEN I. HIGH COUNT FOR JUN 1968 (N=4)	156
JUL														5	5	BINOCS	N	COUNTED FROM GREEN I.	156
JUL 4														24	24	GROUND	Y		156
JUL 28													0	30	30	GROUND?	Y	NO PUPS	54
AUG 14													0	37	37	GROUND?	Y	NO PUPS	54
AUG 14														37	37	GROUND	Y		156
SEP 8													0	61	61	GROUND?	Y	NO PUPS	54
SEP 26													0	51	51	GROUND?	Y	NO PUPS	54
OCT 4													0	55	55	GROUND?	Y	NO PUPS	54
OCT 18													0	46	46	AERIAL	Y	NO PUPS	53
1969																			
JAN 18														25	25	GROUND	Y		156
FEB 16														30	30	GROUND	Y		156
APR 10	0	1	36										1		38	AERIAL	Y	2 ISLETS 11 SEALS ON ONE ISLET 26 SEALS + 1 PUP AT OTHER ISLET ADULT=OLDER THAN PUP Time of count = 1200 NURSING PUPS: M=0 , F= 0 , U= 1	146, 145
APR 12	12	16	2	2	1	0							1		34	GROUND	Y	3 ISLETS 2 DEAD PUPS NOT INCLUDED IN COUNT Time of count = 0530 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = HUMAN INTERACTION,BEHAVIOR, DISTRIBUTION	145, 146
APR 12														34	34	GROUND	Y		156
APR 19														18	18	GROUND	Y		156
JUN 12														15	15	GROUND	Y		156
1971																			
SEP 3														30	30	AERIAL	Y		89

Appendix E.--Continued.

KURE ATOLL
Sand Island
1972

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1972																			
SEP 5														30	30	AERIAL	Y		91, 66
1973																			
MAR 16	0	0	20										3		23	AERIAL	Y	NURSING PUPS: M=0 , F= 0 , U= 3	95
MAY 25	0	0	11										1		12	AERIAL	Y	NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = BEHAVIOR,HUMAN INTERACTION	137
MAY 28	6	3	2										1		12	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F= 0 , U= 1 Keywords = BEHAVIOR,HUMAN INTERACTION	137
1974																			
MAR 8														19	19	GROUND?	Y		149
1976																			
MAR 8														19	19	BINOCS	N	COUNTED FROM GREEN I	155
MAR 8														23	23	AERIAL	Y		155
MAR 9	0	0	21										6		27	GROUND	Y	Time of count = 0900-0930 NURSING PUPS: M=0 , F= 0 , U= 6	155
APR 7	3	3	8	0	0	0	0	0	0				2		16	GROUND	Y	3 ISLETS ISLET 1: 3 ADULTS ISLET 2: 9 ADULTS + 2 PUPS ISLET 3: 2 ADULTS 1 DEAD PUP NOT INCLUDED IN COUNT Time of count = 1040-1200 NURSING PUPS: M=0 , F= 0 , U= 2	30
SEP 1														21	21	GROUND	Y		149
1977																			
FEB 11													1	21	22	AERIAL	Y	SAND I. ONLY Time of count = 1330	126
FEB 12														17	17	BINOCS	N	COUNTED FROM GREEN I. SAND I. ONLY Time of count = 1835	126
FEB 14	13	2	7										1		23	GROUND	Y	SAND I. ONLY Time of count = 1500	126
FEB 16														3	3	UNKNOWN	N	ONLY TEMPORARY SAND ISLETS COUNTED Time of count = EVENING	126

Appendix E.--Continued.

KURE ATOLL
Sand Island
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
FEB 17														3	3	BINOCS	N	COUNTED FROM GREEN I. TEMPORARY SANDSPITS Time of count = 1200	126
FEB 19														1	1	BINOCS	N	COUNTED FROM GREEN I. TEMPORARY SANDSPITS Time of count = 0845	126
FEB 20														10	10	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1200	126
FEB 20														9	9	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1730	126
FEB 21														13	13	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0830	126
FEB 22														22	22	AERIAL	Y	SAND I. & TEMPORARY SANDSPITS Time of count = 1110	126
FEB 23														17	17	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1015	126
FEB 24														10	10	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1500	126
FEB 25														11	11	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0945	126
FEB 25													1	8	9	AERIAL	Y	SAND I. & TEMPORARY SANDSPITS Time of count = 1045	126
FEB 25	9	1	12	0	0	1							1		24	GROUND	Y	SAND I. & TEMPORARY SANDSPITS Time of count = 1400	126
FEB 26														12	12	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0900	126
FEB 27														12	12	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1000	126
FEB 28														10	10	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0900	126
MAR 1														8	8	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0830	126

Appendix E.--Continued.

KURE ATOLL
Sand Island
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAR 1														15	15	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1430	126
MAR 2														7	7	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0815	126
MAR 2														11	11	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1500	126
MAR 3														3	3	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0810	126
MAR 3														10	10	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1150	126
MAR 7														7	7	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1400	126
MAR 9														5	5	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0800	126
MAR 9														12	12	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1200	126
MAR 11														11	11	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1000	126
MAR 12														8	8	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0800	126
MAR 15														9	9	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1400	126
MAR 16	10	2	4										2		18	GROUND	Y	SAND I. & TEMPORARY SANDSPITS Time of count = 1400	126
MAR 17														9	9	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0925	126

Appendix E.--Continued.

KURE ATOLL
Sand Island
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAR 19														11	11	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1210	126
MAR 21	0	0	15										2		17	AERIAL	Y	SAND I. & TEMPORARY SANDSPITS Time of count = 1200	126
MAR 24														4	4	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0840	126
MAR 25	0	2	12										2		16	AERIAL	Y	SAND I. & TEMPORARY SANDSPITS Time of count = 1200	126
MAR 27														16	16	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1130	126
MAR 30														15	15	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1445	126
MAR 31														7	7	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0900	126
APR 2														19	19	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1400	126
APR 3	5	3	6										3		17	GROUND	Y	SAND I. & TEMPORARY SANDSPITS Time of count = 1200	126
APR 6														8	8	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1510	126
APR 11														5	5	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1400	126
APR 12														7	7	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1230	126
APR 15														4	4	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1930	126
APR 18														4	4	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0930	126
APR 19														4	4	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0930	126

Appendix E.--Continued.

KURE ATOLL
Sand Island
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
APR 21														9	9	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1500	126
APR 22														7	7	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1500	126
APR 25	8	2	1	0	0	0	0	0	0				2		13	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 2	29
APR 25	0	0	6										2		8	AERIAL	Y	SAND I. & TEMPORARY SANDSPITS Time of count = 1030	126
APR 25	7	2	2										2		13	GROUND	Y	SAND I. & TEMPORARY SANDSPITS Time of count = 1430	126
MAY 3														9	9	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 1430	126
MAY 6													2	29	31	AERIAL	Y	SAND I. & TEMPORARY SANDSPITS Time of count = 1400	126
MAY 10	4	2	0										1		7	GROUND	Y	SAND I. & TEMPORARY SANDSPITS Time of count = 1700	126
MAY 12														3	3	BINOCS	N	COUNTED FROM GREEN I. SAND I. & TEMPORARY SANDSPITS Time of count = 0900	126
NOV 9														11	11	AERIAL	N	INCOMPLETE AERIAL COUNT FROM C-130 PLANE Time of count = 1430	117
NOV 10														7	7	BINOCS	N	COUNTED FROM GREEN I. Time of count = 0800	117
NOV 12														20	20	GROUND	Y	Time of count = 1400	117
NOV 14														3	3	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1000	117
NOV 15														10	10	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1600	117
NOV 16														4	4	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1030	117
NOV 17														8	8	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1000	117
NOV 18														10	10	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1030	117
NOV 19														10	10	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1300	117

Appendix E.--Continued.

KURE ATOLL
Sand Island
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
NOV 20														7	7	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1100	117
NOV 21														1	1	BINOCS	N	COUNTED FROM GREEN I. Time of count = 0900	117
NOV 22														7	7	BINOCS	N	COUNTED FROM GREEN I. Time of count = 0900	117
NOV 22														15	15	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1600	117
NOV 23														11	11	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1600	117
NOV 24														14	14	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1400	117
NOV 26														6	6	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1230	117
NOV 27														5	5	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1530	117
NOV 28														6	6	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1000	117
NOV 29														11	11	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1130	117
NOV 30														8	8	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1000	117
NOV 30														14	14	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1530	117
DEC 1														10	10	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1600	117
DEC 2														15	15	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1100	117
DEC 2														13	13	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1600	117
DEC 3														22	22	AERIAL	Y	Time of count = 1300	117
DEC 3														14	14	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1400	117
DEC 4														10	10	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1400	117
DEC 5														10	10	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1130	117
DEC 6														10	10	BINOCS	N	COUNTED FROM GREEN I. Time of count = 1500	117
DEC 21	0	0	27												27	AERIAL	Y	Time of count = 1350 Keywords = INJURY,DISTRIBUTION	149, 148
DEC 22	0	0	21												21	AERIAL	Y	YRLG="YEARLING PUP"- PUPS FROM 1977 Time of count = 1800 Keywords = INJURY,DISTRIBUTION	149, 148

Appendix E.--Continued.

KURE ATOLL
Sand Island
1978

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1978																			
MAR 10														10	10	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1430	118
MAR 11	10	5	6										2	2	25	GROUND	Y	(SAND & SHARK I) Time of count = 1045	118
MAR 12														10	10	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1530	118
MAR 13														9	9	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1430	118
MAR 14														9	9	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1430	118
MAR 15														13	13	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1600	118
MAR 17														15	15	AERIAL	Y	(SAND & SHARK I) Time of count = 1400	118
MAR 18														17	17	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1700	118
MAR 19														10	10	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1400	118
MAR 20														3	3	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1500	118
MAR 22														8	8	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1500	118
MAR 25													2	16	18	BOAT	Y	(SAND & SHARK I) Time of count = 1400	118
MAR 26														8	8	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1300	118

Appendix E.--Continued.

KURE ATOLL
Sand Island
1978

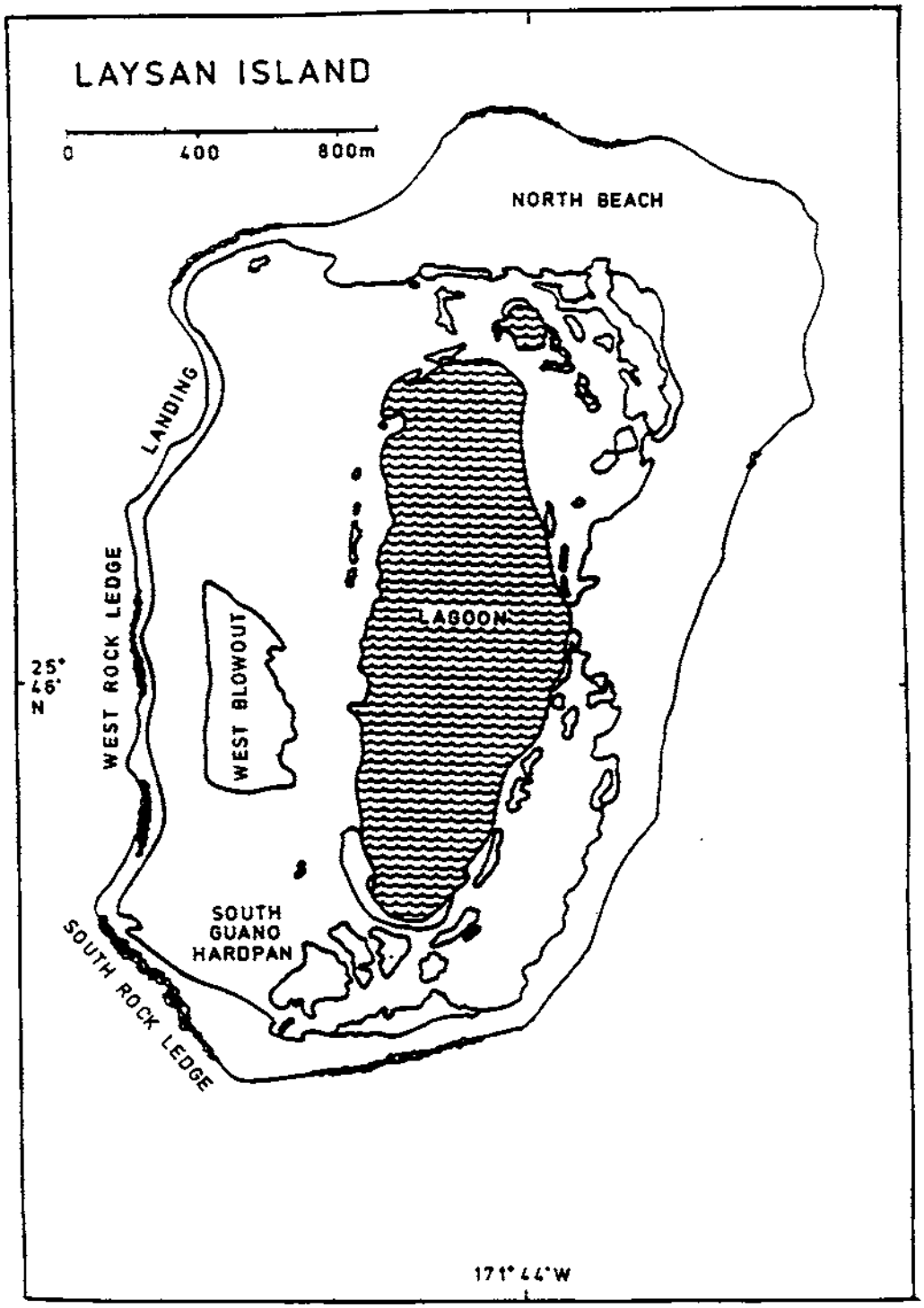
Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAR 27														5	5	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1500	118
MAR 28														5	5	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1330	118
MAR 29													3	18	21	BOAT	Y	(SAND & SHARK I) Time of count = 1500	118
APR 1	5	4	5										3	2	19	GROUND	Y	(SAND & SHARK I) Time of count = 1200	118
APR 3														4	4	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1350	118
APR 4														15	15	BOAT	Y	(SAND & SHARK I) Time of count = 1500	118
APR 5														5	5	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1430	118
APR 6														5	5	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1430	118
APR 8														8	8	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1700	118
APR 9														9	9	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1300	118
APR 10														13	13	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1430	118
APR 11														5	5	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1400	118
APR 12														6	6	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1400	118
APR 13														12	12	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1530	118
APR 14														9	9	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1700	118

Appendix E.--Continued.

KURE ATOLL
Sand Island
1978

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
APR 16														6	6	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1500	118
APR 17														13	13	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1500	118
APR 18														9	9	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1500	118
APR 19														9	9	BINOCS	N	COUNTED FROM GREEN I. (SAND & SHARK I) Time of count = 1330	118
MAY 28														12	12	GROUND	Y		149
SEP 2	0	0	14												14	GROUND	Y	Time of count = 0830	44
SEP 3	0	0	10												10	GROUND	Y	Time of count = 0830	44
1980																			
JUN 26	7	0	0	0	0	0	0	0	0				4		11	GROUND	Y	Time of count = 0925-1200 WEANED PUPS: M=0 , F= 0 , U= 4	56
JUL 01	1	0	2	0	0	0	0	0	0				3		6	GROUND	Y	Time of count = 1900-2005 WEANED PUPS: M=1 , F= 1 , U= 1	56

Appendix F.--Map of Laysan Island followed by a tabular compilation of historical Hawaiian monk seal counts. Entries are in chronological order beginning with the earliest counts. Listed information includes date, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for each source of the information. Sources are listed in Appendix A, abbreviations in Appendix M, and keywords in Appendix N.



Appendix F.--Continued.

Hawaiian monk seal counts
LAYSAN

LAYSAN
1828

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1828																			
MAR 24																GROUND	N	NO POPULATION ESTIMATE MADE "...SEVERAL SMALL SEALS WERE FOUND"	32
1857																			
MAY 1																GROUND	N	NO POPULATION ESTIMATE MADE "SEALS NUMEROUS"	114
1893																			
															70	GROUND	N	NO POPULATION ESTIMATE MADE "...60-70 SEALS KILLED ON LAYSAN"	9
1896																			
JUN-SEP																GROUND	N	NO POPULATION ESTIMATE MADE "SKULL, SKIN & PARTS OF 2 OTHER SKULLS."	9
1911																			
APR-JUN																GROUND	Y	NO SEALS SEEN	31
1912																			
DEC 30	1	0	0												1	GROUND	Y		8, 9
1915																			
JUL 5														1	1	GROUND	Y	SHOT AT SOUTH END OF ISLAND	23
AUG 15														1	1	GROUND	Y	"...SEEN ON BEACH..."	23
AUG 22														1	1	GROUND	Y	"...ONE SEAL SEEN IN TRIP AROUND ISLAND"	23
AUG 24														1	1	GROUND	Y	"A SEAL KILLED"	23
SEP 14														1	1	GROUND	Y	"...SEAL KILLED"	23
1923																			
APR-MAY	1	1	2												4	GROUND	Y	"MALE & FEMALE COLLECTED AND ... PAIR SEEN"	23
1936																			
MAR 7														10	10	GROUND	N	NO POPULATION ESTIMATE MADE "8 OR 10...SEEN IN WATER OR ON SAND"	23
DEC 12														5	5	GROUND	N	NO POPULATION ESTIMATE MADE	9, 32

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref.	LAYSAN 1949 No.
1949																				
MAY 4														30	30	AERIAL	N	SMALL PART OF BEACH "ESTIMATED 20-30 SEEN FROM AIR"-PARTIAL COUNT	9	
1950																				
JUN 23														50	50	GROUND	N	NO EXACT COUNT "AT LEAST 50 SEALS, SOME WITH YOUNG"	136,	32
1951																				
MAY 12														174	174	GROUND	Y	"NEWLY BORN PUPS SEEN"	136,	32
JUN-JUL														119	119	GROUND	Y		136,	32
1954																				
NOV 3														60	60	AERIAL	N	60 SEALS COUNTED (PROBABLY 2/3 OF SEALS)	136,	32
1955																				
FEB 10														101	101	GROUND	Y		136,	32
FEB 10	0	0	67	0	0	19							19		105	GROUND	Y		32	
1957																				
JAN 7	0	0	162												162	AERIAL	Y	ADULT= OLDER THAN PUP Time of count = 1100-1130	123	
APR 15	0	0	214										19		233	AERIAL	Y	ADULT= OLDER THAN PUP NUMBER OF PUPS IN REF 123 = 14 NUMBER OF PUPS DIFFERENT IN REFS 58, 32 Time of count = 1405-1430	123,	58
JUN 30														177	177	GROUND	N	PARTIAL COUNT (REF 32) 1 NEWBORN PUP & 5-6 BLACK PUPS SEEN Keywords = TAGGING	152,	32
JUL																GROUND	N	NO EXACT COUNT "2-3 PER 100 YDS OF SHORE; YOUNG ~1/4 GROWN"	97	
DEC 28	0	0	142												142	AERIAL	Y	ADULT= OLDER THAN PUP Time of count = 1140-1155	123	
1958																				
MAY 27	0	0	280										28		308	GROUND	Y	Time of count = 1400-1645 NURSING PUPS: M=0 , F=0 , U=28	123	
SPRING	0	0	210	0	0	53				0	0	17	46		326	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=46 Keywords = POPULATION DYNAMICS	122	
JUN 29														216	216	AERIAL	Y	Time of count = 1020-1100	123	

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	LAYSAN 1959 Ref No.
1959																			
APR 28													36	188	224	GROUND	Y	SMYTHE (REF 134): 223 SEALS, ~1/4 PUPS PUPS="PUPS AND SMALL SEALS"	32, 134
JUN														212	212	GROUND	Y		138
JUN														234	234	GROUND	Y		138
JUL														62	62	GROUND	N	ONLY WEST BEACH COUNTED	18
1960																			
AUG 23													9	99	108	GROUND	Y		32
1961																			
MAR 7	0	0	168							0	0	38	23		229	GROUND	Y		154
SEP 4	13	7	85							6	5	39	65		220	GROUND	Y	Keywords = METHODS	153
SEP 4														225	225	GROUND	Y		138
1962																			
JUN 16	0	0	142	0	0	96							23		261	GROUND	Y	METHODS OF SIZING DESCRIBED NURSING PUPS: M=0 , F=0 , U=23 Keywords = METHODS	68, 98
1963																			
FEB 11													3	30	33	GROUND	N	NO EXACT COUNT ~30 SEALS TAGGED; 3 PUPS Keywords = TAGGING	67
DEC 3	27	28	24	38	29	32							1		179	GROUND	Y	3 ADULT FEMALES PREGNANT? 1 FEMALE WITH INJURED LEFT FORE FLIPPER PUP WAS "SEVERAL WEEKS OLD" Time of count = 1300-1500 NURSING PUPS: M=0 , F=1 , U=0 Keywords = DISTRIBUTION,INJURY	142, 143
1964																			
MAR 10	33	51	58	49	60	39							22		312	GROUND	Y	3 PREGNANT FEMALES; MOST PUPS NEWBORN Time of count = 1030-1330 Keywords = DISTRIBUTION,INJURY,BEHAVIOR	144, 2
SEP 19	56	34	74							35	27	14		12	252	GROUND	Y	SEALS DISTURBED BY ACTIVITY IN PREVIOUS DAYS 9 SEALS PROBABLY YOUNG OF YEAR Time of count = 0915 Keywords = TAGGING	70
1965																			
MAR 11	0	0	212										32		244	GROUND	Y	1 DEAD PUP INCLUDED IN COUNT	150

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.	LAYSAN 1965
AUG 6	0	0	100	0	0	95							15		210	GROUND	Y		32	
1966																				
MAR 26	37	51	22	17	30	5							31		193	GROUND	Y	5 DEAD SEALS NOT INCLUDED IN COUNT YRLGS & SUBADULTS COMBINED; PUPS RECENT Time of count = 1500 NURSING PUPS: M=9 , F=8 , U=14 Keywords= INJURY,MOBBING,PUP SWITCH,MORTALITY	72	
JUN 10	0	0	123	0	0	51							68		242	GROUND	Y	PUPS INCLUDED WEANED PUPS 14 PUPS RECENTLY BORN NURSING PUPS: M=0 , F=0 , U=14	32	
SEP 17	69	19	26	19	28	21							20		202	GROUND	Y	NURSING PUPS: M=9 , F=11, U=0	52	
SEP 18														212	212	GROUND	Y		73	
OCT 21	0	0	64				0	0	25				31		120	GROUND	Y	"JUVENILE" CLASSED AS "IMMATURE" IN REPORT	32	
1967																				
MAR 19	0	0	112	0	0	59							28		199	GROUND	Y	Time of count = A.M.	32,	78
JUN 11	0	0	46	0	0	8				0	0	7	27		89	GROUND	Y	COUNT DONE ON FIFTH DAY ON ISLAND SEALS PROBABLY DISTURBED 1 PUP BORN JUN 10 Keywords = HUMAN INTERACTION	32	
SEP 21	48	32	37	16	11	9				11	15	2			181	GROUND	Y	SEALS MAY HAVE BEEN DISTURBED BY ACTIVITY Keywords = HUMAN INTERACTION,TAGGING	75	
DEC 13	23	22	52	0	0	16				2	8	26			151	GROUND	Y	SEALS NOT DISTURBED TO DETERMINE SEX "SUBADULTS" DEFINED IN REPORT Keywords = TAGGING,DISTRIBUTION,MOVEMENTS, METHODS	77,	75
1968																				
MAR 18	0	0	86	0	0	41				0	0	38	14		179	GROUND	Y	Keywords = TAGGING,INJURY,METHODS,MOVEMENTS	32,	79
AUG-SEP														182	182	GROUND	Y	Keywords = TAGGING,METHODS,MOVEMENTS	80	
1969																				
MAR 26	16	36	60				4	6	9				30	20	183	GROUND	Y	Time of count = AFTERNOON NURSING PUPS: M=14, F=15, U=1 Keywords = TAGGING,METHODS,MOVEMENTS	83	
JUN 2	0	20	129	0	0	4				0	0	5	34	19	211	GROUND	N	10-40 MISSED IN VEGETATION ADDED # FROM TAG COUNT IN REPT Keywords = TAGGING,MOVEMENTS	103	
SEP 9	40	29	57	6	2	7							6		147	GROUND	Y	SUBADULTS AND YRLGS COMBINED NURSING PUPS: M=1 , F=2 , U=3 Keywords = TAGGING,MOVEMENTS,METHODS	85	

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
																			LAYSAN 1969
NOV 12	0	0	22	0	0	5							3	44	74	GROUND/ AERIAL	N	ONLY EAST SIDE GROUND COUNT WEST SIDE OF ISLAND COUNTED BY HELICOPTER PILOT Time of count = 1130-1520 Keywords = TAGGING,MOVEMENTS,METHODS,INJURY	102
1970																			
AUG 17	2	2	87	0	0	20				0	1	0	22		134	GROUND	Y	SEALS NOT DISTURBED TO DETERMINE SEX NURSING PUPS: M=8 , F=10, U=4 Keywords = TAGGING,MOVEMENTS	87
SEP														147	147	GROUND	Y		87
1971																			
SEP 7	40	20	120	14	13	15							17		239	GROUND	Y	2 DEAD SEALS (INCLUDED IN COUNT?) WEANED PUP DEFINED IN REPORT Time of count = 1030-1500 NURSING PUPS: M=6 , F=7 , U=4 Keywords = TAGGING,MOLT,METHODS,BEHAVIOR	89
1972																			
SEP 9	0	0	161	0	0	20							16		197	GROUND	Y	SEALS NOT DISTURBED TO DETERMINE SEX NURSING PUPS: M=3 , F=1 , U=12 Keywords = TAGGING	91
1973																			
JUL 26	7	6	68	0	0	40							36		157	GROUND	Y	NURSING PUPS: M=1 , F=0 , U=35 Keywords = TAGGING,MOVEMENTS	111
1974																			
JUL 18	12	11	74	11	9	31							38		186	GROUND	Y	ERROR: TOTAL WRONG (176) IN REPORT	131, 132
1975																			
AUG 9	26	19	38							9	16	10	21		139	GROUND	Y	Time of count = 1545-1930 NURSING PUPS: M=7 , F=6 , U=8	129, 133
1976																			
MAR 24	35	27	29	13	17	23	3	13	11				15		186	GROUND	Y	2 DEAD PUPS NOT INCLUDED IN COUNT Time of count = 1200-1730 Keywords = DISTRIBUTION	30, 28
MAR 26	49	24	7	10	11	9	14	20	9				16		169	GROUND	Y	2 DEAD PUPS NOT INCLUDED IN COUNT Time of count = 1300-1700	30
MAR 28	40	30	3	11	15	3	19	21	7				19		168	GROUND	Y	2 DEAD PUPS NOT INCLUDED IN COUNT Time of count = 1110-1645 Keywords = DISTRIBUTION	30

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAY														131	131	GROUND	Y		157
JUN 14	0	25	0										25		50	GROUND	N	ONLY ADULT FEMALES & NURSING PUPS COUNTED NURSING PUPS: M=0 , F=0 , U=25	27
AUG 22	30	14	50							22	7	38	28		189	GROUND	Y	1 DEAD,DECOMPOSED,SEAL NOT INCLUDED IN COUNT Time of count = 1240-1445 NURSING PUPS: M=0 , F=0 , U=4 Keywords = BEHAVIOR	130
1977																			
FEB 27	37	23	15	13	5	17	16	18	23	7	1	9	5		189	GROUND	Y	Keywords=TAGGING,INJURY,DISTRIBUTION,METHODS	34
FEB	37	24	16	10	5	19	21	13	24	6	1	5	6		187	GROUND	Y	Time of count = 1145 NURSING PUPS: M=0 , F=0 , U=5 WEANED PUPS: M=0 , F=0 , U=1	47
MAR 1	7	8	38	0	2	12	0	0	22	0	2	3	7		101	GROUND	Y	Time of count = 1230 NURSING PUPS: M=0 , F=0 , U=7	47
MAR 2	26	25	14	13	5	18	16	18	22	7	1	9	5		179	GROUND	Y	COMPARE TO FISCUS COUNT 2/27/77 REF 34 Time of count = 0900	38
MAR 6	25	25	42	10	8	29	9	13	22	5	1	3	6		198	GROUND	Y	HIGHEST COUNT, MARCH 1977 Time of count = 1200 NURSING PUPS: M=0 , F=0 , U=5 WEANED PUPS: M=0 , F=0 , U=1	47
MAR 15	20	14	65	4	1	13	5	7	18	1	1	2	7		158	GROUND	Y	Time of count = 0930 NURSING PUPS: M=0 , F=0 , U=7	47
MAR 20	25	14	51	1	0	24	4	5	21	2	0	2	9		158	GROUND	Y	Time of count = 1510 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=1	47
MAR 24	21	17	40	3	3	17	7	5	26	0	0	5	15		159	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=11 WEANED PUPS: M=0 , F=0 , U=4	47
MAR 28	40	18	22	13	3	14	12	6	12	5	1	6	15		167	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=10 WEANED PUPS: M=0 , F=0 , U=5	47
APR 1	29	19	33	4	3	28	5	4	30	3	0	8	16		182	GROUND	Y	Time of count = 1530 NURSING PUPS: M=0 , F=0 , U=11 WEANED PUPS: M=0 , F=0 , U=5	47
APR 5	34	22	46	5	4	22	3	1	26	0	2	5	20		190	GROUND	Y	Time of count = 1415 NURSING PUPS: M=0 , F=0 , U=14 WEANED PUPS: M=0 , F=0 , U=6	47
APR 9	33	23	37	9	7	18	7	3	15	3	0	3	21		179	GROUND	Y	Time of count = 1445 NURSING PUPS: M=0 , F=0 , U=16 WEANED PUPS: M=0 , F=0 , U=5	47
APR 13	48	30	20	9	8	17	5	3	16				22		178	GROUND	Y	Time of count = 1230-1600 NURSING PUPS: M=0 , F=0 , U=0 WEANED PUPS: M=0 , F=0 , U=0 Keywords = DISTRIBUTION	29, 40

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	LAYSAN 1977 Ref No.
APR 13	43	25	24	3	6	22	6	2	11	2	0	5	21		170	GROUND	Y	Time of count = 1230 NURSING PUPS: M=0 , F=0 , U=17	47
APR 17	14	22	50	0	1	21	0	0	23	0	0	8	23		162	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=18 WEANED PUPS: M=0 , F=0 , U=5	47
APR 21	36	29	47	3	8	21	5	2	20	0	0	2	25		198	GROUND	Y	HIGHEST COUNT, APRIL 1977 Time of count = 1415 NURSING PUPS: M=0 , F=0 , U=17 WEANED PUPS: M=0 , F=0 , U=8	47
APR 25	46	24	26	8	5	13	8	4	17	3	2	2	26		184	GROUND	Y	Time of count = 1410 NURSING PUPS: M=0 , F=0 , U=16 WEANED PUPS: M=0 , F=0 , U=10	47
APR 29	34	24	26	5	3	16	4	4	17	2	1	2	25		163	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=15 WEANED PUPS: M=0 , F=0 , U=10	47
MAY 3	42	24	22	5	3	23	8	1	25	0	2	0	25		180	GROUND	Y	Time of count = 1350 NURSING PUPS: M=0 , F=0 , U=13 WEANED PUPS: M=0 , F=0 , U=12	47
MAY 7	25	17	30	6	6	20	7	3	14	2	0	3	24		157	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=11 WEANED PUPS: M=0 , F=0 , U=13	47
MAY 11	46	23	30	7	4	9	7	3	21	1	1	6	26		184	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=12 WEANED PUPS: M=0 , F=0 , U=14	47
MAY 19	34	23	35	7	4	26	5	2	32	2	0	2	26		198	GROUND	Y	HIGHEST COUNT, MAY 1977 Time of count = 1445 NURSING PUPS: M=0 , F=0 , U=9 WEANED PUPS: M=0 , F=0 , U=17	47
MAY 23	31	22	19	1	6	17	3	2	19	0	0	3	29		152	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=10 WEANED PUPS: M=0 , F=0 , U=18	47
MAY 27	40	25	17	5	7	19	8	5	11	3	1	5	29		176	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=9 WEANED PUPS: M=0 , F=0 , U=20	47
MAY 31	25	22	25	5	4	25	2	2	19	2	0	4	28		163	GROUND	Y	Time of count = 1410 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=20	47
JUN 4	31	23	26	8	10	20	4	2	25	2	1	3	28		184	GROUND	Y	HIGHEST COUNT, JUNE 1977 Time of count = 1345 NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=21	47

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	LAYSAN 1977 Ref No.
JUN 8	35	24	28	9	7	17	6	4	13	2	0	2	30		177	GROUND	Y	Time of count = 1410 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=22	47
JUN 16	25	22	31	5	4	20	5	1	13	1	0	3	26		156	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=18	47
JUN 20	29	21	29	6	5	26	8	1	11	1	1	5	28		171	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=21	47
JUN 24	39	22	13	12	19	16	9	7	8	2	1	5	29		182	GROUND	Y	Time of count = 1425 NURSING PUPS: M=0 , F=0 , U=5 WEANED PUPS: M=0 , F=0 , U=24	47
JUN 28	31	18	16	17	11	19	6	1	19	2	1	2	31		174	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=27	47
JUL 2	29	14	17	18	17	13	9	8	8	1	1	3	27		165	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=25	47
JUL 6	28	20	22	21	7	21	10	10	18	4	1	3	20		185	GROUND	Y	Time of count = 1445 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=18	47
JUL 10	28	24	14	23	12	15	20	20	9	3	2	3	25		198	GROUND	Y	Time of count = 1335 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=23	47
JUL 14	22	13	18	13	17	25	16	11	25	5	1	7	26		199	GROUND	Y	Time of count = 1445 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=25	47
JUL 18	26	13	13	13	14	25	14	11	19	3	1	2	23		177	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=22	47
JUL 22	34	16	18	17	10	22	14	9	25	6	1	3	25		200	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=24	47
JUL 24	30	18	22	18	8	23	18	10	26	7	2	2	27		211	GROUND	Y	HIGHEST COUNT, JULY 1977 Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=26	47
JUL 26	32	18	10	25	13	18	21	14	18	3	3	3	23		201	GROUND	Y	Time of count = 1425 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=22	47
JUL 28	34	19	14	18	10	22	18	11	22	6	4	5	22		205	GROUND	Y	Time of count = 1310 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=21	47

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	LAYSAN 1977 Ref No.
JUL 30	25	16	17	19	8	18	12	10	33	3	3	4	21		189	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=20	47
AUG 3	37	22	13	17	6	20	16	14	19	7	2	6	25		204	GROUND	Y	HIGHEST COUNT, AUG 1977 Time of count = 1345 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=23	47
AUG 7	25	21	15	23	8	14	20	17	19	6	1	3	25		197	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=23	47
AUG 11	25	9	33	12	8	17	11	12	21	4	1	5	24		182	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=23	47
AUG 13	22	14	17	10	6	21	8	6	17	8	7	8	18		162	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=17	47
AUG 15	29	13	16	7	6	26	11	11	22	8	3	6	17		175	GROUND	Y	Time of count = 1330 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=16	47
AUG 17	31	12	11	15	5	19	10	9	16	2	4	0	16		150	GROUND	Y	Time of count = 1445 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=15	47
AUG 19	36	13	8	15	7	15	15	14	18	4	2	5	18		170	GROUND	Y	Time of count = 1330 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=17	47
AUG 21	27	14	18	14	7	16	17	13	14	7	4	3	21		175	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=20	47
AUG 23	40	10	20	18	4	19	11	6	18	6	4	0	18		174	GROUND	Y	Time of count = 1415 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=16	47
AUG 25	41	12	18	14	7	11	16	13	17	3	3	4	19		178	GROUND	Y	Time of count = 1415 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=17	47
AUG 27	40	12	18	15	2	17	22	11	10	4	4	3	22		180	GROUND	Y	Time of count = 1345 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=20	47
AUG 31	57	12	14	13	5	17	13	11	28	4	2	4	23		203	GROUND	Y	Time of count = 1415 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=22	47

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	LAYSAN 1977 Ref No.
SEP 2	46	12	41	8	2	10	9	10	19	4	3	4	21		189	GROUND	Y	Time of count = 1500 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=20	47
1978																			
FEB 27	29	11	26	1	1	9	8	11	11				2	12	121	GROUND	Y		49
MAR 6	31	20	22	8	3	5	14	18	15				2		138	GROUND	Y		49
MAR 10	46	13	27	3	6	5	13	9	12				2		136	GROUND	Y		49
MAR 14	54	18	7	8	2	5	7	7	6				3		117	GROUND	Y		49
MAR 18	48	18	9	8	3	8	16	18	6				5		139	GROUND	Y	HIGHEST COUNT, MARCH 1978	49
MAR 20	26	10	19	4	3	13	12	11	11				6		115	GROUND	Y		49
MAR 22	46	16	11	9	5	6	12	14	9				6		134	GROUND	Y		49
MAR 26	34	20	11	2	7	6	9	16	11				6		122	GROUND	Y		49
MAR 28	39	22	7	10	1	5	14	12	4				8		122	GROUND	Y		49
MAR 30	43	21	4	9	6	3	12	14	5				8		125	GROUND	Y		49
APR 1	51	19	9	8	2	4	14	14	5				9		135	GROUND	Y		49
APR 3	51	20	2	12	7	7	16	16	5				10		146	GROUND	Y	HIGHEST COUNT, APRIL 1978	49
APR 7	45	22	9	7	7	6	12	9	3				12		132	GROUND	Y		49
APR 9	46	23	10	7	5	3	10	14	6				12		136	GROUND	Y		49
APR 11	40	21	12	4	4	10	13	7	7				13		131	GROUND	Y		49
APR 15	45	22	8	5	4	7	9	12	8				15		135	GROUND	Y		49
APR 17	27	26	7	8	4	7	7	11	3				15		115	GROUND	Y		49
APR 21	41	25	11	3	2	10	5	12	11				19		139	GROUND	Y		49
APR 23	43	25	4	9	5	6	11	9	6				19		137	GROUND	Y		49
APR 27	42	22	6	4	7	5	10	9	4				19		128	GROUND	Y		49
APR 29	57	24	0	9	3	1	14	11	3				19		141	GROUND	Y		49
MAY 1	21	15	19	2	1	6	5	5	2				18		94	GROUND	Y		49
MAY 5	30	19	20	3	2	6	7	3	15				21		126	GROUND	Y		49
MAY 7	26	19	22	3	0	9	8	5	10				19		121	GROUND	Y		49
MAY 9	36	26	9	7	5	6	5	5	7				20		126	GROUND	Y		49
MAY 13	42	22	13	5	2	6	15	8	9				22		144	GROUND	Y	HIGHEST COUNT, MAY 1978	49
MAY 17	25	24	12	4	1	5	5	7	7				23		113	GROUND	Y		49
MAY 19	41	23	7	5	2	4	6	6	11				23		128	GROUND	Y		49
MAY 21	30	23	12	3	1	5	8	8	9				21		120	GROUND	Y		49
MAY 23	45	22	5	2	3	3	5	8	2				23		118	GROUND	Y		49
MAY 27	46	22	5	4	9	1	9	7	2				25		130	GROUND	Y		49
MAY 29	32	20	7	6	3	6	10	9	2				22		117	GROUND	Y		49
JUN 2	24	22	10	4	3	13	7	9	3				24		119	GROUND	Y		49
JUN 4	16	24	10	6	6	3	4	2	3				17		91	GROUND	Y		49
JUN 4	30	29	3	8	7	3	8	6	2				23		119	GROUND	Y		49
JUN 4	25	31	4	6	9	1	8	6	3				24		117	GROUND	Y		49
JUN 6	35	27	4	4	4	2	19	5	4				25		120	GROUND	Y		49
JUN 10	39	23	2	10	7	3	7	4	2				24		121	GROUND	Y		49
JUN 12	36	26	5	6	4	2	12	2	1				24		118	GROUND	Y		49
JUN 16	39	22	3	8	6	2	8	3	2				23		116	GROUND	Y		49

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JUN 28	16	22	15	4	6	9	7	4	1				24		108	GROUND	Y		49
JUN 30	36	23	5	7	9	9	7	6	5				27		134	GROUND	Y	HIGHEST COUNT, JUNE 1978	49
JUL 4	24	23	6	5	12	4	6	3	3				22		108	GROUND	Y		49
JUL 6	30	21	1	4	8	6	8	6	6				23		113	GROUND	Y		49
JUL 8	36	14	6	12	9	8	6	3	3				19		116	GROUND	Y		49
JUL 12	30	20	8	10	12	4	9	4	5				22		124	GROUND	Y		49
JUL 14	21	21	2	11	15	4	3	5	4				16		102	GROUND	Y		49
JUL 14	33	23	1	13	14	4	9	7	4				22		130	GROUND	Y		49
JUL 14	26	19	2	12	10	1	6	7	2				20		105	GROUND	Y		49
JUL 16	28	27	0	10	10	3	11	4	4				23		120	GROUND	Y		49
JUL 18	22	9	28	8	5	6	0	2	12				18		110	GROUND	Y	ERROR: TOTAL (113) IN REPORT IS WRONG Time of count = 0925 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=2 , F=3 , U=12 Keywords = METHODS	35
JUL 18	27	10	17	9	10	7	3	2	8				14		107	GROUND	Y		49
JUL 20	33	17	5	10	9	8	12	6	11				21		132	GROUND	Y		49
JUL 22	25	26	7	8	4	10	11	5	9				14		119	GROUND	Y		49
JUL 26	38	24	5	10	7	11	12	6	8				20		141	GROUND	Y	HIGHEST COUNT, JULY 1978	49
JUL 28	28	22	4	12	9	6	13	5	4				17		120	GROUND	Y		49
AUG 1	33	20	5	13	7	5	18	9	2				13		125	GROUND	Y		49
AUG 5	27	22	3	17	4	5	13	6	4				17		118	GROUND	Y		49
AUG 7	26	19	7	12	7	5	17	8	5				13		119	GROUND	Y		49
AUG 9	28	19	6	17	9	7	19	6	5				15		131	GROUND	Y		49
AUG 13	37	16	5	16	10	9	12	9	4				14		132	GROUND	Y	HIGHEST COUNT, AUGUST 1978	49
AUG 17	36	17	5	12	6	5	12	11	9				14		127	GROUND	Y		49
AUG 21	25	16	8	9	3	10	15	7	13				14		120	GROUND	Y		49
AUG 25	34	12	1	16	4	4	16	12	4				14		117	GROUND	Y		49
AUG 27	39	14	7	12	3	5	15	3	3				13		114	GROUND	Y		49
AUG 29	44	13	2	17	4	2	13	6	0				14		115	GROUND	Y		49
AUG 29	38	13	1	18	4	1	19	5	0				12		111	GROUND	Y		49
SEP 2	38	12	6	11	1	5	10	5	7				13		108	GROUND	Y		49
SEP 4	42	13	10	12	5	3	8	9	7				8		117	GROUND	Y		49
SEP 6	45	11	20	8	6	6	6	4	6				14		126	GROUND	Y		49
SEP 10	45	10	14	11	3	5	6	6	3				10		113	GROUND	Y		49
SEP 12	64	9	6	10	5	7	12	4	1				11		129	GROUND	Y		49
SEP 14	77	9	3	14	4	4	12	9	0				10		142	GROUND	Y		49
SEP 18	85	12	3	11	7	7	9	7	3				10		154	GROUND	Y		49
SEP 20	65	11	19	10	3	6	8	5	1				11		139	GROUND	Y		49
SEP 22	74	11	14	8	3	5	9	2	4				10		140	GROUND	Y		49
SEP 24	66	13	24	3	6	7	8	6	0				12		145	GROUND	Y		49

Appendix F.--Continued.

LAYSAN 1978

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
SEP 26	84	7	16	8	7	5	7	5	8				10		157	GROUND	Y	HIGHEST COUNT, SEPTEMBER 1978	49
SEP 28	60	7	35	5	6	10	7	5	4				10		149	GROUND	Y		49
SEP 30	78	3	10	5	1	5	8	5	8				9		132	GROUND	Y		49
OCT 12	34	8	30	4	1	15	10	1	6				10		117	GROUND	Y		49
OCT 13	68	6	11	6	5	3	9	6	3				13		130	GROUND	Y	HIGHEST COUNT, OCTOBER 1978	49
DEC 13	30	11	27	4	5	5	2	3	3				5		95	GROUND	Y		49
DEC 14	28	12	23	1	7	5	2	5	0				11		95	GROUND	Y		49
DEC 15	38	14	19	4	5	2	7	4	5				12		110	GROUND	Y	HIGHEST COUNT, DECEMBER 1978	49
1979																			
MAR 17	37	14	22	4	6	6	8	14	3				7		121	GROUND	Y	HIGHEST COUNT, MARCH 1979 Time of count = 1530 NURSING PUPS: M=0 , F=0 , U=7	48
MAR 21	34	17	4	3	2	7	3	5	3				9		87	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=9	48
MAR 23	40	17	7	6	9	0	8	7	2				9		107	GROUND	Y	Time of count = 1200 NURSING PUPS: M=0 , F=0 , U=9	48
MAR 25	34	14	10	3	2	6	6	8	2				9		94	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=9	48
MAR 27	35	18	13	4	8	3	5	7	2				9		104	GROUND	Y	Time of count = 1700 NURSING PUPS: M=0 , F=0 , U=9	48
MAR 29	41	20	5	7	4	5	3	7	2				9		103	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=1	48
MAR 31	36	19	4	3	4	7	6	4	7				10		100	GROUND	Y	Time of count = 1415 NURSING PUPS: M=0 , F=0 , U=9 WEANED PUPS: M=0 , F=0 , U=1	48
APR 2	29	19	7	4	3	1	4	8	2				10		87	GROUND	Y	Time of count = 1500 NURSING PUPS: M=0 , F=0 , U=9 WEANED PUPS: M=0 , F=0 , U=1	48
APR 4	40	19	1	6	3	3	7	5	1				10		95	GROUND	Y	Time of count = 1315 NURSING PUPS: M=0 , F=0 , U=9 WEANED PUPS: M=0 , F=0 , U=1	48
APR 6	36	20	7	9	3	2	4	5	3				11		100	GROUND	Y	Time of count = 1530 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=3	48
APR 8	41	22	5	8	5	5	11	12	0				11		120	GROUND	Y	Time of count = 1415 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=3	48
APR 10	46	17	3	11	4	5	9	9	5				11		120	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=3	48
APR 12	44	15	8	10	5	3	13	13	1				11		123	GROUND	Y	Time of count = 1600 NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=4	48

Appendix F.--Continued.

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DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
APR 14	47	19	6	9	9	4	11	10	1				13		129	GROUND	Y	HIGHEST COUNT, APRIL 1979 Time of count = 1315 NURSING PUPS: M=0 , F=0 , U=9 WEANED PUPS: M=0 , F=0 , U=4	48
APR 18	36	21	14	3	6	6	6	6	4				14		116	GROUND	Y	Time of count = 1530 NURSING PUPS: M=0 , F=0 , U=10 WEANED PUPS: M=0 , F=0 , U=4	48
APR 20	51	23	4	8	4	2	6	6	3				15		122	GROUND	Y	Time of count = 1300 NURSING PUPS: M=0 , F=0 , U=11 WEANED PUPS: M=0 , F=0 , U=4	48
APR 22	43	22	8	9	4	5	3	7	2				15		118	GROUND	Y	Time of count = 1300 NURSING PUPS: M=0 , F=0 , U=9 WEANED PUPS: M=0 , F=0 , U=6	48
APR 26	41	19	4	10	4	3	6	5	1				17		110	GROUND	Y	Time of count = 1300 NURSING PUPS: M=0 , F=0 , U=9 WEANED PUPS: M=0 , F=0 , U=8	48
APR 28	26	18	3	9	4	3	6	4	2				16		91	GROUND	Y	Time of count = 1600 NURSING PUPS: M=0 , F=0 , U=9 WEANED PUPS: M=0 , F=0 , U=7	48
APR 30	41	22	0	7	3	3	4	5	0				18		103	GROUND	Y	Time of count = 1345 NURSING PUPS: M=0 , F=0 , U=10 WEANED PUPS: M=0 , F=0 , U=8	48
MAY 2	31	18	1	6	2	1	8	8	0				21		96	GROUND	Y	Time of count = 1515 NURSING PUPS: M=0 , F=0 , U=13 WEANED PUPS: M=0 , F=0 , U=8	48
MAY 3	16	19	1	7	4	3	6	6	0				20		82	GROUND	Y	Time of count = 0730 NURSING PUPS: M=0 , F=0 , U=13 WEANED PUPS: M=0 , F=0 , U=7	48
MAY 3	33	19	3	8	4	3	9	8	0				21		108	GROUND	Y	Time of count = 1200 NURSING PUPS: M=0 , F=0 , U=13 WEANED PUPS: M=0 , F=0 , U=8	48
MAY 3	17	17	1	7	2	3	6	6	1				21		81	GROUND	Y	Time of count = 1715 NURSING PUPS: M=0 , F=0 , U=13 WEANED PUPS: M=0 , F=0 , U=8	48
MAY 4	29	19	3	7	2	5	5	5	3				20		98	GROUND	Y	Time of count = 1430 NURSING PUPS: M=0 , F=0 , U=13 WEANED PUPS: M=0 , F=0 , U=7	48
MAY 8	26	26	7	6	2	5	7	5	1				21		106	GROUND	Y	Time of count = 1600 NURSING PUPS: M=0 , F=0 , U=13 WEANED PUPS: M=0 , F=0 , U=8	48

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	LAYSAN 1979 Ref No.
MAY 12	45	22	3	5	2	2	15	9	2				22		127	GROUND	Y	HIGHEST COUNT, MAY 1979 Time of count = 1145 NURSING PUPS: M=0 , F=0 , U=12 WEANED PUPS: M=0 , F=0 , U=10	48
MAY 16	28	18	7	11	5	4	8	3	1				22		107	GROUND	Y	NURSING PUPS: M=5 , F=2 , U=4 WEANED PUPS: M=8 , F=3 , U=0 Keywords = METHODS	119
MAY 16	31	17	7	11	5	2	8	3	1				22		107	GROUND	Y	Time of count = 1115 NURSING PUPS: M=0 , F=0 , U=11 WEANED PUPS: M=0 , F=0 , U=11	48
MAY 18	34	24	3	5	3	6	9	9	2				21		116	GROUND	Y	Time of count = 1330 NURSING PUPS: M=0 , F=0 , U=10 WEANED PUPS: M=0 , F=0 , U=11	48
MAY 20	25	21	3	9	5	0	11	12	2				23		111	GROUND	Y	Time of count = 1500 NURSING PUPS: M=0 , F=0 , U=12 WEANED PUPS: M=0 , F=0 , U=11	48
MAY 24	25	22	4	9	6	1	5	5	3				24		104	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=11 WEANED PUPS: M=0 , F=0 , U=13	48
MAY 26	28	16	3	5	10	6	10	7	3				21		109	GROUND	Y	Time of count = 1330 NURSING PUPS: M=0 , F=0 , U=10 WEANED PUPS: M=0 , F=0 , U=11	48
MAY 28	32	18	3	8	8	1	6	5	0				23		104	GROUND	Y	Time of count = 1530 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=15	48
MAY 29	28	16	6	7	6	5	6	5	2				22		103	GROUND	Y	Time of count = 1500 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=14	48
MAY 30	40	17	2	6	7	1	5	11	1				23		113	GROUND	Y	Time of count = 1500 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=15	48
JUN 1	32	19	2	8	11	0	9	8	2				23		114	GROUND	Y	Time of count = 1230 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=15	48
JUN 3	25	15	3	5	10	5	14	8	2				24		111	GROUND	Y	Time of count = 1445 NURSING PUPS: M=0 , F=0 , U=5 WEANED PUPS: M=0 , F=0 , U=19	48
JUN 5	18	13	2	3	9	2	13	10	1				21		92	GROUND	Y	Time of count = 1630 NURSING PUPS: M=0 , F=0 , U=5 WEANED PUPS: M=0 , F=0 , U=16	48
JUN 7	21	17	6	7	9	2	13	12	1				25		113	GROUND	Y	Time of count = 1345 NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=19	48

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JUN 9	29	17	5	9	13	1	17	11	2				24		128	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=18	48
JUN 11	21	16	1	5	10	2	9	7	1				21		93	GROUND	Y	Time of count = 1600 NURSING PUPS: M=0 , F=0 , U=5 WEANED PUPS: M=0 , F=0 , U=16	48
JUN 12	32	14	3	9	9	4	13	12	1				23		120	GROUND	Y	Time of count = 1100 NURSING PUPS: M=0 , F=0 , U=5 WEANED PUPS: M=0 , F=0 , U=18	48
JUN 13	32	18	3	4	12	3	15	8	0				24		119	GROUND	Y	Time of count = 1530 NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=18	48
JUN 15	28	19	3	8	13	1	16	10	1				26		125	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=20	48
JUN 17	32	27	4	10	12	1	12	12	0				24		134	GROUND	Y	Time of count = 1345 NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=18	48
JUN 21	30	23	8	7	14	2	16	5	0				25		130	GROUND	Y	Time of count = 1230 NURSING PUPS: M=0 , F=0 , U=5 WEANED PUPS: M=0 , F=0 , U=20	48
JUN 22	14	19	4	7	14	8	15	10	2				24		117	GROUND	Y	Time of count = 1745 NURSING PUPS: M=0 , F=0 , U=5 WEANED PUPS: M=0 , F=0 , U=19	48
JUN 24	29	20	1	9	16	3	17	10	1				24		130	GROUND	Y	Time of count = 1030 NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=20	48
JUN 24	26	19	1	9	15	1	23	11	1				23		129	GROUND	Y	Time of count = 1530 NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=19	48
JUN 25	36	21	1	14	12	1	19	15	0				25		144	GROUND	Y	HIGHEST COUNT, JUNE 1979 Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=21	48
JUN 26	23	20	6	10	16	1	16	7	1				23		123	GROUND	Y	Time of count = 1645 NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=19	48
JUN 27	34	21	1	15	18	2	15	9	0				22		137	GROUND	Y	Time of count = 1345 NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=18	48

Appendix F.--Continued.

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DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JUN 28	19	20	6	9	14	1	15	7	2				21		114	GROUND	Y	Time of count = 1730 NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=17	48
JUN 29	32	20	2	12	15	0	17	9	0				24		131	GROUND	Y	Time of count = 1545 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=21	48
JUN 30	31	22	4	12	17	0	16	10	1				20		133	GROUND	Y	Time of count = 1300 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=17	48
JUL 2	23	19	5	14	16	1	17	7	1				22		125	GROUND	Y	Time of count = 1500 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=19	48
JUL 3	24	17	4	10	12	3	19	11	0				20		120	GROUND	Y	Time of count = 1530 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=17	48
JUL 4	23	20	5	19	10	3	12	13	1				18		124	GROUND	Y	Time of count = 0830 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=15	48
JUL 6	17	20	1	14	5	5	16	14	1				22		117	GROUND	Y	Time of count = 1645 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=19	48
JUL 7	23	20	0	15	15	0	17	8	2				23		123	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=20	48
JUL 9	30	26	6	15	13	5	15	6	4				22		142	GROUND	Y	HIGHEST COUNT, JULY 1979 Time of count = 1315 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=19	48
JUL 11	28	19	3	13	17	2	18	13	2				18		133	GROUND	Y	Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=15	48
JUL 13	29	20	6	13	15	1	17	8	1				19		129	GROUND	Y	Time of count = 0800 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=16	48
JUL 15	20	21	4	8	11	6	13	12	3				17		115	GROUND	Y	Time of count = 1530 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=14	48
JUL 17	31	21	1	11	14	5	18	6	5				21		133	GROUND	Y	Time of count = 1045 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=18	48
JUL 19	28	16	1	12	11	10	12	10	2				20		122	GROUND	Y	Time of count = 1130 NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=17	48

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JUL 21	19	7	1	16	5	2	10	11	1				18		90	GROUND	Y	Time of count = 1700 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=16	48
JUL 23	29	18	2	14	9	4	22	12	1				16		127	GROUND	Y	Time of count = 1445 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=14	48
JUL 25	22	14	6	13	7	3	10	12	2				15		104	GROUND	Y	Time of count = 1630 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=13	48
JUL 27	23	21	6	16	12	1	10	7	4				18		118	GROUND	Y	Time of count = 1530 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=16	48
JUL 29	24	17	5	17	11	3	13	7	4				17		118	GROUND	Y	Time of count = 0845 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=15	48
JUL 31	19	12	2	15	10	4	15	4	1				17		99	GROUND	Y	Time of count = 1545 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=16	48
AUG 2	19	15	3	12	4	0	12	7	3				13		88	GROUND	Y	Time of count = 0730 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=12	48
AUG 4	31	14	2	17	10	1	17	9	2				18		121	GROUND	Y	HIGHEST COUNT, AUGUST 1979 Time of count = 1330 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=17	48
AUG 6	16	11	9	15	6	1	9	6	2				16		91	GROUND	Y	Time of count = 1645 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=15	48
AUG 8	26	13	2	18	8	3	17	6	3				15		111	GROUND	Y	Time of count = 1415 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=14	48
AUG 10	14	10	7	12	4	3	10	3	6				14		83	GROUND	Y	Time of count = 1600 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=13	48
AUG 12	31	14	3	21	12	2	10	3	0				17		113	GROUND	Y	Time of count = 1145 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=16	48
AUG 14	28	10	0	18	7	3	14	6	1				14		101	GROUND	Y	Time of count = 1345 WEANED PUPS: M=0 , F=0 , U=14	48
AUG 16	31	12	6	19	10	4	12	6	1				15		116	GROUND	Y	Time of count = 1315 WEANED PUPS: M=0 , F=0 , U=15	48

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Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1980																			
MAR 16	39	14	24	7	3	3	9	7	8				7		121	GROUND	Y	HIGHEST COUNT, MARCH 1980 NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=1	51
MAR 20	37	12	7	8	3	1	9	5	7				8		97	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=1	51
MAR 24	39	13	9	10	5	5	16	10	3				7		117	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=1	51
MAR 28	47	18	3	11	9	6	13	5	1				8		121	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=1	51
APR 01	41	21	8	6	5	2	15	7	3				8		116	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=1	51
APR 05	38	21	6	7	4	2	13	11	1				11		114	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=10 WEANED PUPS: M=0 , F=0 , U=1	51
APR 13	47	24	6	16	9	2	17	13	1				16		151	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=12 WEANED PUPS: M=0 , F=0 , U=4	51
APR 15	38	19	10	9	5	3	11	11	0				16		122	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=12 WEANED PUPS: M=0 , F=0 , U=4	51
APR 17	40	23	10	10	7	4	11	6	1				16		128	GROUND	Y	HIGHEST COUNT, APRIL 1980 NURSING PUPS: M=0 , F=0 , U=13 WEANED PUPS: M=0 , F=0 , U=3	51
APR 21	24	19	12	10	1	7	6	6	3				16		104	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=12 WEANED PUPS: M=0 , F=0 , U=4	51
APR 25	43	18	5	12	3	2	13	10	1				16		123	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=9 WEANED PUPS: M=0 , F=0 , U=7	51
APR 29	27	12	18	4	4	6	12	5	3				15		106	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=7	51
MAY 3	48	18	6	11	4	5	13	6	1				15		127	GROUND	Y	HIGHEST COUNT, MAY 1980 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=7	51
MAY 10	34	21	6	5	6	1	11	10	1				16		111	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=10	51
MAY 11	34	16	5	9	6	3	10	9	1				17		110	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=10	51
MAY 13	34	17	7	7	8	3	9	2	1				18		106	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=10	51
MAY 15	36	22	7	7	8	0	6	7	0				16		109	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=8	51
MAY 19	27	18	6	9	8	0	4	7	0				17		96	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=11	51
MAY 23	31	17	7	10	6	3	8	4	0				15		101	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=11	51
MAY 27	30	13	2	14	9	0	6	13	0				18		105	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=5 WEANED PUPS: M=0 , F=0 , U=13	51

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
																			LAYSAN 1980
MAY 31	26	18	3	10	11	0	9	7	1				19		104	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=15	51
JUN 04	30	20	3	14	13	1	4	9	1				21		116	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=14	51
JUN 8	0	0	48				0	0	49				23		120	GROUND	Y	"JUV" CLASSED AS "IMMATURE" IN REPORT Keywords = METHODS	45
JUN 08	26	20	2	16	18	0	7	7	1				23		120	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=15	51
JUN 10	16	20	2	6	12	2	10	14	0				23		105	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=15	51
JUN 12	25	23	4	8	15	1	9	4	3				22		114	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=14	51
JUN 14	29	20	2	13	14	1	11	13	1				22		126	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=14	51
JUN 16	25	20	4	13	12	0	9	12	1				20		116	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=13	51
JUN 17	25	21	4	11	13	0	13	11	0				22		120	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=15	51
JUN 18	26	21	1	11	9	1	8	7	2				20		106	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=14	51
JUN 19	24	18	2	13	10	0	12	8	0				23		110	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=17	51
JUN 20	36	15	2	13	16	0	9	13	0				21		125	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=15	51
JUN 21	14	18	4	7	9	1	7	9	1				21		91	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=15	51
JUN 24	27	15	2	17	11	0	7	9	0				24		112	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=18	51
JUN 25	24	16	5	16	9	0	10	9	0				23		112	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=17	51
JUN 26	32	18	5	12	10	3	10	12	0				23		125	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=17	51
JUN 28	18	15	2	14	8	1	10	11	0				22		101	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=15	51
JUN 30	34	17	6	17	13	3	10	12	3				21		136	GROUND	Y	HIGHEST COUNT, JUNE 1980 NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=14	51
JUL 02	39	17	0	18	12	0	13	11	0				21		131	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=14	51
JUL 03	42	16	1	17	10	0	15	14	0				21		136	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=15	51

Appendix F.--Continued.

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DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JUL 04	13	18	5	17	9	3	11	9	1				20		106	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=13	51
JUL 06	27	16	2	19	8	0	13	11	0				23		119	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=5 WEANED PUPS: M=0 , F=0 , U=18	51
JUL 08	17	15	1	16	3	2	10	9	1				20		94	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=16	51
JUL 09	22	13	3	17	6	0	10	9	0				23		103	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=19	51
JUL 10	13	13	2	16	9	1	12	9	0				20		95	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=16	51
JUL 11	23	15	1	15	6	1	10	8	0				22		101	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=18	51
JUL 12	27	18	6	19	11	0	11	8	0				21		121	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=4 WEANED PUPS: M=0 , F=0 , U=17	51
JUL 14	23	14	6	13	6	1	7	10	1				17		95	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=14	51
JUL 16	26	14	6	19	5	2	9	12	1				13		107	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=10	51
JUL 18	29	14	1	16	3	1	12	9	1				19		105	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=16	51
JUL 19	19	16	5	16	3	2	18	12	0				19		110	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=16	51
JUL 20	27	17	1	24	7	0	12	12	0				23		123	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=20	51
JUL 21	18	15	1	20	5	2	11	10	0				21		103	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=18	51
JUL 22	19	20	4	20	8	1	14	12	0				17		115	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=14	51
JUL 24	19	18	2	20	6	0	18	9	0				19		111	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=16	51
JUL 26	16	19	1	23	5	0	15	14	2				22		117	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=19	51
JUL 27	23	16	4	21	4	1	15	12	1				20		117	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=17	51
JUL 28	10	10	0	14	7	2	10	4	2				15		74	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=3 WEANED PUPS: M=0 , F=0 , U=12	51
JUL 29	16	9	3	14	4	1	13	11	1				15		87	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=13	51
JUL 30	34	18	5	23	6	0	20	12	0				20		138	GROUND	Y	HIGHEST COUNT, JULY 1980 NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=0 , F=0 , U=18	51
AUG 01	33	9	3	22	4	0	21	11	0				19		122	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=16	51
AUG 03	30	11	2	20	5	0	19	12	0				21		120	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=20	51

Appendix F.--Continued.

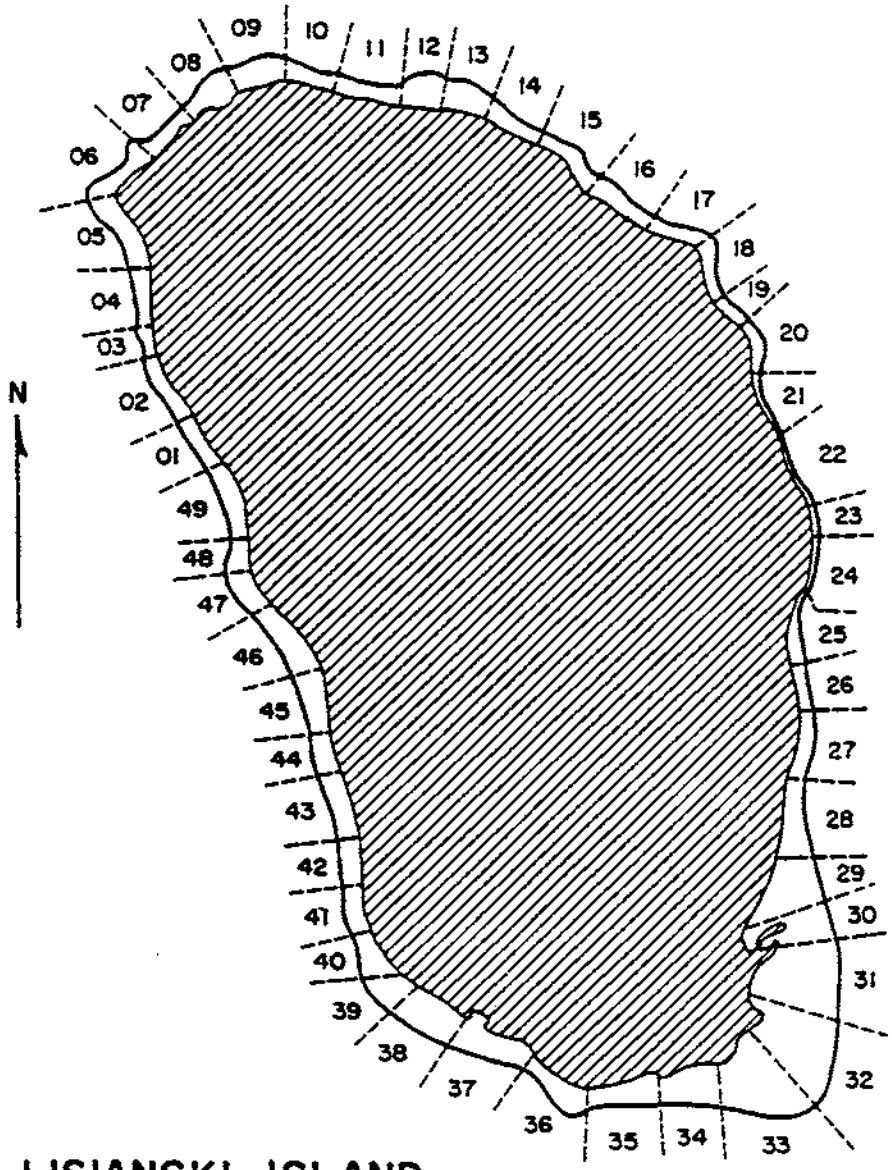
LAYSAN 1980

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
AUG 07	35	10	1	22	5	0	19	9	0				16		117	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=15	51
AUG 09	33	9	3	17	6	1	15	9	1				16		110	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=15	51
AUG 11	35	8	2	16	5	1	14	11	0				16		108	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=16	51
AUG 12	26	12	4	21	4	3	13	12	0				16		111	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=16	51
AUG 13	36	12	1	20	6	0	17	11	0				14		117	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=14	51
AUG 14	20	10	7	14	3	1	13	10	1				7		86	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=7	51
AUG 15	34	9	0	22	2	0	18	9	1				17		115	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=17	51
AUG 17	32	12	6	18	7	0	16	12	0				16		121	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=16	51
AUG 19	44	11	1	28	6	1	16	12	0				18		137	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=18	51
AUG 20	50	7	1	20	8	0	17	10	0				22		135	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=22	51
AUG 21	49	7	3	24	7	0	16	11	0				18		135	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=18	51
AUG 22	55	8	1	20	5	1	13	16	0				22		141	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=22	51
AUG 23	49	9	5	19	3	0	15	9	1				19		129	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=19	51
AUG 25	51	8	4	9	2	1	14	14	0				16		119	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=16	51
AUG 27	50	14	9	16	1	0	13	13	0				19		135	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=19	51
AUG 28	53	10	5	13	3	1	14	10	2				11		122	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=11	51
AUG 29	57	11	2	23	4	0	13	10	0				18		138	GROUND	Y	HIGHEST COUNT, AUGUST 1980 WEANED PUPS: M=0 , F=0 , U=18	51
AUG 31	43	12	14	16	2	1	11	10	1				13		123	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=13	51
SEP 02	64	8	2	20	4	2	20	11	1				20		152	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=20	51
SEP 04	62	9	8	16	1	3	15	12	0				21		147	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=21	51
SEP 05	78	9	0	9	0	0	12	7	2				17		134	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=17	51
SEP 06	65	8	10	12	3	0	13	5	0				15		131	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=15	51
SEP 08	58	10	8	6	5	5	9	4	4				13		122	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=13	51
SEP 10	67	11	6	16	2	1	12	9	2				17		143	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=17	51
SEP 13	68	11	11	14	4	2	17	8	1				16		153	GROUND	Y	HIGHEST COUNT, SEPTEMBER 1980 WEANED PUPS: M=0 , F=0 , U=16	51
SEP 15	50	8	30	13	4	2	10	9	2				17		145	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=17	51
SEP 17	81	7	2	13	2	1	10	9	1				16		142	GROUND	Y	WEANED PUPS: M=0 , F=0 , U=16	51
NOV 16	28	12	39	4	2	13	6	2	20						126	GROUND	Y	JUVENILES AND PUPS COMBINED Time of count = 1045-1430 Keywords = METHODS	60
NOV 17	24	13	38	5	2	9	7	5	14						117	GROUND	Y	JUVENILES AND PUPS COMBINED Time of count = 1030-1415 Keywords = METHODS	60
1981																			
JAN 25	40	21	21	2	4	6	7	12	6						119	GROUND	Y	JUVENILES AND PUPS COMBINED Time of count = 1355-1730	62

Appendix F.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JAN 26	31	19	24	5	5	5	9	15	8						121	GROUND	Y	JUVENILES AND PUPS COMBINED Time of count = 1205-1710	62
JAN 27	37	15	28	3	4	3	6	10	5						111	GROUND	Y	JUVENILES AND PUPS COMBINED Time of count = 1300-1600	62
MAR 29	52	15	8	9	5	2	13	19	5				12		140	GROUND	Y	DATA COLLECTED BY B. & P. JOHNSON	61
APR 6	52	20	2	6	2	1	15	21	3				13		135	GROUND	Y	HIGHEST COUNT, APRIL 1981	61
APR 14	41	15	6	4	5	1	16	20	2				13		123	GROUND	Y		61
APR 22	38	14	5	9	5	2	11	17	4				17		122	GROUND	Y		61
APR 30	41	18	2	5	5	1	10	13	0				19		114	GROUND	Y		61
MAY 8	35	15	3	8	11	0	10	13	1				19		115	GROUND	Y	HIGHEST COUNT, MAY 1981	61
MAY 16	30	17	0	6	8	1	13	17	0				16		106	GROUND	Y		61
MAY 24	40	15	1	9	8	0	7	15	0				19		114	GROUND	Y		61
MAY 26	0	0	51	0	0	13	0	0	21				18		103	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=18	120
MAY 26	0	0	51	0	0	9	0	0	15				8		83	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO Time of count = 1300-1500 NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=0 , F=0 , U=2	120
MAY 26	0	0	72										3		75	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PHOTO Time of count = 1300-1500 NURSING PUPS: M=0 , F=0 , U=3	120
JUN 1	18	20	2	6	5	1	10	10	0				16		88	GROUND	Y		61
JUN 9	32	13	1	2	7	0	13	13	0				17		98	GROUND	Y		61
JUN 17	43	16	1	1	6	0	12	7	0				16		102	GROUND	Y	TOTAL IN REPORT=111; HIGH COUNT, JUNE 1981	61

Appendix G.--Map of Lisianski Island followed by a tabular compilation of historical Hawaiian monk seal counts. Entries are in chronological order beginning with the earliest counts. Listed information includes date, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for each source of the information. Sources are listed in Appendix A, abbreviations in Appendix M, and keywords in Appendix N.



LISIANSKI ISLAND

Appendix G.--Continued.

Hawaiian monk seal counts
LISIANSKI

LISIANSKI
1805

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1805																			
OCT 15														4	4		N	NO POPULATION ESTIMATE MADE 4 SEALS KILLED	24
1825																			
JUL 6																	N	NO POPULATION ESTIMATE MADE "...AN ABUNDANCE OF SEA ELEPHANTS..."	99
1857																			
MAY-JUN																	N	NO POPULATION ESTIMATE MADE "...SEAL AND TURTLE ABOUND HERE..."	114
1891																			
JUN-JUL														3	3		N	NO POPULATION ESTIMATE MADE 3 SEALS KILLED	24
1913																			
MAR 12	1	1	0												2	GROUND	N	WHOLE ISLAND WAS NOT COVERED FEMALE WAS COLLECTED	8, 9
1923																			
MAY 15														10	10	GROUND	N	NO POPULATION ESTIMATE MADE 10 SPECIMENS TAKEN	9
1950																			
JUNE 24													5	95	100	GROUND	N	NO POPULATION ESTIMATE MADE AT LEAST 100 SEALS NURSING PUPS: M=0 , F=0 , U=5	136
JUNE														70	70	GROUND?	N	UNKNOWN IF FULL COUNT	9, 136
1951																			
MAY 13													6	189	195	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=6	24, 136
1954																			
MAR 26														115	115	GROUND?	Y		136
NOV														76	76	AERIAL	N	~2/3 OF TOTAL #SEALS	136

Appendix G.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	LISIANSKI 1955 Ref No.
1955																			
MAY 8													5	95	100	GROUND	N	APPROXIMATE NUMBERS NURSING PUPS: M=0 , F=0 , U=5	136
1957																			
JAN 7	0	0	33										0	0	33	AERIAL	Y	ADULT=OLDER THAN PUP Time of count = 0930-0945	123
APR 15	0	0	241										15	0	256	AERIAL	Y	ADULT=OLDER THAN PUP Time of count = 1250-1310	123, 106
DEC 28	0	0	147										0	0	147	AERIAL	Y	ADULT=OLDER THAN PUP Time of count = 1240-1300	123
1958																			
JUN 29	0	0	222										34	0	256	AERIAL	Y	ERROR, REF 122: ADULT TOTAL=247, NOT 222 ADULT=OLDER THAN PUP Time of count = 1245-1320 NURSING PUPS: M=0 , F=0 , U=34	123, 122
1961																			
MAR 9										0	0	36	19	117	172	GROUND	Y	WIRTZ (REF 151) HAD TOTAL NO. SEALS=173 YRLG= PROBABLY YOUNG OF PREVIOUS YEAR (REF 24: P.153) Keywords = INJURY,MORTALITY	154
1963																			
FEB 14													3	141	144	GROUND	Y	ONE DEAD PUP INCLUDED IN TOTAL Keywords = TAGGING,ENVIRONMENT	24, 67
MAR 12	0	0	82										13	115	210	GROUND	Y	2 DEAD PUPS INCLUDED IN COUNT	24, 151
1964																			
MAR 12	31	53	18	22	10	39							7		180	GROUND	Y	Keywords = TAGGING,MOVEMENTS	2
AUG 21													1	143	144	GROUND	Y		24, 151
SEP 18	43	20	22							11	15	7		3	121	GROUND	Y		70
1965																			
MAR 12	0	0	172										15		187	GROUND	Y	ONE DEAD ADULT INCLUDED IN TOTAL ADULT=OLDER THAN PUP? Keywords = TAGGING,MOVEMENTS,MORTALITY	150
JUL 14														161	161	GROUND	Y		24, 151

Appendix G.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	LISIANSKI 1966 Ref No.
1966																			
JUN 19										0	0	33	3	121	157	GROUND	Y		24
SEP 19	63	27	11	8	8	5							17		139	GROUND	Y	ONE DEAD PUP INCLUDED IN TOTAL NURSING PUPS: M=6 , F=7 , U=2 Keywords = METHODS	73
OCT 18													9	102	111	GROUND	Y	AN UNSPECIFIED NUMBER OF YRLGS ALSO PRESENT	24
1967																			
MAR 20										0	0	17	10	112	139	GROUND	Y		24
JUN 6										0	0	11	12	105	128	GROUND	Y		24
SEP 2													10	131	141	GROUND	Y		24
SEP 25	33	26	25	2	3	3	4	8	4						108	GROUND	Y	ERROR, REF 24, P.154: TOTAL=108, NOT 181	75
1968																			
MAR 20										0	0	19	10	94	123	GROUND	Y	REF 24:"SOME 180 SEALS..."	79 64
1969																			
MAR 30	47	34	10				6	9	2				18	4	130	GROUND	Y	12 PUPS BORN RECENTLY REF 24, P.154: JUVENILES= YRLGS NURSING PUPS: M=6 , F=10, U=0 Keywords = TAGGING,METHODS	83
JUN 4	0	0	93	0	0	5							17	12	127	GROUND	Y	2 YRLGS/26PUPS (REF 24, P.154) NOT IN REPT?	103, 24
NOV	0	0	59	0	0	2							4		65	GROUND	Y	Keywords = INJURY,TAGGING	102
1970																			
AUG	9	4	78	5	4	4							5		109	GROUND	Y	DIDN'T DISTURB SEALS TO DETERMINE SEX NURSING PUPS: M=0 , F=5 , U=0 Keywords = TAGGING	87
1971																			
SEP 5	26	18	55	4	3	0							13		119	GROUND	Y	DIDN'T DISTURB SEALS TO DETERMINE SEX NURSING PUPS: M=6 , F=3 , U=4 Keywords = TAGGING	89
1972																			
SEP	0	0	41	0	0	5							2	32	80	GROUND	Y	DEAD SEAL EATEN BY SHARK Keywords = MORTALITY,PREDATOR,SURVIVAL, TAGGING	91

Appendix G.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	LISIANSKI 1973 Ref No.
1973																			
MAY 29	0	0	79										9		88	AERIAL	Y	Keywords = METHODS,TAGGING,MOLT,INJURY	94
MAY 29	12	22	24	1	5	8							19		91	GROUND	Y	COMPARISON W/ AERIAL COUNT, MAY 29 NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=6 , F=6 , U=0 Keywords = METHODS,TAGGING,MOLT,INJURY	94
MAY 30	0	0	71	0	0	6							17		94	GROUND	Y	SOME ATTEMPT MADE TO SEX SEALS, 5/29-30 Keywords = METHODS,TAGGING,MOLT,INJURY	94
JUL	5	2	69	1	0	10							16		103	GROUND	Y	Keywords = TAGGING	111
1974																			
JUL 16	10	10	26	3	2	27	0	0	18						96	GROUND	Y	PUPS & JUVENILES COMBINED INTO ONE CLASS TYPO ERROR IN REPORT: "PUPS 7 JUV" SHOULD BE "PUPS & JUV" Time of count = 1000	131
1975																			
AUG 13	21	4	39							11	6	9	5		95	GROUND	Y	Time of count = 700-1230 NURSING PUPS: M=3 , F=0 , U=2 Keywords = TAGGING	129, 133
1976																			
MAR 29	43	19	2	1	6	1	4	7	7				15		105	GROUND	Y	Time of count = 1440-1830	30, 28
APR 2	52	27	0	1	7	2	12	6	0				20		127	GROUND	Y	SEPARATED BY AREA Time of count = 1255-1530 Keywords = DISTRIBUTION	30, 28
APR 3	26	17	2	0	1	0	1	1	2				17		67	GROUND	Y	Time of count = 0915-1140	30, 28
1977																			
APR 14	35	19	12	1	5	8	2	1	4				14		101	GROUND	Y	"JUV" WAS CLASSED IN REPT AS "IMMATURE" GIEZENTANNER (REF 40) TOTAL = 103 DELONG (REF 29) TOTAL = 101 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=6	40
APR 15	37	24	18	2	0	5	1	2	2				15		106	GROUND	Y	BROKEN DOWN BY AREA Time of count = 1310-1630 NURSING PUPS: M=0 , F=0 , U=8 WEANED PUPS: M=0 , F=0 , U=7 Keywords = DISTRIBUTION	29, 40
JUL 16	17	8	22	5	2	11	2	3	4				11	2	87	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=10	41
JUL 17	18	9	12	2	2	10	0	3	0				6	1	63	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=0 , F=0 , U=5	41

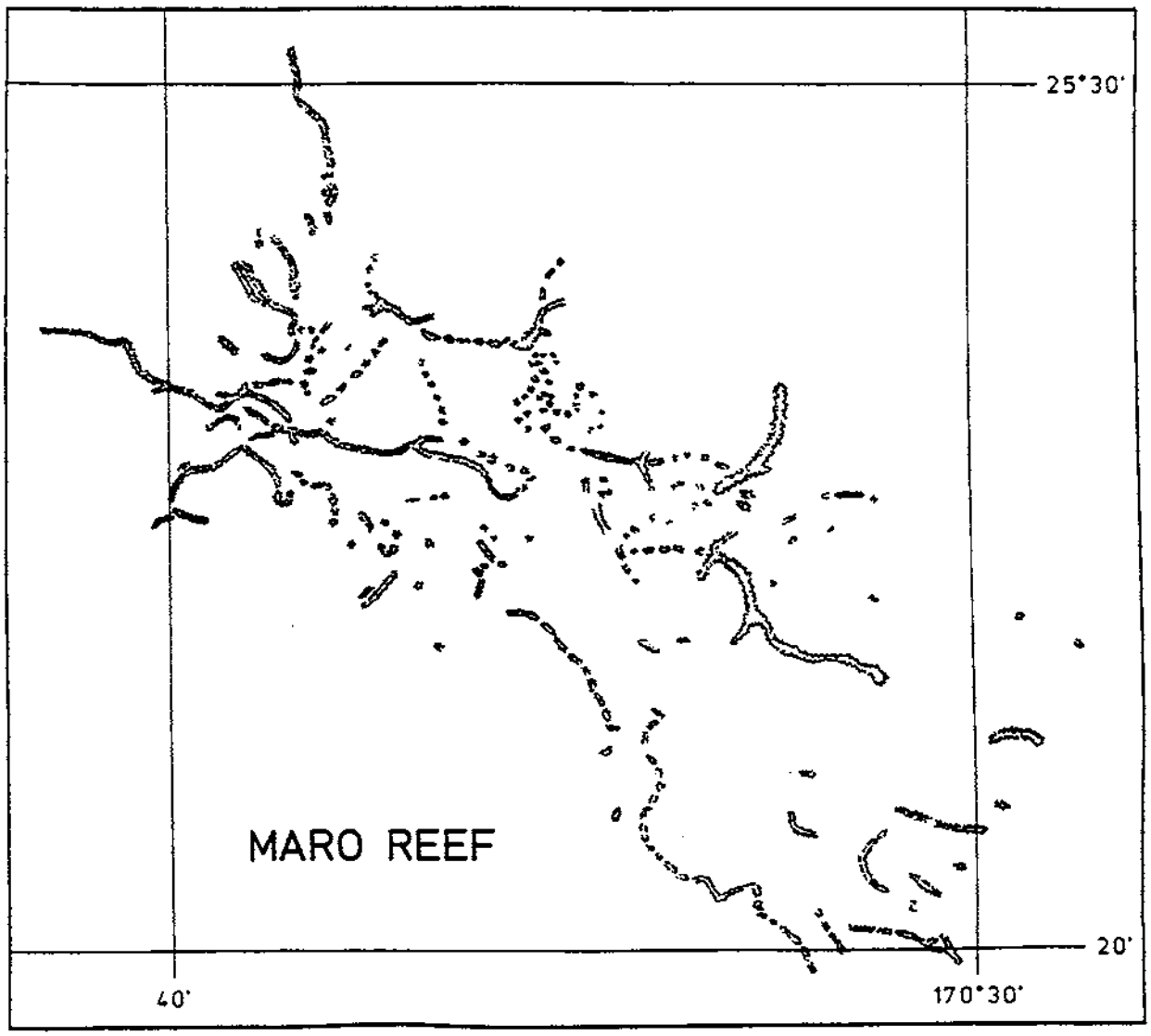
Appendix G.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	LISIANSKI 1977 Ref No.
AUG 2														72	72	GROUND	Y	OBSERVATIONS BY R. COLEMAN	41
AUG 3														80	80	GROUND	Y	OBSERVATIONS BY R. COLEMAN	41
1978																			
JUL 19	19	7	19	6	6	9	0	0	1				8		75	GROUND	Y	COOPERATIVE COUNT Time of count = 1545-1830 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=1 , F=1 , U=5 Keywords = METHODS	35
JUL 20	18	10	18	5	6	11	1	1	3				10		83	GROUND	Y	COOPERATIVE COUNT Time of count = 1145-1550 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=1 , F=2 , U=6 Keywords = METHODS	35
JUL 21	17	12	12	5	2	9	1	4	4				13		79	GROUND	Y	COOPERATIVE COUNT Time of count = 1125-1525 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=5 , F=4 , U=3 Keywords = METHODS	35
JUL 22	14	14	15	1	6	9	2	4	4				13		82	GROUND	Y	FISCUS & KENYON: INDEPENDENT CENSUSES Time of count = 1210-1545 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=4 , F=1 , U=7 Keywords = METHODS	35
JUL 22	11	9	15	4	6	18	3	1	3				15		85	GROUND	Y	FISCUS & KENYON: INDEPENDENT CENSUSES Time of count = 1210-1630 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=1 , F=6 , U=7 Keywords = METHODS	35
JUL 23	11	12	12	6	8	9	0	4	6				11		79	GROUND	Y	FISCUS & KENYON: 1/2 CENSUS EACH Time of count = 1215-1320 NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=4 , F=3 , U=3	35
AUG	0	0	46	0	0	8							6		60	GROUND	Y	Time of count = 1000-1130 WEANED PUPS: M=0 , F=0 , U=6	44
AUG 28	0	0	54	0	0	12							6		72	GROUND	Y	Time of count = 0845-1015 WEANED PUPS: M=0 , F=0 , U=6	44
AUG 28	0	0	71	0	0	9							6		86	GROUND	Y	Time of count = 1445-1615 WEANED PUPS: M=0 , F=0 , U=6	44
AUG 29	0	0	55	0	0	6							3		64	GROUND	Y	Time of count = 0845-1015 WEANED PUPS: M=0 , F=0 , U=3	44

Appendix G.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS UNCL	TOTAL	Method	Full count?	Comments	LISIANSKI 1979 Ref No.
1979																		
MAY 12	16	16	16	3	1	5	3	2	3				14	79	GROUND	Y	Time of count = 1015-1300 NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=4 , F=1 , U=2	119
MAY 12	12	14	13	1	0	4	0	1	2				12	59	GROUND	Y	Time of count = 1700-1900 NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=1 , F=0 , U=5	119
MAY 13	23	11	17	4	2	7	2	4	2				14	86	GROUND	Y	Time of count = 1045-1415 NURSING PUPS: M=0 , F=0 , U=7 WEANED PUPS: M=0 , F=0 , U=7	119
MAY 14	28	18	13	5	4	7	1	3	3				14	96	GROUND	Y	ERROR IN REPORT: TOTAL SHOULD BE 96 NOT 97 Time of count = 1200-1530 NURSING PUPS: M=0 , F=0 , U=6 WEANED PUPS: M=5 , F=0 , U=3	119
1980																		
SPRING?														87	GROUND	Y	AVG COUNT=87.2, N=23 DATA FROM FILE LIS.1980.DAT	101
JUN 11	0	0	70										14	84	GROUND	Y		45
1981																		
MAY 26	0	0	60	0	0	2	0	0	10				14	88	AERIAL	Y	USFWS COUNT OF AERIAL PICTURES NURSING PUPS: M=0 , F=0 , U=9 WEANED PUPS: M=0 , F=0 , U=5	120
MAY 26	0	0	82										6	88	AERIAL	Y	NMFS SWFSC COUNT FROM AERIAL PICTURES NURSING PUPS: M=0 , F=0 , U=6	120

Appendix H.--Map of Maro Reef followed by a tabular compilation of historical Hawaiian monk seal counts. Entries are in chronological order beginning with the earliest counts. Listed information includes date, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for each source of the information. Sources are listed in Appendix A, abbreviations in Appendix M, and keywords in Appendix N.



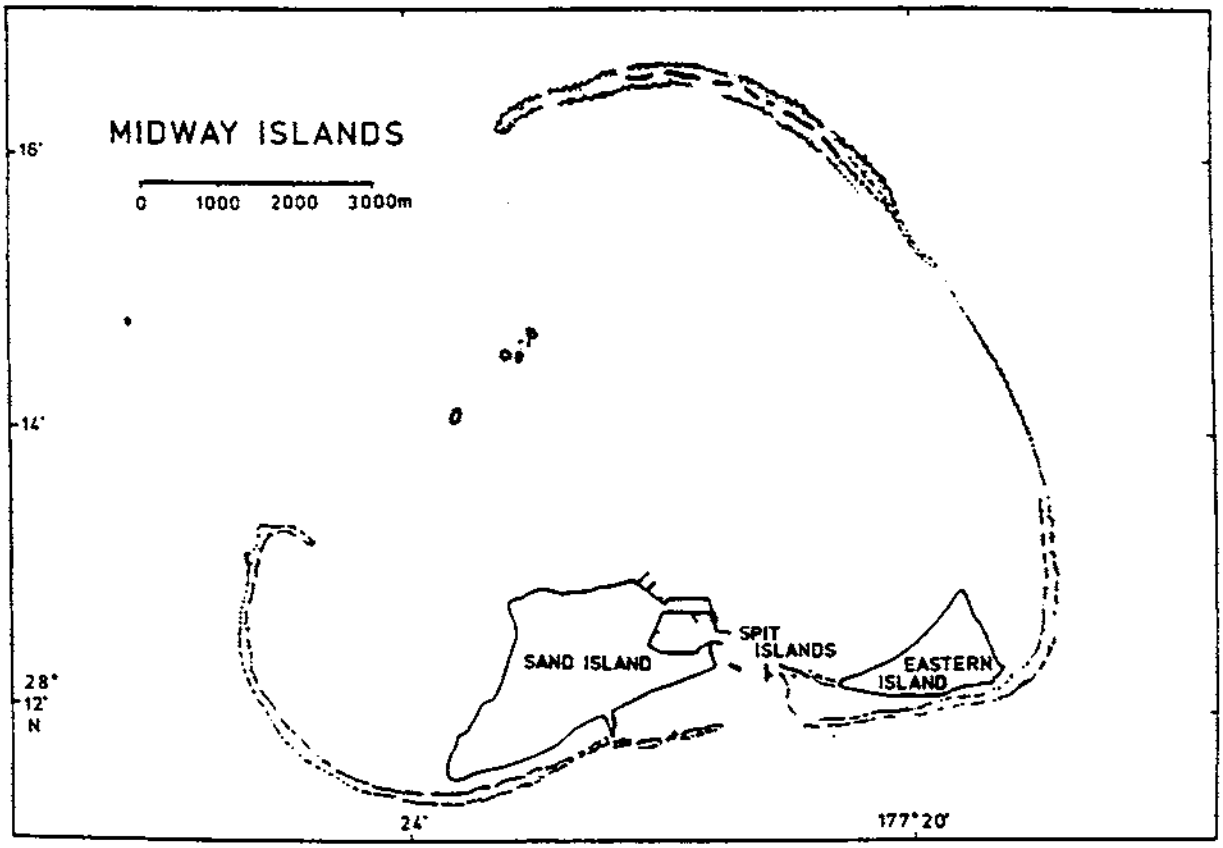
Appendix H.--Continued.

Hawaiian Monk Seal Numbers
MARO REEF

MARO REEF
1951

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1951																			
JUN														2	2	GROUND	Y		9
1977																			
JUL 11	0	0	2												2	BOAT?	Y		41
JUL 12	0	0	6												6	BOAT?	Y		41
AUG 6	0	0	1												1	BOAT?	Y		41
AUG 7	0	0	2												2	BOAT?	Y		41
AUG 8	0	0	1												1	BOAT?	Y		41
AUG 9	0	0	3												3	BOAT?	Y		41

Appendix I.--Map of Midway Atoll, Eastern Island, and Spit Island followed by a tabular compilation of historical Hawaiian monk seal counts. Entries are in chronological order beginning with the earliest counts. Listed information includes date, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for each source of the information. Sources are listed in Appendix A, abbreviations in Appendix M, and keywords in Appendix N.



Appendix I.--Continued.

Hawaiian Monk Seal Numbers
MIDWAY

MIDWAY
Whole atoll
1888

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR whole atoll																			
1888																			
															0	UNKNOWN	Y	NO SEALS SEEN IN 14 MONTHS	9
1913																			
MAR 14															6	GROUND	N	NO EXACT COUNT 5-6 SEEN	10
1941																			
														6	6	GROUND	Y	SEEN OVER A 6 MONTH PERIOD	15
1949																			
MAY 4														2	2	GROUND	Y		9, 11
NOV 23														10	10	GROUND	N	NOT ALL ISLETS COUNTED	9
1950																			
JUN																GROUND	N	NO POPULATION ESTIMATE MADE "A FEW"	136
1951																			
JUN														24	24	GROUND	Y		9
1954																			
NOV														25	25	AERIAL	Y		136
1955																			
JAN														26	26	GROUND	Y		136
MAY														30	30	GROUND	Y		136
1957																			
JAN 7														57	57	AERIAL	Y	Keywords = HUMAN INTERACTION	53
JAN 14														67	67	AERIAL	Y	Keywords = HUMAN INTERACTION	58, 53
JAN 24														54	54	AERIAL	Y	Keywords = HUMAN INTERACTION	53
FEB 12														43	43	AERIAL	Y	Keywords = HUMAN INTERACTION	53
MAR 5														55	55	AERIAL	Y	Keywords = HUMAN INTERACTION	53
MAR 14														62	62	AERIAL	Y	Keywords = HUMAN INTERACTION	53
MAR 27														43	43	AERIAL	Y	Keywords = HUMAN INTERACTION	53
APR 2	0	0	53	0	0	8				0	0	6	4		71	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 4	58

Appendix I.--Continued.

MIDWAY
Whole atoll
1958

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1958																			
JAN 24														68	68	AERIAL	Y		53
MAR 22														52	52	AERIAL	Y		53
SPRING	0	0	68										8		76	AERIAL	Y	ADULTS & SUBADULTS COMBINED NURSING PUPS: M=0 , F= 0 , U= 8	122
1966																			
SEP 28	0	0	1												1	GROUND	N	NOT ALL ISLANDS COUNTED SEAL,ROCKY,SANDSPITS,DYNAMITE,EASTERN I.	52
1968																			
MAR 27														1	1	AERIAL	Y		53
APR 5														4	4	GROUND/ AERIAL	Y		53
1972																			
SEP 5															0	GROUND	Y	NO SEALS SEEN	91
1975																			
MAR 13														5	5	GROUND	Y		46
1977																			
APR	1	1	0	0	0	0	0	0	1				1		4	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1	40
APR 25	1	1	1	0	0	0	0	0	1				1		5	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1	29
1978																			
JUL 26	0	1	1										1		3	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1	35
1979																			
MAY 8	0	1	1										1		3	GROUND	Y	ADULT FEMALE & PUP ON SPIT I. ADULT UNKNOWN SEX ON EASTERN I. NURSING PUPS: M=0 , F= 0 , U= 1	119
OCT 29	0	0	1												1	GROUND	Y		20
1980																			
JUN 13															0	GROUND	Y		45
NOV 22	0	0	1												1	GROUND	Y		60
1981																			
MAY 27	0	0	3										2		5	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F= 0 , U= 2	120

Appendix I.--Continued.

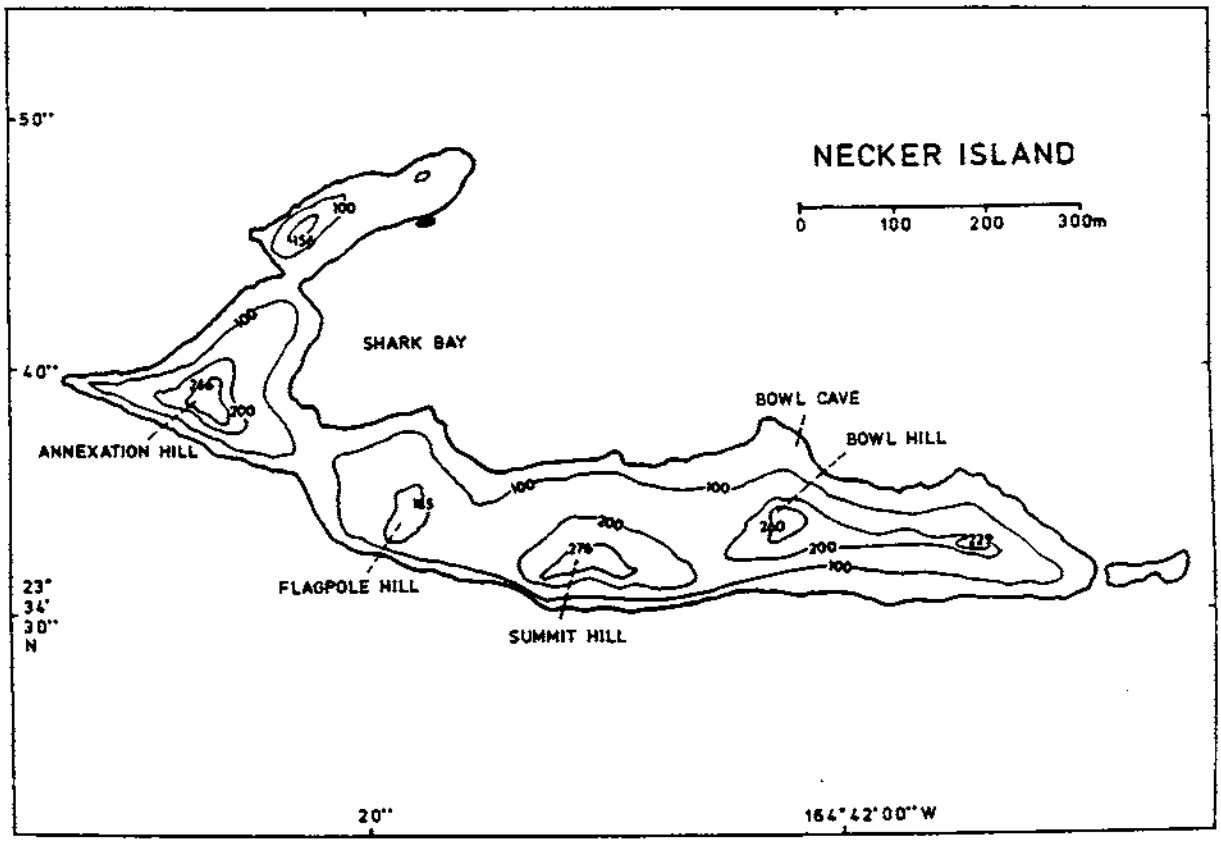
Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	MIDWAY Eastern Island 1941 Ref No.
**********																			
FOR islet = EASTERN																			
1941																			
														4	4	GROUND	Y	SEEN REGULARLY OVER A 6 MONTH PERIOD	15
1949																			
MAY 4														1	1	GROUND	Y		11
NOV 23														2	2	GROUND	Y		9
1951																			
AUG 26														5	5	GROUND	Y		9
1980																			
NOV 22															0	GROUND	Y	NO SEALS SEEN	60
**********																			
FOR islet = SAND																			
1941																			
														2	2	GROUND	Y	1-2 SEEN OVER A 6 MONTH PERIOD	15
1949																			
MAY 4														1	1	GROUND	Y		15
1980																			
NOV 22															0	GROUND	Y	NO SEALS SEEN	60
**********																			
FOR islet = SANDSPITS																			
1969																			
APR 10														5	5	GROUND	Y		146
NOV														7	7	GROUND	N	NO EXACT COUNT APPROXIMATELY 7 SEALS	102
1971																			
SPRING													3		3	GROUND	N	ONLY PUPS COUNTED NURSING PUPS: M=0 , F= 0 , U= 3	54
1976																			
APR 9	0	1	0												1	GROUND	Y	PROBABLY PREGNANT	54, 28

Appendix I.--Continued.

MIDWAY
Spit Island
1949

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR islet = SPIT																			
1949																			
NOV 23														8	8	GROUND	Y		9
1972																			
SPRING													2		2	GROUND	N	ONLY PUPS COUNTED NURSING PUPS: M=0 , F= 0 , U= 2	54
1974																			
SPRING													1		1	GROUND	N	ONLY PUPS COUNTED NURSING PUPS: M=0 , F= 0 , U= 1	54
1975																			
SPRING													1		1	GROUND	N	ONLY PUPS COUNTED NURSING PUPS: M=0 , F= 0 , U= 1	54
1976																			
SPRING															0	GROUND	N	ONLY PUPS COUNTED -- NONE SEEN	54
1978																			
MAY 7	0	1	0										1		2	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1	35
1980																			
NOV 22	0	0	1												1	GROUND	Y		60
**********																			
FOR islet = SPIT & EASTERN																			
1978																			
FEB-MAY	0	0	2												2	GROUND	Y		35

Appendix J.--Map of Necker Island followed by a tabular compilation of historical Hawaiian monk seal counts. Entries are in chronological order beginning with the earliest counts. Listed information includes date, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for each source of the information. Sources are listed in Appendix A, abbreviations in Appendix M, and keywords in Appendix N.



Appendix J.--Continued.

Hawaiian monk seal counts
NECKER

NECKER
1886

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1886																			
SUMMER																UNKNOWN	N	NO POPULATION ESTIMATE MADE "A FEW"-ONE OR MORE KILLED FOR SHARKBAIT	22
1894																			
MAY 27																GROUND?	N	NO POPULATION ESTIMATE MADE "A FEW SEALS SEEN BY ANNEXATION PARTY"	22
1964																			
JUL 26														6	6	GROUND	Y	SWIMMING IN SHARK BAY	69
SEP 25	0	6	6												12	GROUND	Y		70
1965																			
MAR 15	1	1	4	0	1	0									7	GROUND	Y		71, 13
1966																			
SEP 10	1	2	1	0	0	2									6	GROUND	Y	KENYON 1966 (REF 52) LISTS 10 SEALS, NOT 6 Keywords = MOLT	71, 13
1967																			
MAR 10	1	2	3							1	1	4			12	GROUND	Y		22
SEP 15	2	5	6							1	1	0			15	GROUND	Y		76, 75
1968																			
AUG 28																GROUND	Y	"SEVERAL SEEN" - NO EXACT COUNT	22
1969																			
MAR 22	7	4	0	1	2	0								6	20	GROUND	Y		83
MAY 30														6	6	GROUND	Y		103
1971																			
AUG 18														10	10	GROUND	Y		105
SEP 14	0	0	16												16	GROUND	Y	Keywords = DISTRIBUTION	89
1972																			
SEP 15														10	10	GROUND	Y		91
1973																			
JUL 30	0	0	18												18	GROUND	Y		111

Appendix J.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	NECKER 1974 Ref No.
1974																			
SEP														12	12	GROUND	N	NOT EXACT COUNT APPROX 12, INCL. PUPS	141
1975																			
AUG 7															0	GROUND	Y	NO SEALS SEEN	129
1976																			
MAR 19														1	1	BOAT	Y	Time of count = 0900-0930	28
MAY 18														22	22	GROUND	Y		157
AUG 19														21	21	GROUND	Y	Time of count = 0900	130
1977																			
FEB 17	0	0	14												14	AERIAL	Y	LISTED AS 12 IN FISCUS ET AL 1977 (REF 34)	38
APR 8	10	5	17	1	2	9	1	0	1				0		46	GROUND	Y	SEE ALSO GIEZENTANNER 1978 REF 40 DIFF. SIZE/SEX BREAKDOWN THAN REF 40	29
APR 6	12	4	13	1	3	5	1	0	1				0	6	46	GROUND	Y	3 ADULT FEMALES PREGNANT DIFF. SIZE/SEX BREAKDOWN THAN REF 29 Time of count = 1130	40
JUL 6	6	5	7	4	1	4	0	0	0				1		28	GROUND	Y	1 DEAD ADULT FEMALE NOT INCLUDED IN COUNT WEANED PUPS: M=0 , F=0 , U=1	41
1978																			
JUL 14	8	3	10	2	0	4	0	0	2				1		30	GROUND	Y	WEANED PUPS: M=1 , F=0 , U=0	35
AUG 7	0	0	19												19	GROUND	Y		44
1979																			
MAY 21	10	9	9	0	0	1	2	0	1				2		34	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=2	119
1980																			
JUN 1	0	0	19	0	0	0							2		21	GROUND	Y	SUBADULT+JUVENILE CLASSED AS "IMMATURE" NURSING PUPS: M=0 , F=0 , U=2	45
1981																			
JUL 25	0	0	17												17	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO	120
1982																			
JUN 20	0	4	0										4		8	GROUND	N	NO TOTAL COUNT ONLY FEMALES W/PUPS COUNTED Time of count = 1100 NURSING PUPS: M=0 , F=0 , U=4	26

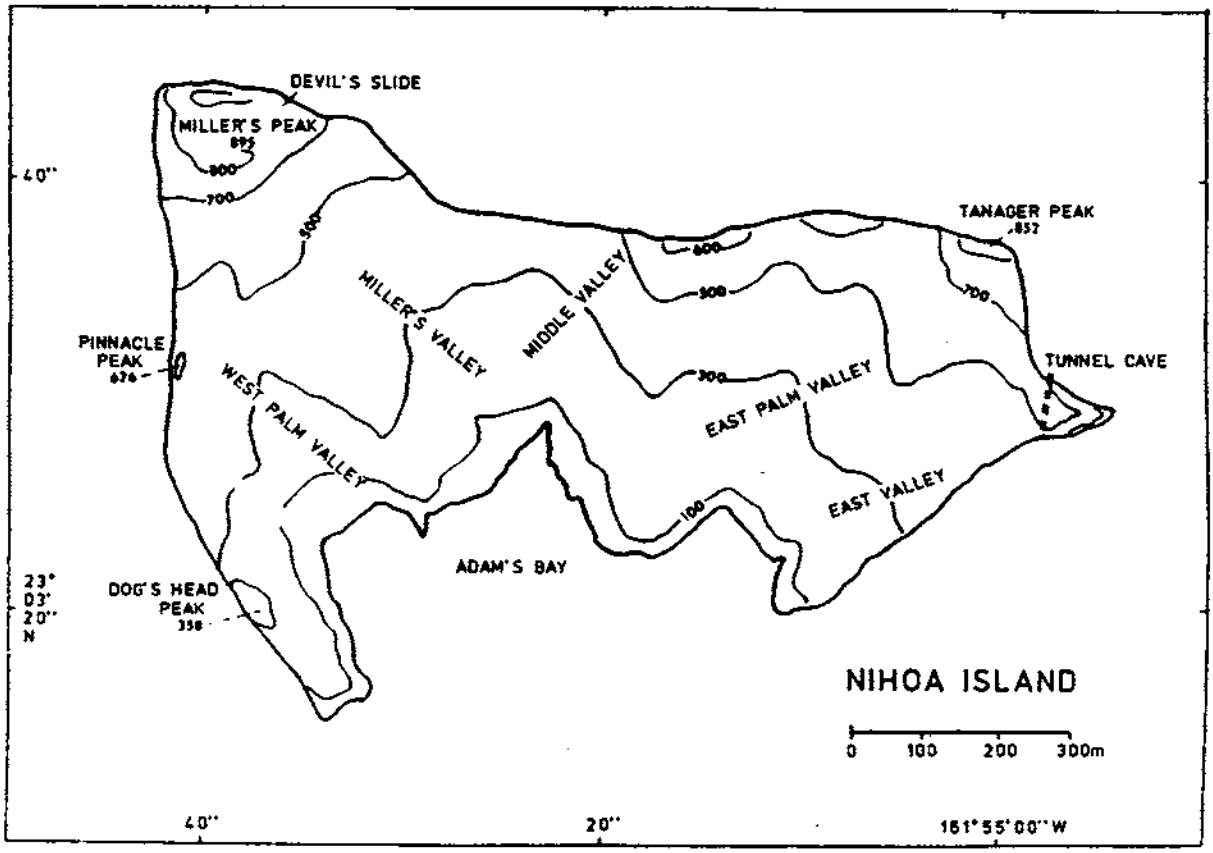
Appendix J.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	NECKER 1983 Ref No.
1983																			
APR 20	5	0	13	0	0	7	0	0	4				0	1	30	GROUND	N	PARTIAL CENSUS 1 DEAD PUP NOT INCLUDED IN COUNT	100
JUN 20	0	0	16												16	GROUND	Y	ADULTS AND IMMATURES COMBINED	26
JUN 21	0	0	28										4		32	GROUND	Y	ADULTS AND IMMATURES COMBINED NURSING PUPS: M=0 , F=0 , U=4	26
JUN 22	0	0	18										4		22	GROUND	Y	AT LEAST 15 ADULTS ADULTS AND IMMATURES COMBINED NURSING PUPS: M=0 , F=0 , U=4	26
JUN 23	0	0	13	0	0	1							4		18	GROUND	Y	SUBADULTS & JUVENILES CLASSED AS "IMMATURES" NURSING PUPS: M=0 , F=0 , U=4	26
JUL 28	8	9	1	0	0	1	2	0	1				2		24	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=1 WEANED PUPS: M=1 , F=0 , U=0 Keywords = INJURIES,DISTRIBUTION	100
JUL 30	13	6	3	1	2	1	0	0	1				2		29	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=2 Keywords = INJURIES,DISTRIBUTION	100
AUG 1	13	8	3	0	0	1	4	0	0				3		32	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=1 , F=0 , U=0 Keywords = INJURIES,DISTRIBUTION	100
AUG 3	12	7	0	2	1	0	2	1	0				3		28	GROUND	Y	NURSING PUPS: M=0 , F=1 , U=1 WEANED PUPS: M=1 , F=0 , U=0 Keywords = INJURIES,DISTRIBUTION	100
AUG 5	7	5	3	3	1	1	1	0	0				3		24	GROUND	Y	NURSING PUPS: M=0 , F=0 , U=2 WEANED PUPS: M=1 , F=0 , U=0 Keywords = INJURIES,DISTRIBUTION	100
1984																			
JUN 20														29	29	GROUND	Y	EXCLUDING PUPS	101
JUN 21														30	30	GROUND	Y	EXCLUDING PUPS	101
JUN 23														26	26	GROUND	Y	EXCLUDING PUPS	101
JUN 24														22	22	GROUND	Y	EXCLUDING PUPS	101
JUN 25														26	26	GROUND	Y	EXCLUDING PUPS	101
JUN 27														22	22	GROUND	Y	EXCLUDING PUPS	101
JUN 28	0	1	0										1	17	19	GROUND	N	NO EXACT COUNT 3-4 DAILY, UP TO 10 ON LEDGE BELOW CAMP NURSING PUPS: M=0 , F=0 , U=1 Keywords = INJURIES,DISTRIBUTION	33

Appendix J.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	NECKER 1985 Ref No.
1985																			
AUG 25	0	0	13	0	0	7	0	0	5				2	4	31	GROUND	N	NOT ALL SECTORS SEEN ONLY SECTORS 2,4,5,8 SURVEYED Time of count = 1031-1330 NURSING PUPS: M=0 , F=0 , U=2 Keywords = INJURY	14
1986																			
MAY 21														42	42	GROUND	Y	EXCLUDING PUPS	101
1987																			
MAY 19														41	41	GROUND	Y	EXCLUDING PUPS	101
1989																			
FEB 8	5	5	8	7	1	9	1	1	3				0		40	GROUND	Y	Time of count = 1130-1230 Keywords = INJURY,MOVEMENTS	115
1991																			
AUG 18														30	30	GROUND	Y	EXCLUDING PUPS	101

Appendix K.--Map of Nihoa Island followed by a tabular compilation of historical Hawaiian monk seal counts. Entries are in chronological order beginning with the earliest counts. Listed information includes date, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for each source of the information. Sources are listed in Appendix A, abbreviations in Appendix M, and keywords in Appendix N.



Appendix K.--Continued.

Hawaiian monk seal counts
NIHOA

NIHOA
1857

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1857																			
APR 23														12	12	GROUND	N	NO POPULATION ESTIMATE MADE ABOUT A DOZEN	114
1940																			
AUG 7															0	GROUND	Y	NO SEALS SEEN	23
1953																			
DEC 21															0	GROUND	Y	NO SEALS SEEN	58
1954																			
MAR 18															0	GROUND	Y	NO SEALS SEEN	58
1957																			
DEC 28															0	AERIAL	Y	NO SEALS SEEN	122
1964																			
MAR 6														1	1	GROUND	Y		2
SEP 23	0	0	1												1	GROUND	Y	SWIMMING NEAR LANDING SITE	70
1965																			
MAR 13	1	1	0	0	1	3									6	GROUND	Y	3 SEEN MAR.13, 3 SEEN MAR.14	71, 13
1966																			
JUL 28															0	GROUND	Y	NO SEALS SEEN	23
1967																			
MAR 8															0	GROUND	Y	NO SEALS SEEN	23
SEP 13															0	GROUND	Y	NO SEALS SEEN	23
1968																			
MAR 7															0	GROUND	Y	NO SEALS SEEN	23
AUG 24															0	GROUND	Y	NO SEALS SEEN	23
1969																			
MAR 21															0	GROUND	Y	NO SEALS SEEN	23
MAY 29														1	1	GROUND	Y		23

Appendix K.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	NIHOA 1970 Ref No.
1970																			
AUG 15															0	GROUND	Y	NO SEALS SEEN	87
1971																			
AUG 18															0	GROUND	Y	NO SEALS SEEN	23
SEP 15														1	1	GROUND	Y		89
1972																			
SEP 16														3	3	GROUND	Y		91
1973																			
JUL 31														4	4	GROUND	Y		111
1975																			
AUG 6															0	GROUND	Y	NO SEALS SEEN	129
1976																			
MAR 18															0	BOAT	Y	NO SEALS SEEN	28
MAY 6														2	2	BOAT?	Y		157
1977																			
JUL 5	0	0	11				0	0	1						12	GROUND	Y		41
AUG 15	0	0	6												6	GROUND	Y		41
1978																			
JUL 13	0	0	4												4	BOAT	Y		35
AUG 5	0	0	9												9	GROUND	Y		44
AUG 6	0	0	8												8	GROUND	Y		44
AUG 6	0	0	5												5	GROUND	Y		44
1979																			
MAY 23	6	3	2												11	GROUND	Y		119
1980																			
JUN	0	0	5	0	0	1							2		8	GROUND	Y	"SUBADULT" CLASSED AS "IMMATURE" NURSING PUPS: M=0 , F=0 , U=2	45
JUN 1	0	0	3												3	GROUND	N	INCIDENTAL OBSERV. 25 INDIVIDUALS IDENTIFIED JUNE 1980-81 SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1200	25

Appendix K.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JUN 2	0	0	12	0	0	1							2		15	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0730-1745	25
JUN 3	4	0	0	0	0	1							2		7	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" NURSING PUPS: M=0 , F=0 , U=2	25
JUN 7	0	0	2	0	0	1							1		4	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" NURSING PUPS: M=0 , F=0 , U=1	25
JUN 8	0	0	1	0	0	0									1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1400	25
JUN 9	0	2	1	0	0	1							2		6	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1300 NURSING PUPS: M=0 , F=0 , U=2	25
JUN 12	0	1	0	0	0	1							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1440-1550	25
JUN 13	0	0	1	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0930-1200	25
JUN 14	1	1	1	0	0	0							0		3	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0830-1145	25
JUN 15	2	0	0	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0730-1400	25
JUN 16	0	0	1	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0830	25
JUN 17	2	0	0	0	0	1							0		3	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0830,1600	25
JUN 18	1	0	0	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1800	25
JUN 22	0	1	0	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0620	25

Appendix K.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JUN 26	1	0	1	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1400	25
JUN 27	0	0	2	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1230	25
JUN 28	2	0	1	0	0	0							0		3	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0630	25
JUL 4	3	3	1	0	0	0							2		9	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0530-1140 NURSING PUPS: M=0 , F=0 , U=2	25
NOV 5														10	10	GROUND	Y	SOME SMALLER SEALS W/GREEN ALGAE	60
1981 JAN 31	2	0	2	0	0	1							0		5	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1700	25
FEB 1	1	0	0	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1730	25
FEB 2	0	0	1	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES"	25
FEB 3	0	1	0	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES"	25
FEB 4	0	0	9	0	0	3							2		14	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1625 NURSING PUPS: M=0 , F=0 , U=2	25
FEB 6	0	0	2	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0800	25
FEB 7	0	0	2	0	0	1							0		3	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0730	25
MAY 18	0	0	4	0	0	0							0		4	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1000	25
MAY 19	0	0	1	0	0	1							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES"	25
MAY 22	0	0	2	0	0	1							0		3	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1200	25

Appendix K.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAY 23	1	1	0	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1200	25
MAY 24	1	0	1	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = AM	25
MAY 25	0	0	8										1		9	AERIAL	Y	USFWS COUNT FROM AERIAL PHOTO NURSING PUPS: M=0 , F=0 , U=1	120
MAY 25	2	2	2	0	0	0							1		7	AERIAL	Y	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1000-1100 NURSING PUPS: M=0 , F=0 , U=1	25
MAY 27	0	1	9	0	0	0							1		11	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1135 NURSING PUPS: M=0 , F=0 , U=1	25
JUN 1	1	0	0	0	0	1							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0900	25
JUN 2	1	0	1	0	0	1							0		3	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0630	25
JUN 3	2	0	2	0	0	3							2		9	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0700,1500 NURSING PUPS: M=0 , F=0 , U=2	25
JUN 6	2	1	4	0	0	2							.2		11	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1000 NURSING PUPS: M=0 , F=0 , U=2	25
JUN 10	2	0	4	0	0	2							2		10	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1130 NURSING PUPS: M=0 , F=0 , U=2	25
JUN 11	0	0	1	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0630	25
JUN 13	0	1	0	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1600	25

Appendix K.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JUN 14	2	0	1	0	0	0							0		3	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES"	25
JUN 15	0	2	8	0	0	3							2		15	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1130-1200 NURSING PUPS: M=0 , F=0 , U=2	25
JUN 16	1	3	5	0	0	1							2		12	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1445-1540 NURSING PUPS: M=0 , F=0 , U=2	25
JUN 17	0	0	2	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1500-1700	25
JUN 18	1	0	0	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1200	25
JUN 21	0	0	3	0	0	1							0		4	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1450	25
JUN 22	0	1	5	0	0	0							2		8	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" NURSING PUPS: M=0 , F=0 , U=2	25
JUN 24	1	1	0	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1215	25
JUN 25	3	2	0	0	0	1							0		6	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0700,1515	25
JUN 27	1	1	0	0	0	1							0		3	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0700	25
JUN 28	0	2	6	0	0	1							2		11	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1030 NURSING PUPS: M=0 , F=0 , U=2	25
JUN 29	0	0	1	0	0	1							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0700,1600	25
JUN 30	1	1	9	0	0	1							2		14	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" NURSING PUPS: M=0 , F=0 , U=2	25
JUL 1	0	0	1	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES"	25
JUL 4	1	0	0	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES"	25

Appendix K.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
JUL 6	0	0	3	0	0	0							0		3	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1700	25
JUL 7	0	0	0	0	0	1							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1700	25
JUL 9	1	0	0	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1130	25
JUL 10	2	0	0	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES"	25
JUL 14	0	0	0	0	0	0							1		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1640	25
JUL 20	1	1	0	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1030-1100	25
JUL 21	1	1	0	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES"	25
JUL 22	1	0	0	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1400-1700	25
JUL 23	1	1	0	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0900	25
JUL 25	3	1	2	0	0	0							0		6	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1100-1200	25
JUL 26	0	0	6	0	0	0							2		8	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1400 NURSING PUPS: M=0 , F=0 , U=2	25
JUL 27	1	1	0	0	0	0							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES"	25
JUL 29	0	0	6	0	0	0							2		8	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0945 NURSING PUPS: M=0 , F=0 , U=2	25
AUG 1	0	0	5	0	0	1							1		7	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" NURSING PUPS: M=0 , F=0 , U=1	25

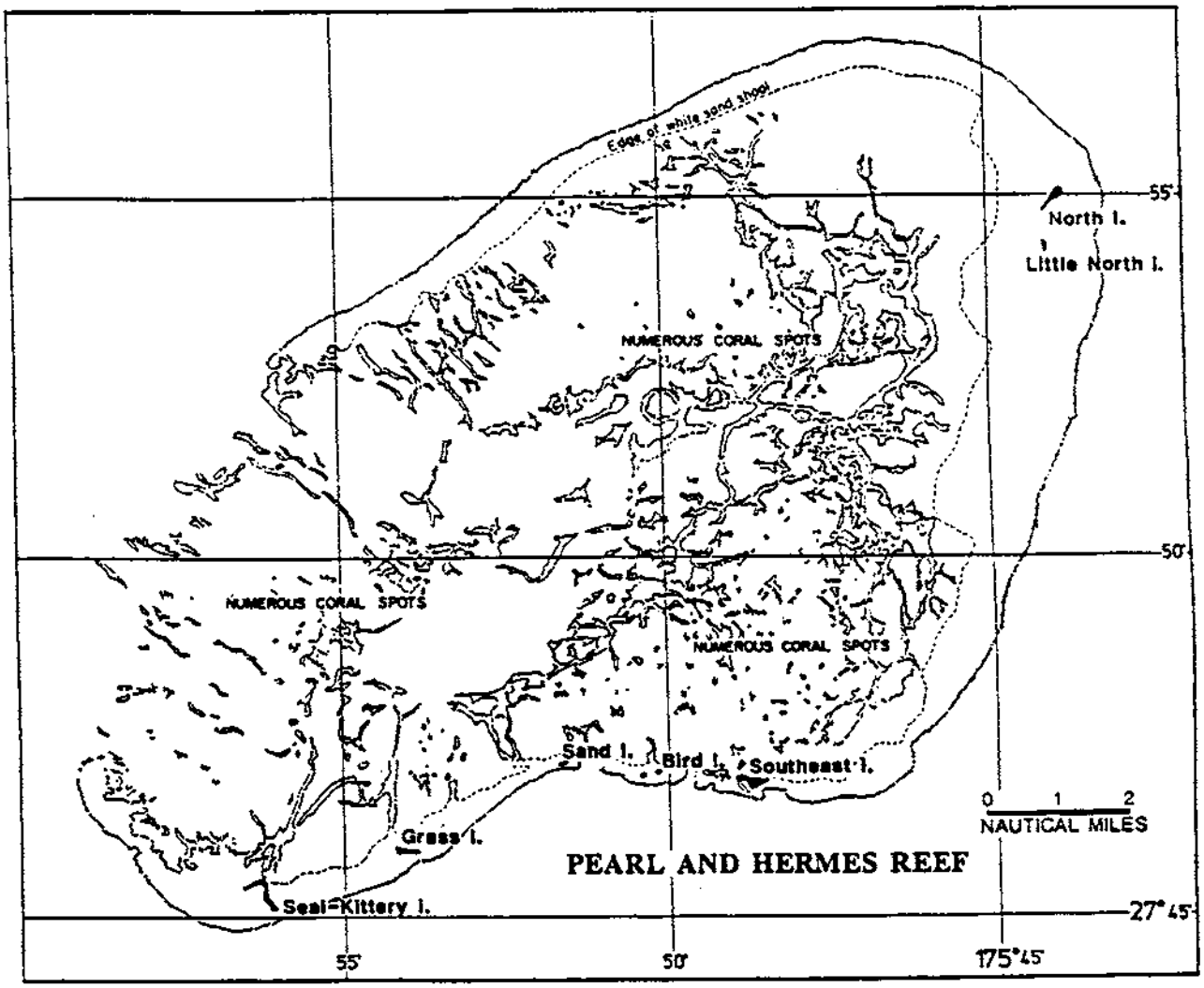
Appendix K.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
AUG 3	1	2	4	0	0	1							2		10	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" NURSING PUPS: M=0 , F=0 , U=2	25
AUG 5	0	1	0	0	0	0							0		1	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = AM	25
AUG 11	0	0	7	0	0	0							2		9	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1645 NURSING PUPS: M=0 , F=0 , U=2	25
AUG 14	1	0	0	0	0	1							0		2	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES"	25
AUG 17	0	0	6	0	0	1							2		9	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 0945 NURSING PUPS: M=0 , F=0 , U=2	25
AUG 19	1	0	10	0	0	4							0		15	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1130-1145	25
AUG 20	0	2	6	0	0	0							0		8	GROUND	N	INCIDENTAL OBSERV. SUBAD AND JUV CLASSED AS "IMMATURES" Time of count = 1050	25
1984																			
JUN 22														12	12	GROUND	Y	EXCLUDING PUPS	101
JUN 23														13	13	GROUND	Y	EXCLUDING PUPS	101
1986																			
MAY 18														8	8	GROUND	Y	EXCLUDING PUPS	101
MAY 19														12	12	GROUND	Y	EXCLUDING PUPS	101
1987																			
MAY 13														14	14	GROUND	N	SECTOR 5 NOT INCLUDED EXCLUDING PUPS	101
MAY 14														16	16	GROUND	N	SECTOR 5 NOT INCLUDED EXCLUDING PUPS	101
MAY 17														13	13	GROUND	N	SECTOR 5 NOT INCLUDED EXCLUDING PUPS	101
1990																			
JUN 20														21	21	GROUND	Y		101
JUN 20														10	10	GROUND	N	WEST OFFSHORE LEDGE NOT INCLUDED EXCLUDING PUPS	101
JUN 27														19	19	GROUND	Y	EXCLUDING PUPS	101

Appendix K.--Continued.

DATE	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL.	TOTAL	Method	Full count?	Comments	Ref No.
1991																			
AUG 18														28	28	GROUND	N	WEST OFFSHORE LEDGE NOT INCLUDED EXCLUDING PUPS	101
AUG 19														23	23	GROUND	N	WEST OFFSHORE LEDGE NOT INCLUDED EXCLUDING PUPS	101
AUG 20														27	27	GROUND	Y	EXCLUDING PUPS	101
AUG 21														23	23	GROUND	N	WEST OFFSHORE LEDGE NOT INCLUDED EXCLUDING PUPS	101
AUG 22														28	28	GROUND	Y	EXCLUDING PUPS	101
AUG 23														25	25	GROUND	N	WEST OFFSHORE LEDGE NOT INCLUDED EXCLUDING PUPS	101

Appendix L.--Map of Pearl and Hermes Reef followed by a tabular compilation of historical Hawaiian monk seal counts. Entries are in chronological order beginning with the earliest counts. Listed information includes date, differentiation of age and sex classes, count method, extent of count, comments relevant to the quantity or quality of the reported data, and the reference number for each source of the information. Sources are listed in Appendix A, abbreviations in Appendix M, and keywords in Appendix N.



Appendix L.--Continued.

Hawaiian Monk Seal Numbers
PEARL & HERMES REEF

PEARL AND HERMES
Whole atoll
1825

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR whole atoll																			
1825																			
JUL 8																GROUND	N	NO POPULATION ESTIMATE MADE "...LARGE ROOKERIES..."	99
1850																			
AUG														12	12	GROUND	N	NO POPULATION ESTIMATE MADE 10-12 SEALS KILLED (VERY FAT, ~500LBS)	113
1857																			
JUN																GROUND	N	NO POPULATION ESTIMATE MADE "ISLETS...SEEMED TO ABOUND WITH...SEALS"	114
1912																			
DEC													1	35	36	GROUND	N	NOT FULL ATOLL COUNT NURSING PUPS: M=0 , F= 0 , U= 1	1
1914																			
SEP																UNKNOWN	N	NO POPULATION ESTIMATE MADE "MANY SEALS"	4
1916																			
FEB														35	35	UNKNOWN	N	SEAL COUNT ON NORTH ISLAND ONLY? 30-35 INCLUDING SEVERAL PUPS	4
1923																			
APR														125	125	UNKNOWN	N	NOT FULL ATOLL COUNT SEVERAL ISLETS 125 SEALS ON GRASS, SEAL AND SOUTHEAST I.	4
1930																			
SUMMER														68	68	BOAT?	Y	SEALS ON EVERY SAND BAR	4
1949																			
MAY														100	100	AERIAL	N	NO EXACT COUNT MORE THAN 100 SEALS AT PEARL & HERMES	9

Appendix L.--Continued.

PEARL AND HERMES
Whole atoll
1950

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUPS	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1950																			
JUN														100	100	UNKNOWN	N	ISLETS NOT NAMED	136
1951																			
JUN														180	180	UNKNOWN	N	UNKNOWN IF FULL COUNT	136, 9
1954																			
NOV														96	96	AERIAL	N	~2/3 SEALS COUNTED	136
1956																			
DEC 17	0	0	257										0		257	AERIAL	Y	ADULTS & SUBADULTS COMBINED	58
1957																			
JAN 24	0	0	202										0		202	AERIAL	Y	ADULT= OLDER THAN PUP Time of count = 1515-1545	123
APR 15	0	0	146										15		161	AERIAL	Y	ADULT= OLDER THAN PUP Time of count = 1550-1625 NURSING PUPS: M=0 , F= 0 , U= 15	123
APR 15													33		33	AERIAL	N	ONLY NURSING PUPS THIS NUMBER NOT IN REF 123 NURSING PUPS: M=0 , F= 0 , U= 33	58
MAY 14	0	0	153										29		182	AERIAL	Y	ADULT= OLDER THAN PUP Time of count = 1520-1610 NURSING PUPS: M=0 , F= 0 , U= 29	123
OCT 14	0	0	286										0		286	AERIAL	Y	NO PUPS ADULT= OLDER THAN PUP Time of count = 1410-1515	123
DEC 18	0	0	207										0		207	AERIAL	Y	NO PUPS ADULT= OLDER THAN PUP Time of count = 1410-1445	123
1958																			
JAN 24	0	0	273										0		273	AERIAL	Y	ADULT= OLDER THAN PUP Time of count = 1350-1425	123
APR 14	0	0	192										9		201	AERIAL	Y	ADULT= OLDER THAN PUP Time of count = 1105-1130 NURSING PUPS: M=0 , F= 0 , U= 9	123
SPRING	0	0	286										52		338	AERIAL	Y	HIGH COUNT, FALL'57(286) + PUPS, SPRING'58 ADULTS AND SUBADULTS COMBINED NURSING PUPS: M=0 , F= 0 , U= 52	122

Appendix L.--Continued.

PEARL AND HERMES
Whole atoll
1958

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
MAY 2	0	0	186										28		214	AERIAL	Y	ADULT= OLDER THAN PUP NUMBER OF PUPS FOR MAY, REF 123 = 37 NUMBER OF PUPS FOR MAY, REF 122 = 28 Time of count = 1400-1425 NURSING PUPS: M=0 , F= 0 , U= 28	123 123 122
JUN 16	0	0	172										15		187	AERIAL	Y	ADULT= OLDER THAN PUP Time of count = 1415-1510 NURSING PUPS: M=0 , F= 0 , U= 15	123
1963																			
MAR													0	201	201	GROUND	Y	NO PUPS	151
1964																			
MAR	28	19	15	27	15	17							0		121	GROUND	Y	NO PUPS	2
AUG													2	123	125	GROUND	Y		4, 151
1965																			
MAR													2	173	175	GROUND	Y		4, 151
MAR													30	230	260	GROUND	N	NOT EXACT COUNT ESTIMATE BY WIRTZ; LOCATION UNCLEAR	71
1968																			
MAR														99	99	GROUND	N	NOT ALL ISLANDS CENSUSED GRASS,SEAL,KITTERY & SOUTHEAST CENSUSED	79, 64
1969																			
SEP	23	19	48	2	5	9							13		119	GROUND	N	NO SAND I. 27 SUBADULT= "SUBADULT OR YEARLING" NURSING PUPS: M=4 , F= 3 , U= 6	
1970																			
APR 13	8	11	91	0	0	8							4		122	GROUND	Y	Keywords = TAGGING,MOVEMENTS	104
DEC 14	5	11	49	4	4	7									80	HELICOP	Y	NO PUPS OF YR OBSERVED Keywords = TAGGING,MOVEMENTS	88
1971																			
JUL 15	15	28	54	2	2	0							5		106	GROUND/ AERIAL	Y	NURSING PUPS: M=2 , F= 2 , U= 1 Keywords = TAGGING,MOVEMENTS	90
1972																			
MAR 13	8	35	10	5	2	0							1		61	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1	92
JUN 26														45	45	AERIAL	Y		93
SEP 6														38	38	HELICOP	Y	Keywords = TAGGING	91

Appendix L.--Continued.

PEARL AND HERMES
Whole atoll
1973

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1973																			
MAR 14	6	3	3										1	21	34	HELICOP	Y	Keywords = TAGGING	95
MAY 31	0	0	30										6		36	HELICOP	Y		94
1974																			
MAR 5														35	35	HELICOP	Y	Keywords = TAGGING	96
1975																			
MAY														18	18	UNKNOWN	N	UNKNOWN	140
1976																			
APR 5	11	8	1	2	1	1							2		26	GROUND	Y		30, 28
JUN 13	0	2	0										2		4	GROUND	N	ONLY ADULT FEMALES & NURSING PUPS NURSING PUPS: M=0 , F= 0 , U= 2	27
1977																			
APR 21	15	11	2	2	2	1	0	2	2				5		42	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 4 WEANED PUPS: M=0 , F= 0 , U= 1	40, 29
JUL 19	5	6	2	0	1	3	0	0	1				6	1	25	GROUND	N	SAND AND BIRD ISLAND NOT COUNTED WEANED PUPS: M=0 , F= 0 , U= 6	41
AUG 1	0	0	22	0	0	2									24	GROUND	N	SEAL-KITTERY,SAND,BIRD I. NOT COUNTED	41
1978																			
JUL 22	4	6	8	0	1	1	1	1	0				4		26	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1 WEANED PUPS: M=0 , F= 2 , U= 1	35
AUG 30	0	0	21	0	0	1							1		23	GROUND	Y	WEANED PUPS: M=0 , F= 0 , U= 1	44
1979																			
MAY 11	7	5	4	0	1	0	3	3	3				2		28	GROUND	Y	NURSING PUPS: M=1 , F= 0 , U= 1	119
1980																			
JUN 19	0	0	24				0	0	1				2		27	GROUND	N	BIRD,SAND I. NOT COUNTED "JUVENILE" CLASSED AS "IMMATURE" IN REPORT	45
NOV 19	10	5	5	1	1	1	1	0	0						24	GROUND	N	BIRD,SAND I. NOT COUNTED (AWASH?) JUVENILES AND PUPS COMBINED Keywords = MOLT,ENTANGLEMENT	60
1981																			
MAY 26	0	0	28	0	0	4	0	0	3				6		41	AERIAL	Y	USFWS COUNT FROM AERIAL PICTURES NURSING PUPS: M=0 , F= 0 , U= 6	120
MAY 26	0	0	28										4		32	AERIAL	N	SEE USFWS COUNTS NMFS SWFSC COUNTS FROM AERIAL PICTURES NURSING PUPS: M=0 , F= 0 , U= 4	120

Appendix L.--Continued.

PEARL AND HERMES
Whole atoll
1982

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1982																			
OCT 28	14	10	4	3	2	3	3	2	0				4		45	GROUND	Y	WEANED PUPS: M=1 , F= 2 , U= 1	16
**********																			
FOR islet = BIRD																			
1950																			
JUN 27																GROUND?	N	NO POPULATION ESTIMATE MADE SEALS PRESENT	47
1956																			
MAR 22	0	0	11												11	GROUND	Y		4
MAY 26	0	0	5												5	GROUND	Y		4
1963																			
MAR 5	2	0	0	1	0	0								10	13	GROUND	Y	Keywords = TAGGING	4
1964																			
MAR 14				0	1	2									3	GROUND	Y		2, 144
AUG 18	0	0	5												5	GROUND	Y		4
1965																			
MAR 22	4	1	0	2	1	0									8	GROUND	Y		71
1967																			
MAY 31	2	0	3	1	1	0									7	GROUND	Y		4
AUG 29	0	4	1										1		6	GROUND	Y		21
SEP 27														1	1	GROUND	Y		75
1969																			
SEP 11	2	0	1	0	1	0									4	GROUND	Y		85
1970																			
DEC 14	0	0	14												14	HELICOP	Y	Keywords = TAGGING,MOVEMENTS	88
1972																			
MAR 13	0	0	4												4	GROUND	Y		92
JUN 26														1	1	AERIAL	Y		93
1973																			
MAR 14														3	3	HELICOP	Y	Keywords = TAGGING	95
MAY 31	0	0	3										1		4	HELICOP	Y		94

Appendix L.--Continued.

PEARL AND HERMES
Bird Island
1974

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1974																			
MAR 5														4	4	HELICOP	Y		96
1976																			
APR 5															0	GROUND	Y	NO SEALS SEEN Time of count = 1400-1405	30, 28
1977																			
APR 21							0	1	0						1	GROUND	Y		40, 29
1978																			
AUG 25	0	0	1												1	GROUND	Y		44
1982																			
OCT 28	0	1	1	1	0	0	1	0	0				0		4	GROUND	Y	3 ISLETS Time of count = 1641-1700	16
**********																			
FOR islet = BIRD & PLANETREE																			
1981																			
MAY 26	0	0	7										2		9	AERIAL	Y	USFWS COUNT FROM AERIAL PICTURES NURSING PUPS: M=0 , F= 0 , U= 2	120
**********																			
FOR islet = BIRD, PLANETREE, & SAND																			
1969																			
FEB 10														20	20	HELICOP	Y	ALL 3 ISLETS COMBINED	82
MAY 26	0	0	7												7	HELICOP	Y	ALL 3 ISLETS COMBINED	84
1970																			
APR 13	0	0	12												12	GROUND	Y	"GRASS SANDSPITS" Keywords = TAGGING,MOVEMENTS	104
1971																			
JUL 15	0	0	5												5	AERIAL	Y	"SANDBARS"	90
**********																			
FOR islet = BIRD & SAND																			
1978																			
JUL 22															0	GROUND	Y	NO SEALS SEEN Time of count = 1200-1210	35
1979																			
MAY 10															0	GROUND	Y	"BARE & BIRD" NO SEALS SEEN Time of count = 1600-1615	118

Appendix L.--Continued.

PEARL AND HERMES
Grass Island
1950

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR islet = GRASS																			
1950																			
JUN 27																GROUND?	N	NO POPULATION ESTIMATE MADE SEALS PRESENT	4
1951																			
MAY																GROUND?	N	NO POPULATION ESTIMATE MADE "...SEALS WITH PUPS ON GRASS ISLAND..."	136
1956																			
MAR 22	0	0	18												18	GROUND?	Y		4
MAY 26	0	0	7												7	GROUND?	Y		4
1963																			
MAR 5	5	8	13	2	1	1							1	8	39	GROUND	Y	1 DEAD PUP INCLUDED IN COUNT	4
JUN 26														10	10	GROUND	N	NO EXACT COUNT 8-10 DAILY	6
1964																			
MAR 14	3	3	4	9	3	5									27	GROUND	Y		2, 144
AUG 18	0	0	20												20	GROUND	N	NO EXACT COUNT 20+ ADULTS	4
1965																			
MAR 19	0	0	29												29	GROUND	Y		150
MAR 22	7	8	4	2	4	2									27	GROUND	Y		71, 13
1966																			
SEP 21	3	1	3	0	1	3							1		12	GROUND	Y	NURSING PUPS: M=1 , F= 0 , U= 0 Keywords = TAGGING	73, 52
1967																			
MAR 17														19	19	GROUND	Y	COUNT INCLUDES BIRD, PLANETREE & SEAL I	78
MAR 22	0	0	9												9	GROUND	Y		4
MAY 31	4	4	4							0	0	1			13	GROUND	Y		4
AUG 29	8	7	1										3		19	GROUND	Y		21
SEP 28	1	7	1							0	0	1			10	GROUND	Y		75

Appendix L.--Continued.

PEARL AND HERMES
Grass Island
1968

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1968																			
MAR 24	6	6	0	1	1	0				1	0	0			15	GROUND	Y		4
1969																			
FEB 10	0	0	17	0	0	1									18	HELICOP	Y		82
MAY 26	0	2	5										1		8	HELICOP	Y	NURSING PUPS: M=0 , F= 1 , U= 0	84
SEP 11	3	2	6	0	1	0									12	GROUND	Y		85
1970																			
APR 13	1	0	11										1		13	GROUND	Y	Keywords = TAGGING,MOVEMENTS	104
DEC 14	0	0	10												10	HELICOP	Y	Keywords = TAGGING,MOVEMENTS	88
1971																			
JUL 15	0	0	9										1		10	AERIAL	Y	NURSING PUPS: M=0 , F= 0 , U= 1	90
1972																			
MAR 13	0	8	1												9	GROUND	Y		92
JUN 26														1	1	AERIAL	Y		93
1973																			
MAR 14	1	0	0												1	HELICOP	Y	Keywords = TAGGING	95
MAY 31	0	0	2										1		3	HELICOP	Y		94
1974																			
MAR 5														5	5	HELICOP	Y	Keywords = TAGGING	96
1976																			
APR 5	4	1	0												5	GROUND	Y	Time of count = 1145-1255	30, 28
1977																			
APR 21	4	2	0	0	1	0	0	1	0						8	GROUND	Y		40, 29
JUL 19	3	1	0				0	0	1					1	6	GROUND	Y		41
JUL 29	0	0	3												3	GROUND	Y		41
1978																			
JUL 22															0	GROUND	Y	NO SEALS SEEN Time of count = 1200-1210	35
AUG 25	0	0	4												4	GROUND	Y		44
1979																			
MAY 10	1	0	2												3	GROUND	Y	Time of count = 1035-1405	119

Appendix L.--Continued.

PEARL AND HERMES
Grass Island
1980

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1980																			
JUN 19	0	0	3												3	GROUND	Y	"JUVENILE" CLASSED AS "IMMATURE" IN REPORT	45
NOV 19	2	0	1												3	GROUND	Y	Time of count = 1000-1030	60
1981																			
MAY 26	0	0	2	0	0	1									3	AERIAL	Y	USFWS COUNTS FROM AERIAL PICTURES	120
MAY 26	0	0	3												3	AERIAL	Y	NMFS SWFSC COUNTS FROM AERIAL PICTURES	120
1982																			
OCT 28	9	0	1	0	1	1	0	0	0				1		13	GROUND	Y	ERROR IN REPORT: TOTAL IS 13, NOT 14 Time of count = 1250-1450 WEANED PUPS: M=1 , F= 0 , U= 0	16
**********																			
FOR islet = KITTERY																			
1956																			
MAR 22	0	0	30												30	GROUND?	Y		4
MAY 26	0	0	15										0		15	GROUND	Y	NO PUPS	4
1963																			
MAR 5	5	2	0	1	2	0								22	32	GROUND	Y	10 SEALS TAGGED Keywords = TAGGING	4
1964																			
MAR 14	11	9	5	4	4	5									38	GROUND	Y		2, 144
AUG 18	0	0	2												2	GROUND	Y		4
1965																			
MAR 18	0	0	22												22	GROUND	Y		150
MAR 22	15	10	1	2	5	2									35	GROUND	Y		71, 126
1966																			
SEP 21	9	3	4	2	1	2									21	GROUND	Y	Keywords = TAGGING,MOVEMENT	73, 126
1967																			
MAR 22	0	0	41	0	0	1				0	0	1			43	GROUND	Y		4
MAY 31	14	1	2							2	1	0			20	GROUND	Y		4
AUG 29	6	7	3										10		26	GROUND	Y		21
SEP 28	2	8	6	0	0	1				1	0	0			18	GROUND	Y		75
1968																			
MAR 24	16	4	1	5	2	0									28	GROUND	Y		4

Appendix L.--Continued.

PEARL AND HERMES
Kittery Island
1969

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1969																			
FEB 10	4	3	2										1		10	HELICOP	Y	NURSING PUPS: M=1 , F= 0 , U= 0	82
MAY 26	0	1	21										1		23	HELICOP	Y	NURSING PUPS: M=0 , F= 1 , U= 0	84
SEP 11	3	1	8	1	0	0									13	GROUND	Y		85
1970																			
APR 13	0	0	4	0	0	1									5	GROUND	Y	Keywords = TAGGING,MOVEMENTS	104
DEC 14	0	2	2												4	HELICOP	Y	Keywords = TAGGING,MOVEMENTS	88
1971																			
JUL 15	6	6	9												21	GROUND	Y	Keywords = TAGGING,MOVEMENTS	90
1972																			
MAR 13	0	2	1												3	GROUND	Y		92
JUN 26														4	4	AERIAL	Y		93
1973																			
MAR 14	3	2	3												8	HELICOP	Y	Keywords = TAGGING	95
MAY 31	0	0	7												7	HELICOP	Y		94
1974																			
MAR 5														7	7	HELICOP	Y	Keywords = TAGGING	96
**********																			
FOR islet = LITTLE NORTH																			
1963																			
JUN 3													13		13	GROUND	N	ONLY PUPS COUNTED	6
1964																			
AUG 19	0	0	28												28	GROUND	N	NO EXACT COUNT 25-28 ADULTS	4
SEP 17	0	3	6							0	1	6		3	19	GROUND	Y		70
1965																			
MAR 18	0	0	23										2		25	GROUND	Y		150
1966																			
SEP 22	3	3	1	1	0	1							2		11	GROUND	Y	NURSING PUPS: M=0 , F= 1 , U= 1	73, 52
1967																			
MAR 17														4	4	AERIAL	Y		4
AUG 29	0	0	12							0	0	4	4		20	GROUND	Y		21
SEP 27	3	11	6	2	1	1									24	GROUND	Y		75

Appendix L.--Continued.

PEARL AND HERMES
Little North Island
1969

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1969																			
FEB 10														29	29	HELICOP	Y		82
MAY 26	0	12	1										6		19	HELICOP	Y	NURSING PUPS: M=5 , F= 1 , U= 0	84
SEP 12	4	2	11										4		21	GROUND	Y	NURSING PUPS: M=0 , F= 1 , U= 3	85
1970																			
APR 13	1	0	11	0	0	1							1		14	GROUND	Y	Keywords = TAGGING,MOVEMENTS	104
DEC 14	0	0	5												5	HELICOP	Y	Keywords = TAGGING,MOVEMENTS	88
1971																			
JUL 15	0	0	14												14	AERIAL	Y		90
1972																			
MAR 13															0	GROUND	Y	NO SEALS SEEN	92
JUN 26														14	14	AERIAL	Y		93
1973																			
MAR 14														2	2	HELICOP	Y	Keywords = TAGGING	95
MAY 31	0	0	2												2	HELICOP	Y		94
1974																			
MAR 5															0	HELICOP	Y	NO SEALS SEEN	96
1976																			
APR 4	2	1	0												3	GROUND	Y	Time of count = 1155-1215	30, 28
1977																			
APR 22	1	1	0	0	1	0							1		4	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1	40, 29
JUL 20	0	2	0	0	1	0							1		4	GROUND	Y	WEANED PUPS: M=0 , F= 0 , U= 1	41
AUG 1	0	0	8	0	0	1									9	GROUND	Y		41
1978																			
JUL 21	0	0	1				1	0	0						2	GROUND	Y	Time of count = 1230-1255	35
AUG 30	0	0	3												3	GROUND	Y		44
1979																			
MAY 11	0	3	0				1	1	0				1		6	GROUND	Y	Time of count = 1130-1300 NURSING PUPS: M=0 , F= 0 , U= 1	119

Appendix L.--Continued.

PEARL AND HERMES
Little North Island
1980

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1980																			
JUN 18	0	0	4				0	0	1						5	GROUND	Y	"JUVENILE" CLASSED AS "IMMATURE" IN REPT	45
NOV 20	1	1	2				1	0	0						5	GROUND	Y	JUVENILES AND PUPS COMBINED Time of count = 0830-0845	60
1982																			
OCT 30	0	1	0	0	0	0	0	0	0				1		2	GROUND	Y	Time of count = 0950-1100 WEANED PUPS: M=0 , F= 1 , U= 0	16
**********																			
FOR islet = NORTH SANDSPIT																			
1970																			
DEC 14	1	2	2	2	1	4									12	HELICOP	Y	"NORTH SPITS" Keywords = TAGGING,MOVEMENTS	88
1980																			
JUN 18	0	0	2										2		4	GROUND	Y	"NORTH SPIT" "JUVENILE" CLASSED AS "IMMATURE" IN REPT	45
**********																			
FOR islet = NORTH																			
1913																			
MAR	0	15	0										15	20	50	GROUND	Y	A FEW MALES & SEVERAL HALFGROWN (WILLET) NURSING PUPS: M=0 , F= 0 , U= 15	8, 9
1949																			
MAY														100	100	AERIAL	Y	"...NEARLY 100. 20 NOTED IN A GROUP..."	9
1950																			
JUN 27																GROUND?	N	NO POPULATION ESTIMATE MADE SEALS PRESENT	4
1956																			
MAY 25	0	0	18										13		31	GROUND	Y	SEVERAL BORN PREVIOUS NIGHT	4
1963																			
MAR 6	1	1	0	0	2	0							1	22	27	GROUND	Y	1 DEAD PUP INCLUDED IN COUNT Keywords = TAGGING	4
JUN 23													15		15	GROUND	N	ONLY PUPS COUNTED 13-15 PUPS	4, 6
1964																			
AUG 19	0	0	20										2		22	GROUND	Y		4
SEP 17	1	3	10							6	4	9		3	36	GROUND	Y		70

Appendix L.--Continued.

PEARL AND HERMES
North Island
1965

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1965																			
MAR 17	0	0	52										1		53	GROUND	Y	ONE DEAD PUP INCLUDED IN COUNT	150
1966																			
SEP 22	2	5	5	1	5	1							7		26	GROUND	Y	NURSING PUPS: M=3 , F= 2 , U= 2	73, 52
1967																			
MAR 16	0	0	11	0	0	19									30	GROUND	Y		78, 4
AUG 29	0	0	15							0	0	6			21	GROUND	Y	ORIG.TOTAL=32; "15 LARGE, 6 SMALL (YRLG)?"	21, 4
SEP 27	6	9	6	0	0	1				2	3	1			28	GROUND	Y	ERROR: TOTAL ADDED UP INCORRECTLY IN PAPER	75
1969																			
FEB 10														44	44	HELICOP	Y	33 ON NORTH; 11 ON SANDSPITS	82
MAR 31	3	8	6	1	1	5							3		27	GROUND	Y	Keywords = TAGGING,METHODS ADDED 3 TAG RETURNS TO NUMBER OF SUBADULTS, SEX UNKNOWN	83
MAY 26	0	7	2	0	0	2							6		17	HELICOP	Y	NURSING PUPS: M=2 , F= 3 , U= 1 Keywords = TAGGING,METHODS	84
SEP 12	6	5	5	1	1	0							3		21	GROUND	Y	3 OF THE ADULTS (M= 0, F= 1, U= 2) ON SPITS NURSING PUPS: M=3 , F= 0 , U= 0	85
1970																			
APR 13	2	5	28	0	0	3							2		40	GROUND	Y	Keywords = TAGGING,MOVEMENTS	104
DEC 14	4	7	5	2	2	0									20	HELICOP	Y	Keywords = TAGGING,MOVEMENTS	88
1971																			
JUL 15	5	10	6	1	0	0							2		24	GROUND	Y	NURSING PUPS: M=1 , F= 1 , U= 0 Keywords = TAGGING,MOVEMENTS	90
1972																			
MAR 13	3	11	0	4	1	0									19	GROUND	Y	Keywords = TAGGING,MOVEMENTS	92
JUN 26														10	10	AERIAL	Y		93
1973																			
MAR 14													1	8	9	HELICOP	Y	Keywords = TAGGING	95
MAY 31	0	0	3										1		4	HELICOP	Y		94
1974																			
MAR 5														4	4	HELICOP	Y	Keywords = TAGGING	96

Appendix L.--Continued.

PEARL AND HERMES
North Island
1976

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1976																			
APR 4	3	1	0	1	0	1							1		7	GROUND	Y	Time of count = 1225-1330	30, 28
1977																			
APR 22	2	3	0	1	0	0	0	0	1				3		10	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 2 WEANED PUPS: M=0 , F= 0 , U= 1	40, 29
JUL 20	0	1	0	0	0	1									2	GROUND	Y		41
AUG 1	0	0	6												6	GROUND	Y		41
1978																			
JUL 21	0	0	1	0	0	1	0	1	0				2		5	GROUND	Y	Time of count = 1330-1400 WEANED PUPS: M=0 , F= 2 , U= 0	35
AUG 30	0	0	2												2	GROUND	Y		44
1979																			
MAY 11	1	0	0				1	1	0						3	GROUND	Y	Time of count = 1130-1300	119
1980																			
JUN 18	0	0	5												5	GROUND	Y	"JUVENILE" CLASSED AS "IMMATURE" IN REPORT	45
NOV 20	3	0	0	1	0	0									4	GROUND	Y	Time of count = 0900-1000	60
1982																			
OCT 30	2	1	0	2	0	0	1	1	0				1		8	GROUND	Y	Time of count = 1145-1325 WEANED PUPS: M=0 , F= 1 , U= 0	16
**********																			
FOR islet = NORTH & LITTLE NORTH																			
1981																			
MAY 26	0	0	12	0	0	2							3		17	AERIAL	Y	COMBINED NORTH & LITTLE NORTH USFWS COUNTS FROM AERIAL PICTURES NURSING PUPS: M=0 , F= 0 , U= 3	120
MAY 26	0	0	12										4		16	AERIAL	Y	COMBINED NORTH & LITTLE NORTH NMFS SWFSC COUNTS FROM AERIAL PICTURES NURSING PUPS: M=0 , F= 0 , U= 4	120
**********																			
FOR islet = PLANETREE																			
1964																			
MAR 14	4	1	1	1	0	0									7	GROUND	Y		2
AUG 18	0	0	3												3	GROUND	Y		4
1965																			
MAR 22	3	1	2	0	1	0									7	GROUND	Y		71, 13

Appendix L.--Continued.

PEARL AND HERMES
Planetree Island
1966

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1966																			
SEP 20														3	3	GROUND	Y		73, 52
1967																			
AUG 29	0	0	1												1	GROUND	Y		21
1978																			
JUL 22	0	0	1												1	GROUND	Y	Time of count = 1000-1130	35
**********																			
FOR islet = SAND																			
1950																			
JUN 27																GROUND?	N	NO POPULATION ESTIMATE MADE SEALS PRESENT	4
1956																			
MAR 22	0	0	6												6	GROUND	Y		4
1963																			
MAR 5	0	0	1											6	7	GROUND	Y		4
1964																			
MAR 14	1	1	0	3	0	2									7	GROUND	Y		2, 144
AUG 18	0	0	1												1	GROUND	Y		4
1965																			
MAR 22	3	1	0	0	2	0									6	GROUND	Y		71, 13
1966																			
SEP 20														1	1	GROUND	Y		73, 52
SEP 21	0	1	1	1	0	0									3	GROUND	Y		73, 52
1967																			
SEP 3														1	1	GROUND	Y		75
1978																			
AUG 25															0	GROUND	Y	NO SEALS SEEN; AWASH	44
1982																			
OCT 28	0	1	0	0	0	1	0	0	0				0		2	GROUND	Y	Time of count = 1625-1628	16

Appendix L.--Continued.

PEARL AND HERMES
Sand & Planetree Islands
1972

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
**********																			
FOR islet = SAND + PLANETREE																			
1972																			
MAR 13	0	0	2												2	GROUND	Y	"SANDBARS"	92
JUN 26														5	5	AERIAL	Y	"SANDSPITS"	93
1973																			
MAR 14														1	1	HELICOP	Y	"SANDSPITS" Keywords = TAGGING	95
MAY 31	0	0	4												4	HELICOP	Y	"SANDSPITS"	94
1974																			
MAR 5														4	4	HELICOP	Y	"SPITS"	96
1976																			
APR 5	0	1	0												1	GROUND	Y	"SANDSPITS" Time of count = 1330-1345	30, 28
1977																			
APR 21															0	GROUND	Y	"SANDSPITS" NO SEALS SEEN	40, 29
**********																			
FOR islet = SEAL																			
1956																			
MAR 24	0	0	12										4		16	GROUND	Y	1 DEAD PUP INCLUDED IN COUNT	4
MAY 26	0	0	20										15		35	GROUND	N	NOT EXACT COUNT	4
1963																			
MAR 5				0	2	0								17	19	GROUND	Y		4
JUN 26														25	25	GROUND	N	NOT EXACT NUMBER	6, 4
1964																			
MAR 14	4	1	3	4	5	0									17	GROUND	Y	Keywords = TAGGING,MOVEMENTS	2, 144
AUG 18	0	0	20												20	GROUND	N	NO EXACT NUMBER 15-20 ADULTS	4
1965																			
MAR 18	0	0	18										2		20	GROUND	Y	2 DEAD PUPS INCLUDED IN COUNT	150
MAR 22	0	2	0	3	2	0							2	1	10	GROUND	Y	2 DEAD PUPS INCLUDED IN TOTAL	71, 13
1966																			
SEP 21	1	0	2	1	0	0							5		9	GROUND	Y	ERROR IN TOTAL (8) IN REPORT KRIDLER COUNTED 2 MALE PUPS KENYON COUNTED 3 MALE PUPS NURSING PUPS: M=3 , F= 2 , U= 0	73, 52

Appendix L.--Continued.

PEARL AND HERMES
Seal Island
1967

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1967																			
MAR 22	0	0	3										1		4	GROUND	Y		78
MAY 31	2	7	2	0	1	0							6		18	GROUND	Y	NURSING PUPS: M=0 , F= 3 , U= 3 Keywords = TAGGING	4
AUG 29	3	1	0										3		7	GROUND	Y		21
SEP 28	3	3	3							0	0	6			15	GROUND	Y		75
1968																			
MAR 24	6	3	0	1	2	0				1	1	0	2		16	GROUND	Y	NURSING PUPS: M=0 , F= 2 , U= 0	4
1969																			
FEB 10	1	3	4	0	1	0									9	HELICOP	Y		82
MAY 26	0	7	1										2		10	HELICOP	Y	NURSING PUPS: M=1 , F= 1 , U= 0	84
SEP 11	1	4	4										3		12	GROUND	Y	NURSING PUPS: M=1 , F= 2 , U= 0	85
1970																			
APR 13	0	0	24												24	GROUND	Y	Keywords = TAGGING,MOVEMENTS	104
DEC 14	0	0	3												3	HELICOP	Y	Keywords = TAGGING,MOVEMENTS	88
1971																			
JUL 15	0	3	2										2		7	GROUND	Y	NURSING PUPS: M=1 , F= 1 , U= 0 Keywords = TAGGING,MOVEMENTS	90
1972																			
MAR 13	0	2	0										1		3	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1	92
JUN 26														1	1	AERIAL	Y		93
1973																			
MAR 14	2	1	0											1	4	HELICOP	Y	Keywords = TAGGING	95
MAY 31	0	0	3										2		5	HELICOP	Y		94
1974																			
MAR 5														3	3	HELICOP	Y	Keywords = TAGGING	96

****
FOR islet = SEAL-KITTERY

1976																			
APR 5	1	1	0										1		3	GROUND	Y	Time of count = 0940-1110	30, 28

Appendix L.--Continued.

PEARL AND HERMES
Seal-Kittery Island
1977

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1977																			
APR 21	5	3	2										1		11	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1	40, 29
JUL 19	1	2	1										3		7	GROUND	Y	WEANED PUPS: M=0 , F= 0 , U= 3	41
1978																			
JUL 22	3	4	1										1		9	GROUND	Y	Time of count = 1230-1300 NURSING PUPS: M=0 , F= 0 , U= 1	35
AUG 25	0	0	5												5	GROUND	Y		44
AUG 31	0	0	5										1		6	GROUND	Y	WEANED PUPS: M=0 , F= 0 , U= 1	44
1979																			
MAY 10	3	2	1										1		7	GROUND	Y	Time of count = 1230-1320 NURSING PUPS: M=1 , F= 0 , U= 0	119
1980																			
JUN 19	0	0	5												5	GROUND	Y	"JUVENILE" CLASSED AS "IMMATURE" IN REPORT	45
NOV 19	2	1	1	0	1	0									5	GROUND	Y	Time of count = 1115-1130	60
1981																			
MAY 26	0	0	3	0	0	1	0	0	1						5	AERIAL	Y	USFWS COUNTS FROM AERIAL PICTURES	120
MAY 26	0	0	5												5	AERIAL	Y	NMFS SWFSC COUNTS FROM AERIAL PICTURES	120
1982																			
OCT 28	2	3	1	0	0	1	0	1	0				0		8	GROUND	Y	Time of count = 0935-1200	16
**********																			
FOR islet = SOUTHEAST																			
1950																			
JUN 27																GROUND?	N	NO POPULATION ESTIMATE MADE SEALS PRESENT	4
1956																			
MAR 22	0	0	0												0	GROUND	Y	NO ADULTS SEEN	4
MAY 26	0	0	20										0		20	GROUND	Y		4
1961																			
MAR 12														12	12	GROUND	Y	NO PUPS SEEN	154
1963																			
FEB 26	12	18	2							14	12	0			58	GROUND	N	ONLY SEALS TAGGED OVER 12 DAYS COUNTED Keywords = TAGGING	4
JUN 18														12	12	GROUND	Y		6, 4

Appendix L.--Continued.

PEARL AND HERMES
Southeast Island
1964

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1964																			
MAR 13	5	4	2	6	2	3									22	GROUND	Y		2, 144
AUG 16	0	0	15												15	GROUND	Y		4
SEP 16	8	6	2							11	4	1		1	33	GROUND	Y	Keywords = TAGGING,BEHAVIOR	70
1965																			
MAR 21	10	14	0	5	13	2							1		45	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 1	71, 13
MAR 15	0	0	31												31	GROUND	Y	ADULTS= OLDER THAN PUPS	150
1966																			
APR 1	2	2	0	3	8	3									18	GROUND	Y	1 DEAD SUBADULT (UNKNOWN) INCLUDED IN COUNT	72
SEP 20	2	4	2	1	5	8							5		27	GROUND	Y	NURSING PUPS: M=2 , F= 1 , U= 2	73, 52
SEP 20														27	27	GROUND	Y	SEALS DISTURBED BY TAGGING Time of count = 1030-1140 Keywords = BEHAVIOR,HUMAN INTERACTION	53
SEP 24														18	18	GROUND	Y	SEALS DISTURBED BY TAGGING Time of count = 1500-1600 Keywords = BEHAVIOR,HUMAN INTERACTION	53
SEP 24														17	17	GROUND	Y	SEALS NOT DISTURBED Time of count = 1920-2005 Keywords = BEHAVIOR,HUMAN INTERACTION	53
SEP 25														13	13	GROUND	Y	SEALS NOT DISTURBED Time of count = 0600-0705 Keywords = BEHAVIOR,HUMAN INTERACTION	53
SEP 25														19	19	GROUND	Y	SEALS DISTURBED BY TAGGING Time of count = 1545-1630 Keywords = BEHAVIOR,HUMAN INTERACTION	53
SEP 26														9	9	GROUND	Y	SEALS DISTURBED BY TAGGING Time of count = 0000-0200 Keywords = BEHAVIOR,HUMAN INTERACTION	53
SEP 26														9	9	GROUND	Y	SEALS NOT DISTURBED Time of count = 0600-0645 Keywords = BEHAVIOR,HUMAN INTERACTION	53
SEP 26														6	6	GROUND	Y	SEALS DISTURBED BY TAGGING Time of count = 0930-0945 Keywords = BEHAVIOR,HUMAN INTERACTION	53
SEP 26														6	6	GROUND	Y	SEALS DISTURBED BY TAGGING Time of count = 1400-1445 Keywords = BEHAVIOR,HUMAN INTERACTION	53
SEP 26														10	10	GROUND	Y	SEALS DISTURBED BY TAGGING Time of count = 1500-1600 Keywords = BEHAVIOR,HUMAN INTERACTION	53

Appendix L.--Continued.

PEARL AND HERMES
Southeast Island
1967

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1967																			
MAR 17	0	0	8	0	0	6									14	GROUND	Y	1 DEAD SUBADULT INCLUDED IN COUNT	59, 4
MAR 21	0	0	15	0	0	1				0	0	8			24	GROUND	Y		4
MAY 28	3	7	3							1	2	4	1		21	GROUND	Y	NURSING PUPS: M=0 , F= 1 , U= 0	4
AUG 28	0	0	12							0	0	3			15	GROUND	Y		21
SEP 27	3	3	4							0	1	0			11	GROUND	Y		75
1968																			
MAR 22	11	7	1	6	5	0				4	3	0			37	GROUND	Y		4
1969																			
FEB 10	5	8	2	0	0	3								5	23	HELICOP	Y		82
MAR 31	6	4	7	3	9	8									37	GROUND	Y	2 DEAD ADULTS (UNKNOWN) INCLUDED IN COUNT Keywords = TAGGING,MOVEMENTS	83
MAY 26	3	5	5	0	0	2							1		16	HELICOP	Y	NURSING PUPS: M=0 , F= 1 , U= 0	84
SEP 10	4	5	9	0	2	8							3		31	GROUND	Y	NURSING PUPS: M=0 , F= 0 , U= 3	85
1970																			
APR 13	4	6	1	0	0	3									14	GROUND	Y	Keywords = TAGGING,MOVEMENTS	104
DEC 14	0	0	8	0	1	3									12	HELICOP	Y	Keywords = TAGGING,MOVEMENTS	88
1971																			
JUL 15	4	9	9	1	2	0									25	GROUND	Y	Keywords = TAGGING,MOVEMENTS	90
1972																			
MAR 13	5	12	2	1	1	0									21	GROUND	Y	Keywords = TAGGING,MOVEMENTS	92
JUN 26														7	7	AERIAL	Y		93
1973																			
MAR 14														6	6	HELICOP	Y	Keywords = TAGGING	95
MAY 31	0	0	5										1		6	HELICOP	Y		94
1974																			
MAR 5														8	8	HELICOP	Y	Keywords = TAGGING	96
1976																			
APR 5	1	3	1	1	1	0									7	GROUND	Y	Time of count = 1730-1830	30, 28
1977																			
APR 21	3	2	0	1	0	1	0	0	1						8	GROUND	Y		40, 29
JUL 19	1	0	1	0	0	2									4	GROUND	Y		41
JUL 29															0	GROUND	Y	NO SEALS SEEN	41
AUG 1	0	0	4	0	0	1									5	GROUND	Y		41

Appendix L.--Continued.

PEARL AND HERMES
Southeast Island
1978

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1978																			
JUL 21	1	2	4	0	1	0							1		9	GROUND	Y	Time of count = 1530-1630	35
																		WEANED PUPS: M=0 , F= 0 , U= 1	
JUL 24														12	12	GROUND	Y	Time of count = 0925-1210	35
AUG 25	0	0	6	0	0	1									7	GROUND	Y	Time of count = 1500	44
AUG 26	0	0	2												2	GROUND	Y	Time of count = 0800	44
AUG 30	0	0	3												3	GROUND	Y	Time of count = 0900	44
1979																			
MAY 10	1	0	0	0	1	0	0	2	1						5	GROUND	Y	Time of count = 1630-1700	119
MAY 11	2	0	1	0	1	0	1	1	3						9	GROUND	Y	Time of count = 1515-1545	119
1980																			
JUN 17	0	0	5												5	GROUND	Y	"JUVENILE" CLASSED AS "IMMATURE" IN REPORT	45
NOV 19	2	3	1	0	0	1									7	GROUND	Y	Time of count = 1320-1530	60
1981																			
MAY 26	0	0	4				0	0	2				1		7	AERIAL	Y	USFWS COUNTS FROM AERIAL PICTURES	120
																		NURSING PUPS: M=0 , F= 0 , U= 1	
MAY 26	0	0	8												8	AERIAL	Y	NMFS COUNTS FROM AERIAL PICTURES	120
1982																			
OCT 27	0	3	0	0	1	0	0	0	0				0		4	GROUND	Y	Time of count = 1400-1630	16
OCT 28	1	3	1	0	1	0	1	0	0				1		8	GROUND	Y	Time of count = 1740-1855	16
																		WEANED PUPS: M=0 , F= 0 , U= 1	
OCT 29	0	5	0	0	0	0	0	0	0				0		5	GROUND	Y	Time of count = 1245-1455	16
OCT 29	0	5	0	0	0	0	0	0	0				0		5	GROUND	Y	Time of count = 1620-1720	16
OCT 30	0	2	1	0	0	0	1	0	0				0		4	GROUND	Y	Time of count = 1705-1810	16
OCT 31	0	3	0	0	0	0	0	0	0				0		3	GROUND	Y	Time of count = 1145-1230	16
**********																			
FOR islet = WRECK																			
1968																			
SEP 11	0	0	4	0	0	1									5	BOAT?	Y		85
1971																			
JUL 15															0	AERIAL	Y	NO SEALS SEEN	80

Appendix L.--Continued.

PEARL AND HERMES
Wreck Island
1972

Date	ADULT M	ADULT F	ADULT U	SUBADULT M	SUBADULT F	SUBADULT U	JUVENILE M	JUVENILE F	JUVENILE U	YEARLING M	YEARLING F	YEARLING U	PUP	UNCL	TOTAL	Method	Full count?	Comments	Ref No.
1972																			
MAR 13															0	GROUND	Y	NO SEALS SEEN	92
JUN 26														2	2	AERIAL	Y		93
1973																			
MAY 31	0	0	1												1	HELICOP	Y		94
1974																			
MAR 5															0	HELICOP	Y	NO SEALS SEEN	96
1977																			
JUL 20													2		2	GROUND	Y	WEANED PUPS: M=0 , F= 0 , U= 2	41
AUG 1	0	0	1												1	GROUND	Y		41

Appendix M.--Explanation of abbreviations and terms used in Appendixes B-L.

Abbreviation/Term	Explanation
ADULT	see text for description
AERIAL	aerial survey
APPROX	approximately
BINOCS	binocular survey from adjacent island
BOAT	survey from offshore vessel
DATE	date of count
DIFF	different
DIVING	survey while scuba diving
F	female
FULL COUNT?	extent of count: Y if full count, N if incomplete
GROUND	ground survey
HELICOP	helicopter survey
I.	Island
INCL.	including
JUV	juvenile
JUVENILE	see text for description
L.	Little
M	male
METHOD	method of count
NMFS	National Marine Fisheries Service
NURS.	nursing
OBSER.	observation
PUP	see text for description
REF	reference
REF NO.	reference number to source listed in Appendix A.
REPT	report
SIZE/SEX	size and sex classes
SUBAD	subadult
SUBADULT	see text for description
SWFSC	Southwest Fisheries Science Center
TOTAL	total number seals
U	unknown sex
UNCL	unclassified seals
UNKNOWN	method was unknown
USFWS	U.S. Fish and Wildlife Service
W/	with
YRLG	yearling
YEARLING	see text for description
/	combination of methods
?	method was probably used but was not explicitly stated in the report

Appendix N.--List of keywords included in Comments section of Appendixes B-L.

KEYWORDS
age/ age determination
anatomy
behavior
bibliography
blood chemistry
body growth/size
breeding
captive animals
distribution
diving
ecosystem/environment
evolution
feeding/food
fishery interaction
habitat
hair/skin
head start
history (i.e., history of location or island)
human interaction
injuries
life history
management/conservation
methods
movements
mortality/survival
parasitology
pathology
physiology
population dynamics
predators
reproduction
rehabilitation
tagging

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(August, 1991)

165 Status of Pacific oceanic fishery resources of interest to the USA for 1991.
STAFF OF THE SOUTHWEST FISHERIES SCIENCE CENTER
(September, 1991)

166 Methods used to identify pelagic juvenile rockfish (Genus *Sebastes*) occurring along the coast of central California.
EDITED BY T.E. LAIDIG and P.B. ADAMS
(November, 1991)

167 Spatial and temporal variability in growth of widow rockfish (*Sebastes entomelas*)
D.E. PEARSON and J.E. HIGHTOWER
(December, 1991)

168 Documentation of three computer programs used to assess daily age from the hard structures of animals.
T.E. LAIDIG and D.E. PEARSON
(June, 1992)

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P.S. HILL and J. BARLOW
(July, 1992)

170 A program for the Microsoft Windows environment to collect analog-to-digital and serial communication data on a personal computer based system.
R.C. HOLLAND
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