CAPE PEIRCE WALRUS AND MARINE MAMMAL CENSUSING REPORT 1986 TOGIAK NATIONAL WILDLIFE REFUGE DILLINGHAM, ALASKA

By

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The purpose of this report is to document the field data collected at the Cape Peirce field camp during the 1986 season. This paper also references some of the data collected during the 1985 season.

Key words: Cape Peirce, Eschrichtius robustus, Eumetopias jubatus, Odobenus rosmarus, marine mammals, Odobenus rosmarus, Phoca vitulina, Phoca largher, walrus.

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INTRODUCTION

Walrus (Odobenus rosmarus (L.)) are often associated with the pack-ice of the holarctic region. During the ice free months, however, adult males will gather in large herds and often utilize terrestrial areas as hauling grounds (Tomlin and Kibal'chich 1975). Different from other pinnipeds, walrus haul-out timing and behavior may be related to the need of high epidermal temperatures during moult (Fay and Ray 1968, Miller 1976). Conservation of energy and body thermoregulation could be determinant factors for this haul-out behavior (Salter 1980). Haul-out sites usually offer protection from the high winds and extreme weather conditions of this region. Little is known as to why sites are chosen, and abandonment of haul-out sites has mainly been attributed to continual disturbances.

Walrus have only recently begun to recolonize previously abandoned hauling grounds along the Alaskan coast (Lowry 1985). The Round Island Sanctuary, located in north Bristol Bay, Alaska (56 02' N 160 50' W) has been the main terrestrial haulout ground used by walrus in this region (Fig. 1). The Cape Peirce site (58 35' N, 161 45' W) began to be used during the summer of 1983 (D. Fisher unpubl. data) and haulout activity has increased each year from approximately 5000 animals in 1983 to 8600 in 1984 with 12,000 utilizing this area in 1985 and 11,500 in 1986 (Mazzone 1985, unpubl. data). Earlier studies conducted

in the Cape Peirce area only mention sightings of walrus with no data indicating utilization of the hauling grounds (Dick and Dick 1971, unpubl. data; Johnson 1979, unpubl. data).

From 1 June 1985 to 1 October 1985 and from 15 May 1986 to 15 October 1986, the social behavior and population fluctuation of the walrus herd utilizing the Cape Peirce hauling grounds was monitored and recorded. Specific objectives were to collect data on population size and distribution and to record identifiable animals.

METHODS

Data were gathered from four haul-out sites at Cape Peirce. These sites were designated as beach area No.1 (Maggy beach), No.2 (Parlier), No.3 (Firebough), and No.4 (Odobenus Cove) (Fig. 2). Sites were visited daily, between 0900 hours and 1030 hours and between 1600 hours and 1800 hours. Counts were made of all animals in the water and on the beach during these periods. Discrepancies to this schedule were caused by the adverse weather conditions encountered at the Cape or personnel absent from the area do to involvement in other work. Data collected were date, time, tide, weather, classification of age groups, number of tagged animals, feeding behavior and sightings of other marine mammals. Also recorded were observations of any disturbances to the walruses, (i.e. powerboats, aircraft, storms or human contact).

Observation periods lasted 2.5 to 3 hours per sitting.

Sitings were made with 8X24 binoculars and a 600mm spotting scope from approximately 100m distance. Closer observations were made on a regular basis, many times from as close as 5m. Some tagging was attempted during the 1985 and 1986 seasons.

Age classification was based on tusk size and length, and on body size (Loughry 1959, Fay 1982). Categories were: subadults (tusk length 5-15cm), adults (tusk length 20-55cm), and aged adults (tusks missing or over 60cm long).

A time lapse camera was used during the 1986 season. This included an 8mm movie camera with an XL601 intervalometer set to record use of two separate haulout beaches. Parlier was photographed first, begining on 27 June 1986, as this was the original site for haulout activity during the 1986 season. When this site was abandoned and the walrus began hauling out on Maggy beach, the camera was moved to cover the Maggy beach site. The camera was set to take one frame every 15 minutes, continuously for 40 days. As of this date, the results of this photo-study have not been determined.

RESULTS

During the period of this study, walrus utilization of the Cape Peirce hauling grounds showed remarkably synchronous haulout patterns (Fig. 3). The mean haulout time was 2.54 days, with feeding and travel time averaging eight and one half days. This was determined on eleven haulout peaks over a 104 day activity period. The movement of walruses to and from their feeding

grounds changed from a south easterly direction during the first three weeks to a direct westward movement during the remainder of the season. The distance to the feeding grounds was not determined, however, it could have extended the with of the Bering sea shelf which extends approximately 130 km off shore with an average depth of 100 meters. Walrus are known to feed in waters with a depth of 10 to 80 meters (Fay 1982).

Haulout beaches used were west facing with only one, Maggy beach, sufficiently high to provide protection from high tides and wave action (Fig. 2). This site proved to be a preferred haulout during 1984 and 1985, however, during the 1986 season the walrus herd utilized the Parlier beach then began using the Maggy beach site on 17 June 1986. The reason for this change is not known, although once walrus numbers became large enough to cause considerable inconvenience to the animals using the smaller beach, they moved to the larger Maggy beach location.

Activity was first observed during the 1986 season on 26 June with the arrival of 30 animals. This increased to 2575 walrus by 29 June. Peaks and lows in the population were observed to be quite random until mid-July with the arrival of approximately 5000 more walrus to the Cape Peirce area. The population counts then took on a synchronous pattern of peaks and lows until the end of the season in mid-October. The highest number of walrus to utilize the hauling grounds was 11,600 on 31 August (Fig. 3). This compares favorably with the 1985 season where 12,500 were recorded on 27 July. In 1985, there were

also eleven peak periods for haulout activity and although the activity patterns started earlier, they still exhibit remarkable synchrony with the 1986 recordings (Fig. 4).

Interactions observed during haulout periods involved olfactory-tactual investigations, naso-nasal greetings, visual tusk threats, striking and flippering. Younger animals were usually displaced from their resting sites by older, larger animals and were observed more on the periphery of the herd. Exceptions to this were some younger animals who appeared to show a bond relationship with older animals. Interactions between the walrus were directly correlated to tusk and body size with body size appearing to be the determining factor (i.e. on several occasions large bulls with one or both tusks missing were observed to displace younger bulls with large prominent tusks).

Sightings of animals tagged previously at Round Island between 1980 and 1984 were recorded during the 1985 and 1986 seasons. The tags were made of colored epoxy with some of the tags having metal bands visible around the tusks (DeMaster 1981). Photographs were taken of the marked animals and a record kept on their occurrence.

Some walruses were tagged with yellow alfex cattle tags attached to surgical tubing and affixed to the walruses tusk. During the 1985 tagging effort, 18 animals were marked during a two week period and twelve animals re-observed (Mazzone 1985, unpubl. data). One walrus was observed 28 days after being tagged using this method. In 1986, eleven animals were tagged

during a four week period. With one walrus re-observed 5 days later. The results of these tagging efforts are to small to be of any significance; however, tagging technique was noted and with a few minor alterations a large number of walruses could be tagged efficiently and cheaply.

In 1985, Subadults made-up of 21% of the population; adults 64% and aged-adults constituted 15% of the population (Fig. 5). Distributions were recorded during the 1986 season but subadult and aged-adult numbers were considerably lower (8% and 5% respectively), with adults compromising 87% of the herd, this is attributed primarily to observer bias. With a system of rotating personnel from other field camps to the Cape Peirce site, not all observers were trained to differentiate walrus activity or appearance.

By mid-September large numbers of old, mature bulls began to disappear or leave from the Cape Peirce herd. Although they did not return to the Cape Peirce hauling grounds, it is not known whether they moved up the coast to a different haulout site or north to meet returning female herds.

The overall health of the walruses using the Cape Peirce site appeared to be very good. Upon arrival at the hauling grounds in the spring the walruses looked thin and emaciated. They where relatively inactive and spent most of their time sleeping or resting on the beach. However, by early August the animals had increased substantially in body weight and vigor, and a healthy pelage was observed on all walruses in the area. No

signs of disease or deformities other than Pneumonia-pneumonitis were observed during the two year period. Pneumonia-pneumonitis is an inflammation of the respiratory tract, indicated by heavy coughing and a yellowish mucous discharge from the external nares (Fay 1982). Approximately one third of the population showed varying degrees of pneumonia, however, only one observed death in two years was attributed to this health problem.

On observations of approximately 12,000 individuals over a two year period, no occurrence of supernumerary or anomalous tusks were recorded. Fay (1982) suggests that only about 1% of the walrus population would be inflicted with this deformity. Loss of tusks in all age groups was observed with many of the older animals showing abscess or decay in their broken tusks.

DISCUSSION

Walrus use of the Cape Peirce hauling grounds during this two year study was characterized by a synchronous population fluctuation during the summer haulout period. The correlation between these peak periods and those observed at the Round Island hauling grounds suggests a movement pattern between the two areas, and also suggests a conservative population estimate of around 12,000 animals utilizing the north Bristol Bay area (Fig. 4).

It is my hypothesis that walrus start using the Round Island hauling grounds early in the season and then move to the Cape Peirce site as the food source is depleted in that area.

Overpopulation of the walrus herd using the Bristol Bay region has been suggested (Lowry 1985), with walrus population levels in the last few years reaching an all time high of around 225,000 animals in the Bering-Chukchi Seas, this figure was taken from the joint U.S and U.S.S.R survey conducted in September of 1985. This could be a major factor relating to the reestablishment of historical hauling grounds and the expansion of the feeding areas used by Bristol bay herds.

During the 1986 season, approximately 700 walrus were observed hauling out on a stretch of beach on the south side of Cape Newenham. This site was not previously recorded as being used, however, it was used extensively during the 1986 season (Fig. 1).

CONCLUSION

Collection of data and marking with a permanent tag for individual identification could easily be continued at the Cape Peirce hauling grounds. Freeze branding with copper irons and liquid nitrogen could be a possible option for a permanent marking system. This method has proven to be efficient, cheap and easily applied on many types of animals (Farrell 1966). With easy access to this large number of walrus and with staffing of the Cape Peirce camp through-out the ice free period. It would seem a waste not to utilize the availability and opportunity provided here for furthuring the study of these unique marine mammals.

Little is actually known of this strange and unique mammal inhabiting the holarctic oceans. But in the future, oil, mineral, fisheries and recreational utilization of this region will require that we know as much as we can about their place in this remote yet productive ecosystem.

Other Marine Mammal Data

Gray whales (Eschrichtius robustus) were observed near Cape Peirce beginning in May, with regular sightings until 24 June 1986. The high movement period for sightings was from mid-May to mid-June, when a total of 106 whales were observed. Of this 106, eleven were cow/calf pairs. All whales observed were moving in a northerly direction along the coast. Several groups stayed over for a day or two in the calmer waters just off shore to feed before continuing on north. One stranding was recorded during the 1986 season, this was a young gray whale found on the south shore in early June.

A small herd of Sea Lions (Eumetopias jubatus) were observed in the area during both the 1985 and 1986 season. A rookery exists along the southern shore of Cape Neuenham, However, only occasional sightings of sea lions have been made around the Cape area, and these generally have preceded the walrus herd arrival.

Both species of harbor seals (Phoca vitulina and Phoca largher) are represented in the Nanvak Bay area. The local population consists of approximately 40 animals in early spring

to around 400 by mid-August. Johnson (1979) indicated a population of just under 3100 seals inhabiting the Nanvak Bay area. The high for the four year period from 1983 until 1986 indicates a maximum population of around 550 seals (Fig. 6). The reason for this decline is not known, although commercial fishing in the area could be a factor.

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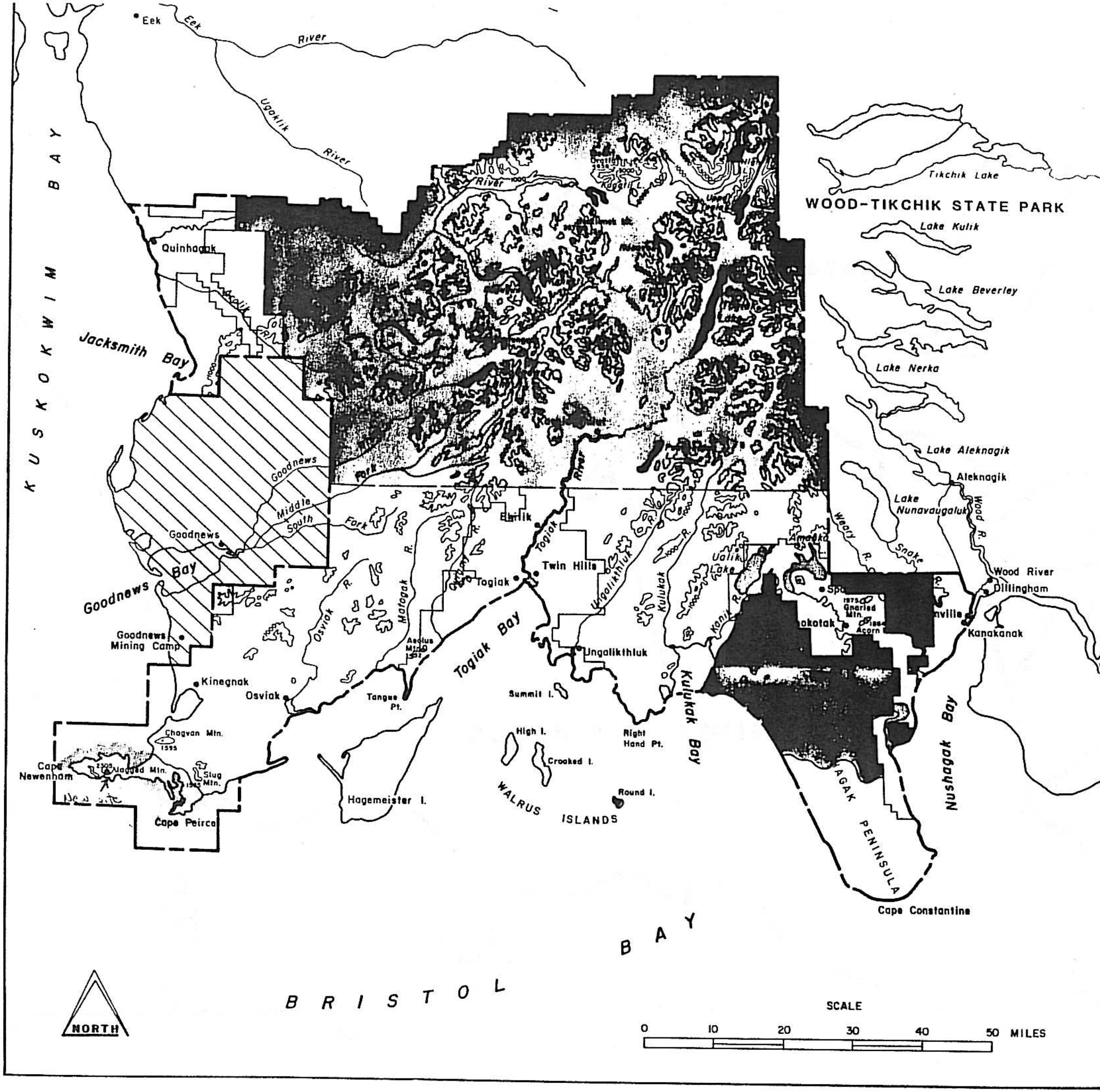
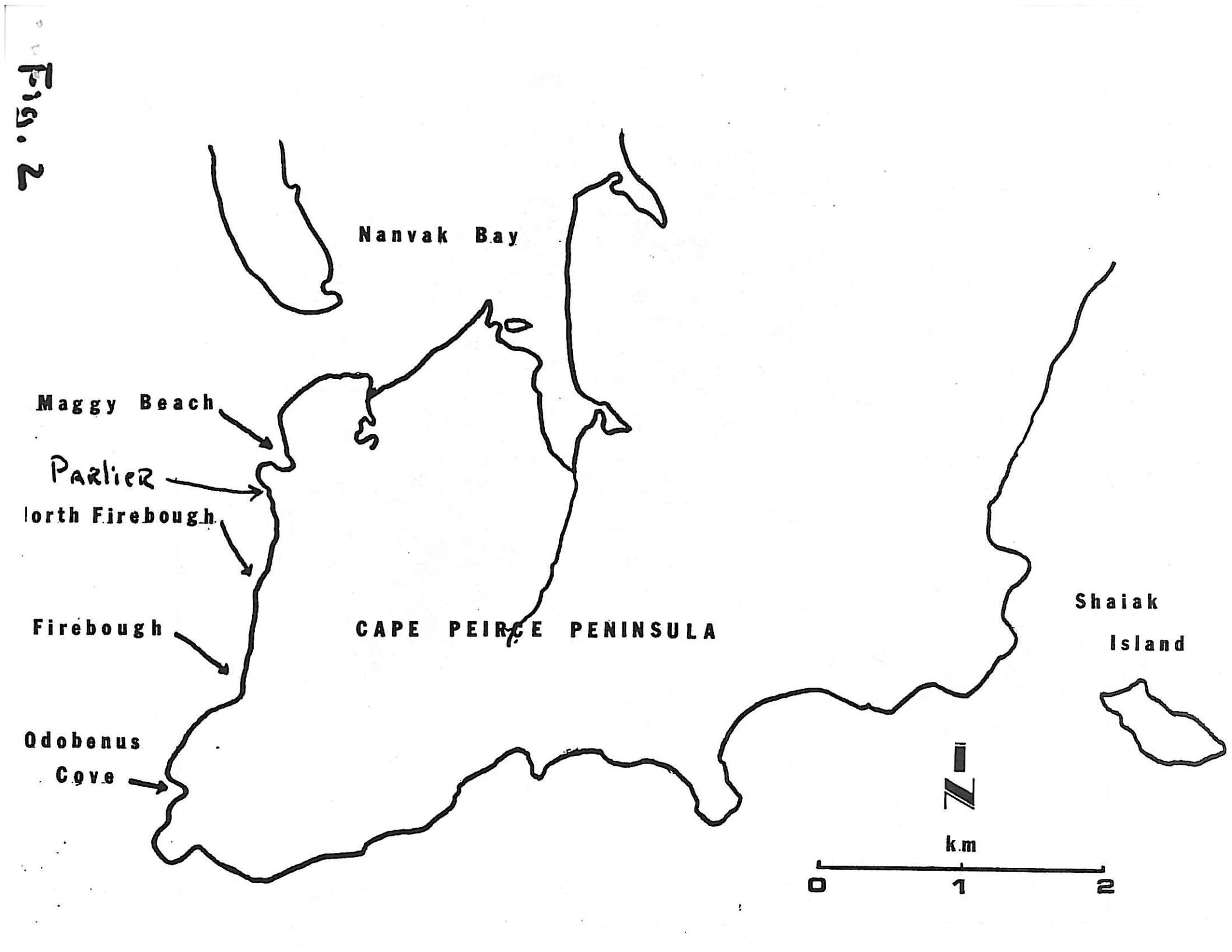
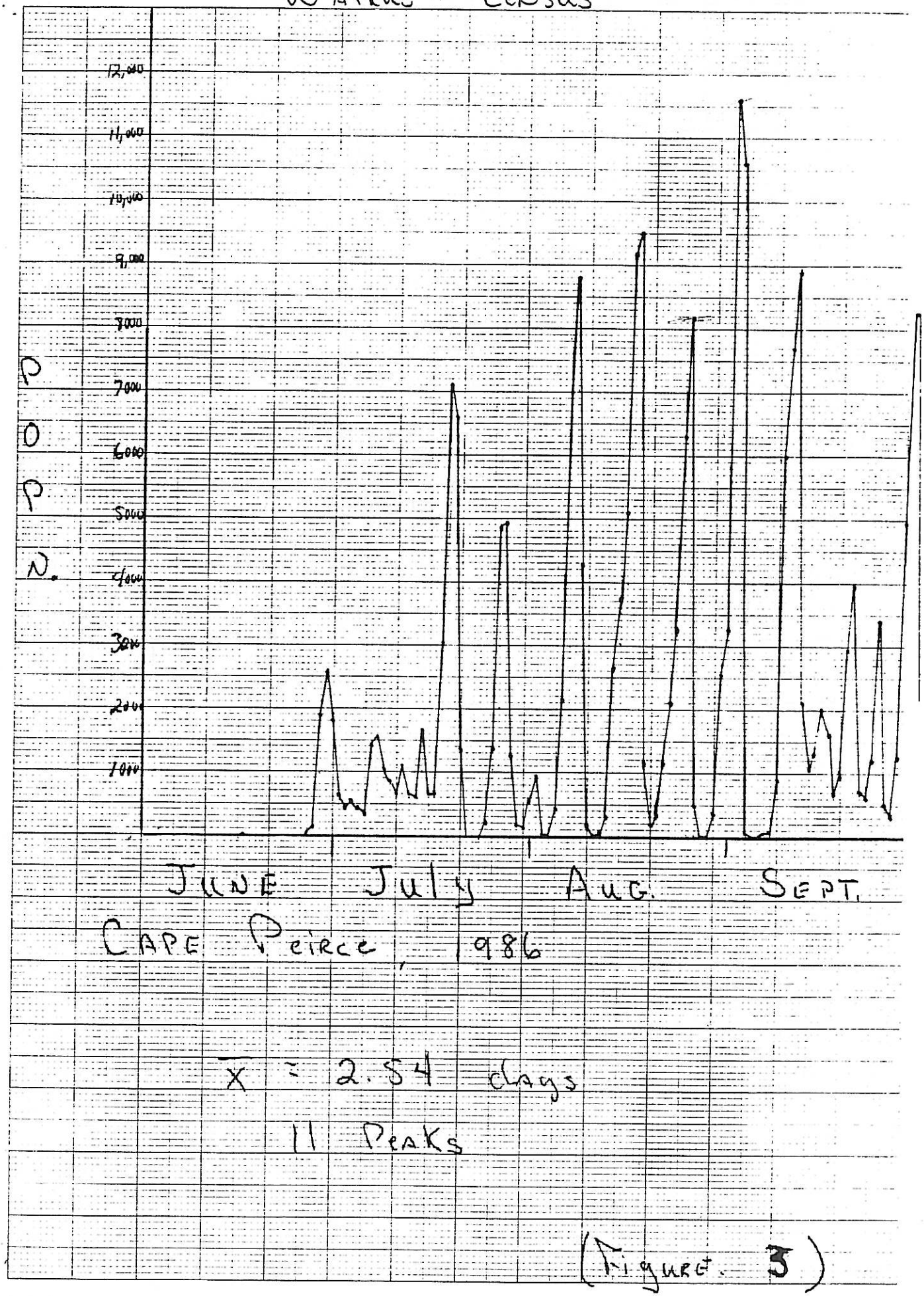

Eek
Eek
River
Ugokhlik
River
KUSKOKWIM BAY
Quinhagak
Jacksmith Bay
Goodnews
Middle
South
Fork
Goodnews
Goodnews Bay
Goodnews Mining Camp
Kinegnak
Osviak
Chagvan Mtn.
Cape Newenham
Jagged Mtn.
Slug Mtn.
Cape Peirce
Hagemeister I.
Tongue Pt.
Aeolus Mtn.
Togiak Bay
Togiak
Twin Hills
Togiak River
Osviak R.
Matogak R.
Ungalikthluk
Ungalikthluk
Kulukak
Kulukak Bay
Summit I.
High I.
Crooked I.
Round I.
Right Hand Pt.
WALRUS ISLANDS
Ualik Lake
Weary R.
Snake
Gnarled Mtn.
Acorn
Kanakanak
Dillingham
Wood River
Aleknagik
Lake Aleknagik
Lake Nunavaugaluk
Wood R.
Nushagak Bay
PENINSULA
Cape Constantine
WOOD-TIKCHIK STATE PARK
Tikchik Lake
Lake Kulik
Lake Beverley
Lake Nerka
BRISTOL BAY
SCALE
0 10 20 30 40 50 MILES
NORTH

Fig. 1

Fig. 2


Nanvak Bay
Maggy Beach
Parlier
North Firebough
Firebough
CAPE PEIRCE PENINSULA
Shaiak Island
Qdobenus Cove
N
km
0
1
2

Walrus - Census



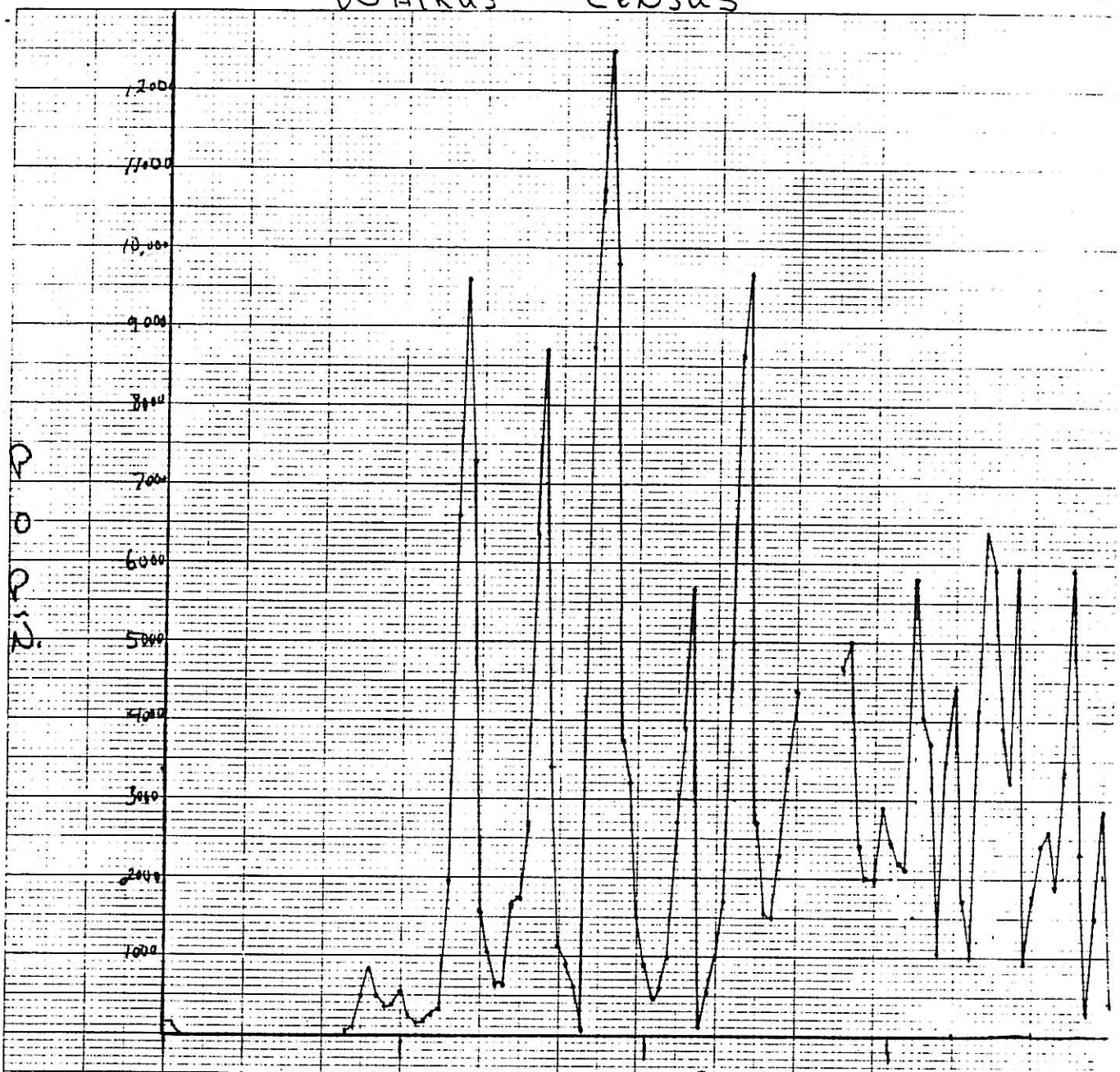
CAPE Peirce, 1986

$\bar{X}$ = 2.54 days

11 Peaks

(Figure 3)

Walrus - Census

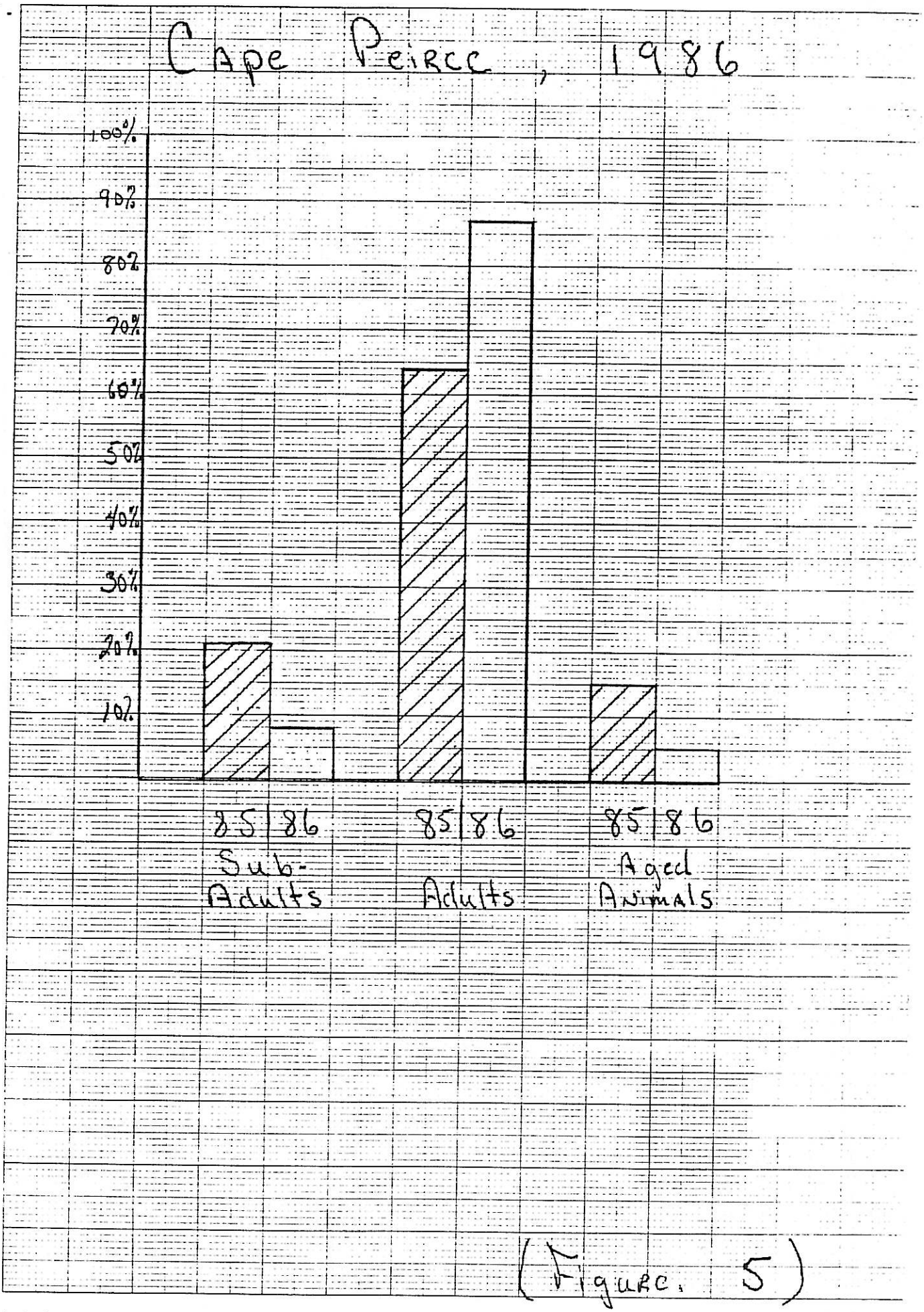


Cape Peirce, 1985

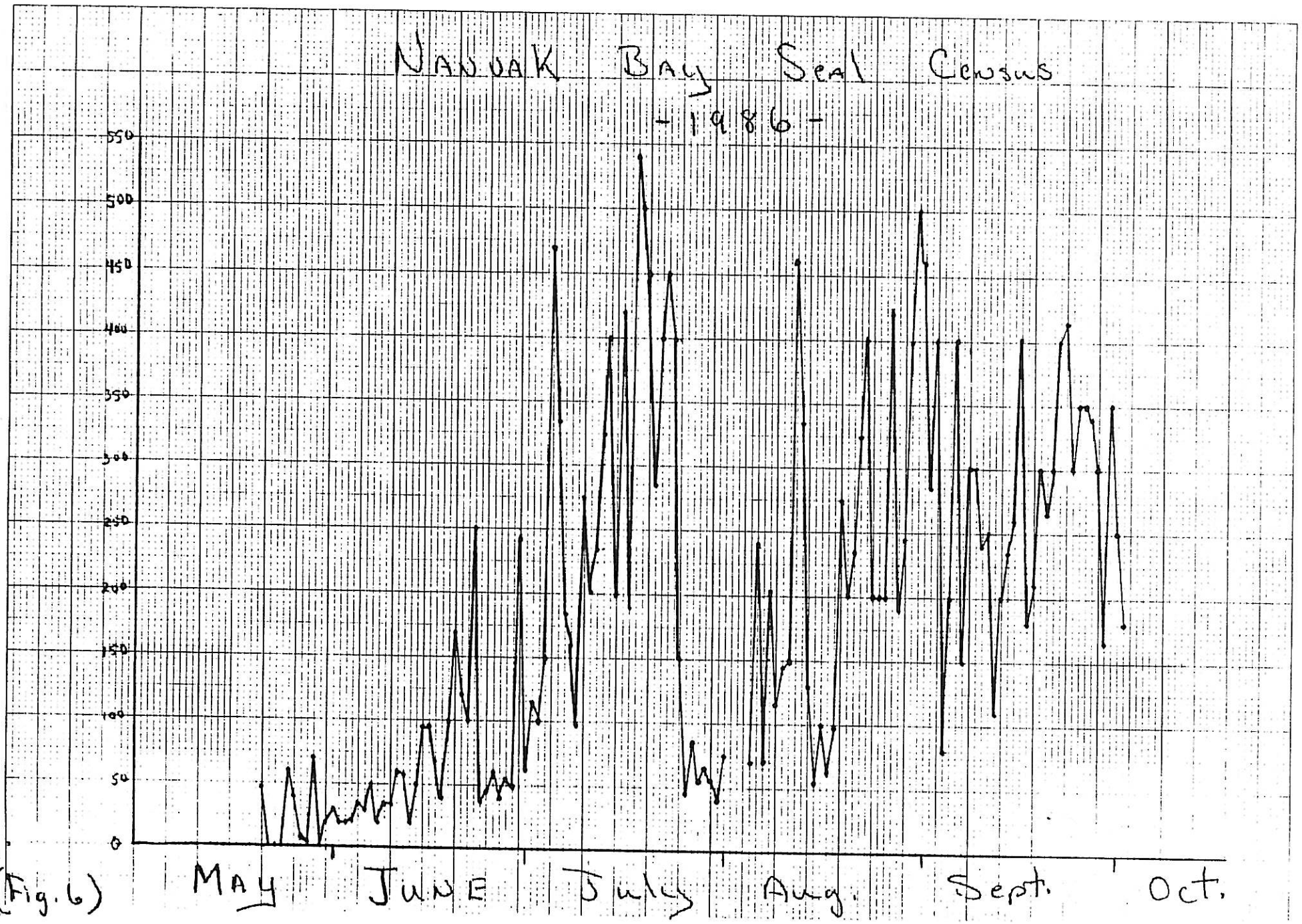
$\bar{X}$ = 2.54 days

11 Peaks

(Figure 4)


Cape Peirce, 1986
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
85|86
Sub-Adults
85|86
Adults
85|86
Aged Animals

(Figure 5)



(Fig. 6)