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Wildlife Administrator, BSPAW, Kenai, Alaska

November 23, 1965

Refuge Manager, Clarence Rhode Nat'l Wildlife Refuge, BSPAW, Bethel, Alaska

Observations on Amchitka Island, October 7 to November 7, 1965

I departed Anchorage via Reeves Aleutian Airlines on October 7 and arrived on Amchitka Island at approximately 1600 hours. After checking through the Security Office, I made immediate contact with Captain Duborg, USN, Test Manager. Captain Duborg indicated that I would have clearance to reach all areas of the Island necessary to observe wildlife and habitat that could in anyway be affected by longshot. A vehicle was also placed at my exclusive disposal as neither of the Refuge vehicles were in operating condition.

On October 13 Dr. Roy Sakatani of Battelle Pacific Northwest Laboratories, and Michael Dell, University of Washington, arrived to conduct biological observations on species other than sea otters, under a DASA contract to the University of Washington. E. J. Huizer, Alaska Department of Fish and Game, and Dr. Norman J. Wilimovsky and Alexander Pedin, University of British Columbia, also under the University of Washington contract, arrived on October 14 and October 19, respectively.

The primary objective of the University of Washington group was to determine the effect of seismic shock on vertebrates (primarily fish) and of radioactive contamination in the event of venting.

Because specific instructions were not provided for use of my time on Amchitka, I elected to place primary emphasis on study of the sea otter population. Sea otters on the east end (approximately a third) of Amchitka were censused from prominent headlands on shore with the aid of 6 x 30 binoculars. All beaches in the same area were examined for evidence of mortality in the preceding winter. Observations and impressions of the abundance of other mammals and birds were recorded but no systematic sampling of species other than sea otter was attempted.

The shoreline census of sea otters was supplemented by two pre-shot censuses of sea otter by helicopter. These flights covered the mainland shore but missed some off-shore reefs and islands. E. J. Huizer, ADP&G, assisted as observer on both flights.

Activities on the island which might affect the quality or quantity of habitat as well as of bird and mammal populations were examined. Assistance was given to Major J. Doss who was in charge of the attempt to move sea otters from Cyril Cove, the area of greatest danger from pressures created by the detonation of the atomic device.

Pre-shot studies included reexamination of beaches for evidence of mortality of sea otters or other mammals, birds or fish, and of two censuses by helicopter of the Bering Sea side of the Island. These censuses were conducted simultaneously with Lensink and Huizer as observers in the first helicopter and K. W. Kenyon and D. L. Spencer in the second. Kenyon and Spencer also assisted in the examination of shorelines. Post-shot shoreline observations by Lensink, Kenyon and Spencer were in part duplicated, and also extended to immediate off-shore waters by the University of Washington group who were able to move into Cyril Cove with the M. V. Commander immediately following H hour.

RESULTS OF OBSERVATIONS

Habitat:

Habitat destruction resulting from Project Longshot was extensive. In the vicinity of ground zero an area of approximately 200 acres was denuded of vegetation. From this central area, rutted trails from tracked, off - road vehicles radiated in all directions. Similar scars on the Island from World War II show scant evidence of healing, and it may be centuries before all trace of the wartime occupation is obliterated.

Because of the extensive damage to Amchitka during the war, the choice of Amchitka for Longshot was most fortuitous as the more recent destruction is less obvious than it might otherwise have been. However, the extensive earlier damage to Refuge habitat is not sufficient cause for the present disregard of Island vegetation, and much of the damage from Longshot could have been avoided. The project officers were appreciative of the damage caused to the Island, and if the Bureau had established reasonable ground rules for minimizing damage, it is most probable that many features of Longshot would not have occurred.

The direct effect of the underground test on wildlife appeared to be negligible. No sea otter or other marine mammal was believed to have been either killed or injured. Two codfish, Gadus sp., a tufted puffin, Lunda cirrhata, and a wedgeon guillemot, Cenophus columba, were picked up by Dr. Nakatani from the M. V. Commander immediately after the test and probably were victims of excessive pressures created by it. Another unidentified bird appeared to be injured, but was not retrieved. Several persons reported observing an injured bird, probably a golden plover, Pluvialis dominica, in the vicinity of ground zero following the test on D day and on D + 1.

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The description of this bird suggests that its legs were broken or dis-jointed, although it could still fly. Forces near the test site would have been sufficient to cause such injury.

Tectonic deformation resulting from the test was noticable only on roadways where slumping occurred in filled areas or on faces of cliffs where loose rock or turf was dislodged. An earth dike forming the drilling sump pond settled and released water containing drilling "mud" and a small amount of oil. The dike had been inspected just prior to the test and its failure was anticipated. However, the oil present on the surface of the pond was so little that failure of the dike was not considered critical. Effluent from the pond was carried to Cyril Cove by a small creek. Examination of the cove at the creek's mouth indicated an almost imperceptible oil slick confined to the immediate shoreline near the creek. It was not considered serious. Damage may have been considerably more serious if contractors in charge of drilling had not been able to use water for mixing the drilling mud, instead of diesel oil as originally planned.

MAMMALS

Sea Otters:

Observations of sea otters during the various censuses are recorded on Maps 1-4. Censuses from the shoreline covering the area from Banjo Point around East Cape and to a Point three miles west of Rifle Range Point, approximately a third of the Island, resulted in a tally of 1201 sea otters. The distribution of otters is compared to a census conducted in August of 1956 on Map 1. For comparable areas, the total including pups, was 1186 in 1965 and 2016 in 1956, thus, suggesting a 40% decrease in population. However, the decrease is probably not as much as indicated, because the 1965 observations were made under optimum conditions of visibility with the aid of a telescope, whereas, 1956 observations were made under much poorer conditions of visibility and with binoculars only, so many animals (20-25% ?) could have been missed on the later census.

Counts of sea otters at specific locations at dates other than that of census are summarized on Map 2. Two of the three counts with telescope from St. Maharius Point West, and one with telescope and one with binoculars at Rifle Range Point and two with telescope from Cyril Cove provided much higher counts than were obtained during the census. Further, the counts by J. L. Hout on September 18 from Rifle Range Point and St. Maharius west accounted for more sea otters than were tallied from a point three miles west of Rifle Range to St. Maharius Point east.

The low counts obtained on October 27 at Cyril Cove resulted from deliberate frightening of the animals from the area about six hours prior to the census.

The proportion of pups observed increased from 13.8% of the population in 1956 to 17.7% in 1965 (see table below). Although this increase in the proportion of pups may indicate increased productivity, we can not make this assumption because of the later census date in 1965, and because biases resulting from slightly different census techniques and from storm conditions during censuses of 1965, may have tended to result in more complete counts of pups than of other age groups.

Comparison of 1956 and 1965 Shoreline Censuses of Sea Otters

	<u>Adults & Sub Adults</u>	<u>Pups</u>	<u>Percent Pups</u>
1956 Census	1738	278	13.8
1965 Census	976	210	17.7

Censuses conducted on October 18 and 23 from military helicopter (HH 21 B. Pinski) resulted in counts of 522 and 603 otters respectively. Conditions were considered only poor to fair on both censuses. The view from helicopters was considered good and the slow rate of travel was considered an advantage over other aircraft. However, lack of floatation gear in this single engine aircraft prevented travel at an optimum distance off shore. The noise of the large helicopter frightened sea otters and frequently caused them to dive before they came into view in choppy water. It was evident that the optimum survey condition of smooth water was as essential for censusing with helicopter as with conventional aircraft.

Distribution of sea otters on the two helicopter censuses (Map 3) permits extrapolation of shoreline census to the entire island by the formula.

$$S = s/a \cdot A$$

Where (s) and (a) are the air and shoreline counts in the area censused by both methods, (A) is the total count by air, and (S) is the expanded shoreline census. Results are summarized below:

Extrapolation	Number of Otters Observed			Estimated Population
Basis of	s	a	A	S
Oct 18 air census	1201	241	522	2281
Oct 23 " "	1201	301	603	2406
Combined air census	1201	582	1125	2321

If we assume that approximately 30% of the sea otters were missed on shoreline censuses the estimate based on combined data would indicate a Adchitka population of approximately 2900 sea otters of which 500 were pups still dependent on their mother.

Post shot censuses of sea otters by helicopter covered only the Bering Sea side of the Island because of heavy surf on the Pacific shore. The four counts on the Bering Sea side of the Island were fairly consistent for number of animals observed (see table below) but varied in apparent distribution pattern (Maps 3 & 4). This variation in the apparent distribution of animals occurred on October 29 when the censuses were conducted simultaneously and thus can not be attributed entirely to differences in conditions.

Comparison of Helicopter Censuses of Otters on Bering Sea Shore of Adchitka

Date	Observers	Wind		No. of Otters Observed
		Direction	Velocity (k)	
10/18 ^{1/}	Lensink & Huizer		14	169
10/23	" "		5	227
10/29	" "		15	238
10/29	Kanyon & Spencer		15	256

^{1/} Excludes counts at East Cape for censuses on 10/18 and 10/23.

Harbor Seals:

Harbor seals were common along the entire shoreline of Adchitka but were particularly abundant near off shore reefs and rocks. No systematic counts were made, but general observations suggest a population that may approach 2,000 to 3,000 animals.

Sea Lion:

Sea lions were present at several locations where offshore rocks or islands offered suitable hauling out areas. Estimated numbers at various locations are:

East Cape	15
Ivakin Point	100
Constantine Point	None
Fault Block Island	25
Chitka Point Island	50
Bird Island	250
Omega Point	15

Probably fewer than 500 animals are using the island during October, a number considerably smaller than that may be present at other seasons.

Whales:

A school of approximately 10 killer whales was observed on October 18 off Cyril Cove. Two sperm whales, both of which were killed and lost by Japanese or Russian whalers were grounded on the Bering Sea side of Amchitka.

Foxes:

No observations or evidence of foxes was found, nor were foxes reported by any of the "Longshot" personnel. To this point, at least, the attempt to eliminate foxes from Amchitka seems to be completely successful. Waterfowl and ptarmigan were both considerably more abundant than in the 1954-1956 period, and their increase is attributed entirely to the control of foxes.

Rats:

The tremendous rat population is undoubtedly the controlling factor on the population of several species of birds. Large numbers invaded the camp site and emergency provisions stored at Bird Cape were much damaged by them. The control of rats would be of more benefit to Amchitka wildlife than any other management possibility.

BIRDS

Bird observations were recorded during the course of sea otter censuses and other travel over the island. No attempt was made to obtain quantitative data on populations. The following list includes 38 species of which 3 were not listed by Kenyon (Auk 78: 304-326, 1961). Thirty-one species listed by Kenyon were not observed.

Phalacrocorax pelagicus, Pelagic Cormorant. An abundant species. All observations were in marine environment.

Puffinus tenuirostris, Slender-billed Shearwater. A shearwater believed to be this species was observed off shore from the M. V. Commander by J. L. Hout on September 10.

Phalacrocorax pelagicus, Emperor goose. The first emperor geese observed was a flock of 3 birds at Rifle Range Point on October 12. A single goose was observed at the Kirillof Dock on October 14, but none were observed on a helicopter flight around Amchitka on October 18. On October 19 a flock of 41 geese was observed at Constantine Point and 13 geese on October 20 were observed at Rifle Range Point.

Flocks of geese were noted at several locations during a helicopter flight on October 23. Observations were common thereafter, and appears that the main flight to Amchitka must have occurred on October 19 and 20.

Anas platyrhynchos, Mallard. One of the most abundant waterfowl species observed. Mallards were most frequently found in fresh water marshes, but foraged extensively in salt water. Large numbers (to several hundred) of birds were observed on a relatively few lakes, and because these lakes were examined infrequently it could not be determine definitely whether any significant migratory movements occurred during October. However, the population appeared to be stable and may have consisted mostly of resident birds.

Anas acuta, Pintail. Pintails were numerous in early October, perhaps exceeding mallards in abundance. During late October, however, their numbers diminished, and it seemed obvious that many of the birds observed previously were migrants.

Anas crecca minima, Common Teal. This teal is the most abundant waterfowl species on Amchitka and was common in fresh water ponds, in sheltered saltwater pools, or occasionally on marine beaches.

Anas clypeata, Shoveler. Shovelers were not observed in October, but on September 22 J. L. Hout observed 2 males and 3 females on a pond adjacent to Silver Salmon Lake. More may have been present, but many ducks were flushed from the lake by a low flying helicopter.

Mareca penelope, W. European Widgeon. This species was not observed by the writer, but K. W. Kenyon and D. L. Spencer observed a pair on a freshwater pond at St. Makarius Point on November 3.

Mareca americana, American Widgeon. A single pair of American widgeon was observed on a freshwater pond 1 1/2 miles west of Constantine Harbor on October 14. This is the first observation of this species on Amchitka.

Aythya marila, Greater Scaup. Scaup were observed on several occasions on the larger freshwater lakes. The most observed on any one occasion was a flock of about 25 at Jones Lake on October 12.

Bucephala clangula, Barrow's Goldeneye. Goldeneyes were observed on a lake just east of Silver Salmon Lake on October 31 and were occasionally observed in Constantine Harbor.

Bucephala albeola, Bufflehead. Five bufflehead were observed on Jones Lake on October 12 and small flocks were there and on Cleaver Lake on several occasion but were not counted. On October 21 a flock of 30 was observed on a pond east of Silver Salmon Lake.

Histrionicus histrionicus, Harlequins. These beautiful ducks were common on all rocky shorelines but were never observed in freshwater areas. Among waterfowl, their abundance during October was second only to the common teal.

Somateria mollissima, Common eider. During early October common eiders were abundant in all bays and sheltered areas, sometimes occurring in flocks of more than 100 birds. Many individuals were molting and still flightless in early October, but by late October the molt was completed and most flocks had moved offshore.

Oidemia nigra americana, Common scoter. Common scoters were observed in Constantine Harbor by Mr. Pierre _____. These observations were not verified by me, but Mr. _____ was able to recheck and confirm his observations with a 20 power spotting scope loaned to him for that purpose. The common scoter has not been previously recorded on Amchitka although the white winged scoter Melanitta deglandi dixonii was reported by Kenyon (loc cit).

Mergus serrator, Red-breasted merganser. Mergansers were commonly observed in Constantine Harbor during October but seldom elsewhere. However, J. L. Hout observed 7 mergansers on a lake east of the runway on September 13, 4 at St. Makarius Bay on September 15, 3 on Jones Lake on September 21 and 13 on Silver Salmon Lake and 15 on a adjacent pond on September 22.

Haliaeetus leucocephalus, Bald eagle. Eagles were common and my impression (not verified by censuses) was that they were more abundant than in the 1954 to 1956 period. Counts by E. J. Klinkhart along the Bering Sea Coast obtained from a helicopter on October 31 totaled 36 adult and 8 immature eagles. Although eagles were most abundant on the coast they were frequently observed inland as well. Most miscellaneous observations were recorded and excluding aerial observations totaled 83 adults, 3 sub-adults, and 19 immature birds. Although the miscellaneous observations may be biased by duplicate sightings the indicated proportion of young, in the population (18.1%) is almost identical to that for eagles observed on the helicopter flight of October 31 (18.2%). Three dead eagles were found while walking beaches. All were immatures and appeared to have died soon after leaving the nest.

Falco rusticolus, Gyrfalcon. A falcon described to me as much larger than a peregrin was reported at St. Makarius Point on or about October 20. It is possible that the observation was of a dark phase gyrfalcon, but verification was not possible. Kenyon (loc cit) has observed gyrfalcon, at Amchitka during both spring and fall.

Falco peregrine, Peregrine falcon. The dark Aleutian peregrine was common along shorelines and were occasionally observed inland. Although quantitative data are lacking, my impression was that they were more abundant than in late winter of 1954 or the summer of 1956.

Lagopus mutus gabrielsoni, Rock Ptarmigan. Ptarmigan were sufficiently common to cause regret that regulations prohibited hunting. Most observations were recorded by size of flocks which varied from 1 to 10 with one observation of a flock of about 20 birds. The 47 observations recorded totaled 141 birds for a mean flock size of 3.1. Frequencies of flock sizes are listed below:

Size	No. Flocks
1	14
2	14
3	11
4	2
5	2
8	1
10	2
20	1

Ptarmigan still retained much of their brown plumage through October and the molt into winter plumage appears to be at least a month later than on mainland. J. L. Hout observed a brood of 4 still flightless young on September 23. Other young observed by Hout were nearly grown at this time and many could not be distinguished from adults. Ptarmigan have increased many fold in abundance since the 1954 to 1956 period when I saw only 2 ptarmigan in 5 months of observations. The increase in ptarmigan is attributed entirely to the effective elimination of foxes.

Haematopus bachmani, Black Oystercatcher. Oystercatcher were common at locations with rock islets and reefs. Their status appeared unchanged from observations in 1954 to 1956 or those reported by Kenyon (loc cit).

Pluvialis dominica, American Golden Plover. Plovers were common on upland areas throughout October, and although a migrant species, there appeared to be no significant decrease in their numbers when I departed Anchitka on November 3.

Arenaria interpres, Ruddy Turnstone. Turnstones were not observed during October. However, J. L. Hout observed a flock of about 12 individuals at a beach on St. Maharius Bay on September 15.

Heteroscelus incanum, Wandering tattler. Shore birds believed to be a wandering tattlers were occasionally observed along beaches throughout October. Definite identification was made for a single observation at Omega Point on October 28.

Erolia ptilocnemis couesi, Rock Sandpiper. This sandpiper was the most abundant shorebird on Amchitka during October. It was usually found in small flocks at areas with emergent reefs or rocks and occasionally along other beaches. It was not observed inland.

Erolia acuminata, Sharptailed sandpiper. A single individual of this species was shown to me by K. W. Kenyon at St. Makarius Point on November 7. I was not familiar with this species and may have failed to note its presence during October.

Lobipes lobatus, Northern phalarope. A single individual was observed on a fresh water pond near Banjo Point on October 15.

Larus glaucescens, Glaucous-winged Gull. This species is the only gull identified on Amchitka during October. It was abundant in several habitats although most commonly on marine beaches. Freshwater ponds appeared to be used frequently for bathing. Many remains of gulls killed by predators were found near headland perches of peregrines and bald eagles. A peregrine was observed stooping on gulls on two occasions but was unsuccessful in both cases. The number of gull remains found, however, suggests that they are an important prey of either falcons, eagles or both.

Cephus columba, Pidgeon Guillemot. Guillemots were not seen along shorelines during October, but a single bird was picked up approximately 2 miles off Cyril Cove on October 29, by Dr. Roy E. Makatani who was aboard the M. V. Commander. This was one of the three known casualties resulting from "Longshot".

Lunda cirrhata, Tufted Puffin. An immature tufted puffin was a casualty resulting from "Longshot". No other puffins were observed.

Myctea scandiaca, Snowy Owl. Military personnel described a white bird that they observed in uplands near the middle of Amchitka that was larger than an eagle, and like a big hawk or owl. This could only have been a snowy owl. No other specimens were observed.

Asio flammeus, Short-eared Owl. A short-eared owl was observed in uplands near Constantine Point on November 4, and another was observed at St. Makarius Point on November 7. None were observed during October.

Corvus corax, Common Raven. A single raven was observed near Cyril Cove on October 15 and a pair of ravens was reported from the same vicinity by Richard A. Young, USOB, on or about October 20. These could be strays from another island and it is not certain whether ravens have become reestablished since their elimination as a result of the fox control program of 1954-1957.

Troglodytes troglodytes, Winter Wren. A wren was observed at Constantine Point on October 13, 2 were seen at St. Makarius Point on October 21, and 5 between Aleut Beach and South Bite on October 22 and 23. In addition, wrens were reported by many "Longshot" personnel who, equating the Amchitka species with the familiar house wren, T. sedon, were surprised that wrens were found in such a hostile environment as Amchitka. I did not see wrens in the period of 1954 to 1956 and Kenyon (loc cit) observed only one during field work on Amchitka from 1955 to 1959. The comparatively large number of wrens I observed seems to indicate a tremendous expansion of a remnant population, or a reestablishment of the population by individuals from another island. As my observations are not supported by collections, we can not say which as the single specimen collected by Kenyon in 1957 was tanagensis rather than kiskensis, the race originally present on Amchitka.

Phylloscopus borealis examinandus, Arctic Warbler. This species was observed only at St. Makarius Bay on October 21.

Oenanthe oenanthe, Wheatear. A single observation of this species was obtained at Aleut Beach on November 5.

Leucosticte tephrocotis griscomucha, Gray-Crowned Rosy Finch. These finches are perhaps the most abundant bird on Amchitka. They are most common along shorelines in areas with cliffs, their natural Aleutian habitat. This species, however, has profited from the military occupation of World War II and is now abundant inland where they roost and nest in the rafters of hundreds of vacant buildings.

Acanthis flammea flammea, Common Redpoll. Redpolls were not observed until November 2 when two flocks of approximately 15 individuals were found along a road passing through uplands near the middle of the Island. On November 4 a flock of 7 or 8 birds was observed in uplands near Constantine Point. As these uplands habitats were rarely visited, it is possible that redpolls were present at an earlier date.

Platrophenax nivalis townsendi, Snow Bunting. Buntings are abundant in upland areas of Amchitka where they occurred in flocks of a few to more than 50 individuals. On the eastern half of Amchitka they are most frequently found along roadside where gravel is exposed, and thus may have profited to a minor extent from the military occupation of World War II.

Calvin J. Lensink

Attachments

CJL:mdat

AMCHITKA ISLAND

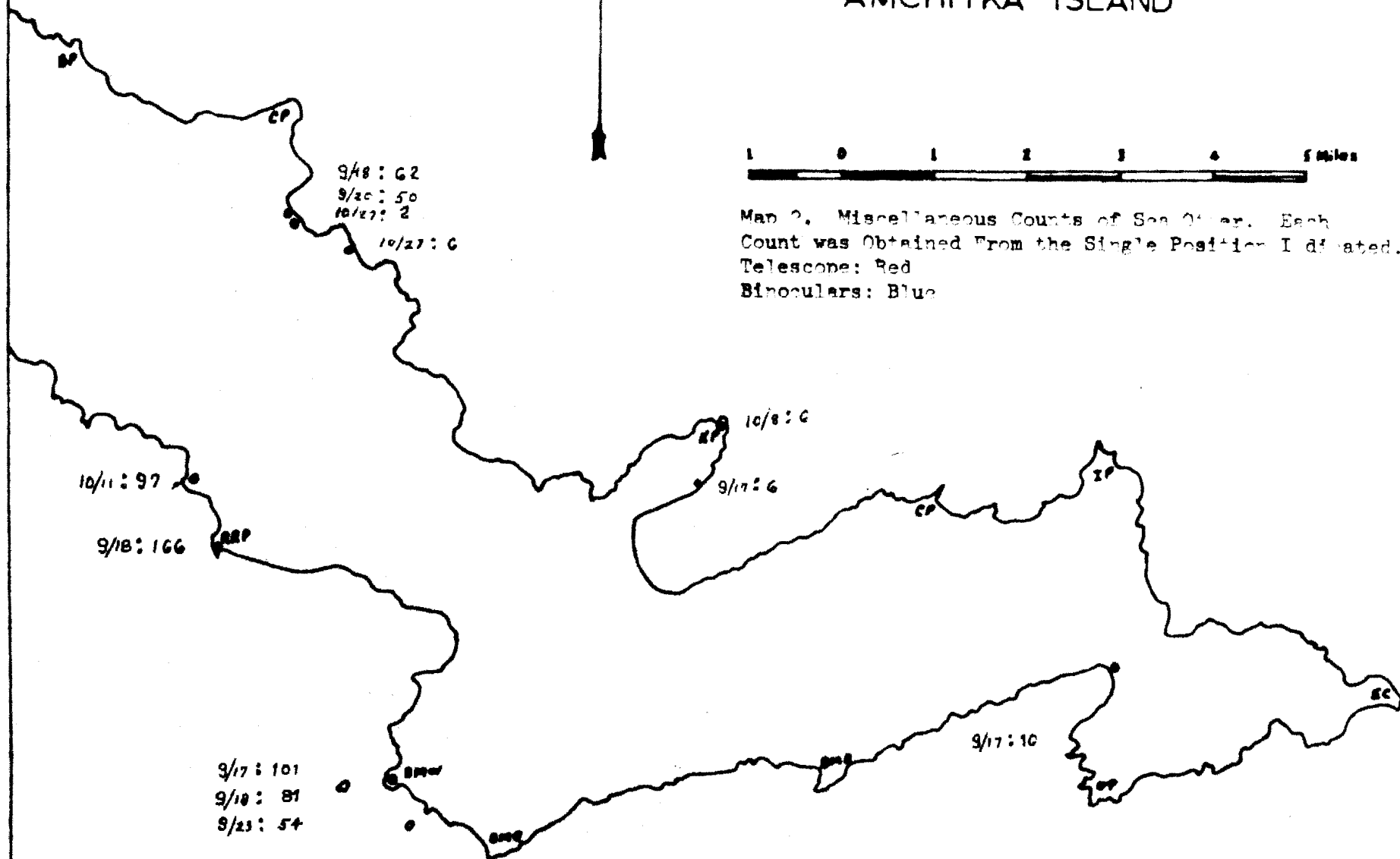
Map 1. Distribution of Sea Otters Observed on Shoreline Censuses
 1956: Blue
 1965: Red

1956: Blue
1965: Red

AMCHITKA ISLAND



Map 2. Miscellaneous Counts of Sea Otter. Each Count was Obtained From the Single Position Indicated.
Telescope: Red
Binoculars: Blue





AMCHITKA ISLAND



Map 3. Distribution of Sea Otters Observed on Helicopter Census in October, 1965
October 18: Red
October 23: Blue

