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BIRD AND MAMMAL ABUNDANCE  
AT NIZKI ISLAND WITH NOTES ON OBSERVATIONS AT ALAID ISLAND  
ALEUTIAN ISLANDS, ALASKA -- SPRING 1983.

by  
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**TITLE** Bird and Mammal abundance at Nizki Island with notes on observations at Alaid Island, Aleutian Islands, Alaska--Spring 1983.

**DATE** 22 September 1983

**I.D. NO.**

**AUTHOR(S)**

C. FRED ZEILLEMAKER

**CITATION**

**OBJECTIVE** To document migratory bird use response following elimination of introduced Arctic foxes from an island in the western Aleutian Islands.

**METHOD OF STUDY** Complete survey by foot of the island perimeter and all inland wetlands.

**MAIN FINDINGS.** Nesting bird populations increased by an apparent 185 to 600 percent over pre-fox removal populations four years after the island was declared fox free. The estimated number of nests increased from 22 to 1000 percent for the five main nesting species during the same period.

**CONCLUSIONS** Fox elimination from an Aleutian island dramatically improved conditions for nesting and feeding seabirds, waterfowl and migrating shorebirds.

**MANAGEMENT IMPLICATIONS** Removal of introduced foxes from islands within the Alaska Maritime National Wildlife Refuge results in dramatic increases in numbers and variety of nesting and feeding migratory birds.

**ADDITIONAL REMARKS**

**UPDATES OR SUPERSEDES I.D. NO.**

**PROGRAM**

**FOR COPIES OF PUBLICATION OR REPORT CONTACT**

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## INTRODUCTION

Alaid and Nizki islands (Fig. 1) in the western Aleutian Islands were once considered important nesting grounds for the Aleutian Canada goose (Branta canadensis leucopareia) and other migratory birds. Arctic foxes were introduced to both islands in 1911 (for fur farming purposes) and soon eliminated the geese and several other species. Those species that survived the introduction of terrestrial predators continued to use the islands in greatly reduced numbers. Fox removal efforts were first initiated by Bob Jones in 1969 when weather and other conditions prevented work on Agattu Island (Jones 1970). Jones had estimated a population of about 50 foxes on Nizki at that time, but removed many more than that. His party left many strychnine baits and bait stations over the island that fall to dispatch the remaining one or two surviving fox. Unfortunately, upon their return in 1970, the refuge crew found that a sand bar had connected Nizki to nearby Alaid Island where fox had not been controlled. Fox had reinfested Nizki. A complete wildlife census of both islands was accomplished by John Trapp and other members of the Aleutian Islands National Wildlife Refuge staff between 27 June and 6 July 1975 (Trapp 1975). Immediately following that survey a final intense effort was made to eliminate all foxes from the two islands which were then joined by a sand spit. The islands were declared fox free in 1979.

The material presented in this paper compares wildlife populations found on Nizki and Alaid islands in 1983 with those found on the islands in 1975 before introduced fox were removed.

The 1983 census was timed to allow searches for Aleutian Canada geese returning from California wintering grounds. Three hundred and sixty-three captive reared geese had been released on Nizki Island in 1981 as part of the refuge recovery program for the endangered goose species.

## METHODS

A tent camp was established at Camp Cove near the eastern end of Nizki island (Fig. 2) on 23 May 1983. Biological volunteers Merlin ("Elzy") S. Eltzroth and Jay E. Hamernick and the Aleutian Islands Unit refuge manager spent the following ten days accomplishing ground surveys on both islands. Due to several factors, including travel distances, sea conditions, weather conditions (Table 1) and time constraints, a complete census of Alaid Island was not achieved. However, the entire coastline and much of the inland habitat, including all lakes and ponds, of Nizki Island were censused by foot (Figs. 3-8). Three brief visits to Alaid Island allowed the gathering of some wildlife populations information for a portion of that island (Fig. 9). Binoculars and spotting scopes were available to each of the three observers at all times during the survey. An effort was made to count all birds encountered. Care should be taken in interpreting our comparisons between 1975 and 1983 since our survey occurred about a month earlier than the previous surveys.

Bird nomenclature in this report follows the Sixth Edition of The A.O.U. Check-List of North American Birds (1983), while mammal names follow the Fourth Edition of Walker's Mammals of the World (1983) by R. M. Nowak and J. L. Paradiso.

Results of Gibson's work (1981) on nearby Shemya Island are included wherever of significance.

## RESULTS

The following annotated list, supplemented by Tables 2-6, provides data on all species of birds and mammals found at Nizki and Alaid during our survey.

Red-throated Loon (Garvia stellata). Separate pairs were observed on 29 May 1983 at each of three inland Nizki ponds (Big West Pond, Knoll Pond, Little Eider Pond) and a single bird was seen at Kidney Pond. Trapp found two or three birds regularly during July at some small ponds near the Knoll on Nizki with the greatest number seen in one day being six on 24 July 1975. Neither inventory confirmed breeding on the island, but breeding there is likely. We saw no red-throated loons at Alaid during our three brief visits to the east portion of the island, but Trapp saw one to three birds on that portion of the island (Lake Sterna, Marestail Pond and East Marsh) in 1975.

Arctic Loon (Garvia arctica). A late spring migrant flew through Shemya Pass off Southeast Beach, Nizki, on 24 May. The species was not recorded at either island in 1975, but was recorded at nearby Shemya Island on 13 February 1983 (Van den Noort, pers. comm.).

Common Loon (Garvia immer). Pairs were seen at Mallard Pond and Eider Lake and one or two singles occurred at Jaeger Pond and Puffin Cove at Nizki 24-29 May 1983. Trapp reported two birds at Loon Lake, Nizki, 29 June with a single bird on a small pond near the Knoll on 2 July 1975. Both surveys indicate one or two pairs nest on the island. A pair was on salt water south of the east tip of Alaid on 29 May and a pair was on Midden Lake 31 May 1983. Trapp reported a nesting pair at Lake Sterna and two others on Midden Lake in 1975.

Northern Fulmar (Fulmarus glacialis). A single dark phase carcass was found on the north shore of Nizki 25 May 1983. Trapp found one carcass on a south beach 11 August and a mandible in a fox den at the west end of Alaid in 1975.

Pelagic Cormorant (Phalacrocorax pelagicus). A minimum of 285 individuals were censused in 1983 compared to about 100 birds in 1975. We found 49 nests at six sites (Table 3). Trapp tallied 38 to 43 nests in 1975 (5 at West Point, 25 to 30 at Jones Cove and 8 along the south side). Twenty-five birds were observed nesting at Puffin Point, Alaid, on 31 May 1983. Trapp reported nesting birds (number undetermined, at Gull Island, Alaid, in 1975. We tallied 767 nests at 16 Nizki sites. Trapp reported 163 nests (93 at West Point and 70 in the Jones Cove area) in 1975. We found another 145 at Puffin Point (10), Seal Cape (22), Gull Island (98) and Jill Island (35) during our 29 May, 31 May, and 2 June 1983 visits to Alaid. Trapp reported 50+ nests at Gull Island and 3000 to 3500 for all of Alaid (largest colony at Cormorant Cape on the north shore) in 1975.

Emperor Goose (Chen canagica). A single adult "flying cripple" was found at Pinnacle Cove, Nizki, on 24 May 1983. It was capable of sustaining flight for at least one mile even though its left wing tip bent upwards at an unnatural angle. Trapp also reported a single bird on a reef along the south side of Nizki on 2 July 1975.

Canada Goose (Branta canadensis leucopareia). Three hundred and sixty-three birds raised at Northern Prairie Wildlife Research Center, North Dakota, were liberated at Camp Cove near the east end of Nizki on 16 August 1981. Four birds from that release (identified by leg bands) and five wild birds were observed in the vicinity of Camp Cove and Eider Cove, Nizki, between 24 May and 2 June 1983. Although one apparent pair was identified, no evidence of nesting was found.

Green-winged Teal (Anas crecca nimia). Twenty birds were found on Nizki 24-29 May 1983. Trapp did not observe the species on Nizki in 1975. The species very likely breeds on Nizki. Two birds were on an East Marsh pond at Alaid on 29 May 1983. Trapp found three birds in the same general area in 1975. Neither survey documented nesting on Alaid Island.

Mallard (Anas platyrhynchos). Seventeen birds were located on Nizki 24 May - 2 June 1983 compared to about ten birds 29 June - 27 July 1975. Six were at Alaid during our brief visits there in 1983. Trapp found two breeding pairs at Lake Sterna and a female on Marestart Pond in 1975.

Northern Pintail (Anas acuta). Two female-plumaged birds were at Loon Lake, Nizki, 26 May 1983 and a male was at nearby Loon Cove the following day. A pair was at East Marsh, Alaid, on 29 May 1983. Trapp did not observe the species at either island in 1975. There is a record of two birds from Alaid on 17 June 1937 (Murie 1959). The species nests elsewhere in the Aleutians.

Eurasian Wigeon (Anas penelope). A female-plumaged bird was at Mallard Pond, Nizki, 25 May 1983. Trapp did not observe the species at Nizki or Alaid, although it was recorded at Shemya 10-13 May 1975. Klett and Dragoo (Klett 1982) found two drakes and a hen at Nizki 25 May and a pair at Alaid 26 May 1982. The species is not known to nest in the Aleutians.

Tufted Duck (Aythya fuligula). Fourteen birds were tallied at Nizki 24-25 May 1983. None were observed on either island in 1975, but up to 43 were at nearby Shemya 9-23 May. Klett and Dragoo (pers. comm.) found a pair at Duck Pond, Nizki, 22-24 May 1982.

Greater Scaup (Aythya marila). Five, including one male, were at Duck Pond, Nizki, on 2 June 1983. Four birds, including one male, were also near the east end of Alaid on the same date. Trapp did not report the species from either island in 1975. The species nests elsewhere in the Aleutians.

Common Eider (Somateria mollissima). Approximately 1160 were at Nizki during the 1983 census. Sixteen nests were observed during treks around and over the island. The average clutch size was 3.55 eggs. Trapp considered the species "abundant" at Nizki in 1975, but found no nests. He observed 108 birds along the north shore of Nizki 24 July 1975 compared to our north shore tally of 707 (443 from East Point to Mallard Cove 25 May, 264 from Jones Point to West Point 2 June) in 1983. Trapp found only one pair inland on Nizki in 1975. We found 26 birds inland in 1983 including courting pairs and nesting hens.

A total of 179 birds were observed at seven locations along the southeast shore of Alaid in 1983. The species was also considered abundant at Alaid in 1975.

Harlequin Duck (Histrionicus histrionicus). At least 176 were observed at Nizki 24 May - 2 June and an additional 59 were recorded along the southeast shore of Alaid 29 May - 2 June 1983. The species was considered "abundant" at both islands during the summer of 1975 with daily counts ranging from 3 to 84. Our 1983 daily counts at Nizki ranged from 7 to 61 and at Alaid from 14 to 45. The species is a year-round resident in the Aleutians, but is not known to nest anywhere in the chain.

Black Scoter (Melanitta nigra). A loose flock of 20 was regularly observed near kelp beds in Shemya pass off Southeast Beach, Nizki, in 1983. A worn-plumaged female was in Gull Island Cove, Alaid, 2 June 1983. Trapp reported a flock of four at Nizki Cove on 27 June 1975. Klett and Dragoo (Klett 1982) observed over 200 in Shemya Pass 26 May 1982. The species is not known to nest in the Aleutians.

White-winged Scoter (Melanitta fusca). Ten birds were located in Shemya Pass off Southeast Beach, Nizki, 28 May 1983. One was in Nizki Cove 27 June and another on the north side of Nizki 24 July 1975. The species is not known to nest in the Aleutians.

Common Goldeneye (Bucephala clangula). A pair was in Eider Cove, Nizki, on 25 May 1983. Six were observed in Nizki Cove and on the east portion of Alaid 1-2 July 1975. The species is not known to nest in the Aleutians.

Common Merganser (Mergus merganser). Two female-plumaged birds were at Camp Cove, Nizki, on 25 May 1983. The species was not reported from either island in 1975. The species has not been confirmed as breeding in the Aleutians.

Common Buzzard (Buteo buteo). A buteo hawk observed passing west along the south shore of Nizki at Pinnacle Cove on 26 May 1983 was identified as a common buzzard by its general appearance similar to a light phase rough-legged hawk (B. lagopus) and its tail markings similar to an immature red-tailed hawk (B. jamaicensis). Due to numbers of glaucous-winged gulls (Larus glaucescens) constantly overhead during our surveys, the hawk would have gone undetected without the unique vocalizations produced by mobbing gulls as the group passed directly over the observers. Because no photographs were obtained of the bird, the record must be placed on the "unsubstantiated" list for Alaska and North America.

Peregrine Falcon (Falco peregrinus pealei). A single bird hovered briefly over Camp Cove, Nizki, on 24 May 1983 for our only record. A single adult peregrine was regularly observed at the west end of Alaid in 1975. The species was not recorded on Nizki in 1975. The western portions of Alaid were not visited in 1983.

Black-bellied Plover (Pluvialis squatarola). Two near breeding plumaged migrants were on the shore of Alaid near South Lake on 31 May 1983. There are only three previous records for the Aleutians west of Adak (Shemya 17 September 1977 and 18 September 1978 Gibson 1981, Amchitka 7 June 1980 pers. comm.).

Lesser Golden-Plover (Pluvialis dominica). Five migrants were at Camp Cove, Nizki, on 30 May and two were at NIZ Point, Nizki, on 25 May 1983. At least one other was observed along the south shore of Alaid on 31 May 1983. The 1975 survey followed the spring Aleutian shorebird migration and no plovers were observed during that census. About 15 were reported at Nizki 23 May 1982.

Mongolian Plover (Charadrius mongolus). A lone bird of this Asiatic migrant was at Camp Cove, Nizki, 30 May 1983. One other was found on the South shore of Alaid Island 31 May 1983. This species was not recorded at either island in 1975. There are spring and fall records for nearby Shemya Island (19 May 1976, 15-31 May 1977, 30 August - 9 September 1978, 20-27 May 1982 and 26 May, and 2 June 1983).

Black-winged Stilt (Himantopus Himantopus). An immature bird, representing the first record for this Asiatic species in North America, was discovered at a small pond inland of the beach berm at Pinnacle Cove, Nizki, on 24 May 1983. The bird was thoroughly photographed on 26 May and was still at the pond when last checked late 2 June. Details of this record will be published separately.

Common Greenshank (Tringa nebularia). A single bird of this Asiatic migrant arrived at Camp Cove, Nizki, on the afternoon of 2 June 1983 and was still present the following morning. The species was not recorded during the 1975 survey. There is a 17-24 May 1976 record for Alaid and there are several Shemya records (15 May 1975, 16-31 May 1976, 6 September 1978, 20 May 1982 and 29 May - 1 June 1983).

Green Sandpiper (Tringa ocropus). This Asiatic species has been recorded during spring migration in the western Aleutians in 1978, 1979, and 1982, but was not documented in any of those years by a photograph or specimen. We observed one at a small stream inland of the Pinnacle Cove beach, Nizki, on 24 May 1983, but when we returned two days later with camera equipment, the bird was gone. Fortunately, the species was photographed on Shemya Island one mile east of Nizki on 29 May and 1 June 1983 by Dr. David Sonneburn of Anchorage, Alaska.

Wood Sandpiper (Tringa glareola). Single birds of this Asiatic migrant were observed inland of Pinnacle Cove, Nizki, on 24 and 26 May 1983. The species is an uncommon spring and rare fall migrant in the Western Aleutians. It has occasionally nested in the western portion of the Chain. The species was not recorded at Nizki or Alaid in 1975.

Wandering Tattler (Heteroscelus incanus). Two were foraging on rocks at South Point 24 May and one was at Camp Cove, Nizki, 3 June 1983. K. Whitten (pers. comm.) observed a single fall migrant along the north shore of Nizki 11-12 August 1975.

Gray-tailed Tattler (Heteroscelus brevipes). At least 16 birds of this Asiatic migrant were on the south shore of Alaid 31 May 1983. The species is a regular migrant in the Western Aleutians, but no more than eight had been recorded previously at any one location. The species was not recorded during the 1975 survey, but was found at Nizki 3 June 1976. There are at least four Shemya records (18 May 1976, 20 August - 11 October 1978, 23 May 1982 and 29 May - 2 June 1983).

Common Sandpiper (Actitis hypoleucos). Up to five individuals of this regular Asiatic migrant were tallied at Camp Cove, Nizki, 26 May - 1 June 1983 with the peak number occurring on 31 May. The species was not recorded on either island in 1975, but was recorded at Alaid 22-23 May and at Nizki 30 May 1976 (Trapp pers. comm.).

Terek Sandpiper (Xenus cinereus). Up to five birds of this somewhat regular Asiatic migrant were observed at Camp Cove, Nizki, 30 May - 3 June 1983. At least 23 others were observed feeding along a 1400 meter section of Alaid's south shore on 31 May. The species has not been previously recorded at either island, but was recorded at nearby Shemya 24 May 1976. Up to four were at Shemya 30 May - 2 June 1983 (Sonneborn pers. comm.).

Whimbrel (Numenius phaeopus variegatus). A single bird of this Asiatic subspecies was observed making landfall near Camp Cove, Nizki, 25 May 1983. Another was near the eastern end of Alaid Island on 29 May. Trapp observed single fall migrants west of Marestail Pond, Alaid, on 1 and 3 July 1975. One was also at Alaid 3 June 1976. Two were at Shemya 30 May - 2 June 1983.

Far Eastern Curlew (Numenius madagascariensis). A lone migrant of this Asiatic species was observed flying north past the east end of Nizki Island on 24 May 1983. The species was not observed in the Aleutians in 1975, but has been observed at Amchitka (1972, 1974, 1976, 1977, 1980) and at Adak (1970, 1971, 1972, 1975, 1981, 1982).

Bar-tailed Godwit (Limosa lapponica). Four migrants were observed making landfall at South Point, Nizki, on 24 May 1983. Another three circled over Camp Cove, Nizki, on the evening of 26 May. The species was not recorded at Alaid or Nizki in 1975, but was observed at Shemya 10-13 May. The species is a fairly common migrant throughout the Aleutians.

Ruddy Turnstone (Arenaria interpres). A total of nine spring migrants was tallied on Nizki 24-26 May 1983. Another 15 were found along the south shore of Alaid 31 May 1983. Trapp reported 150 migrants on eight dates at both islands between 16 July and 14 August 1975. The species is a common spring and abundant fall migrant in the Aleutians.

Rufous-necked Stint (Calidris ruficollis). Two spring migrants of this Asiatic species were at Camp Cove, Nizki, 31 May 1983. At least 19 additional birds were along a 1400 meter stretch of beach on Alaid's south shore the same date. The species was not recorded on either island in 1975, but was found at Alaid 19-23 May 1976. Up to 20 were at Shemya 29 May - 2 June 1983.

Rock Sandpiper (Calidris ptilocnemis). Twelve birds (ten singles) were observed on Nizki shorelines 24 May - 2 June 1983. Thirteen others, including several courting pairs, were observed on the inland portions of Nizki during the same period. Two nests were located. One that contained three eggs on 29 May had received the fourth egg by 2 June. Four birds were on the central south shore of Alaid 31 May 1983. Trapp reported 17 birds (14 inland, 3 coastal) on the south portions of Nizki 2 July 1975. His impression was that Alaid had fewer birds than Nizki.

Dunlin (Calidris alpina). Four migrants passed by Camp Cove, Nizki, 26 May 1983. Another five were feeding on the south shore of Alaid 29 May. This species was not recorded on either island in 1975, but was found at nearby Shemya 13-17 May that year. Up to 16 were at Shemya 30 May - 2 June 1983.

Parasitic Jaeger (Stercorarius parasiticus). Two dark phase birds were at Duck Pond, Nizki, 24 May, a dark phase bird and a light phase bird were at Jaeger Pond, Nizki, 25 May and a dark phase pair frequented the hill south of Jaeger Pond 28 May - 2 June 1983. Parasitic jaegers were also present at Nizki in low numbers in 1975. A dark pair was at South Lake, Alaid, 31 May 1983. Trapp reported up to four birds at Alaid in 1975. Both surveys indicate the species nests on the islands.

Slaty-backed Gull (Larus schistisagus). A pair of this Asiatic species remained in a large glaucous-winged gull (L. glaucescens) nesting colony throughout our stay on Nizki (24 May - 3 June 1983). We were not able to locate a nest, but



left the island with the belief that a nesting attempt had been or would be made there in 1983. The species was not recorded at either island in 1975. There are Shemya records of up to 12 birds 30 April - 3 June 1977, one adult 22 May 1982, and one immature bird 26-29 May 1983.

Glaucous-winged Gull (Larus glaucescens). This ubiquitous species was ever present during our ten day survey of the islands. Trapp estimated 100-150 pairs for each island in 1975. In 1983 we found at least 200 birds and 47 nests in the Southeast Beach colony on Nizki alone. The total Nizki Island population was estimated at 749 birds. We observed 70 nests at 11 locations on the island. Trapp stated no nesting concentrations were on Nizki in 1975 and that all observed nesting was on offshore rocks only. A colony at the east end of Alaid Island may have involved another 200 birds in 1983. A loafing flock on the sand bar connecting Alaid and Nizki islands contained 217 birds on 2 June 1983. A total of 544 birds was along the south and southeastern shores of Alaid 29 May - 2 June 1983. Trapp estimated 100-150 nesting pairs on Alaid in 1975, but did not report any colonies near the east end.

Black-legged Kittiwake (Rissa tridactyla). Single birds were observed passing offshore at South Point 24 May and Camp Cove, Nizki, 28 May 1983. Several others could just be identified passing through Shemya Pass near the east tip of Nizki on various other dates. Trapp reported similar observations for Nizki in 1975. Fifteen birds were bathing at Lake Sterna, Alaid, on 29 May 1983. Up to 250 birds of an estimated Alaid population of 1000-2000 nesting birds were reported using the lake during the summer of 1975.

Ross' Gull (Rhodostethia rosea). A single near breeding plumage adult was found resting on the beach at Seal Cape (southeast), Alaid, on 29 May 1983. The bird represented the first fully documented record for the species in the Aleutians.

Common Tern (Sterna hirundo tibetana). A single migrant of this Asiatic subspecies was studied at Loon Lake, Nizki, on 26 May 1983. This tern is an occasional spring migrant in the Aleutians. The species was recorded at Nizki on 27 June 1975. There are also spring records for nearby Shemya Island (19 May - 4 June 1976, 31 May - 5 June 1977, 27 May 1982, 26 May - 1 June 1983).

Common Murre (Uria aalge). Two birds were off Southeast Beach 28 May, two were in kelp south of Camp Cove, 26 May and one was in kelp off South Point, Nizki, on 31 May 1983. Trapp reported a single bird one-half mile south of Camp Cove, Alaid, on 6 July 1975. Common murre nest at suitable locations elsewhere throughout the Aleutians.

Thick-billed Murre (Uria lomvia). Single carcasses were found on the north shore of Nizki 25 May and the South shore of Alaid 31 May 1983. No live birds were observed. The species was not recorded at either island in 1975. Thick-billed Murres nest at suitable locations elsewhere throughout the Aleutians.

Pigeon Guillemot (Cephus columba). Ten birds were tallied on inshore waters at six locations around Nizki in 1983. At least one other was in a kelp bed off South Point, Nizki, and at least two others were in kelp off Breaker Head, Nizki, on 31 May 1983. Nesting on the island is strongly suspected. Four birds were reported at Alaid Island 1-4 July 1975. Guillemots nest in suitable habitat throughout the Aleutians.

Ancient Murrelet (Synthliboramphus antiquus). A total of at least 20 birds was observed around Nizki at six scattered locations in 1983. Three quarters of the birds were associated with the large kelp beds off South Point, Pinnacle Cove and Breaker Head on the south shore of the island. One bird was in the kelp south of Midden Cove 31 May and another was near Seal Cape, Alaid, 2 June 1983. The species was not recorded at Nizki or Alaid in 1975. There are records for nearby Shemya (17-20 May 1975, 24 May 1976, and 26 August - 24 September 1978). Ancient murrelets nest elsewhere in the Aleutians from Buldir Island east. Nesting populations may be assembling at Alaid and Nizki Islands at the present time.

Tufted Puffin (Fratercula cirrhata). A total of 138 birds were recorded at eight colony sites on Nizki in 1983. Other uncensused colonies were noted on near shore islets and sea stacks. Trapp was unable to locate any colonies on Nizki in 1975, although he suspected nesting activity on offshore islets and sea stacks along the north coast. We observed 13 birds flying near Puffin Point, Alaid, on 31 May and two at Gull Island Cove, Alaid, on 2 June 1983. Trapp estimated 10-100 birds were in a colony on a small sea stack just off Puffin Point, Alaid, based on an observation of 18 birds there 1 July 1975.

Horned Puffin (Fratercula corniculata). A total of 11 birds was tallied at five sites along the western and northern shores of Nizki. Courtship flights indicated nesting was occurring. Trapp found a total of five birds along the north shore of Nizki in 1975, but was unable to confirm nesting there or at Alaid where he also found a small number of birds.

Common Raven (Corvus corax). A family unit of three birds was regularly observed at midday on the eastern portion of Nizki throughout our stay. They apparently returned to Alaid each afternoon to roost. Behavior indicated the young bird was still obtaining food from the adults. The birds were observed reaching into and excavating tufted puffin burrows on one occasion at Camp Cove, Nizki. Trapp reported seeing one to two birds regularly on Alaid and Nizki in 1975 with the least number of observations on the eastern half of Nizki. The species very likely nests on the cliffs at Alaid Head.

Winter Wren (Troglodytes troglodytes). We observed or heard a total of 46 wrens around the perimeter of Nizki. Trapp reported the species only occupied a very restricted niche being found on both islands only along boulder and cobble beaches in the proximity of cliffs in 1973, but he gave no population figures. We found that the birds were still primarily found in the same niche, which is quite extensive on Nizki. Our 1983 visits to Alaid did not include coverage of habitats used by this species. Wrens undoubtedly nest on both islands.

Eye-browed Thrush (Turdus obscurus). Single spring migrants of this Asiatic species were observed at Pinnacle Cove, Nizki, foraging at the edge of snow patches 24 May and at the edge of the beach vegetation 26 May. There were no records for the species in the Aleutians in 1975, but there is one record at Nizki for 31 May - 3 June 1976. There are also a few records for nearby Shemya (20-31 May 1976, 31 May - 7 June 1977 and 20-24 May 1982).

Yellow Wagtail (Motacilla flava). Migrant pairs were observed near Camp Cove, Nizki, on 24 May and on the south beach of Alaid 31 May. The species was not recorded at either island in the summer of 1975, but was recorded at Shemya Island 13-20 May. There is an Alaid record for 72 birds 15 May 1976. There are also several spring records for Shemya (12-21 May 1976, 12 May - 1 June 1977, 20-27 May 1982 and 27 May - 2 June 1983).

Song Sparrow (Melospiza melodia). We observed or heard 60 birds around the perimeter of Nizki and two additional birds at Duck Pond, slightly inland, in 1983. One bird was also observed at Alaid 31 May. Trapp reported the species was "fairly common" along the coastlines of both islands in 1975. Although he found no nests or fledglings in 1975, he did report that the presence of pairs and singing males in late June and early July indicated that breeding undoubtedly occurred. We observed at least two pairs feeding nestings and carrying casts at Camp Cove, Nizki, during the last half of our visit.

Lapland Longspur (Calcarius lapponicus). We attempted to record longspur numbers wherever we trekked on Nizki, but we simply didn't traverse every hill or valley in the interior portions of the island and we undoubtedly missed some birds in those areas we did pass through. We tallied 130 longspurs on the island, but there could have been twice that number. During our brief visits to Alaid we tallied 27 birds along the south shore. The species was considered "abundant" on both islands during the summer of 1975. No population estimates were made, but Trapp did find a nest with five eggs at the east end of Alaid on 27 June 1975.

Snow Bunting (Plectrophenax nivalis). We tallied 32 birds at 13 locations along the coastline and one slightly inland at Nizki. Two others were observed along the south shore of Alaid. Although no numbers were reported for either island in 1975, a family with one recently fledged young was on the south shore of Nizki 2 July, a female with one fledged young was east of Camp Cove, Alaid, on 3 July, and three or four flocks were noted on 11 August including up to 19 immature-plumaged birds and only three adults.

Rosy Finch (Leucosticte arctoa). A pair was at Loon Cove, Nizki, 29 May and another pair was at Jones' Cove, Nizki, 2 June for the only records. This species was not recorded on Alaid or Nizki during the summer of 1975. Sonneborn saw only two birds at Shemya during his 26 May-2 June 1983 investigations there.

Common Redpoll (Carduelis flammea). Two birds were north of Jaeger Pond 24 May, a flock of 16 was near the northeast shore of Eider Lake 25 May and a flock of 11 was at Big West Pond, Nizki on 29 May 1983. No light colored birds resembling hoary redpolls (A. hornemanni) were noted. Trapp thought a small percentage of redpolls found on both islands throughout the summer of 1975 appeared to be hoarys. Overall, he recorded over 200 redpolls on eight dates at the two islands, including three birds at the Knoll, Nizki, on 30 June. Most of his observations were in the alpine zone (above 137 meters) along the western ridge of Alaid, an area we did not visit in 1983.

Steller's or Northern Sea Lion (Eumetopias jubatus). Nineteen animals were observed offshore from four locations along the north shore of Nizki. All were swimming in a westerly direction (toward Alaid). Sea lions were occasionally observed in the waters surrounding Nizki in 1975. Lone bulls were rarely found on Nizki beaches that same summer. An estimated 245 sea lions were on the northern beach near the eastern tip of Alaid 2 June 1983. No pups were observed. Trapp observed 450 sea lions along the entire north shore of Alaid during the summer of 1975. He estimated the entire Alaid population was between 4500 and 5400 and reported that it was composed almost entirely of bachelor bulls and yearlings. Another observer reported a few pups in the Northwest Cove colony on Alaid in early August 1975.

Harbor Seal (Phoca vitulina). We observed a total of 14 seals at ten locations around Nizki during the 1983 survey. We also found ten near Gull Island, Alaid, on 2 June. Harbor seals were considered abundant near the reefs and rocky coastlines of both islands in 1975. An estimated 75-100 animals were reported near Gull Island, Alaid, but no other numbers were proposed for either island.

## DISSUSSION

Two Palearctic birds, the common buzzard (Buteo buteo) and black-winged stilt (Himantopus himantopus), were observed at Nizki Island during the survey and represent the first North American records for each. Several species of migrant Asiatic shorebirds were also found at both islands. In all 62 species of birds were recorded in 1983.

Five species of birds considered resident in the Aleutians, one summer resident species, one wintering species, 22 migrant species and one wrecked species not observed on Nizki or Alaid in 1975 were found in 1983 (Table 7). Although the 1975 census overlapped part of the fall migration, it began after the spring migration. The 1983 Nizki census indicated an apparent 185 percent increase in the number of nesting birds and a 22 percent increase in the number of nests for the pelagic cormorant, 534 and 371 percent increases for red-faced cormorant birds and nests respectively, 600 and 1000+ percent increases for common eider, 399 and 1000+ percent increase for glaucous-winged gull and 1000+ percent increase in the numbers of tufted puffin. The 1983 Alaid Island surveys were incomplete and do not allow comparisons with 1975 data for that island. Fox trails and scent stations remain visible all over Nizki, but all are unused and are marked by vegetation that is taller than the surrounding tundra.

## CONCLUSIONS

Fox elimination from Alaid and Nizki islands in the 1970's as part of the Aleutian Canada goose recovery program has dramatically improved habitat conditions on both islands for resting and feeding migrant shorebirds and nesting seabirds and waterfowl. Data indicate that as many as six species of birds that were not known to be nesting on Nizki Island in 1975 were possibly nesting there in 1983. Five other species found nesting on the island in 1975 have increased their populations by 185 to 600 percent. The bird list for the joined islands was increased by 33 species during the 23 May to 3 June 1983 survey. The elimination of introduced foxes from Alaska refuge islands is a valuable management technique for all species of migratory birds. Former Refuge Manager, Bob Jones was prophetic in his 1969 narrative report when he said of Nizki which he had just cleared of foxes, "there are not really very many birds on Nizki, but there will be".

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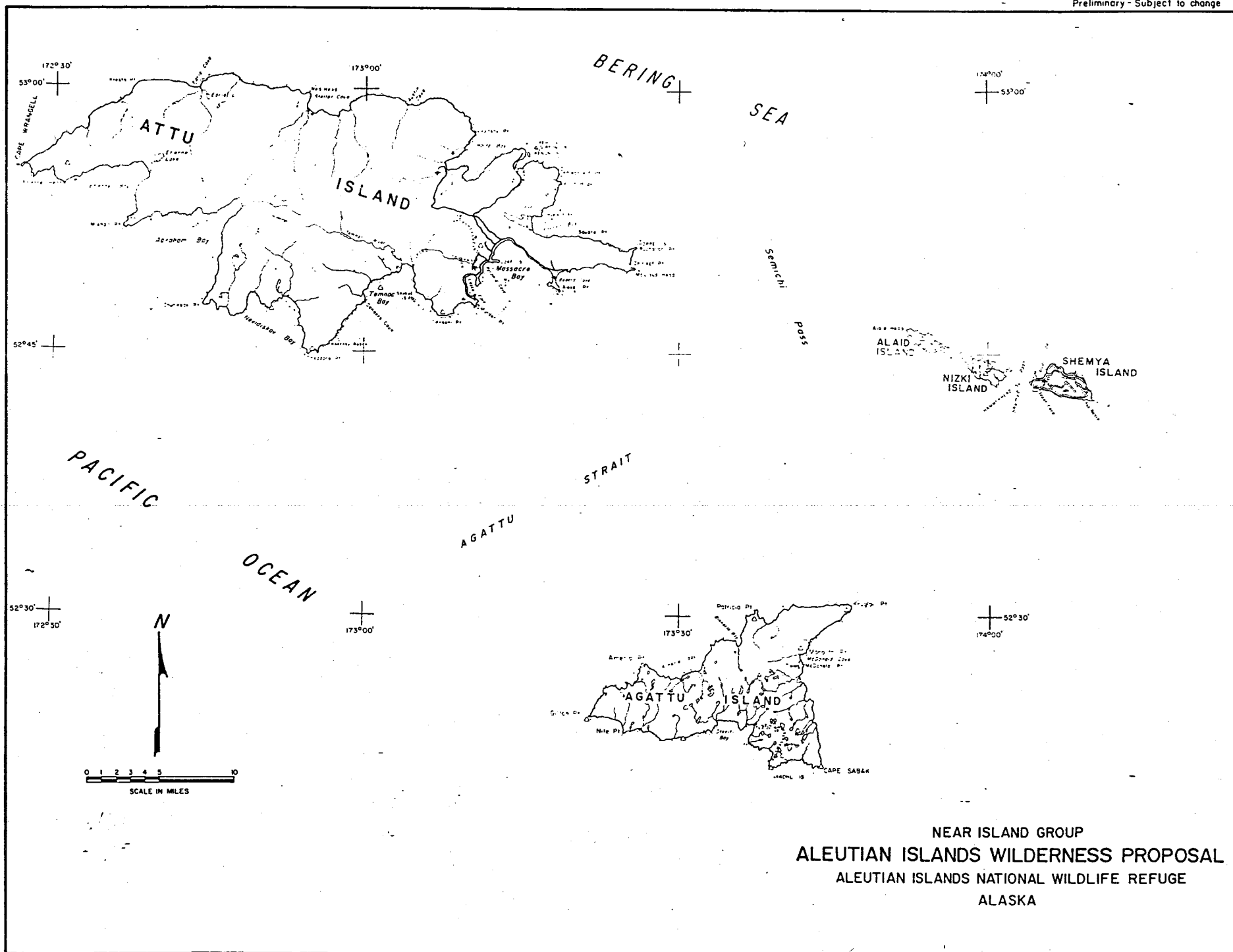


Fig. 1 NEAR ISLANDS GROUP

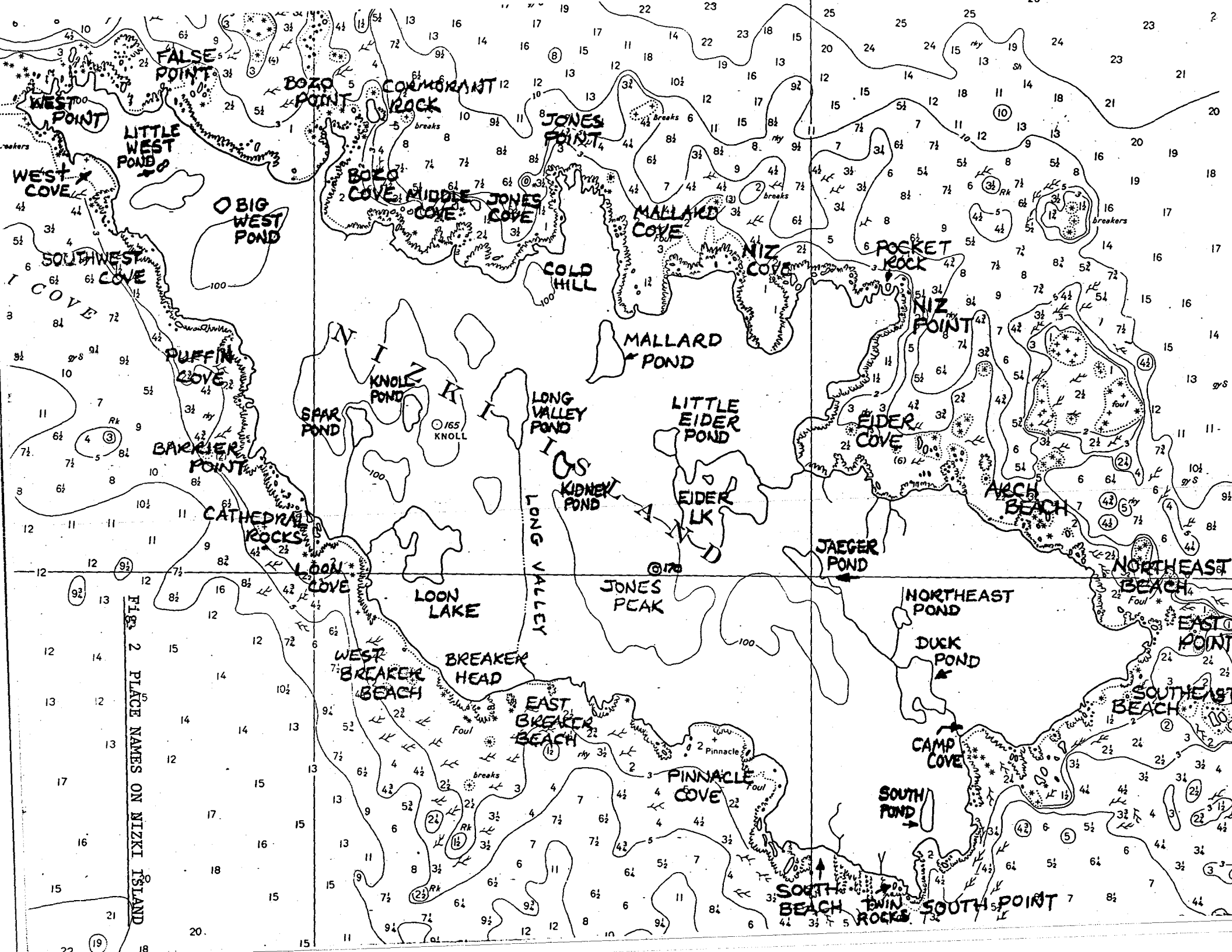


FIG. 2 PLACE NAMES ON NIZKI ISLAND

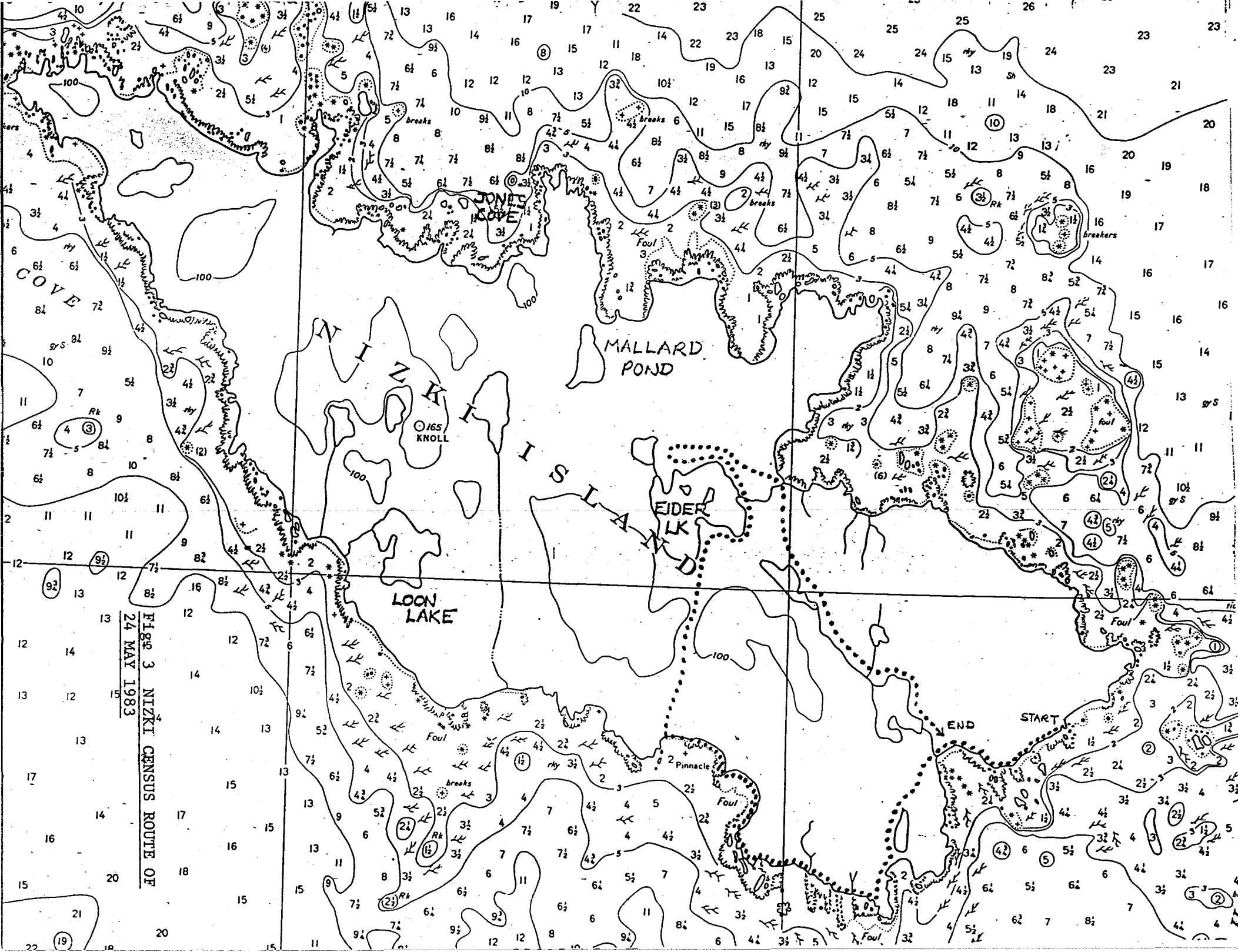


FIGURE 3  
NIZKI CENSUS ROUTE OF  
24 MAY 1983



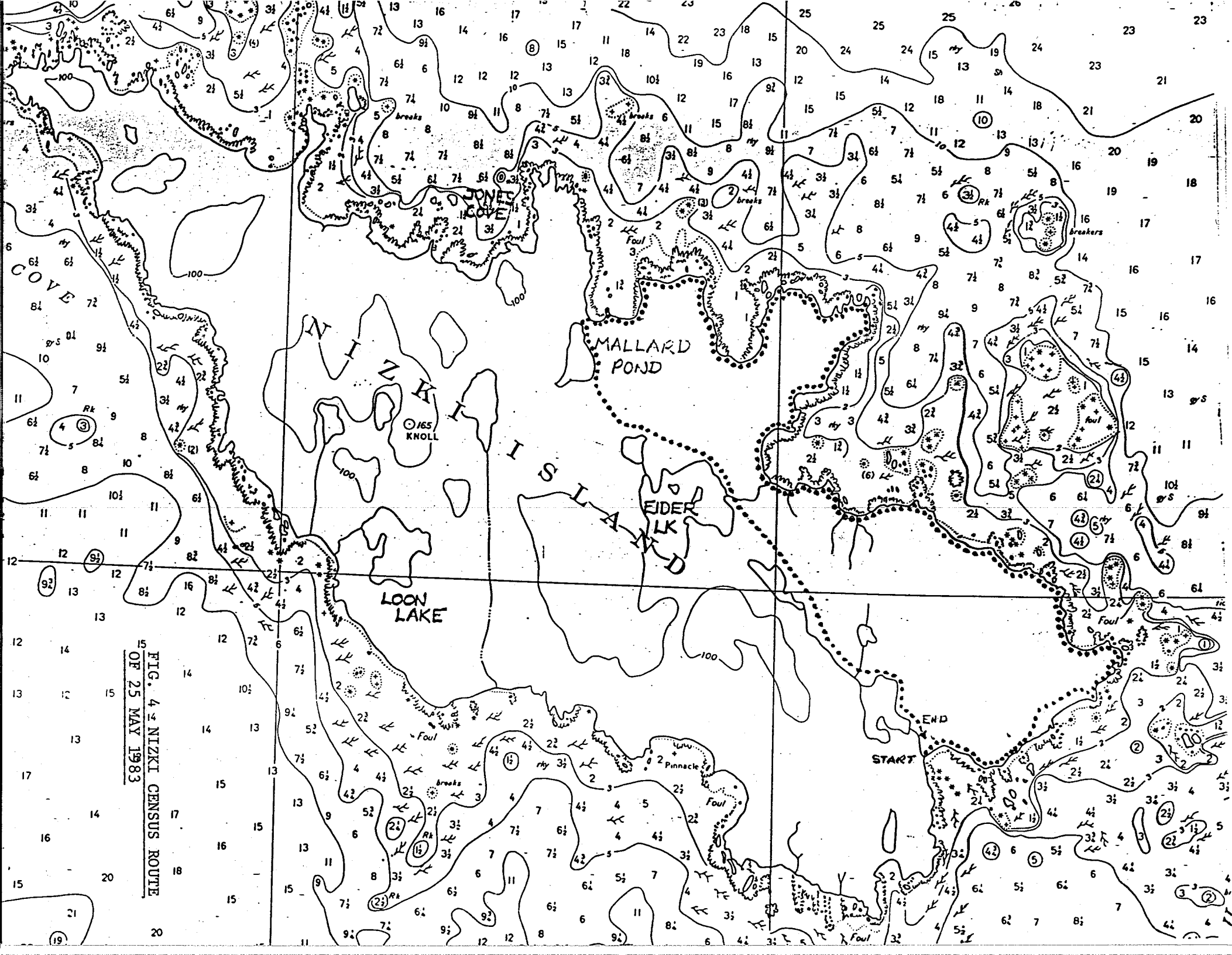
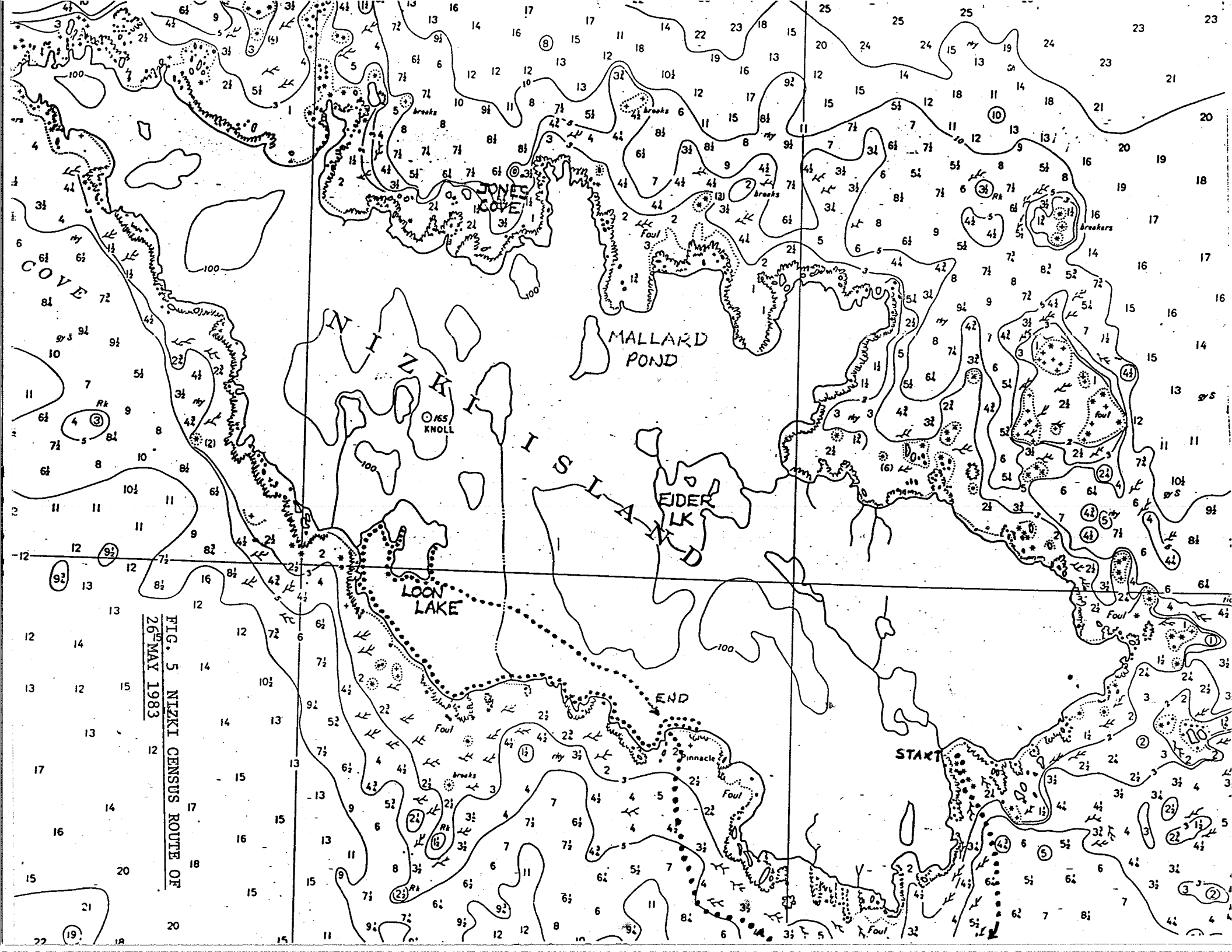


FIG. 4. NIZKI CENSUS ROUTE  
OF 25 MAY 1983



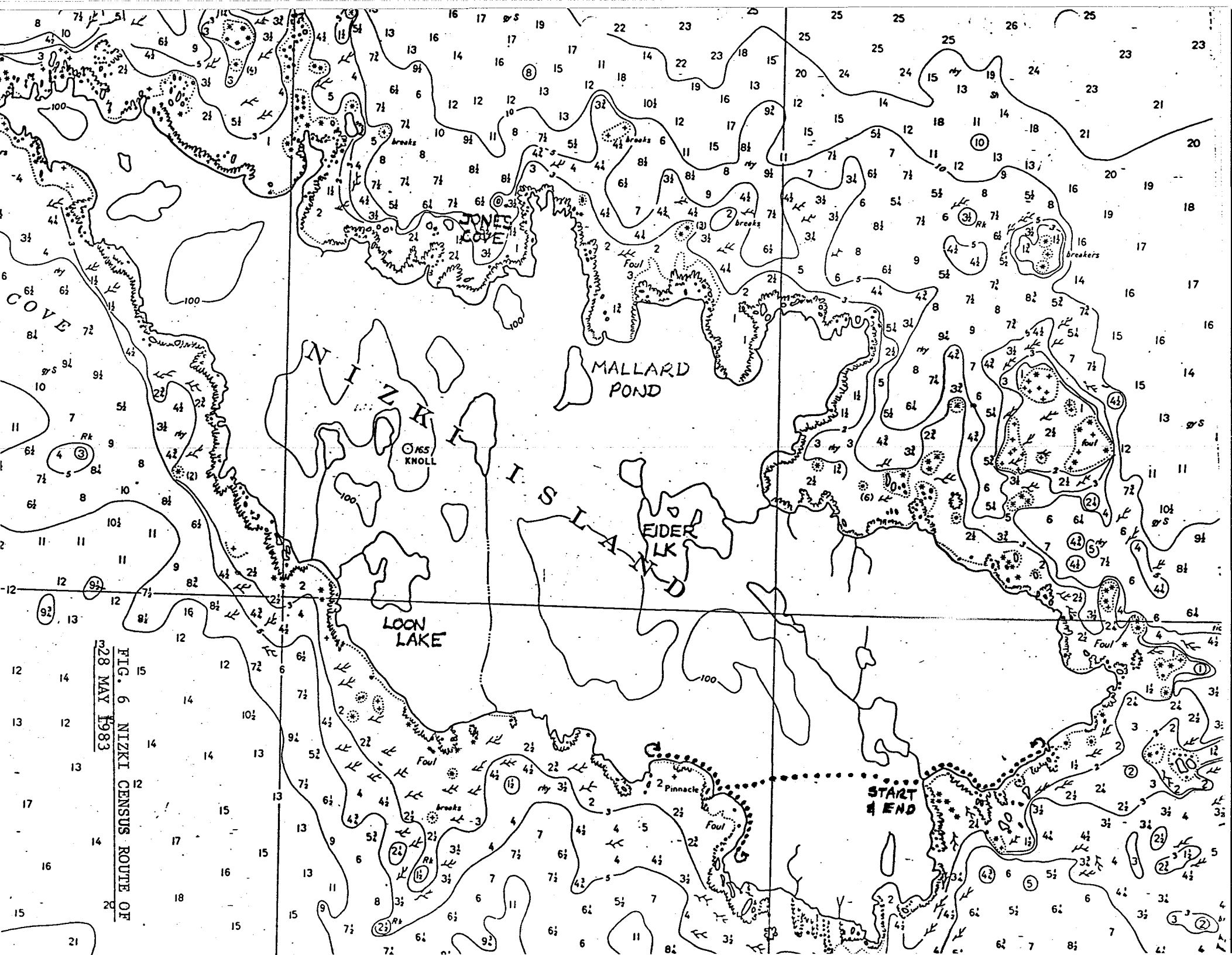


FIG. 6 NIZKI CENSUS ROUTE OF  
128 MAY 1983

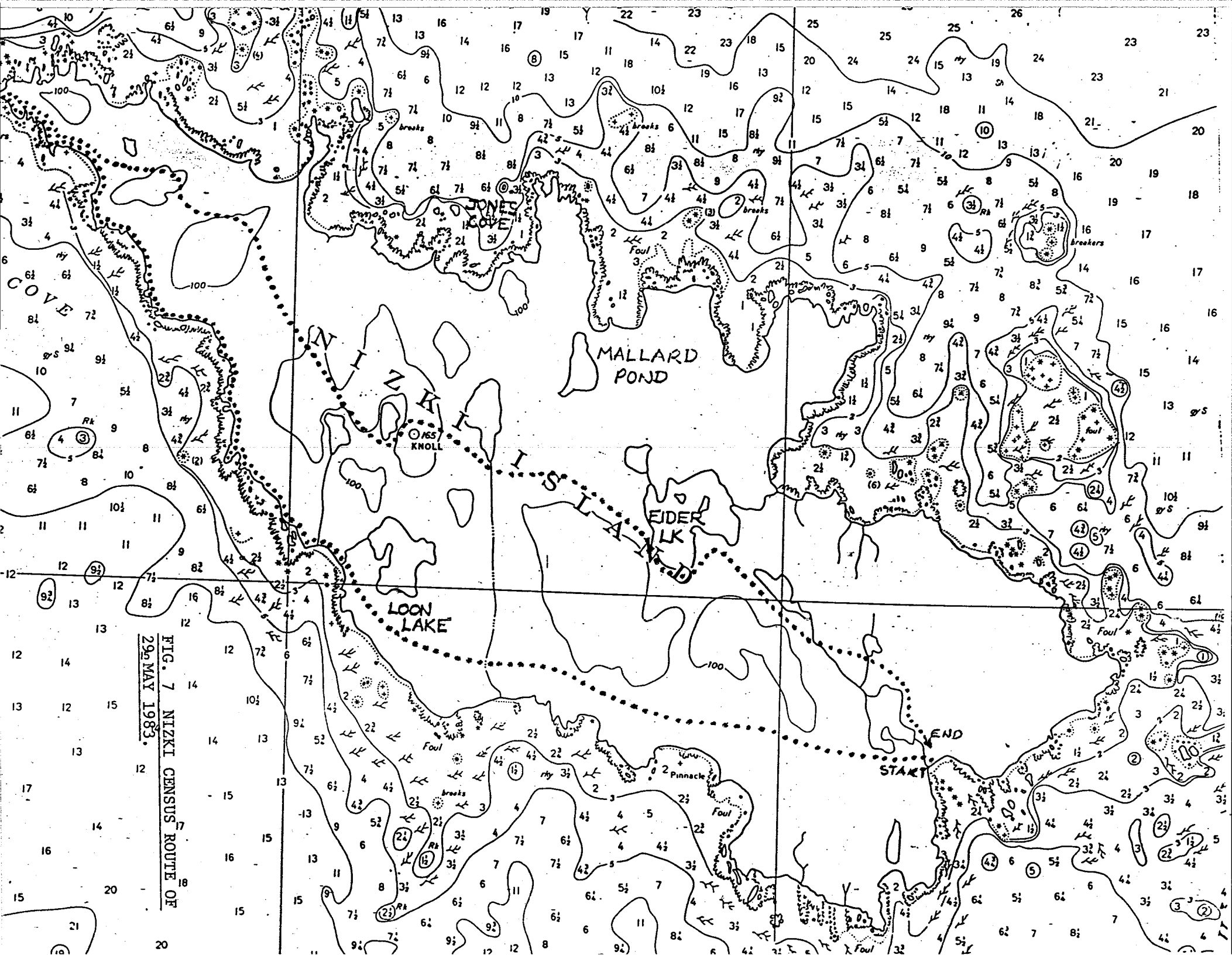


FIG. 7 NIZKI CENSUS ROUTE OF  
29 MAY 1983.

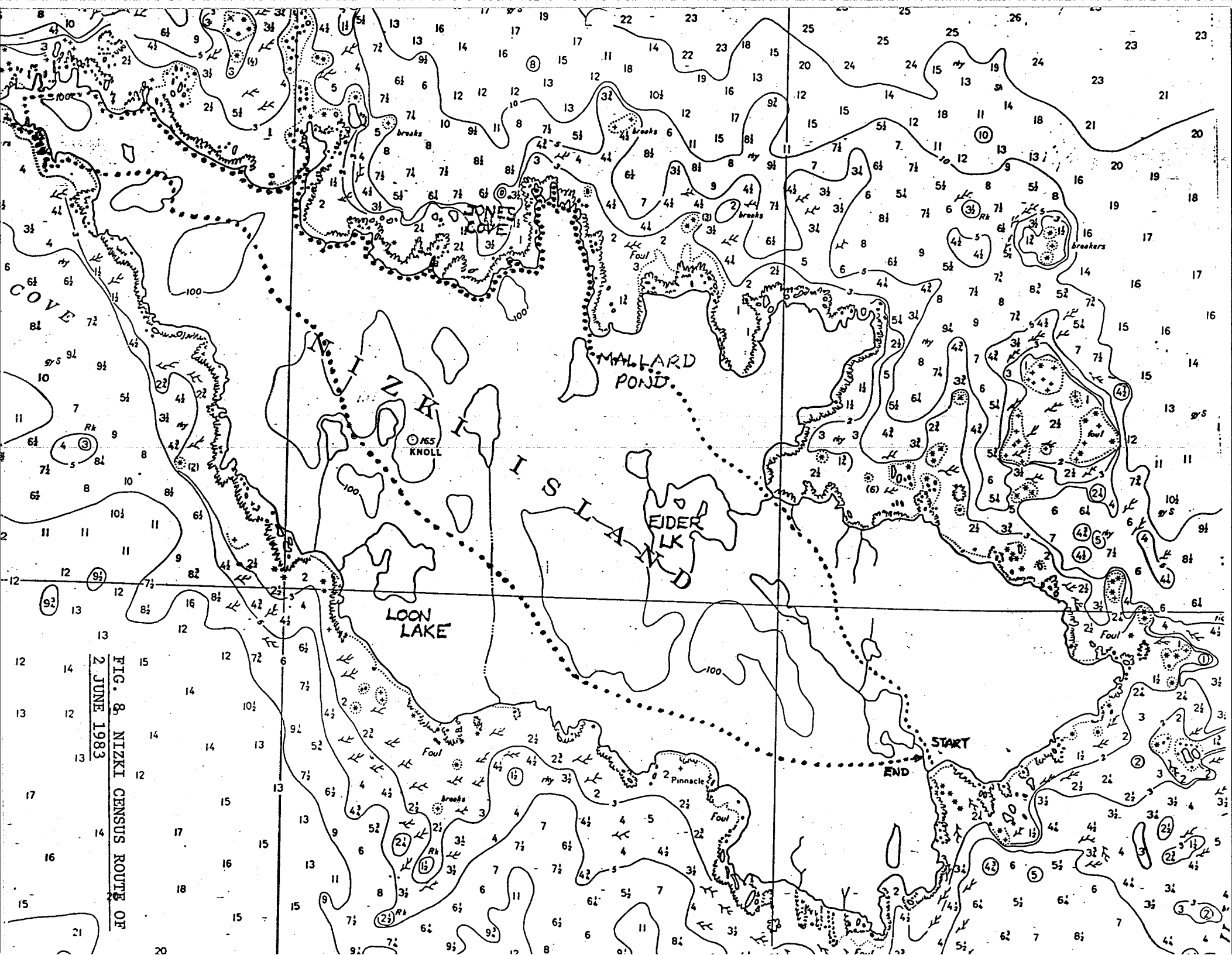


FIG. 8. NIZKI CENSUS ROUTE OF  
2 JUNE 1983

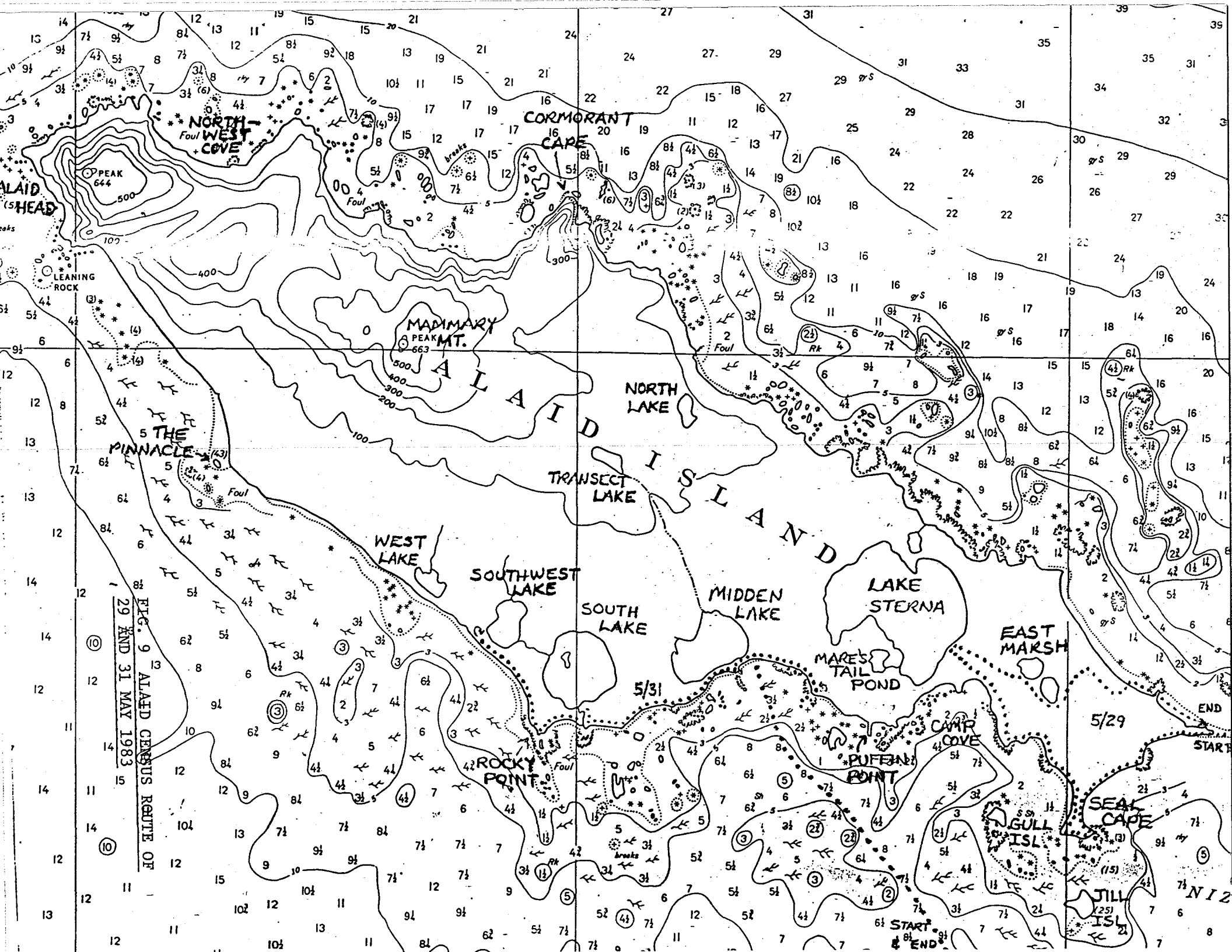


TABLE 1. WEATHER OBSERVATIONS AT CAMP COVE, NIZKI ISLAND,  
24 MAY - 3 JUNE 1983

<u>Date</u>	<u>Low Temp.</u>	<u>High Temp.</u>	<u>Additional Information</u>
5/24	37	50	Wind NE 15-25 mph, Overnight rain, Day partly cloudy.
5/25	37	53	Wind NW 5-15 mph, Overnight Shower, Day mostly sunny.
5/26	39	59	Wind SW 10 mph, Overnight Showers, AM cloudy w. occ. showers, pm partly cloudy becoming cloudy w. occ. shower by eve.
5/27	36	42	Wind SE 15-35 mph, Rain mixed with snow began before sunrise and continued all day. Wind shift to NW by 1400.
5/28	37	49	Winds NW 20, Partly cloudy, few early AM snow showers.
5/29	35	46	Wind NW 15, gusting to 25 by PM, AM few showers, PM continued overcast.
5/30	38	51	Wind NW 15, Overcast all day.
5/31	37	54	Wind W-SW 15, Overcast all day. Drizzle began after noon. Wind shift to SE by late afternoon. Evening rain.
6/1	39	55	Wind SW 5-10, Predawn rain. Dense fog all day, wind gust to 14 afternoon.
6/2	39	54	Wind SE 5-15, Overcast and fog all day, light drizzle in afternoon, large swell in Camp Cove.
6/3	40	-	Wind SE 5, Overcast, AM seas very rough fm SE, some moderation by late afternoon.

Table 2. Wildlife populations of south shore, Nizki Island, 24 May - 29 May 1983.

LOCATION:	SE Beach (5/24)	Camp Cove (5/24)	S Pond Cove (5/24)	S Point (5/24)	S Beach (5/24)	Pinnacle Cove (5/24)	PC to EBB (5/26)	E Breaker Bch (5/26)	Breaker Head (5/26)	W Breaker Bch (5/26)	Loon Cove (5/26)	Cathedral Rocks (5/26)	Barrier Point (5/29)	Puffin Cove (5/29)	S W Cove (5/29)	W Cove (5/29)	W Point (S) (5/29)	TOTAL
SPECIES:																		
Red-throated Loon			4												1			5
Arctic Loon	1																	1
Common Loon														1				1
Red-necked Grebe	1																	1
Pelagic Cormorant		19		30	20		100						8	5				182
Red-faced Cormorant	15	47	117	80			300				20	30	20	25	10	30	400	1094
Emperor Goose						1												1
Canada Goose		9																9
Green-winged Teal		4																4
Mallard		2				2												4
Northern Pintail											1							1
Common Eider		64	10	36	28	107	5	54		14	28	21		16	20	24		427
Harlequin Duck	8	12	7			3				3	4	12		7				56
Black Scoter	20																	20
White-winged Scoter	10																	10
Common Merganser		2																2
Common Buzzard						1												1
Peregrine Falcon		1																1
L. Golden Plover		5																5
Mongolian Plover		1																1
Black-winged Stilt						1												1
Common Greenshank		1																1
Green Sandpiper						1												1
Wood Sandpiper						1												1
Wandering Tattler		1		2														3
Common Sandpiper		5																5
Terek Sandpiper		5																5
Whimbrel		1																1
Far Eastern Curlew	1																	1
Bar-tailed Godwit		3		4														7
Ruddy Turnstone		4									4							8
Rufous-neck Stint		2																2
Rock Sandpiper		1		1		1					1		1	1				6
Dunlin		4																4
Slaty-backed Gull	2																	2
Glaucous-wing Gull	200	50		40		31		50		160		6		16			23	576
Black-leg Kittiwake		1		1														2
Common Murre	2+	2+		1+														5+
Pigeon Guillemot		2		1+					2+									5
Ancient Murrelet				6+		5+		4+					2					17
Tufted Puffin		23		1			12				1	9		34	10	6		96
Horned Puffin													3					3
Common Raven		3																3
Winter Wren				1		3	1	2	1	2	1	2	2		1	1		17
Eye-browed Thrush						2												2
Yellow Wagtail		2																2
Song Sparrow		6		3	3	3	2	3		2	2	6		1				31
Lapland Longspur		6				10		10	10		1	6		4	2	6		55
Snow Bunting		3				2						4		3		1		13
Rosy Finch											2							2
Harbor Seal		1	1		1					2	2							7



Table 3. Wildlife populations of north shore, Nizki, 25 May - 2 June 1983.

LOCATION:	West Point (N) (6/2)	False Point (6/2)	N W Cove (6/2)	Bozo Point (6/2)	Bozo Cove (6/2)	Middle Cove (6/2)	Jones Cove (6/2)	Jones Point (6/2)	Mallard Cove (5/25)	NIZ Cove (5/25)	NIZ Point (5/25)	Pocket Rock (5/25)	Eider Cove (5/25)	Arch Beach (5/25)	N E Beach (5/25)	E Point (5/25)	TOTAL
SPECIES:																	
Pelagic Cormorant	70							6	10		15	8	4	60			173
Red-faced Cormorant		74		20	30	50	130	23	191		75	161	8	6		30	798
Canada Goose													1				1
Green-wing Teal									2	3					2		7
Mallard				1									2				3
Common Eider	23	4	2	64	32	28	81	30	81	10	134		131	42		45	707
Harlequin Duck	6			11	3	3	28	10	10	10	16		18	1		4	120
Common Goldeneye													2				2
L. Golden Plover											2						2
Ruddy Turnstone															1		1
Rock Sandpiper					1		1	1		2	6			1			12
Glaucous-wing Gull	20	1	10	10	12		4	22	24		50		20				173
Pigeon Guillemot	2						1	3			1				1		8
Ancient Murrelet	2								1								3
Tufted Puffin	18						7	5	2		2		8				42
Horned Puffin	1						1	4			2						8
Winter Wren			1	4	1	1	4	5	7		3				3		29
Song Sparrow	2			5	1	4	4	3	2	3				1	2	1	28
Lapland Longspur				6	6	2	4	6	4	6	27		9	3	2		75
Snow Bunting	1						2	1	1	1			7		4	2	19
Rosy Finch							2										2
Steller's Sea Lion								9			3			6	1		19

Table 4. Wildlife populations of Nizki Island inland areas, 24-29 May 1983.

LOCATION:	Duck Pond (5/24)	S Pond (5/24)	Loon Lake to Pinnacle Cove (5/26)	Loon Lake (5/26)	Little W Pond (5/29)	Big W Pond (5/29)	Spar Pond (5/29)	Knoll Pond (5/29)	Long Valley Pond (5/29)	Kidney Pond (5/29)	Mallard Pond (5/25)	Little Eider Pond (5/24)	Eider Lake (5/25)	Jaeger Pond (5/25)	Empty Pond (5/29)	Camp Cove to Pinnacle Cove (5/26)	TOTAL
SPECIES:																	
Red-throat Loon						2	1				1	2	1				7
Common Loon	2										2		2	1			7
Green-wing Teal		1		1							7						9
Mallard	2			2							3		3				10
Northern Pintail				2													2
Eurasian Wigeon											1						1
Tufted Duck	9										4		1				14
Greater Scaup	5																5
Common Eider	11			4	1						6		3		1		26
Common Goldeneye	7			1													8
Red-breast Merg.	2																2
L Golden Plover													1				1
Wood Sandpiper																1	2
Bar-tail Godwit												2					2
Rock Sandpiper			1	1								2		3			7
Parasitic Jaeger														2			2
Glaucous-wing Gull	40			13					10				26	15			114
Common Tern				1													1
Song Sparrow	2																2
Lapland Longspur	6	10	6	10	4	2	1		2		2	2	18	8		4	75
Snow Bunting			1														1
Common Redpoll						11							16	2			29

Table 5. Wildlife populations of Alaid Island south shore, 29 May, 31 May and 2 June 1983.

LOCATION:	Spit & E End, S side (5/29)	Seal Cape (5/29, 6/2)	Jill Island (6/2)	Gull Island-Arch Rock (6/2)	Gull Island Cove (5/29, 6/2)	Lake Sterna (5/29)	E Marsh (5/29)	N E Beach (6/2)	Midden Cove (5/31)	Puffin Point (5/31)	Midden Lake (5/31)	South Lake (5/31)	Rocky Point (5/31)	Long Beach (5/31)	TOTAL
SPECIES:															
Common Loon	2										2				4
Pelagic Cormorant										25					25
Red-face Cormorant		22	35	78			2			10					145
Green-wing Teal															2
Mallard					2					1		3			6
Northern Pintail							2								2
Greater Scaup					4										4
Common Eider		5	2	11	23				42				20	76	179
Harlequin Duck		4			10				10				23	12	59
Black Scoter					1										1
Black-bellied Plover													2		2
Lesser Golden Plover									1+						1+
Mongolian Plover													1		1
Gray-tailed Tattler									16						16
Common Sandpiper									2	2			1		5
Terek Sandpiper		2							18	3					23
Whimbrel		1													1
Ruddy Turnstone									15						15
Rufous-neck Stint									8	1			10		19
Rock Sandpiper									1		1		2		4
Dunlin							1						5		6
Parasitic Jaeger												2			2
Glaucous-wing Gull	217	25	5	52				20	10			20		215	564
Black-leg Kittiwake						15									15
Ross' Gull		1													1
Ancient Murrelet		1										1+			2+
Tufted Puffin					2					13					15
Yellow Wagtail									1						1
Song Sparrow										1					1
Lapland Longspur						10						6	10	1	27
Snow Bunting	1														1
Harbor Seal				10						2					12
Steller's Sea Lion								245							

Table 6. Observed bird nests and clutch sizes, Nizki Island, 24 May - 2 June 1983.

	S E Beach (5/25)	Camp Cove (5/25)	Twin Rock (5/26)	Pinnacle Cove (5/24)	Breaker Point (5/26)	Loon Cove (5/29)	Barrier Point (5/29)	Puffin Cove (5/29)	West Point, S side (5/29)	West Point, N side (6/2)	N W Cove (6/2)	Bozo Point (6/2)	Bozo Cove (6/2)	Middle Cove (6/2)	Jones Cove (6/2)	Jones Cove Rocks (6/2)	Jones Point (6/2)	Mallard Cove (5/25)	NIZ Point (5/25)	Eider Bay (5/25)	Arch Beach (5/25)	N E Beach (5/25)	East Point (5/25)	Little W Pond (5/29)	Duck Pond (5/25)	TOTALS
Pelagic Corm.	1*				15							10						10		5		8				49/?*
Red-face Corm.	21		20		10		50		150	40	74	118	30 1/3	50	18	31	15	99		7			3			766/?
Common Eider	1				1/4						1	1	1				1/2	1 1/5			1/5		1/4	1/1	16/3.6	
Rock Sandpiper								1/3**																		1/3**
G-W Gull	14/0 5/1 3/2 25/3	3/3		1/3	1/0 3/3						1/3	1 1/2 1/3			1/3		1/3	1/1 2/3	2/3							70/3
Tufted Puffin	12+							+	+	+	***	+			10+		+		+							22+

\*First numeral indicates number of nests and the second number after the slant indicates clutch size (when available).

\*\*"1/4" on June 2.

\*\*\*Nests present, but not counted.

Table 7. Status of bird species at Nizki and Alaid Islands in Summer 1975 and Spring 1983.

Species	Status (Alaid-Nizki)	Nizki		Alaid	
		1975	1983	1975	1983*
Red-throated Loon	PR/N?	X	X	X	?
Arctic Loon	WR		X		
Common Loon	PR/N	X	X	X	X
(Northern Fulmar)**	(SR)	(X)	(X)	(X)	(?)
Pelagic Cormorant	PR/N	X	X	X	X
Red-faced Cormorant	PR/N	X	X	X	X
Emperor Goose	WR	X	X		
Canada Goose	SR/N?		X		
Green-winged Teal	PR/N?		X	X	X
Mallard	PR/N	X	X	X	X
Northern Pintail	M(WR?)		X		
Eurasian Wigeon	M(WR?)		X		
Tufted Duck	M(WR?)		X		
Greater Scaup	M(WR?)		X		X
Common Eider	PR/N	X	X		X
Harlequin Duck	PR	X	X	X	X
Black Scoter	WR	X	X		
White-winged Scoter	WR	X	X		
Common Goldeneye	WR	X	X	X	
Common Merganser	M		X		
Red-breasted Merganser	PR	X	X		
Common Buzzard	XM		X		
Peregrine Falcon	PR/N?		X	X	?
Black-bellied Plover	M				X
Lesser Golden Plover	M		X		X
Mongolian Plover	M		X		X
Black-winged Stilt	XM		X		
Common Greenshank	M		X		
Green Sandpiper	M		X		
Wood Sandpiper	M		X		
Wandering Tattler	M	X	X		
Gray-tailed Tattler	M				X
Common Sandpiper	M		X		X
Terek Sandpiper	M		X		X
Whimbrel	M		X	X	X
Far Eastern Curlew	M		X		
Bar-tailed Godwit	M		X		
Ruddy Turnstone	M	X	X	X	X
Rufous-necked Stint	M		X		X
Rock Sandpiper	PR/N	X	X	X	X
Dunlin	M		X		X
Slaty-backed Gull	M(SR?)		X		
Glaucous-winged Gull	PR/N	X	X	X	X
Black-legged Kittiwake	SR/N	X	X	X	X
Ross' Gull	XM				X
Common Tern	M	X	X		
Common Murre	PR		X	X	?
(Thick-billed Murre)**	(PR)		(X)		(X)
Pigeon Guillemot	PR/N?	X	X		?
Ancient Murrelet	PR/N?		X		X
Parasitic Jaeger	SR	X	X	X	X

<u>Species</u>	<u>Status</u> <u>(Alaid-Nizki)</u>	<u>Nizki</u>		<u>Alaid</u>	
		<u>1975</u>	<u>1983</u>	<u>1975</u>	<u>1983*</u>
Tufted Puffin	SR/N	X	X	X	X
Horned Puffin	SR/N?	X	X	X	?
Common Raven	PR/N	X	X	X	?
Winter Wren	PR/N	X	X		
Eye-browed Thrush	M		X		
Yellow Wagtail	M		X		X
Song Sparrow	PR/N	X	X	X	X
Lapland Longspur	SR/N	X	X	X	X
Snow Bunting	SR/N	X	X	X	?
Rosy Finch	PR?/N?		X		
Common Redpoll	PR?/N?	X	X	X	?
Total Species Recorded:		29	59		

\*Island incompletely censused in 1983. Question marks used to indicate possible presence on portion of island not visited.

\*\*Species recorded as dead specimen on the shoreline only.

M = Migrant Species  
N = Nesting Species  
PR = Permanent Resident  
SR = Summer Resident  
WR = Winter Resident  
X = Present During Survey  
? = Status Uncertain

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