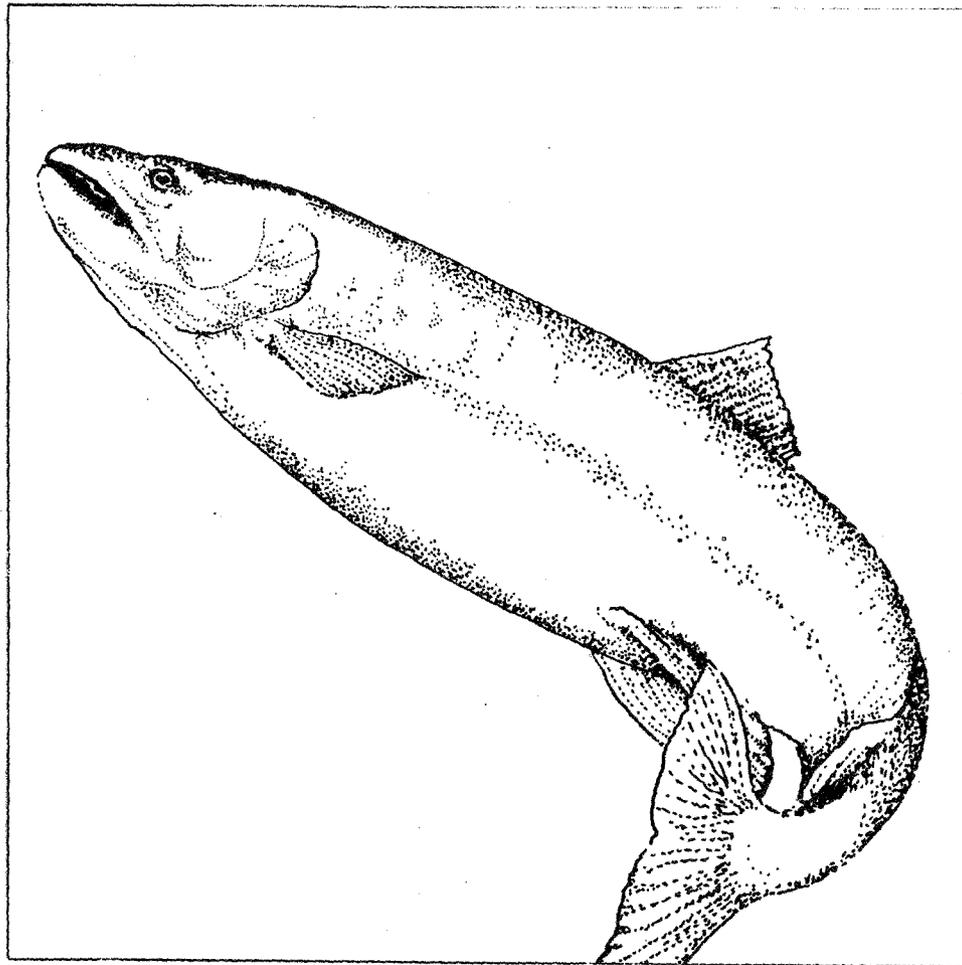


# AKHIOK

## COMPREHENSIVE PLAN



CITY OF AKHIOK  
KODIAK ISLAND, ALASKA

COMPREHENSIVE PLAN  
AND  
CAPITAL IMPROVEMENTS PROGRAM

KODIAK ISLAND BOROUGH  
SEPTEMBER 1986

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AKHIOK COMPREHENSIVE PLAN  
AND  
CAPITAL IMPROVEMENTS PROGRAM

CITY OF AKHIOK  
KODIAK ISLAND BOROUGH, ALASKA

SEPTEMBER 1986

PREPARED BY: KODIAK ISLAND BOROUGH COMMUNITY DEVELOPMENT DEPARTMENT

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Jerome Selby, Borough Mayor

### Kodiak Island Borough Planning and Zoning Commission

Mike Anderson  
Robin Heinrichs  
Marlin Knight  
Mary Lou Knudsen  
Steven Rennell, Chairman  
D. L. Smedley  
Scott Thompson

### Akhiok City Council

Nick Peterson, Sr. - Mayor  
Walter Simeonoff, Sr. - Vice Mayor  
Linda Amodo - Secretary  
David Eluska, Sr. - Treasurer  
Miney Agnot - Member  
Gary Rozelle - Member  
Andrew Peterson - Member

### Akhiok Tribal Council

David Eluska, Sr. - President  
Walter Simeonoff, Sr. - Vice President  
Luba Eluska - Secretary/Treasurer  
Billy Rastopsoff - Member  
Robert Simeonoff - Member

### Kodiak Area Native Association

Gordon Pullar, Executive Director  
Yvonne Zharoff, Director of Community and Economic Development  
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### The Residents of Akhiok

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## EXECUTIVE SUMMARY

The Akhiok Comprehensive Plan has been developed by the Kodiak Island Borough as part of an ongoing effort to develop comprehensive plans for all Kodiak Island villages and population concentrations. Second class Boroughs are required to provide for planning, platting and land use regulations pursuant to Title 29, Alaska Statutes. The plan is intended to serve as a guide for decision making in the location of future land uses and capital improvement projects. The plan will constitute one portion of the Borough's overall comprehensive plan and comprehensive planning process and is intended to assist in the implementation of the Kodiak Island Borough and State of Alaska Coastal Management Programs.

The plan contains several components with the format based on previous comprehensive plans developed for other Kodiak Island villages (Karluk, Larsen Bay, Ouzinkie). The setting and environment and cultural environment sections describe the elements (or findings) of the community at the present time. The goals and objectives represent the desired future state of the community as determined by local residents. The comprehensive plan section outlines the future land use needs of the community based on the existing situation and the goals and objectives for the future. This section also presents land use categories to guide the location of future developments. Last, but certainly not least, is an updated priority list and brief discussion of capital improvement projects

for Akhiok. This list was developed by community residents and represents one way in which the goals and objectives for future development of the community are achieved.

AKHIOK

THE SETTING AND ENVIRONMENT

## INTRODUCTION

The setting and environment and cultural environment sections present the "findings" or description of the community, its facilities and resources at the present time. They provide a focus for an understanding of Akhiok, its people and their goals for the future.

## HISTORY

The original village of Akhiok (pronounced "ah-kē-ʔk") was located near Humpy Cove. The village, called Kashukugniut, was occupied by the Russians in the early 19th century. The name Akhiok was reported in the 1880 census. In 1881, residents from the old village relocated to the present site at the south end of Kodiak Island at Alitak Bay. A post office was established in 1933 and remained open until 1945. The village was renamed Alitak during World War I by the post office to avoid confusion with a village near Bethel named Akiak. The name was later changed back to Akhiok.

Following the 1964 earthquake and tsunami, families from the village of Kaguyak were relocated in Akhiok.

The community was originally a sea otter hunting settlement. With the decline of the sea otter industry, however, the village has become oriented primarily toward fishing.

The City of Akhiok was incorporated in 1974 and is a second class city within the Kodiak Island Borough.

# REGIONAL LOCATION MAP

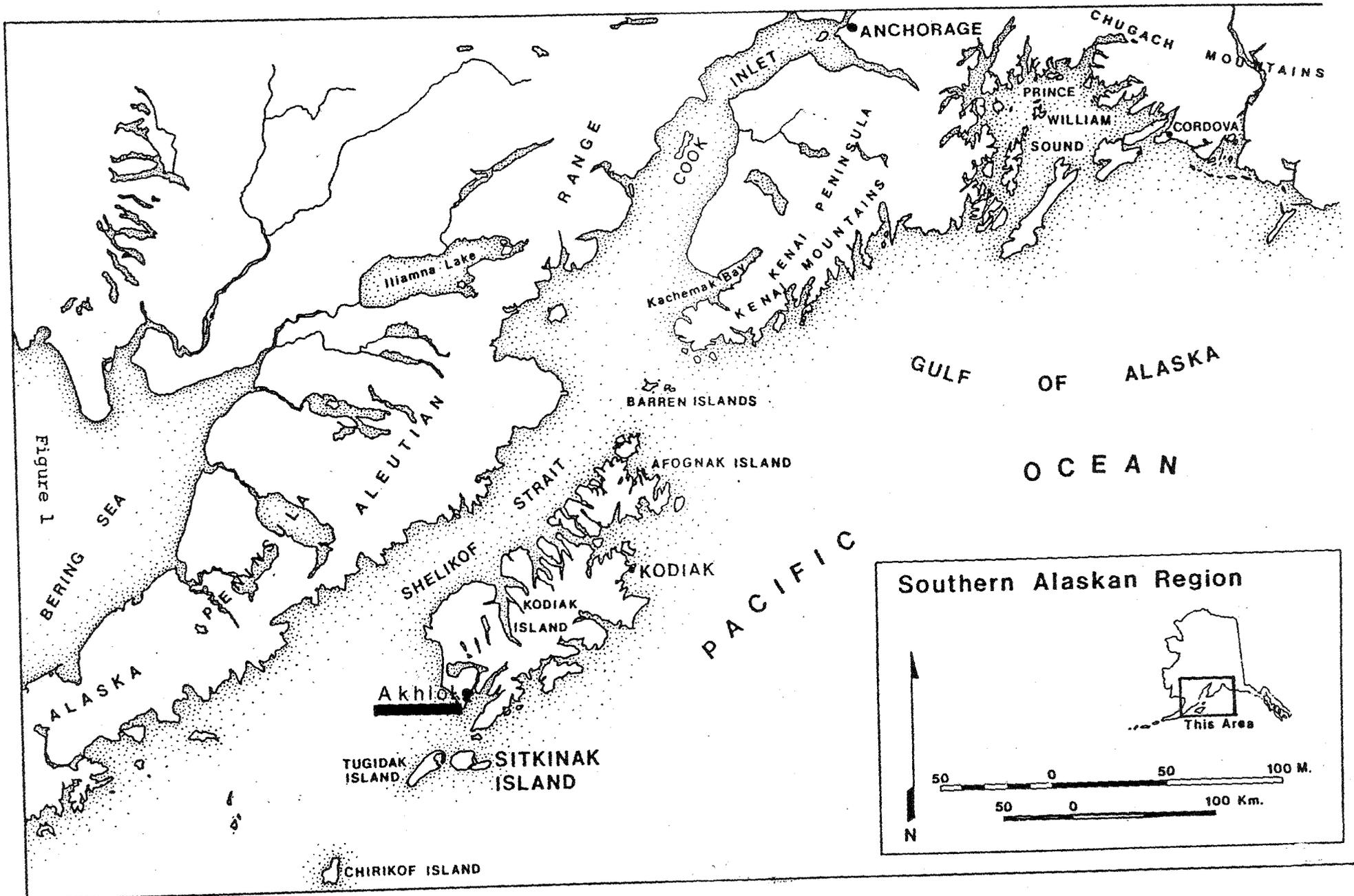


Figure 1

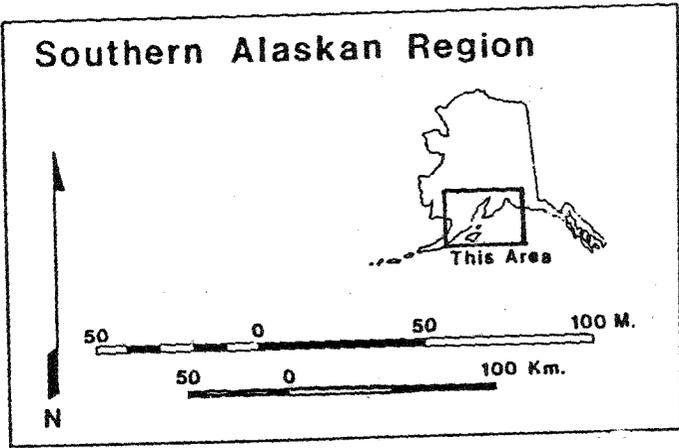
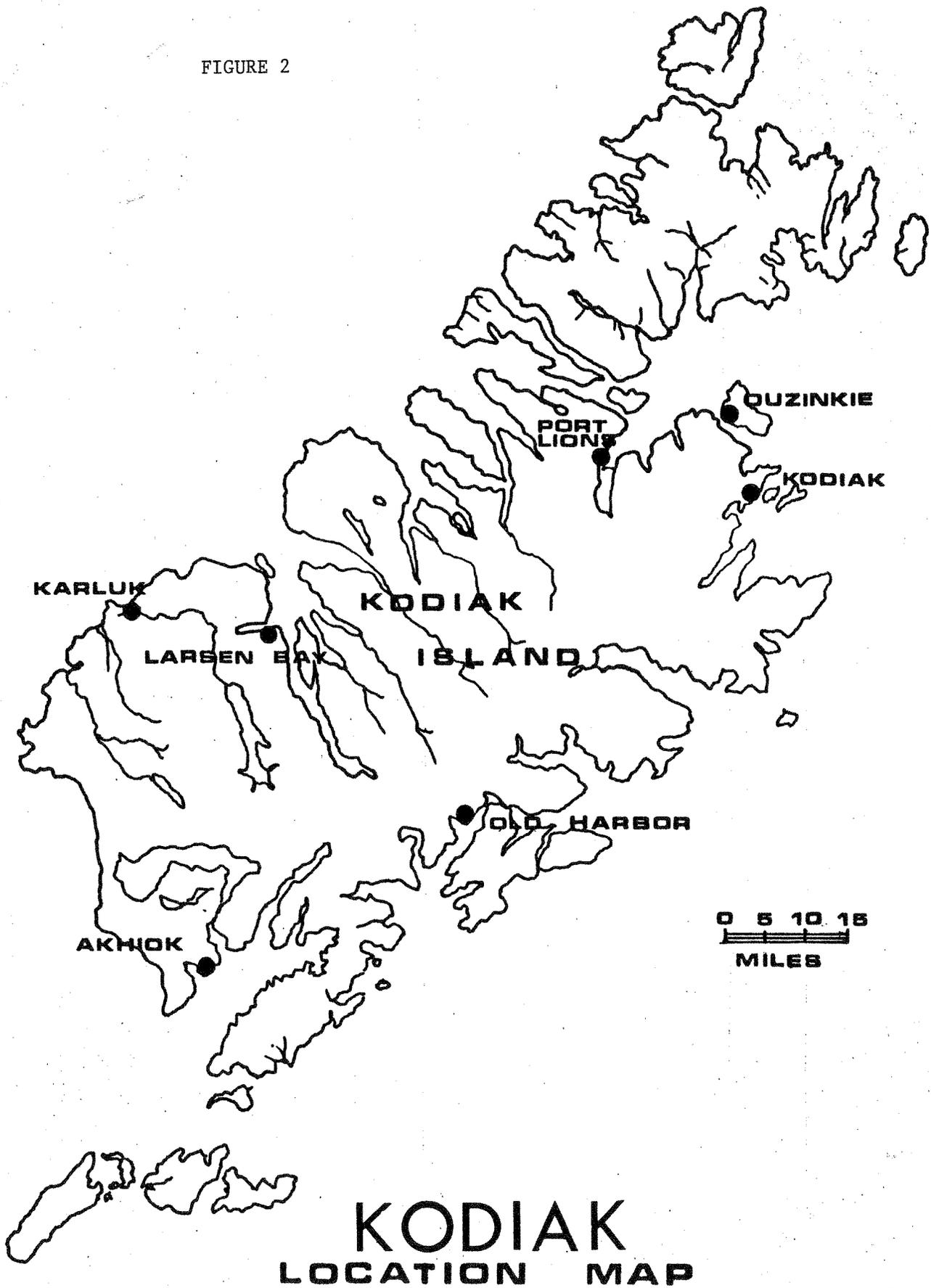


FIGURE 2



## LOCAL GOVERNMENT AND NATIVE CORPORATION

### CITY OF AKHIOK

Akhiok is a second class, incorporated city in the Kodiak Island Borough, itself a borough of the second class.

The City of Akhiok has a seven member city council from which the mayor and other officers are selected. Local elections are held in October. The City of Akhiok employs a clerk and part-time maintenance person. The Mayor serves as the City Administrator. The City of Akhiok also has a the village public safety officer (VPSO). The VPSO program is funded by the State of Alaska, Department of Public Safety, through a contract with the Kodiak Area Native Association. The Akhiok City Council is involved in the selection process but the actual hiring is done by KANA and the VPSO becomes a KANA employee.

Under the Statutes of the State of Alaska, second class cities may assume diverse municipal powers. Currently, the City of Akhiok individually, or under contract with various agencies, exercises the following powers and services:

- street maintenance
- electricity and fuel distribution
- water and sewer
- police protection (VPSO)
- community center

library  
recreational hall  
airstrip maintenance  
garbage and solid waste disposal  
fire protection

Akhiok has a federal townsite, U.S. Survey 4926. A townsite patent on 94.24 acres was issued to the BLM Townsite Trustee on April 3, 1974. The Trustee, in turn, has since deeded occupied parcels to residents, and some vacant subdivided lots to the City of Akhiok. Other subdivided property remains with the Trustee for future disposition. The townsite includes a municipal reserve along the shoreline of 1.4 acres. Other parcels in the vicinity include a 93.29 acre airport site and a 15.16 acre Russian Orthodox Church site.

#### KODIAK ISLAND BOROUGH

The Kodiak Island Borough, a second class borough, is governed by an elected assembly of seven members and a mayor. Borough powers include the areawide assessment and levying of taxes, planning, platting, land use regulation and education. These powers are executed on a borough-wide basis for all cities such as Akhiok and unincorporated areas. Parks and recreation powers are executed on a non-areawide bases.

The elected borough mayor is responsible for the administration of the borough government, including the supervision of staff.

Planning, platting and zoning for the City of Akhiok is administered by the Kodiak Island Borough through the Borough Community Development Department. Second class boroughs are mandated to provide for planning, platting and land use regulations on an areawide basis pursuant to Chapter 29.40, Alaska Statutes.

#### AKHIOK TRADITIONAL TRIBAL COUNCIL

Recognized by the Bureau of Indian Affairs as the official tribal governing body of the community of Akhiok, the Tribal Council is eligible to administer a variety of federal programs, including local health care, employment assistance and other social services. The Tribal Council assigns its federal contracting authority to the Kodiak Area Native Association (KANA) by resolution. KANA in turn, administers the programs and provides the services.

Tribal Council members are elected according to an adopted constitution and bylaws. Elections are held at the same time as local municipal elections.

#### AKHIOK-KAGUYAK, INC.

As the local native corporations formed pursuant to the Alaska Native Claims Settlement Act of 1971, Akhiok, Inc. selected and received patent or interim conveyance to approximately 57,089 acres of federal land. Kaguyak, Inc. was formed under ANCSA for the village of Kaguyak that was destroyed in the 1964 earthquake and tsunami. Kaguyak, Inc. selected and received patent or interim conveyance to approximately 66,490 acres of federal land. Because most of the former Kaguyak residents moved to

Akhiok, Kaguyak, Inc., merged with Akhiok, Inc., forming Akhiok-Kaguyak, Inc., which in turn merged with Koniag, Inc.

In 1980, Akhiok-Kaguyak, Inc. merged with Koniag, Inc., the regional native corporation. As a result of this action, the merged corporation owned both the surface and subsurface rights to all land holdings selected by the village corporation. Subsequently, in 1984, a court approved settlement demerged Akhiok-Kaguyak, Inc. and other village corporations from Koniag, Inc.

Under the Alaska Native Claims Settlement Act of 1971 Section 14(c)(1), the corporation must reconvey title to the surface estate of tracts of land occupied or used by native or non-native individuals as primary places of residence or business, or subsistence campsites as of December 18, 1971. Unless otherwise agreed to by the city, a minimum of 1,280 acres must also be transferred to the City of Akhiok under ANCSA Section 14(c)(3) for community expansion and public purposes. Akhiok-Kaguyak, Inc. and the City of Akhiok are currently negotiating on 14(c)(3) conveyances.

#### AYAKULIK, INC.

Ayakulik, Inc. is a local native corporation located in the vicinity of Akhiok. Pursuant to the Alaska Native Claims Settlement Act of 1971, Ayakulik, Inc. selected and received interim conveyance to 442 acres of federal lands.

One conveyed native allotment claim and 15 active native allotment claims are located near Akhiok. Under the Alaska Native Allotment Act of 1906, the Secretary of the Interior may allot to individual natives up to 160 acres of land, providing the claimant proves continuous use and occupancy. Because the Alaska Native Allotment Act of 1906 was repealed with the passage of the Alaska Native Claims Settlement Act of 1971, no applications for allotments have been accepted by the Bureau of Land Management (BLM) since December 18, 1971. Many applications filed prior to that date are still being processed, however.

#### KONIAG REGIONAL CORPORATION

Koniag, Inc. is the regional native corporation formed pursuant to the Alaska Native Claims Settlement Act of 1971 and is a private, for profit corporation. As a result of the 1984 demerger, Koniag, Inc. today holds only the subsurface estates to lands selected and conveyed to Akhiok-Kaguyak, Inc.

## TOPOGRAPHY

As with most of the land forms on Kodiak Island, the Akhiok area was fashioned from glacial activities dating from the miocene epoch to the present. Akhiok Bay itself is a fiord which was once filled with ice.

The local shoreline is characterized by narrow rocky beaches with a gradual incline up to surrounding uplands. The City of Akhiok is located in close proximity to the bay. Elevations of the community and surrounding areas range from 10-feet to 40-feet above mean sea level. Behind and to the west of Akhiok, the hills are generally smooth and rounded, rising rapidly to elevations of approximately 1,800 feet.

Figure 3 shows topographic data for Akhiok Townsite.

\*\*\*\*Place topo map here\*\*\*\*

## CLIMATE

The climate of the Kodiak Islands is dominated by a strong marine influence. The area is characterized by moderately heavy precipitation, cool temperatures and high cloud and fog frequency with little or no freezing weather. The humidity is generally high and the temperature variation is small.

Temperature patterns are characterized by relatively cool summers and warm winters. The temperature range at Akhiok is from 25 degrees to 54 degrees Fahrenheit. The average annual precipitation is 35.3 inches. The number of wet days per year (a day with 0.1" or more of water precipitation) averages between 100 and 150 in the Kodiak Islands area.

Two types of winds are found in the Kodiak Islands area. One type consists of a very narrow band produced by a strong pressure gradient. These winds usually come over the mountains down long narrow valleys, then extend over the water where they spread out and dissipate. Storm winds, on the other hand, are generated in the Gulf of Alaska/Pacific Ocean, and often sustain speeds from 50 to 75 knots. Frequently storms remain stationary resulting in winds that create substantial wave action which impact coastal facilities. The most severe storms occur from December through February.

Information on wind speed and direction is necessary to design and orient airports and structures. For a structure with an expected life of

10 years, a structural design should be chosen that can withstand wind speeds of at least 95 miles per hour; 100 miles per hour for a structure with an expected life of 25 years; 115 miles per hour for a 50-year life; and 120 miles per hour for a structure with a life expectancy of 100 years or more.

Sky cover/visibility and icing are two other climatological features of importance to the Kodiak area. Anything in the air which reduces visibility to six miles or less is recorded as an obstruction to vision. Fog is the principal cause of reduced visibility and can be expected at least two and a half hours each day or about 10 percent of the time. It occurs mostly from June through September.

Icing primarily affects sea-going craft. It is dependent on atmospheric conditions and the ship's size/behavior, and is caused either by heavy freezing spray, freezing rain, or fog. Icing can occur when the air is below 28 degrees Fahrenheit, the freezing temperature of seawater, and the sea surface temperature is below 41 degrees Fahrenheit. Icing, which can be a serious problem from December through February when the air is cold and the sea temperature declines, has caused damage to vessels and loss of life.

## TIDES, CURRENTS AND COASTAL PROCESSES

Tides in the Kodiak Islands are generally typical of the west coast of the United States. There are usually two high and two low waters each day. High tides arrive at Akhiok 14 minutes earlier to 14 minutes later than at Kodiak Harbor, and low tides arrive 15 minutes to 1 hour later than at Kodiak Harbor. The maximum range between high and low tides at Akhiok is 10.0 to 11.9 feet. Strong currents exist at Bun Point in Moser Bay and currents of at least 8 knots exist at the narrows into Olga Bay. These are the strongest currents in the vicinity of Akhiok.

Coastal flooding is a possible hazard due to land settling and seismic sea waves. The Kodiak Island group is located in seismic risk zone 4, an area subject to earthquake magnitudes of 6.0 to 8.8 (Richter Scale) and resulting ground failure and major structural damage. Fortunately, Akhiok escaped damage from the 1964 earthquake and tsunami.

Coastal erosion due to storms and sea-wave activity significantly affects the shoreline in the vicinity of Akhiok. Major coastal erosion and shoreline damage have been reported. East-facing shorelines in Kodiak are most prone to such damage, especially from storms centered in the Gulf of Alaska, which can achieve sustained winds of 50 to 75 knots.

## PHYSICAL HAZARDS

Other than earthquakes and tsunamis, local hazards due to volcanic activity come from the active volcanic ridges along the Alaska Peninsula. The particular threats posed by volcanic eruptions are secondary in nature. The most serious is the threat of airborne ash, which can be carried great distances and cover wide areas. Ash deposits of several feet were recorded on Kodiak Island as a result of the 1912 eruption of Mount Katmai. Additional damage can be caused by corrosive rains which are caused by the acidic volcanic gases mixing with precipitation. Additional secondary threats from regional volcanic activity include earthquakes, seawaves, landslides and lightning.

## GEOLOGY

Kodiak Island and the associated smaller islands making up the Kodiak Island group are located in the Western Gulf of Alaska. The islands are separated from the Alaska Peninsula by lower Cook Inlet and Shelikof Strait. Kodiak, Afognak, Spruce, Sitkinak, Tugidak and Chirikof Islands are rugged land masses dominated by the glaciated northeast trending Kodiak mountains. Some of the mountain peaks rise to heights of 4,000 feet or more.

The islands were formed primarily from extensive marine sediment deposition and volcanic activity. Most of the Island is dominated by cretaceous and Upper Jurassic rocks of sparsely fossiliferous graywacke, slate, argillite with minor conglomerates, volcanic detritus, and interbedded mafic volcanos. The Kodiak Islands have undergone extensive uplift and glaciation, the result of which is a sea coast cut by deep narrow scoured straits and fiords, and steep, rocky sea bluffs. The southern portion of Kodiak Island, however, is relatively flat. The broad glacially carved valleys and lowlands have been filled with thick glacial deposits resulting in numerous shallow lagoons and lakes. Low Cape, near Akhiok, is a good example.

The soils throughout the islands are relatively shallow. Surficial deposits are located primarily in valley bottoms and along the narrow coastal plain. Many areas at the heads of bays are not suitable for development because of poorly drained soils or high water tables. Waste

disposal is a problem in areas of shallow surficial soils. Disposal by means other than sewer collection and outfall or treatment is a particular problem in these shallow surface soils. The likelihood of unconsolidated materials underlying soils also becomes a concern when development is contemplated on slopes in excess of 10 to 15 percent.

## NONRENEWABLE RESOURCES

The Kodiak Islands have areas identified as potential mineral belts. Lode deposits containing gold, silver, copper, lead, tungsten, zinc and possibly chromium occur in these mineral belts, but few have been mined. Placer gold is the main mineral that has been exploited to date. Mineral claims are concentrated along the coastline and in the more accessible areas.

Akhiok is southeast of the identified mineral provinces on Kodiak Island. There are no known mineral occurrences near the City of Akhiok but placer gold deposits are located to the south near Alitak and Tanner Head Island.

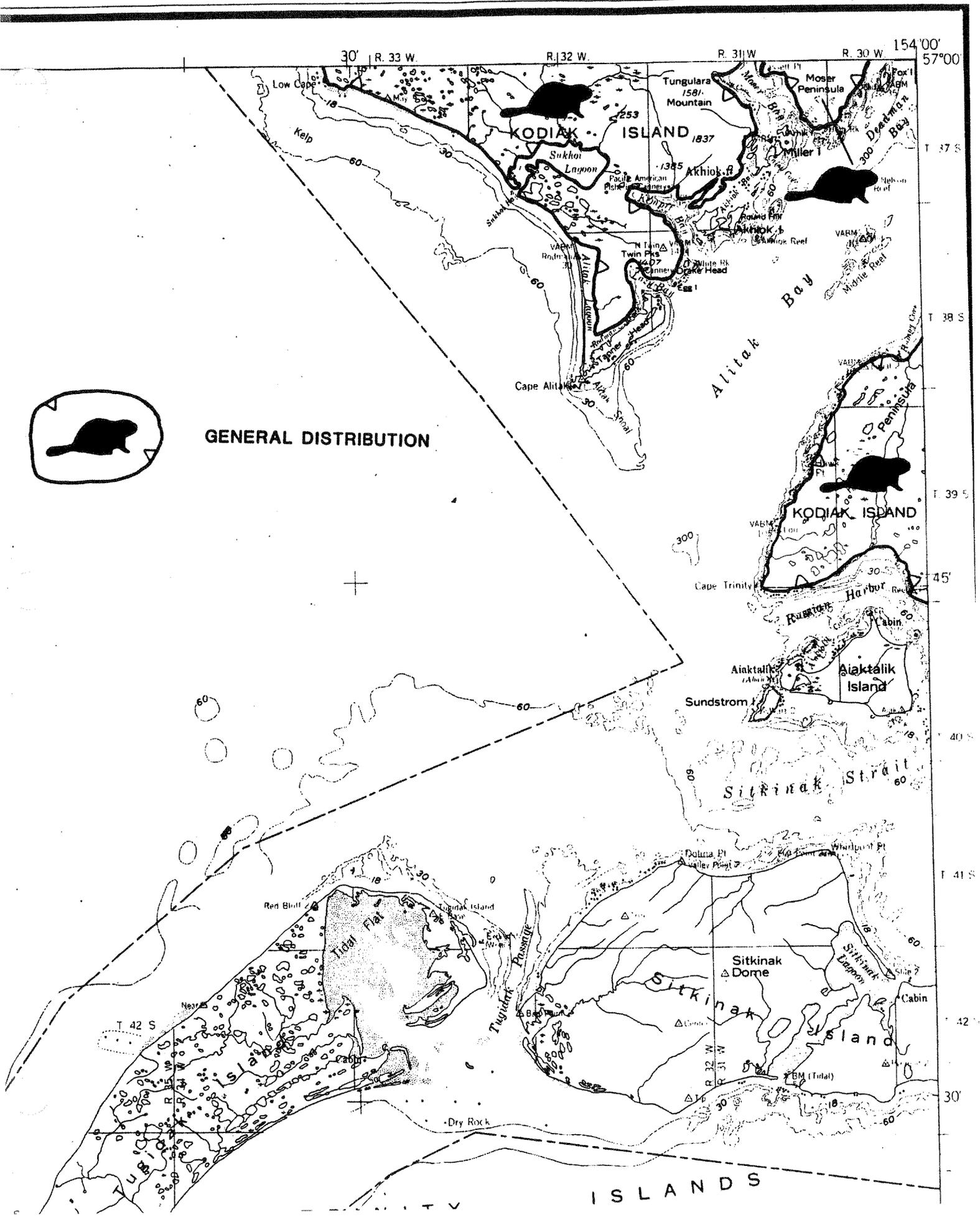
The outer continental shelf surrounding the Kodiak Islands has been identified for oil and gas exploration in connection with the proposed federal OCS oil and gas lease sales.

## FISH AND WILDLIFE

Fish and wildlife resources are critically important to the economy and lifestyle of residents throughout Kodiak Island. Akhiok is no exception. The waters outside Akhiok and around Kodiak Island are among the richest commercial fishing grounds in the world, with abundant salmon stocks and a rich bottomfish resource still predominantly harvested by foreign fleets. Upland game, including the Kodiak brown bear and the Sitka black-tail deer, have proven both popular for sport hunting as well as essential for subsistence activities for local residents.

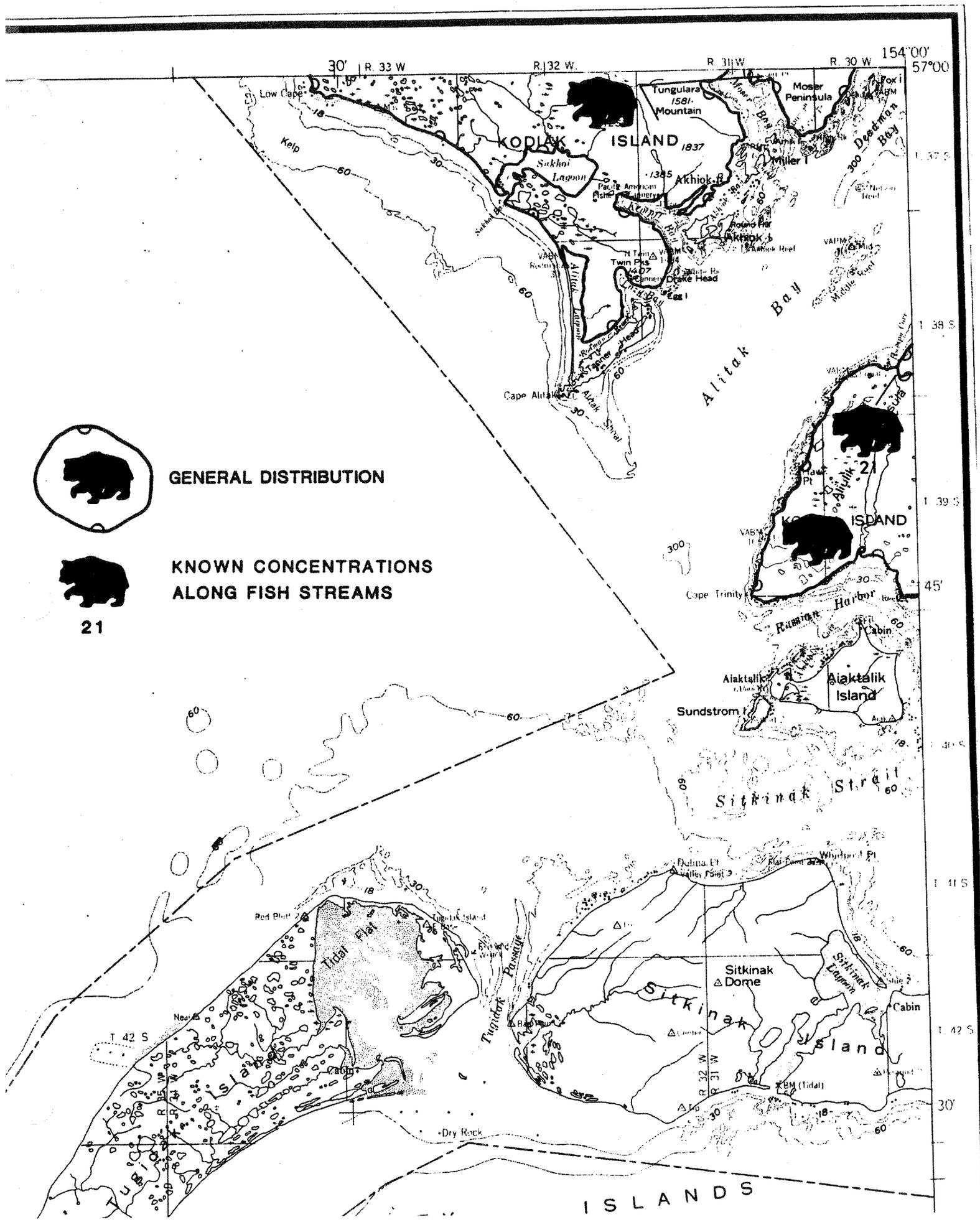
Detailed maps of the distribution of fish and game resources around Akhiok are included as Figures 3 through 19. These maps are reproduced from the Alaska Habitat Management Guide Reference Maps, prepared by the Habitat Division of the Alaska Department of Fish and Game.

WILDLIFE RESOURCE MAPS



GENERAL DISTRIBUTION

ISLANDS



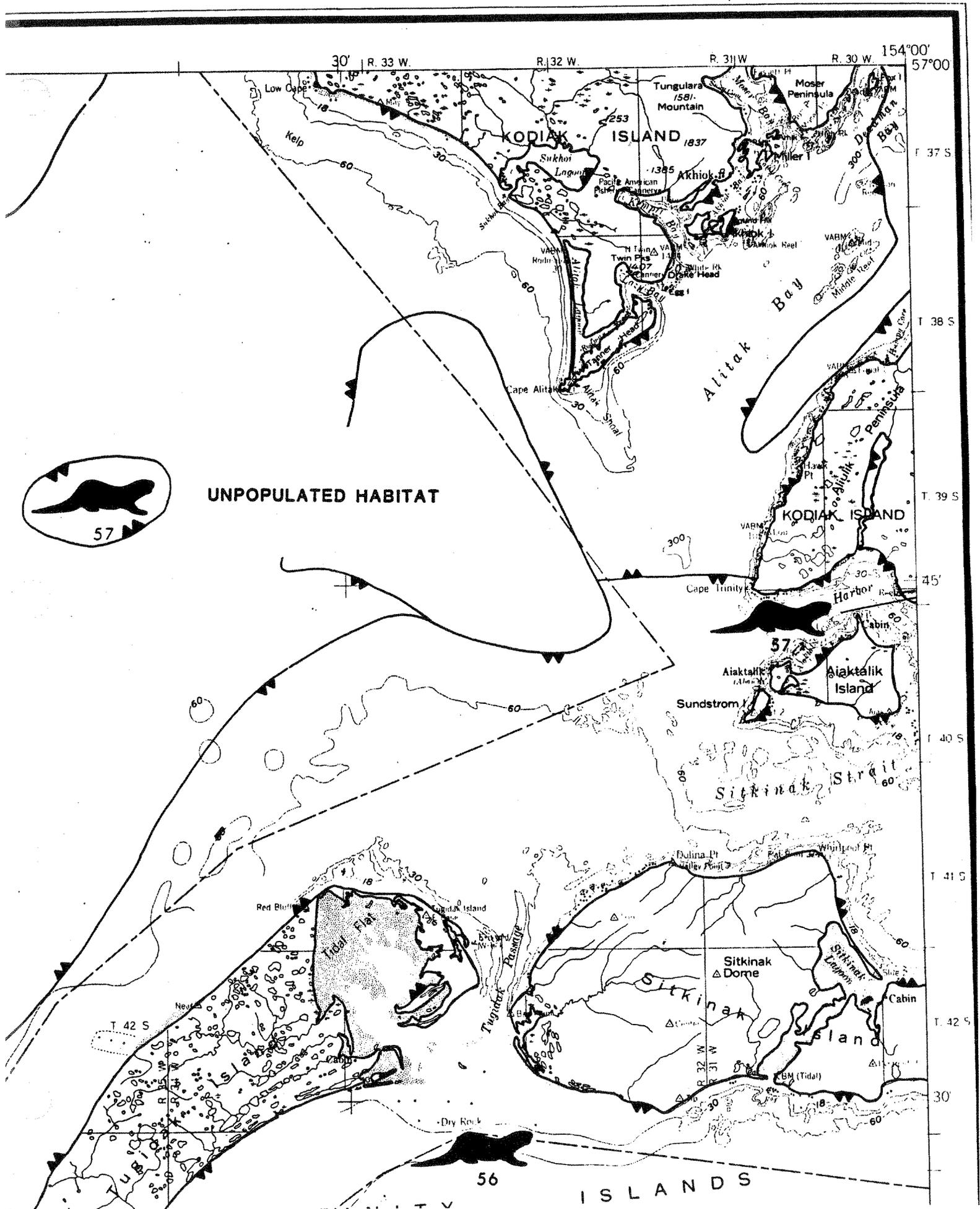
GENERAL DISTRIBUTION



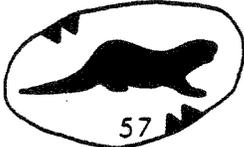
KNOWN CONCENTRATIONS  
ALONG FISH STREAMS

21

ISLANDS



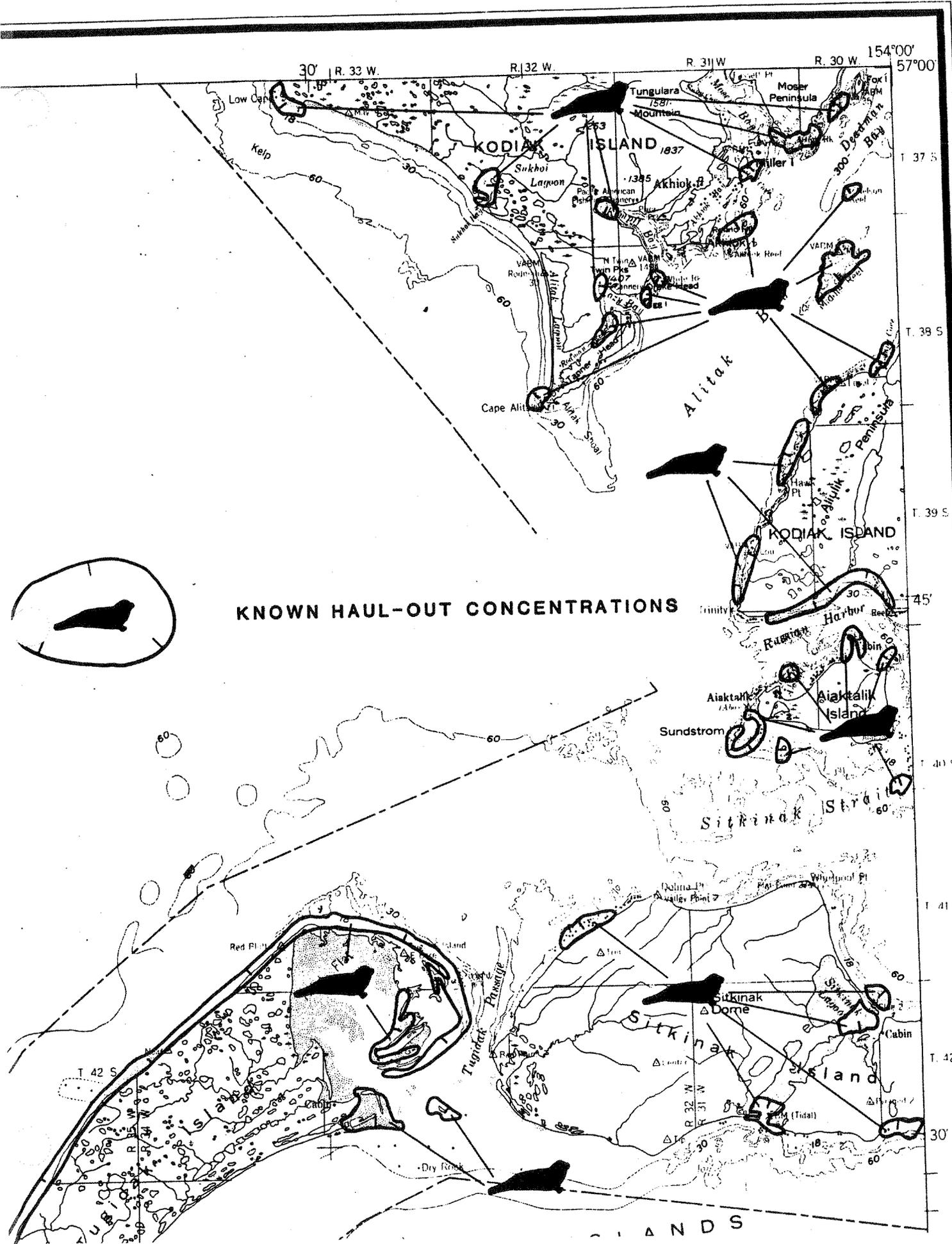
UNPOPULATED HABITAT



56

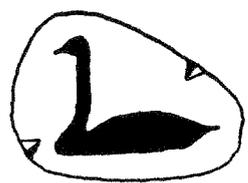
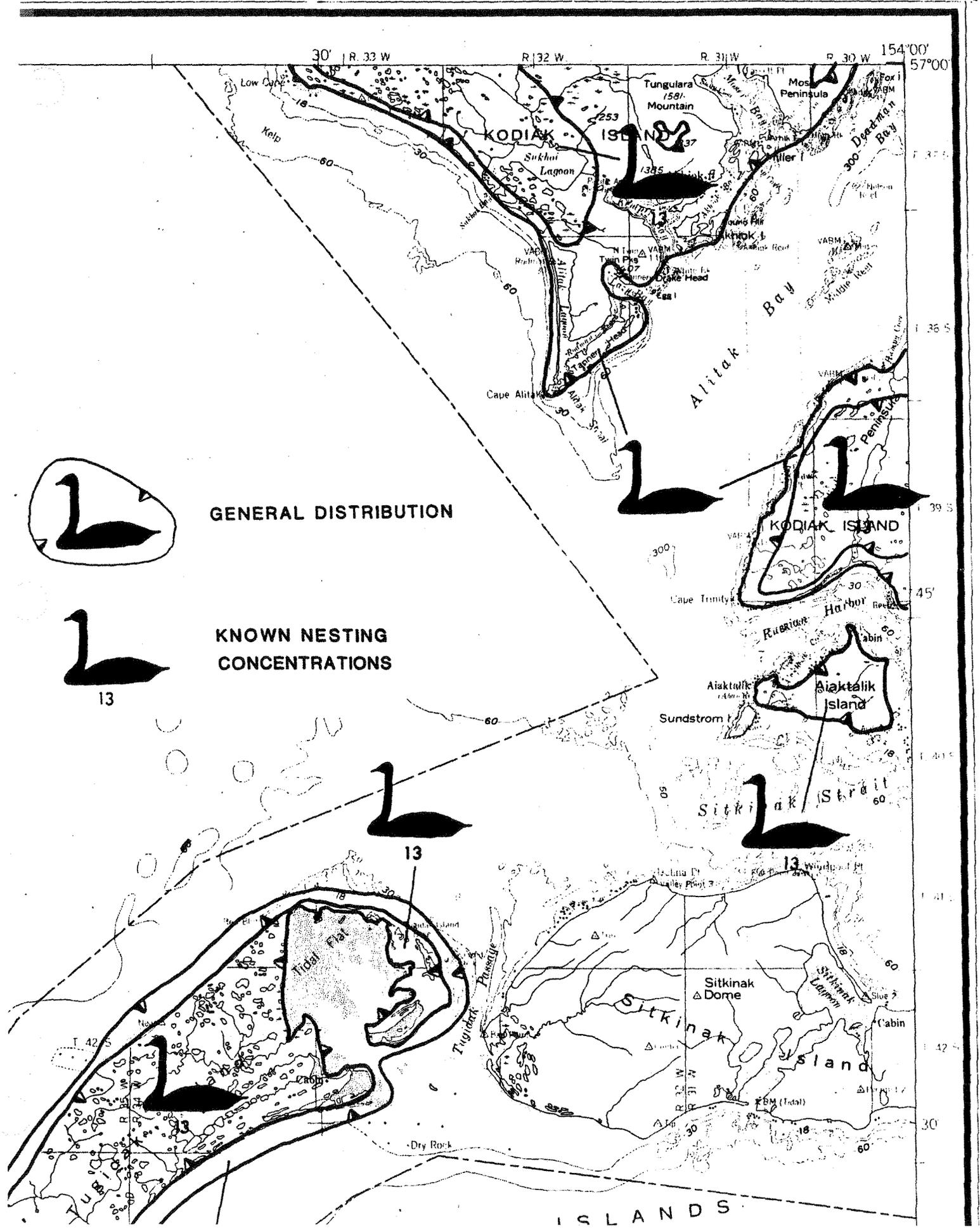
57

ISLANDS



KNOWN HAUL-OUT CONCENTRATIONS

ISLANDS

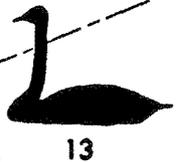


GENERAL DISTRIBUTION

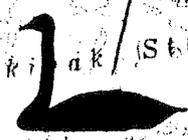


KNOWN NESTING CONCENTRATIONS

13



13



13

ISLANDS



FIGURE 10  
DISTRIBUTION OF GEESE

TOPOGRAPHIC SERIES  
THIRD JUDICIAL DIVISION

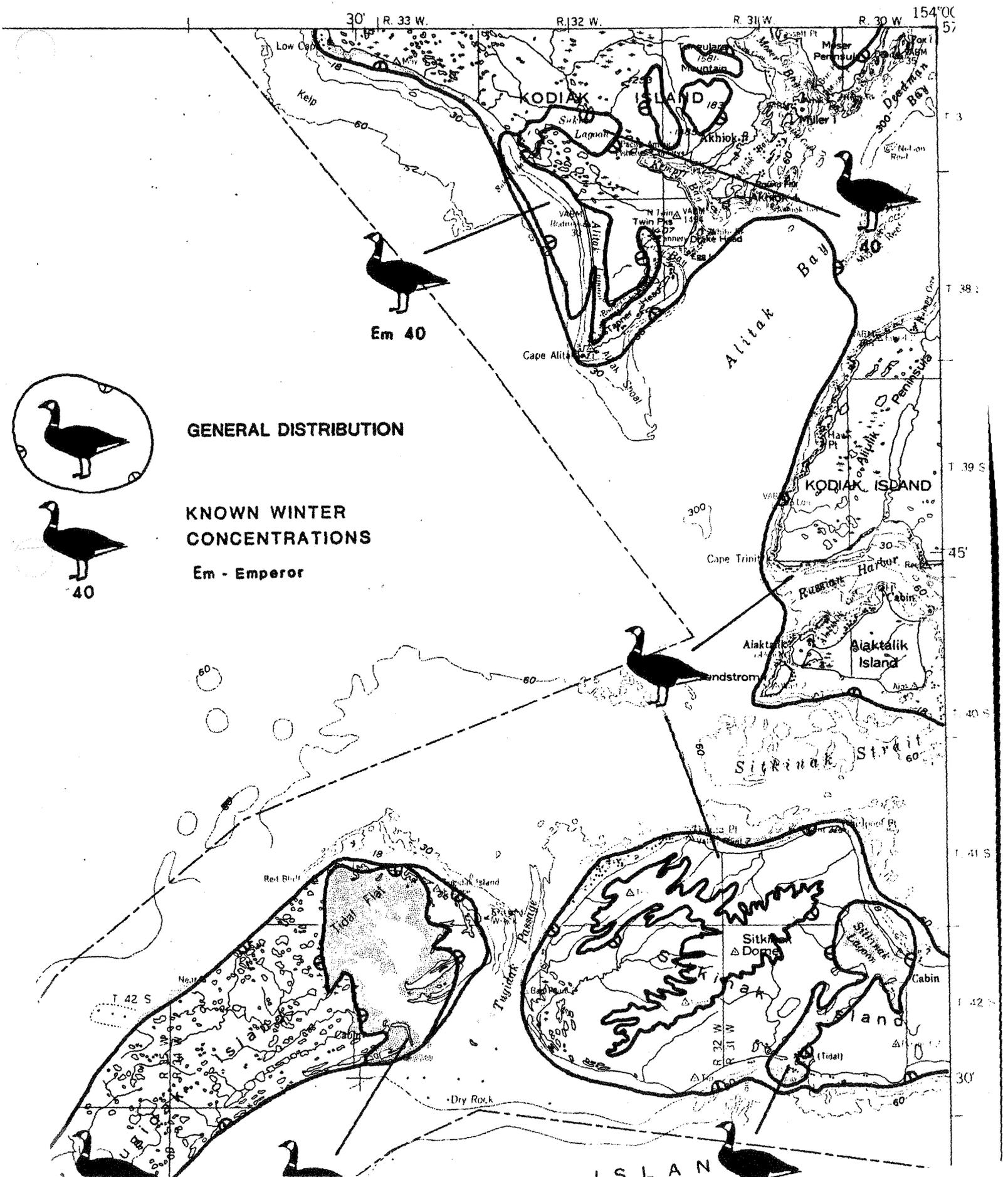
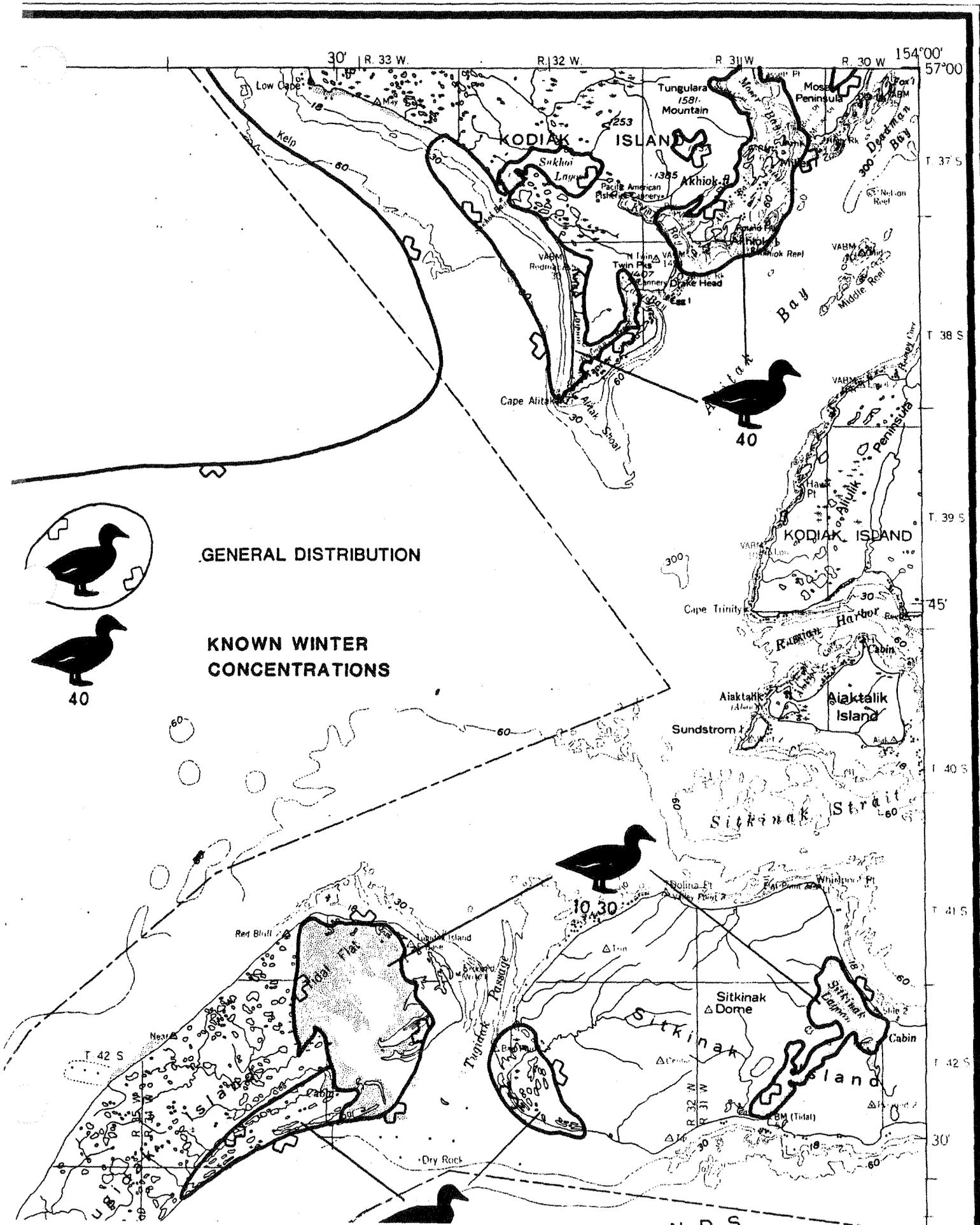
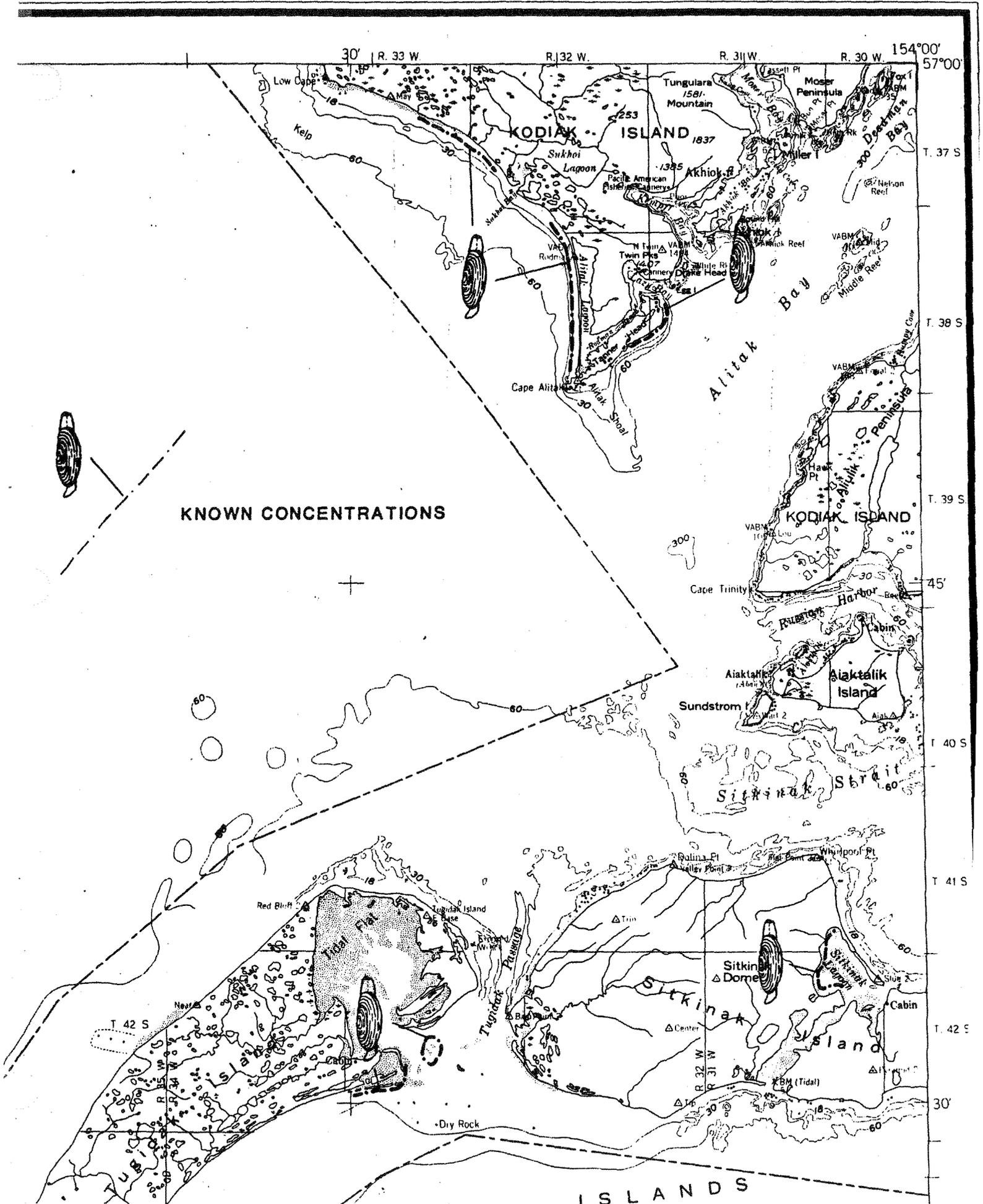




FIGURE 12  
DISTRIBUTION OF DUCKS

TOPOGRAPHIC SERIES  
THIRD JUDICIAL DIVISION





KNOWN CONCENTRATIONS

ISLANDS

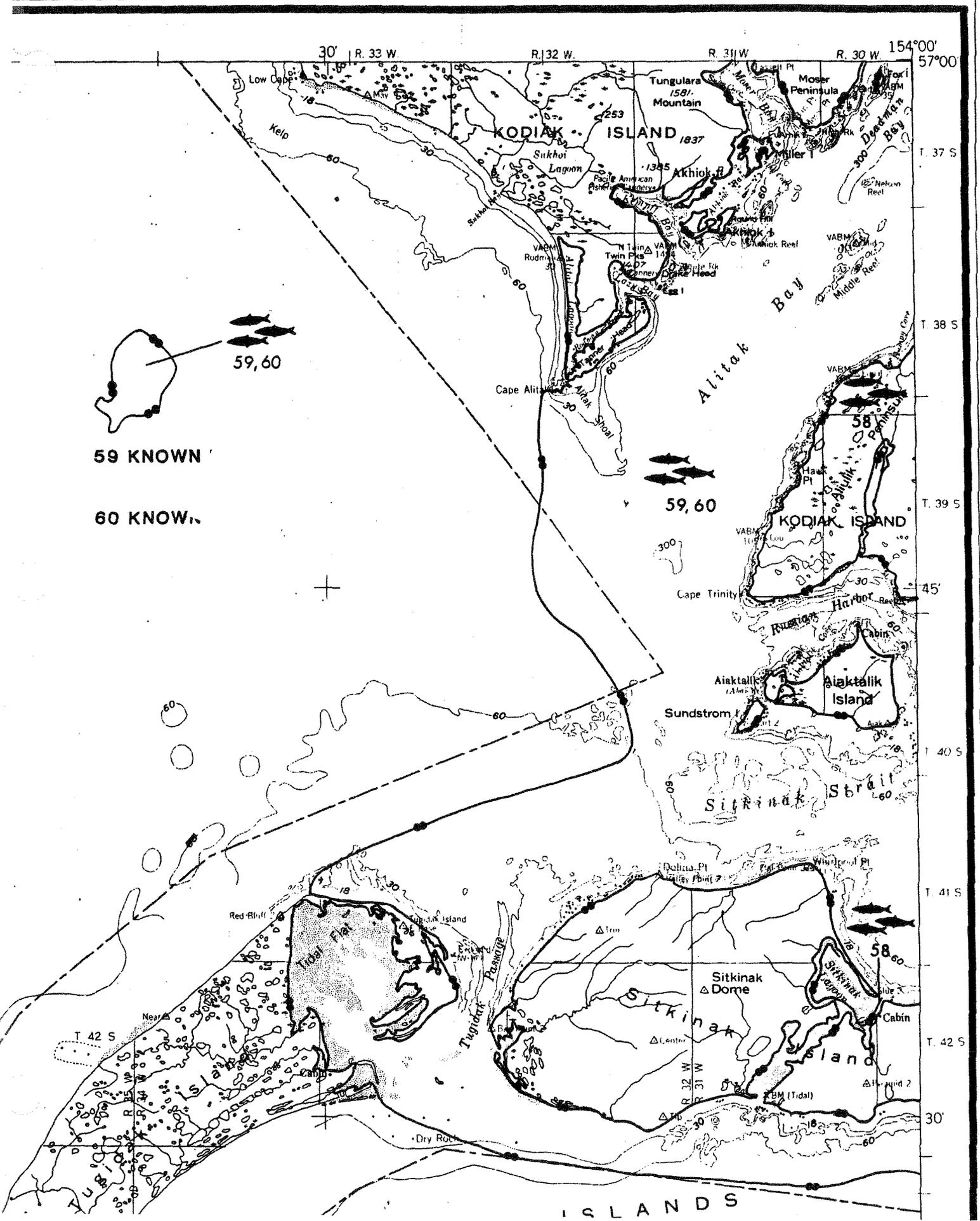
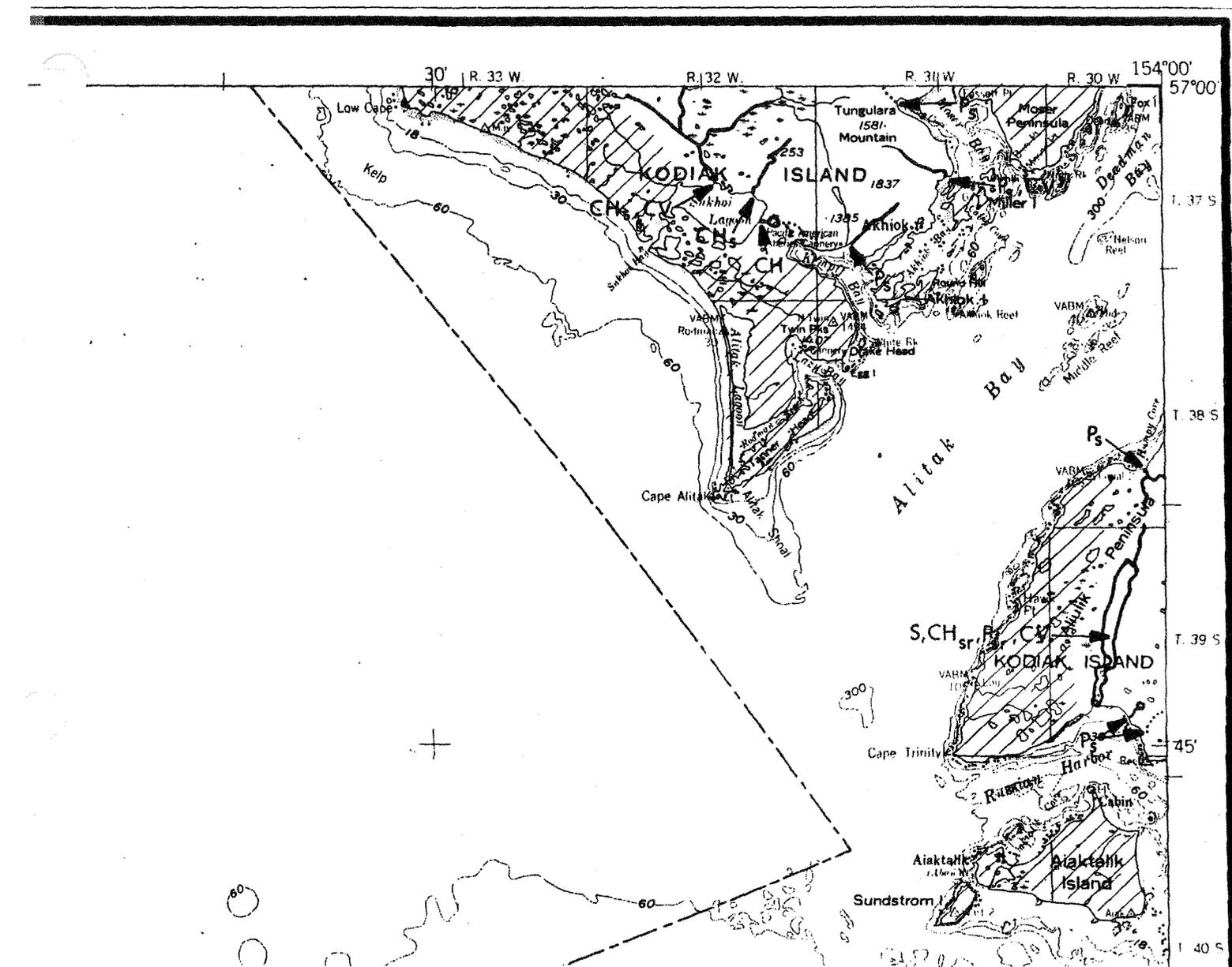
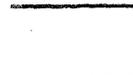
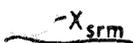


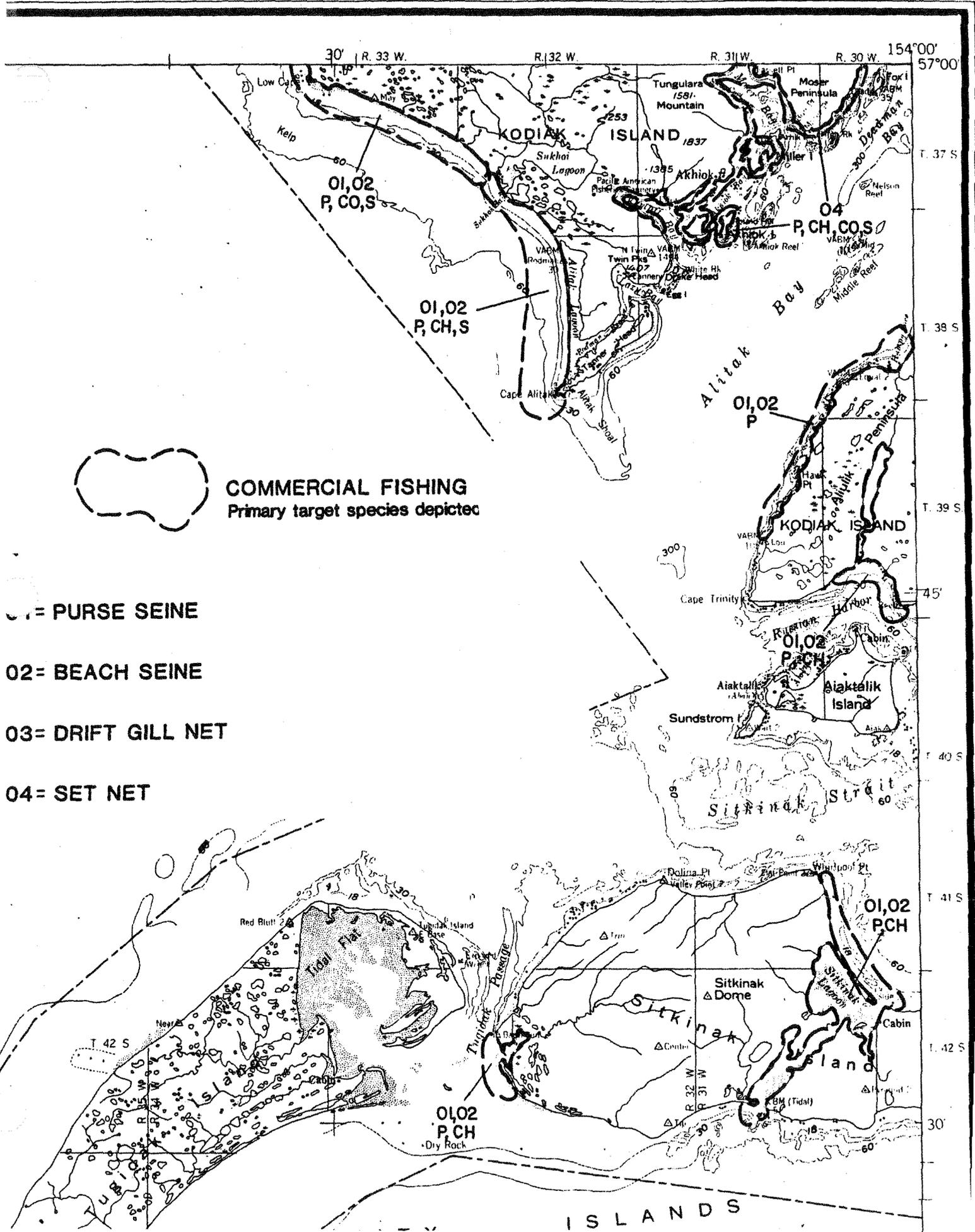
FIGURE 1.5  
DISTRIBUTION OF ANADROMOUS FISHES

TOPOGRAPHIC SERIES  
THIRD JUDICIAL DIVISION



	Anadromous Watershed-Drainages with documented presence of anadromous fish.	CH chum
	Not Present in Watershed-Waters which have been surveyed and where anadromous fish were documented to not be present.	CO coho
	Unsurveyed Watershed Areas-Areas where documentation of presence or absence of anadromous fish species is not available.	CV char/varc
	Documented Presence in Stream or Lake-the presence of a species in a specific stream segment or lake during anytime of year or life cycle has been observed. X -one or more of anadromous species.	K king
	Documented Spawning, Rearing, and Migration-the presence of spawning, rearing and migrating fish, redds or eggs has been observed in a stream, lake shore or intertidal beach. For detail of known spawning, rearing areas see An Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes.	P pink
	Documented presence shown on a scale 1/63,000 map but does not appear at a scale 1/250,000 map.	S sockeye
		SH steelhead
		subscript
		m migration
		r rearing
		s spawning





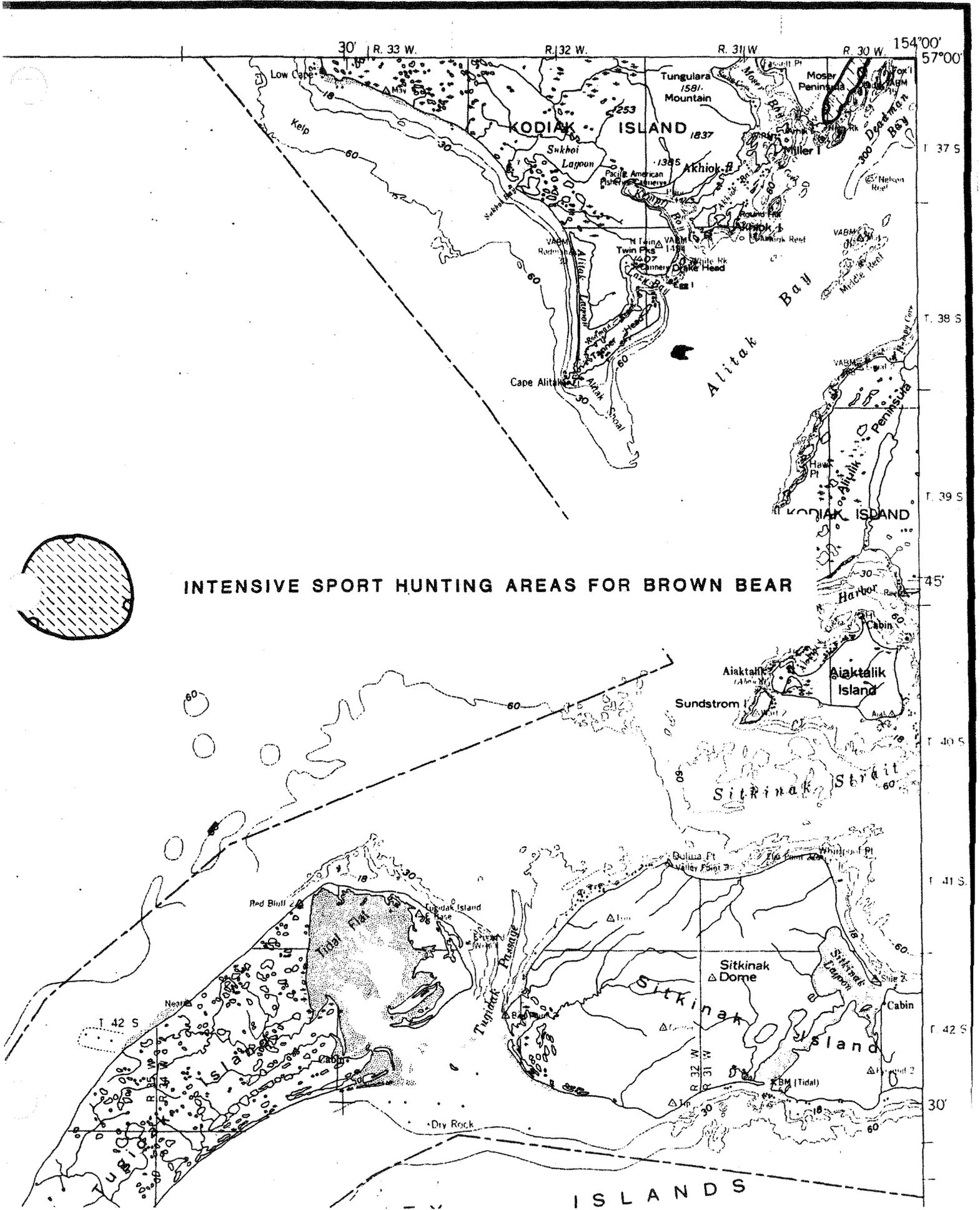
**COMMERCIAL FISHING**  
Primary target species depicted

01 = PURSE SEINE

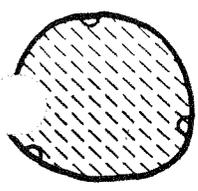
02 = BEACH SEINE

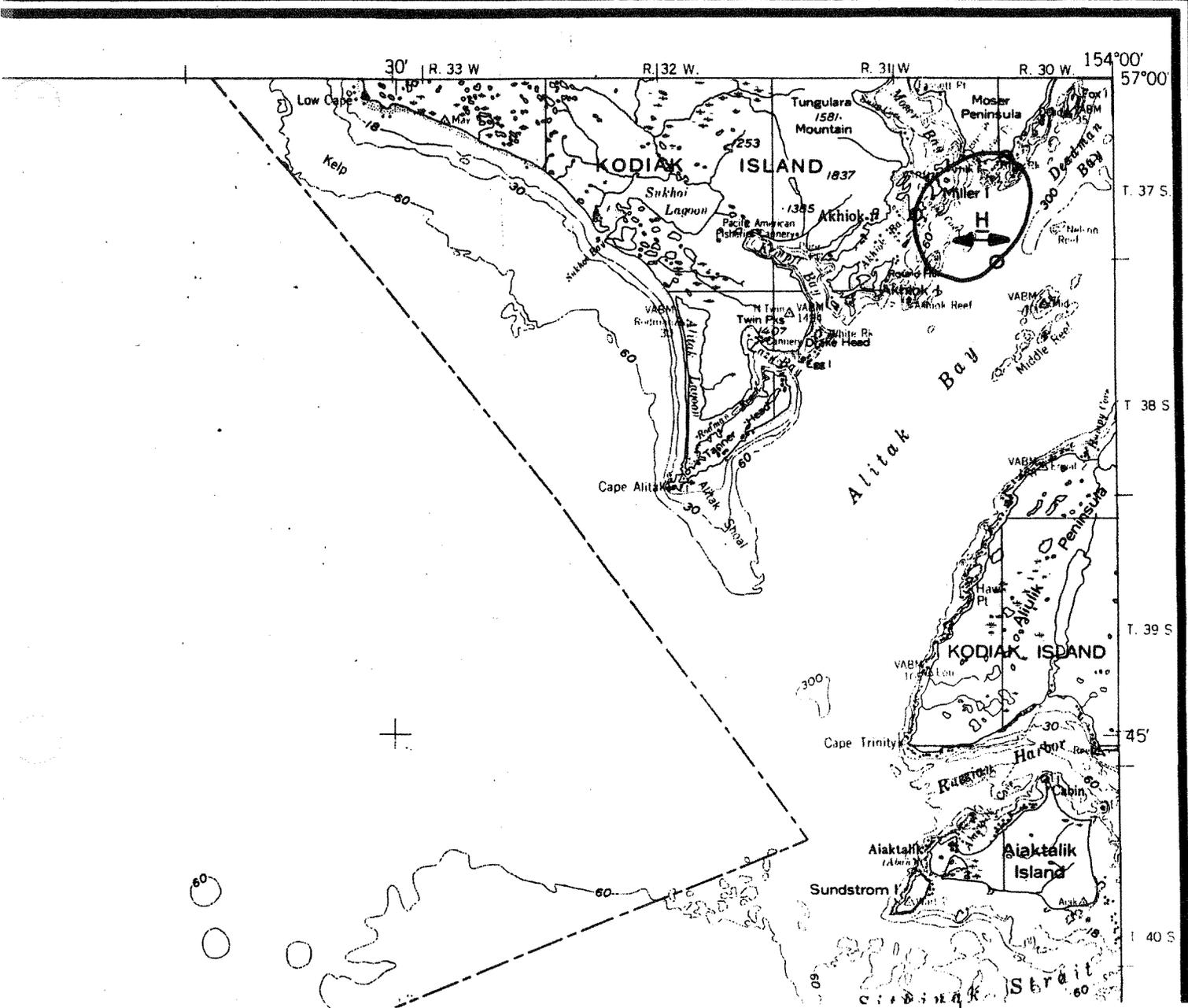
03 = DRIFT GILL NET

04 = SET NET



INTENSIVE SPORT HUNTING AREAS FOR BROWN BEAR

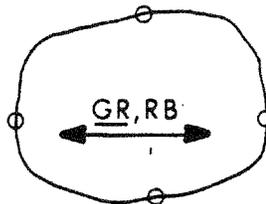




Sport fishing areas - areas which are known to have been used consistently over time for sport fishing as allowed by the Board of Fisheries; alpha characters denote species caught with the target species underlined.

- CH Chum salmon
- CO Coho salmon
- CV Dolly Varden/  
Arctic char
- GR Arctic grayling
- H Halibut
- K Chinook salmon
- P Pink salmon
- RB Rainbow trout
- S Sockeye salmon
- SH Steelhead trou

RB, CV



## COMMERCIAL FISHING

Fishing is the major commercial activity that uses local and regional fish and wildlife. Major fisheries activities for Kodiak Island waters include salmon, halibut, herring and bottomfish, as well as crab, shrimp and scallops. While Akhiok residents do not normally participate in commercial shellfish activities, the commercial effort exists in nearby waters. Recent years have proven almost catastrophic for this industry. As a result, the other fishery resources may see a marked increase in use, especially bottomfish harvesting. Such increased activities could have significant impacts on the economy of Akhiok. A recent development with the potential for far-reaching long-term economic benefits for Akhiok residents is the establishment of a pilot mariculture project. The project is a joint venture between the State of Alaska and Japanese interests [the Overseas Fishery Cooperative Foundation (OFCF)] with the involvement of the Kodiak Area Native Association. Akhiok area waters have been identified as some of the best in Kodiak for raising scallop spat. It is anticipated that local residents will be trained in rearing, production and harvesting of scallops for outside markets.

## SUBSISTENCE FISHING

Subsistence harvesting of locally available fish and wildlife stocks still is a major source of food for residents.

Akhiok residents consider halibut, flounder and cod as primary subsistence fish resources as well as salmon, trout and grayling. In addition, all varieties of clams are utilized, as are crab and shrimp.

Marine mammals of subsistence importance include seals and sea lions. Residents also engage in waterfowl hunting, mostly for ducks.

Upland wildlife subsistence hunting is primarily for deer.

#### SPORT FISHING

Sport fishing and hunting are activities participated in by both residents and non-residents. Principal activities include fishing for salmon in the area waters and deer hunting in the upland areas.

#### MARINE MAMMALS

Twenty-three marine mammal species inhabit the coastal waters near the Kodiak Islands. The six most abundant mammals are the sea lion, harbor seal, fur seal, sea otter and doll and harbor porpoises. In addition, seven species of endangered whales can be found in the area. The most abundant cetaceans are the gray whale and the humpback whale.

The harbor seal, a land breeding marine mammal, prefers sandy beaches or sand bars for breeding, pupping and hauling out. The Stellar sea lion, a common inhabitant of near-shore waters, establishes rookeries and hauling out grounds on isolated rocks, inlets and rocky points along the mainland and islands. The world's largest known populations of harbor seal and most important breeding rookeries for sea lions are found in the

Kodiak Islands. Sea otters inhabit shallow coastal waters. Rocky reefs and shoals which open to the ocean are their preferred areas. The Northern fur seal concentrate in the Kodiak Islands area during winter months and from about May through November they congregate on the Pribilof Islands in the Bering Sea. Sea otters and fur seal were hunted extensively at the turn of the century and their numbers were greatly reduced. However, the numbers are increasing now because they are protected by the Marine Mammal Protection Act of 1972 and international treaty.

#### TERRESTRIAL MAMMALS

The Kodiak Islands are inhabited by about 20 species of mammals. Only six - the little brown bat, tundra vole, red fox, brown bear, short-tailed weasel and land otter - are indigenous. However, several mammals have been transplanted successfully, including the arctic ground squirrel, Norway rat, house mouse, northern red squirrel, marten, beaver, muskrat and arctic fox. The latter five species were introduced for trapping purposes. In addition, snowshoe hare, Roosevelt elk, Sitka black-tailed deer, mountain goat and Dall sheep were imported for hunting.

Only four of the larger mammals are found within close proximity to Akhiok. The red fox is known to hunt and forage along the beaches for invertebrates and stranded fish. The Kodiak brown bear has an estimated population exceeding 3,000. Brown bear frequent the coastal areas from April to mid-November. River otter are a frequent visitor to the coastal

areas. They forage on small fish, clams, crustaceans and other invertebrates. Deer are also abundant in the area.

Some commercial fur trapping takes place during winter months around Akhiok. Primary pelts taken include fox and otter.

#### BIRDS

There are approximately 120 species of birds in the Kodiak Islands area, however most are only passing through enroute to major breeding grounds farther north. The most abundant marine species are the sooty and short-tailed shearwaters which occur as summer residents in flocks of 25,000 to 50,000 birds. Other common species include the glaucous-winged gull, fork-tailed storm petrel, black-legged kittiwake, mallards, green-winged teal, widgeon, pintail and lesser Canada goose. One of the most unusual, striking birds is the horned or tufted puffin. Other conspicuous birds include the common loon, Brandt's cormorant, phalarope, jaeger, terns, and common murre. Inland birds common to the area in the summer months include mergansers, goldeneye, eider, snipe, magpies, crows, thrushes, warblers and sparrows. The bald eagle, goshawk, willow and rock ptarmigan, belted kingfisher, downy woodpecker, raven, winter wren, varied thrush and song sparrow are year-round residents.

## VEGETATION

The vegetation varies significantly throughout the Kodiak Islands. The northern islands, including Spruce Island, Afognak, Marmot, Raspberry, and Shuyak are heavily forested with tall stands of Sitka spruce and coastal western hemlock. Grass lands are extensive throughout Kodiak Island and provide forage for cattle and horses. The steep mountains sustain a thick shrub cover of alder, salmonberry, devil's club and elderberry at lower and middle elevations. At higher elevations, the mountains exhibit a typical alpine-arctic heath vegetation of mosses, lichens and dwarf willows.

Akhiok is located in an area dominated by moist tundra. There are no tall brush areas or trees. The dominant vegetation includes tall grasses such as bluejoint, fescue and beach rye grass; fireweed; horse-tail; yarrow; sedges; mosses; ferns; lichens; low-growing alder; and dwarf birch.

## LAND USE

The City of Akhiok comprises approximately 9.75 square miles of upland and tidelands. The municipal boundaries include the upland areas on the west shore of Akhiok Bay from Little Narrows to the entrance of Kempff Bay and on the north and south shores of Kempff Bay approximately out to Akhiok Island. All development has concentrated on the western shore of Akhiok Bay, within the townsite of Akhiok. The Akhiok Townsite comprises approximately 94 acres contained within U.S. Survey 4926. The Townsite Patent was issued to the Bureau of Land Management Townsite Trustee on April 3, 1974.

Although the City of Akhiok is surrounded by the Kodiak Island National Wildlife Refuge, there is ample undeveloped land within the corporate limits to meet the community's future needs. However, the United States Fish and Wildlife Service requires permits for development within the Kodiak National Wildlife Refuge. Please refer to Appendix I for a discussion of how the Fish and Wildlife Service will assess the compatibility of activities with the purposes of the Kodiak National Wildlife Refuge. In addition to its current holdings, the City of Akhiok is anticipating receipt of 1,280 acres from 14(c)(3) reconveyances. The City Council and Akhiok-Kaguyak, Inc. are currently negotiating on 14(c)(3) conveyances.

Significant land uses in the community include the airport, Russian Orthodox Church, village store and post office, and the fairly new school

building. There are 30 single-family residential structures in the community. Six new residences will be constructed this summer by the Kodiak Island Housing Authority. Four older residential structures have been abandoned and are essentially beyond repair. The community is clustered around Akhiok Bay and except for the school, all structures are less than 600 feet from the shoreline. Figure 21 shows existing land use in the community.

\*\*\*\*PLACE EXISTING LAND USES HERE\*\*\*\*

## COMMUNITY FACILITIES

Many community facilities are located within Akhiok and shown on Figure 22. They include the following:

### SCHOOL BUILDING

The educational system in Akhiok is operated by the Kodiak Island Borough School District. A new structure - combination elementary and high school - was constructed in 1982. This building contains an elementary education room, secondary education room, classroom/library, gymnasium, kitchen, shop and storerooms. In the 1985-86 school year, three teachers (two full-time and one part-time) instructed 26 students. There are also two part-time teacher's aides, two hours a day of secretarial assistance, one part-time custodian and one part-time day-man, all locally hired. The 1986-87 enrollment is projected as 23. The facility is available for community use during selected non-school hours.

### CLINIC

Existing clinic facilities are located within the City Office Building. A new one-story 768 square foot clinic building has been constructed this summer. The facility will be ready for occupancy by October 1986. The clinic is staffed by a community health aide supplemented by visits from a Kodiak Area Native Association staff physician. Operational funds for the clinic and staff are provided by the City of Akhiok and the United States Public Health Service.

\*\*\*\*PLACE COMMUNITY FACILITY MAP HERE\*\*\*\*

#### CITY OFFICE BUILDING

The City Office Building contains administrative offices for the City of Akhiok and Tribal Councils and the community library. The City of Akhiok employs a clerk, maintenance person and the village public safety officer. The mayor serves as City Administrator.

#### POST OFFICE

The Akhiok post office is located in the old school building. This structure is falling apart and scheduled to be torn down. It is unknown at this time where the new post office location will be.

#### VILLAGE STORE

The village store was recently moved from the old school building to a private residence on Third Avenue. The store is owned by Akhiok-Kaguyak, Inc.

#### EQUIPMENT STORAGE

One building for equipment storage is located at the beginning of the road that leads to the school. This building also houses the pack-trak vehicle that is the community fire truck. A new one-story 1,440 square foot equipment storage building has been constructed this summer (1986) on adjoining property. This structure will house miscellaneous City owned equipment and the new dump truck, fuel trailer and loader.

#### CEMETERY

There is one cemetery in Akhiok, located behind the Russian Orthodox Church.

## SOLID WASTE DISPOSAL

The landfill operated by the City of Akhiok is located east of the town, northeast of the Russian Orthodox Church and on church-owned property. Pickup services are not provided. It was recently reconstructed and fenced to provide for proper disposal of garbage and to prevent blowing debris. This project was completed in January 1986 and was funded by Legislative Appropriation. In 1985, the City of Akhiok and the Russian Orthodox Church reached an agreement that the landfill would be relocated within five years. Relocation of this landfill is a high priority of the community.

## TRANSPORTATION

Access to Akhiok is by water or air. No roads connect the community with any other community on Kodiak Island.

### WATER TRANSPORTATION FACILITIES

The current mooring facilities in Akhiok consist of beaching or anchoring of boats in Akhiok Bay in front of the townsite. Previously, a floating dock was located past the end of the airstrip on the peninsula. The number one capital project priority for the community is a new permanent dock facility to replace the old floating facility that has been removed. The preferred location is to locate the dock where the floating facility was because the road ends at this location, the road has been upgraded and the community's bulk fuel storage was moved to this site as a part of the airstrip upgrade project.

### AIR TRANSPORTATION FACILITIES

Akhiok is approximately 80 air miles from Kodiak. The State of Alaska operates a 60-foot by 3,120-foot gravel runway (120 foot by 3,600 foot runway safety area) south of the town. The airstrip was improved and extended to this length in the summer of 1986. The facility can be used by wheeled general aviation and amphibious float-planes. Peninsula Airways provides daily service (Monday through Friday) from Kodiak to Akhiok under an essential services contract with the U.S. Postal Service, which is scheduled to be phased out in 1988. This will likely result in an increase of the cost of travel and freight to the community. Charter flights are also available from other island-based carriers. The Federal

Aviation Administration has designated a seaplane base with a northeast/southwest approach (300-feet by 4,000-feet) located in Akhiok Bay.

#### LOCAL ROAD TRANSPORTATION

Local roads in the community were constructed by the Bureau of Indian Affairs in conjunction with housing development or in the case of the new school, by the Kodiak Island Borough. All development in Akhiok is accessible by the local road system.

The roads were not constructed to Kodiak Island Borough or Alaska Department of Transportation and Public Facilities standards. Road maintenance is not a high priority in the community because there are very few vehicles. The City of Akhiok receives State Revenue Sharing Funds for road maintenance. In 1986 the City of Akhiok applied for funding based on 1.7 miles of roads. All-terrain vehicles (three-wheelers) are the primary mode of transportation.

Three-wheeler trails are abundant in the areas around the townsite and are most frequently used in conjunction with subsistence hunting and fishing activities or recreation.

## UTILITIES

### WATER

In 1969, the U.S. Public Health Service (PHS) installed the original water system in Akhiok. PHS extended the system for the HUD housing project in 1978 and installed a new storage tank in 1979. The City of Akhiok now owns and maintains the system. All dwellings are connected to it.

Surface water primarily supplies the water for Akhiok. Water is impounded by an earth dam on a small stream creating a reservoir holding an estimated 500,000 gallons of water. The drainage area contributing to the reservoir is small and fairly flat. Shallow ground water probably contributes to the reservoir as it is drawn down stream. Flow measurements for a hydropower reconnaissance study obtained three mgd/square mile on August 31, 1980. Mean annual flow is likely to be about 5.2 mgd/square mile in this area.

The water is treated with chlorine and fluoride and is then pumped to two 10,000 gallon storage tanks. It flows by gravity to the distribution system which consists of 3/4 inch (inside diameter) lines that carry a low volume. The water is slightly colored, but the quality is considered good. The water supply is not sufficient to meet the community's needs and the system itself requires upgrading. Shallow waterlines occasionally freeze up in the winter and there are many leaks in the system. URS Corporation (a private engineering firm under contract to the Kodiak

Island Borough) estimates a loss of 1.32 gallons per minute or 1,900 gallons per day.

Three fire hydrants are connected to the system and located throughout the community. These hydrants are used mainly for flushing the lines. The system was not designed for fire fighting. If the water is pumped, the system is only minimally adequate for fire fighting, primarily due to low pressure. The community water distribution system is shown on Figure 23.

During the summer of 1986, a project to upgrade the community water supply will begin. The purpose is to avoid water shortages like the three week shortage that occurred during the summer of 1984. The project consists of raising the existing dam elevation by five feet, raising the three overflow culverts and extending the culverts to the toe of the dam. This is expected to result in over 550,000 gallons of additional storage or an available supply of water for 90 days. This is an increase of 51 days of storage.

CULTURAL ENVIRONMENT

## SEWER

The U.S. Public Health Service installed the City's original sanitary sewer system in 1966. The system, owned and maintained by the city, consists of collection lines, septic tanks and ocean outfall into the lagoon (Akhiok Bay). Most of the houses are connected to the system. The system is adequate for the community, but extensive maintenance and repair is needed to keep the system functioning. Insufficient fall on the lines occasionally results in backing up of the system and overflow from the manholes. In addition, the ocean outfall line is floating in three locations due to insufficient armor rock cover over the pipe and has been punctured in several places. These problems pose hazards to boating and to the public's health and welfare. Lastly is the problem of pumping out the septic tanks when full and subsequent disposal of the material pumped. The U.S. Public Health Service has a portable pumper located in Old Harbor that can be transported to Akhiok when the need arises. The community sewer system is shown on Figure 24.

\*\*\*\* PLACE SEWER SYSTEM MAP HERE\*\*\*\*

## ELECTRICITY, HEAT AND FUEL

The City of Akhiok operates a community electrical system in Akhiok. The distribution system was funded with a federal Housing and Urban Development Community Block Grant. A 55 kw 3-phase diesel generator was obtained through a federal Economic Development Administration Local Public Works grant. The community also owns a 100 kw generator. One or both generators have experienced a lot of down time due to mechanical breakdowns or lack of maintenance. Forty-four thousand dollars (\$44,000) will be available to the community this year (1986) through funding from the Alaska State Legislature for the replacement or repair and relocation of the generators. These funds are administered by the Kodiak Island Borough. Preliminary plans call for the purchase of a 100 kw backup generator to replace the 55 kw unit. The 55 kw unit will be rebuilt for use in Akhiok or another Kodiak Island village. Funding permitting, the 100 kw units will be relocated adjacent to the Akhiok school generator building. The community's fuel storage facility is a 60,000 gallon tank purchased with an EPA grant. Many homes have individual 2 to 4 kw back-up generators. Alternative energy sources that have been considered include a hydropower plant on Camp Bay, approximately two miles west of Akhiok and installation of a horizontal axis wind induction generator. Both of these sources were not considered feasible given the population of Akhiok.

Fuel is delivered for the community generator by barge 2 to 3 times a year. Fuel for residential use is obtained from the cannery at Alitak by the individual. Costs averaged \$1.09 per gallon for gasoline and \$63.80 per barrel for diesel in 1981. Current fuel costs are \$.88 per gallon for

gasoline and \$.85 per gallon for number one diesel when purchased from the cannery. Diesel purchased from the City of Akhiok is \$1.55 per gallon. The Akhiok school has two 30 kw generators with waste heat recovery. There is a 5,000 gallon storage tank at the new school and four tanks with a capacity of 20,900 gallons at the old school.

#### PRIVATE UTILITIES

Telephone service to Akhiok is provided by one phone in the City Office Building and private phones in residences, utilizing an Alascom Earth Station for satellite communication. This facility also provides for reception of the Alaska Satellite Television Project. A translator is also in place for reception of KMXT-FM, a public radio station. Reception of KVOK-AM is also possible. Availability of phone service has been an ongoing problem for the community in the last year primarily due to problems with the community generator and electrical distribution system.

## POPULATION

The 1980 population for the City of Akhiok, according to the U.S. Bureau of Census, was 105. In 1982, the Kodiak Island Borough conducted a special census which yielded a figure of 103. The current population figure for the purposes of determining state revenue sharing is 103. This figure is certified by the State of Alaska, Department of Community and Regional Affairs (DCRA). The City population figure for State Revenue Sharing purposes is recertified annually. Since the community's population has remained essentially static since 1980, no population projections have been developed.

According to the 1980 census figures, the average household size is 3.89 persons, with a median age of 20.5 years. Approximately 96 percent of the population is Alaskan native.

Table 1 shows the population figures for Akhiok reported by various sources since 1880.

TABLE 1

DATE	POPULATION	PERCENT CHANGE	SOURCE
1880	114	---	U.S. Bureau of the Census
1910	106	- 8	U.S. Bureau of the Census
1920	94	-11	U.S. Bureau of the Census
1950	72	-23	U.S. Bureau of the Census
1960	84	+17	U.S. Bureau of the Census
1970	115	+27	U.S. Bureau of the Census
1980	105	- 9	U.S. Bureau of the Census
1982	103	- 2	Kodiak Island Borough Special Census
1983	103	0	State Revenue Sharing Figures
1984	103	0	State Revenue Sharing Figures
1985	103	0	State Revenue Sharing Figures

GOALS AND OBJECTIVES

## INTRODUCTION

The following goals and objectives represent the future course of the City of Akhiok as charted by its residents. They were developed in close consultation with and represent the priorities of local residents and elected officials. The goals are statements of the desired results. Objectives provide the means and methods of achieving the desired goals. The goals and objectives provide the basis for development of the comprehensive plan and capital improvement project priorities list.

## GOALS AND OBJECTIVES

The goals and objectives have been categorized as follows:

Economic

Transportation

Housing

Land Use

Environment

Recreation

## ECONOMIC GOAL

To build a stronger and less seasonal economic base that provides expanded and more stable employment opportunities for the local population.

Objective 1: Encourage and support the establishment of a permanent dock facility to serve the commercial fishing industry, water-borne transportation system and mariculture development.

Objective 2: Encourage and support the development of mariculture facilities in order to broaden the economic base of the community.

Objective 3: Encourage and support the inclusion of local hire provisions for all construction projects in the community.

Objective 4: Maintain and expand public utilities and services to serve the needs of the community.

Objective 5: Encourage the development and expansion of local retail sales and services.

Objective 6: Encourage and cooperate with the Alitak processing facility in its efforts to expand local operations to a year-around basis.

## TRANSPORTATION GOAL

To provide a well-maintained and viable transportation system both within the community and between the community and others.

Objective 1: Secure the necessary funding for the development of a permanent dock facility so that transportation costs to the community will be reduced and larger vessels may directly on and off-load cargo.

Objective 2: Establish the necessary agreements and secure the necessary support from the Bureau of Indian Affairs, the State of Alaska and the Kodiak Island Borough to initiate and sustain a comprehensive maintenance program for local roads.

Objective 3: Establish a corridor for a road to the cannery at Alitak in order to provide access to employment opportunities and to the store.

## HOUSING GOAL

To encourage the development of new housing, consistent with the natural growth and development of the community.

Objective 1: Protect housing and other structures from areas subject to serious erosion.

Objective 2: Continue a housing maintenance program with the cooperation and support of the Kodiak Island Borough, the State of Alaska and the Kodiak Island Housing Authority, to provide for the upgrading and maintenance of older housing units and the continual maintenance of all housing units in the community.

## LAND USE GOAL

To maintain the general pattern of existing land uses while providing suitable land use areas for future community growth.

Objective 1: Encourage the Kodiak Island Borough to establish and adopt a mixed use zoning district that will allow flexibility in locating new land uses supported by the community.

Objective 2: Encourage the Kodiak Island Borough to give preference to locally developed land use plans as a guide for future land use decisions.

Objective 3: Designate and provide for additional industrial growth areas for development of the mariculture industry.

Objective 4: Direct residential expansion towards higher elevations to the north and northwest of the existing residential areas to minimize the potential for damage from catastrophic events.

Objective 5: Maintain a centrally located commercial and business enterprise core district with mixed residential use.

Objective 6: Protect historically and archaeologically significant lands.

Objective 7: Land-based and shoreside economic development shall be given preference over floating or water-based operations.

## ENVIRONMENTAL GOAL

To assure that the natural environment is protected and enhanced by eliminating existing sources of environmental degradation and prohibiting future actions by private and public entities that might adversely affect environmental quality of Akhiok and its surrounding area.

Objective 1: Repair and reanchor the ocean outfall sewer line.

Objective 2: Establish a new and properly located and operated sanitary landfill site.

Objective 3: Encourage and promote development through local and Borough ordinances that preserve the natural land forms, existing vegetation, archaeological resources, subsistence resources, and other environmental resources of the Akhiok area.

Objective 4: Preserve adequate open space and public access along the shoreline.

Objective 5: Provide adequate erosion-control measures for the shoreline within the community.

Objective 6: Protect the existing watershed area of the community.

## RECREATIONAL GOAL

To provide a wide range of recreational opportunities for all residents.

Objective 1: Establish and maintain an on-going parks and recreation program in cooperation with the Kodiak Island Borough, Kodiak Island Borough School District and the State of Alaska.

Objective 2: Ensure that future residential development includes the provision of adequate recreation areas and neighborhood parks where necessary.

Objective 3: Establish and maintain a trail system with beach and stream access.

Objective 4: Encourage and promote the multiple use of public buildings for recreational and other community activities.

Objective 5: Non-buildable sites and lots shall be designated as natural parks.

COMPREHENSIVE PLAN

## INTRODUCTION

The following sections present the future land use needs of the community based on the existing situation in Akhiok and the goals and objectives for the future development of the community and its environs.

## LAND USE GROWTH REQUIREMENTS

### COMMERCIAL AND INDUSTRIAL

Existing commercial activity in Akhiok centers around the store and the post office. Existing industrial land uses and activities include the equipment storage buildings, community generators, bulk fuel storage and airport. Several proposed activities will generate a demand for additional industrial lands in the future. These include a new generator site, upland areas adjacent to a permanent dock facility, mariculture facilities, a community gravel source, and bulk fuel storage.

### RESIDENTIAL

The Kodiak Island Housing Authority will be constructing six single-family residences in Akhiok during 1986. The locations of the houses will not require extensions of the water and/or sewer system. This new housing and the several vacant houses already in Akhiok should provide enough housing for the community in the foreseeable future, given the stable or gradually declining population over the last 15 years.

### COMMUNITY BUILDINGS

As previously identified, a new post office location will be needed soon.

### UTILITIES

In August of 1986, a contract was awarded to enlarge the existing dam. This dam is being constructed to provide additional community water supply, alleviate low pressure in the distribution lines and provide a year-round flow throughout the system.

Also scheduled for 1986 is a public health service upgrade of the sewer system. The primary problem with the system is the ocean outfall line. The line leaks and also floats near the surface in three locations due to inadequate armour rock.

One additional utility project is identified on the capital improvement program list. This is the installation of street lights for the City of Akhiok. No additional land area would be needed as the lights could be located within existing road rights-of-way.

The electrical distribution system in Akhiok has experienced numerous problems in the last few years. The primary problem has been the generators. If the funding received is adequate to repair or replace the generators and train a maintenance person, the system should adequately supply the needs of the community.

#### SCHOOL

The Akhiok school provides instruction through the 12th grade. The facility was constructed in 1982 and contains adequate classroom space for current and projected needs.

#### ROADS

Local roads in Akhiok appear adequate for future community needs. Possible exceptions are roads to a new sanitary landfill and mariculture facilities, if sited off the existing transportation network. Future road needs for the community should be oriented towards identifying a long-term gravel source and stockpiling area for maintenance. In addition,

delineation of a roadway corridor to the cannery in Alitak should be reexamined. Such a road would provide access to employment opportunities and to the cannery store. A road would also make it safer to transport fuel back to Akhiok, especially during winter months.

## LAND USE ELEMENT

### INTRODUCTION

Experience with development projects in all Kodiak Island villages has shown that the "urban oriented" zoning code regulations of the Kodiak Island Borough do not work well or meet the needs of remote communities. Compounding this problem is the fact that all areas within the corporate (municipal) boundaries of Kodiak Island villages were originally zoned exclusively for "urban" single-family residential development. This zoning was established in 1977. Commercial, industrial and public land uses are found in all communities and in the case of rural Alaskan villages, often located in close proximity to one another, on the same parcel of land, or within a single structure.

Obviously a community's zoning regulations should reflect the types of land uses present in the area and those likely to be established in the future. In Akhiok, typical land uses include residential, commercial, industrial, public, and undeveloped natural areas. Like other rural Alaskan areas, these land use areas are located in a compact land area in close proximity to one another. In essence, a mixed land use pattern prevails in Akhiok.

Discussions with Akhiok residents, Kodiak Island Borough staff and Planning and Zoning Commissioners have identified a desire to establish and maintain land use regulatory mechanisms that allow for the mixed land use development patterns in the villages. Therefore, the basic land use

standard for developing a land use plan for Akhiok is mixed land use. An additional category of habitat and resource protection is also included. These use categories are only general guides and are not intended to stand alone or in the place of more detailed and structured land use ordinances developed by the Kodiak Island Borough in close cooperation with the City of Akhiok. These categories are also intended to encompass the communities anticipated needs for public facilities, transportation systems and protection of environmentally sensitive areas.

The land use plan for Akhiok is intended to serve the following purposes:

To establish a plan to guide future growth and development that reflects the needs and desires of local residents.

To establish an adopted plan for all areas within the municipal boundaries of the community that takes precedence over other plans developed for this area, including developed by the Kodiak National Wildlife Refuge.

To establish a plan that will be consistent with the provisions of the Alaska Coastal Management Program and the Kodiak Island Borough Coastal Management Program and will assist in the implementation of these programs.

To establish a plan with realistic land use categories that can be implemented through the Kodiak Island Borough subdivision and zoning regulations.

The land use plan for Akhiok is shown on Figures 25 and 26.

#### MIXED LAND USE

Those areas of the existing townsite of Akhiok that lie adjacent to and immediately upland from the shoreline and central core of the community have been identified for mixed use development. Similarly, existing developed areas are designated for mixed land use. These mixed uses are the same as presently found in the heart of the community and are considered traditional uses, i.e., residential, commercial, industrial, waterfront related, and public and institutional.

#### HABITAT AND RESOURCE PROTECTION

Habitat and resource protection areas are included in the plan because the corporate limits of Akhiok contain a large land area that is unlikely to be developed in the future. These areas extend 3.5 miles to the west and 1.25 miles north of the townsite. The predominant use of these lands at present is subsistence hunting and fishing activities. Community residents have voiced a strong desire to protect subsistence resources. The functions of the habitat and resource protection designation are as follows:

1. To protect and enhance the use of habitat and resource protection areas for subsistence hunting and fishing activities. This protection is deemed critical by the community.
2. To protect the community's watershed and reservoir from encroachments and potential degradation.
3. To allow for the future development of new commercial and/or industrial facilities related to the fishing or mariculture industries at selected locations. Akhiok residents have expressed a strong desire to be consulted and involved in the site selection process for new developments within the corporate limits.
4. To enhance the preservation of open space for outdoor recreation and enjoyment of community residents.

PLACE LAND USE PLAN HERE

CAPITAL IMPROVEMENT PLAN

## INTRODUCTION

The capital improvement project priority list is based on extensive discussions with community residents and elected officials. The capital improvement projects are intended to be one means of implementing the future goals and objectives of the City of Akhiok.

CITY OF AKHIOK  
 CAPITAL IMPROVEMENT PROJECTS  
 COMMUNITY PRIORITY LIST

PRIORITY	PROJECT	ESTIMATED COST (in 1,000's)	YEAR
1	Permanent Dock Facility	1,500	86/87
2	Fire Truck	60	86/87
3	Grader	100	87/88
4	Roller	40	87/88
5	D8 Cat	160	87/88
6	Erosion Control	500	88/89
7	Relocate Landfill	500	89/90
8	City Street Lights	25	90/91

## CAPITAL IMPROVEMENT PROJECTS NARRATIVE

### PRIORITY NUMBER 1: PERMANENT DOCK FACILITY

The overwhelming priority, as identified by community residents, is a permanent dock facility to replace the floating dock. The proposed location for this facility is south of the airstrip in Akhiok Bay, near the entrance to Kempff Bay. The existing dock is at this site and will be removed.

While construction costs cannot be accurately estimated until preliminary engineering and design work is completed, the ball-park estimate for this project is \$1.5 million. Design and engineering costs are estimated at \$250,000 for a \$1.5 million dock.

The facility is essential for the continued economic welfare of the community. A docking facility would serve the commercial fishing fleet, barges and local boats. A docking facility would also be a vital link in a successful mariculture industry. Reduced transportation costs for shipping of large items and bulk fuel would be realized because larger vessels could directly on and off-load cargo.

### PRIORITY NUMBER 2: FIRE TRUCK

A fire truck would replace the existing track vehicle. This "crawler" is very slow moving and a fire would likely destroy a structure before it could be reached. A new fire truck would locate in the equipment storage building. Estimated cost is \$50,000 for an "off-the-assembly line" 1,000 gallon per minute pumper with 750 gallons of

on-board storage. An additional \$5,000 to \$10,000 is necessary for transportation from Kodiak to Akhiok.

PRIORITIES NUMBERS 3, 4 AND 5: GRADER, ROLLER AND D8 CAT.

This equipment would be utilized for local road maintenance, covering up debris at the sanitary landfill and local construction and maintenance activities. Estimated costs (including transportation costs) are as follows:

Dollars in 1,000's

Grader	100
Roller	40
D8 Cat	160

PRIORITY NUMBER 6: EROSION CONTROL

Coastal erosion poses a particular problem along the shoreline. Erosion has been a problem since the 1960's. The problem reached serious proportions in 1983 when the water level completely covered the road and was affecting house foundations. An erosion control project was undertaken by community residents during 1983. This project consisted of the installation of salvaged logs along the shoreline in front of the road and fuel tanks. Currently gravel washes out behind the barrels and logs placed along the shoreline of the lagoon (Akhiok Bay). This is caused from wave and tidal actions, storm activity and upland runoff. Erosion also occurs throughout the community along the banks of small creeks. Detailed studies are needed to identify the scope of the problem and the

specific measures necessary to inhibit continued erosion from destroying additional property. This project is estimated to cost \$500,000. A comprehensive study is necessary to determine the extent of the problem and identify alternative solutions before project construction costs can be estimated. Such a study could easily cost \$100,000.

PRIORITY NUMBER 7: RELOCATE SANITARY LANDFILL

The existing sanitary landfill is located on property owned by the Russian Orthodox Church. In 1985, the church and city reached an agreement that the landfill would be relocated within five years. Fifty thousand dollars (\$50,000) was included for this project by the legislature in 1986, but vetoed by the governor. A new landfill will ideally be located in close proximity to the townsite because of the small number of vehicles in the community, the costs of building roads and so that residents will be encouraged to haul garbage to it. Estimated cost is \$500,000 with design and engineering costs estimated at \$50,000.

PRIORITY NUMBER 8: CITY STREET LIGHTS

Akhiok is the only Kodiak Island native village without street lights. Community residents have expressed a desire for the lights to promote safer pedestrian and vehicle traffic throughout the village. Estimated cost is \$25,000 with \$5,000 for design and engineering.

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- Volume I:        Distribution of Mammals
- Volume II:      Distribution of Birds
- Volume III:     Distribution of Fish
- Volume IV:     Human Use of Fish and Wildlife

APPENDIX I