ANADROMOUS FISH INVENTORY

NOATAK NATIONAL ARCTIC RANGE, ALASKA and Associated Area of Ecological Concern

Prepared for

Fish and Wildlife Service

by

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Anadromous Fish Inventory
Information Framework

a. Bibliography

The files of the Arctic Environmental Information and Data Center were utilized for the compilation of an initial bibliography. Referenced titles were then obtained and citations pertaining to the area and species of interest which appeared in these reports were added to expand the initial bibliography. References were deleted if, when obtained, the study was not found to pertain to the area or species of interest. In a few cases where references were unobtainable, such citations are followed by the note "(not seen)" to indicate that any pertinent data contained in this reference is not included in the remainder of the inventory.

All possible reference sources are listed with the exception of those containing extremely general subject matter, most early (before 1910) exploratory reports, and annual report series such as Alaska Fishery and Fur-Seal Industries in (year) which were issued prior to 1960.

b. Species Lists

A list of anadromous and coastal marine fishes for each proposed refuge or proposed additions to existing refuges was compiled. An initial list was taken from each final environmental statement; however, three major taxonomic references were consulted to add to, or delete from this initial list - List of Fishes of Alaska and Adjacent Waters with a Guide to Some of Their Literature (Quast and Hall 1972), Pacific Fishes of Canada (Hart 1973), and Freshwater Fishes of Canada (Scott and Crossman 1973). Species on the lists which were considered to be coastal marine inhabitants were verified with A List of Common and Scientific Names of Fishes from the United States and Canada (Bailey

et al. 1970). However, further studies of certain families of fishes inhabiting Alaskan waters are needed - e.g. Cottidae - since some species have not been included in the American Fisheries Society list because their taxonomic status has not been determined. Species which have been included in some of the earlier ichthyological literature and have not recently been verified are not included in the present lists.

An anadromous species was considered to be one which spawns in fresh water, and at some point in its early life cycle, undergoes a migration to salt or brackish water. In some regions (Koyukuk, Yukon Flats) a non-migratory form of an anadromous species (inconnu, some whitefish) was determined from the literature, and therefore, this species was not included in the list. Coastal marine species were considered to be residents of nearshore neritic, lagoon, or estuarine habitats. Species which generally inhabit fresh water, but have been found to enter coastal, brackish water, were included as coastal marine forms and were indicated thus - e.g. ninespine stickleback.

c. Histories of Commercial, Sport, and Subsistence Fisheries

Historical references were consulted as well as management reports and periodicals for any data which document the commercial, sport, or subsistence utilization of anadromous fish within the boundaries of ecological concern for each proposed refuge. Knowledgeable research and management personnel with state and federal agencies also were consulted to provide additional unpublished data. In many refuge areas, historical information was sparse. However, considerable use was made of descriptions of subsistence life styles documented in Alaska Natives and the Land (Federal Field Committee 1968).. Sport and commercial historical information was largely

taken from Alaska Department of Fish and Game publications.

Each refuge historical summary is a brief description of trends of activity rather than a year-by-year account. For example, some publications have traced the history of cannery operation in a particular region and have indicated when and where each company began or ceased operation. These types of data were synthesized into a general account of the contribution and significance of cannery operation in that area. Significant sources of information are appropriately referenced.

d. Habitat

Anadromous fish habitat was regularly calculated to the most upstream record for any species. All habitat, except the largest lakes, was measured in linear statute miles from drainage mouth to most upstream record using a fine string to follow the main channel as charted on standard U.S. Geological Survey 1:250,000 scale quadrangle sheets. For major lakes, habitat areas are recorded in square miles.

For major rivers such as the Yukon, Kobuk and Kuskokwim, standard mileage reference points utilized by the Alaska Department of Fish and Game were used.

In the Wood River and Kvichak River drainages, extensive spawning ground catalogs have been published (Demory, Orrell and Heinle 1964; Marriott 1963). In these two systems linear miles of habitat are taken directly from these previous calculations.

In the tabular record of this data, tributaries are listed immediately following and indented from the larger watercourse into which they flow. Each refuge listing begins at the northwesternmost corner of the area of

Where species are not known but anadromous fish are recorded as present (Alaska Department of Fish and Game 1975), waterways are so indicated. All other systems are recorded by species present. A series of annotated U.S. Geological Survey quadrangles compiled by the Alaska Department of Fish and Game, Habitat Division, was helpful in clarifying certain habitat areas and species.

e. Key Spawning and Rearing Areas

This section is one of the weakest of this report. Almost all information came from Atkinson, Rose and Duncan (1967) except for the excellent data in the spawning ground catalogs for the Wood River and Kvichak River drainages (Demory, Orrell and Heinle 1964; Marriott 1963). Little other compiled information exists and that in Atkinson, Rose and Duncan (1967) was, at times, found to be questionable in its accuracy--for example, the existence of spawning grounds in the main channels of the lower Yukon River and above the Tazimina River falls in the Lake Iliamna area is suspect.

Areas of major lakes which are prime rearing areas for sockeye salmon, are recorded in square miles. In the Wood River and Kvichak River drainages, spawning grounds are measured in both linear miles of waterway and in acres of utilized or potentially utilizable area.

Tabular data, including the method of listing tributaries, is handled in the same manner as the habitat information.

f. Runs/Escapement

Escapement counts or estimates of total spawning run were obtained almost entirely from Alaska Department of Fish and Game management reports and surveys conducted by the University of Washington's Fisheries Research

Institute on the Kvichak River and Wood River drainages. These counts are a variety of weir, aerial and tower counts and are so indicated. In a few cases, population estimates from tagging studies are available.

g. Harvest Data

Harvest includes separate statistics for the subsistence, commercial and sport fisheries. Data are in numbers of fish as reported to the managing agency.

Harvest data were obtained almost entirely from Alaska Department of Fish and Game management reports and International North Pacific Fisheries Commission Statistical Yearbooks. Where possible, commercial harvest data are tabulated by statistical district sub-units. Often such detail is not readily accessible, and data are portrayed by entire statistical district. Subsistence data are listed by village or by statistical district. Sport harvest data are almost nonexistent except for a few selected survey sites in the Kvichak River and Naknek River drainages.

h. Effort

Effort includes the amount of gear used, number of licenses and time fished where these data are available. Commercial effort is moderately documented while little sport and subsistence effort is available.

Effort information has been derived almost entirely from Alaska Department of Fish and Game management reports. The statistical divisions used in reporting the data vary. In some cases, entire areas may not have been subdivided for effort statistics, while in other parts of the state, this information is available by statistical district or even subdistrict.

Value of catch to the fisherman has been calculated from "price per fish" data provided in Alaska Department of Fish and Game management reports.

1. Mylar Overlays

The following information was plotted on mylar overlays of U.S. Geological Survey 1:250,000 scale quadrangles:

1. All waterways inhabited by anadromous fish are indicated to their most upstream record of any species of interest.

2. Anadromous inhabitants are named for all waterways where present.

3. Spawning and rearing areas are identified and are rated in value for each species. This rating is most often based on a minimum of data and should be used with extreme care and recognition that, at most, only the relative abundance of spawners utilizing such an area is indicated. Where data for salmon are more readily available, a low rating indicates a spawning population of less than 5,000 fish; a medium rating indicates a spawning population of between 5,000 and 20,000 fish; and a high rating indicates in excess of 20,000 spawners may regularly use such an area. Much of the information base for this section was obtained from escapement statistics reported in Alaska Department of Fish and Game management reports and in Demory, Orrell and Heinle (1964) and Marriott (1963).

4. Recorded harvest areas are indicated as commercial, sport or subsistence along with major species harvested. Again, much of this information involved the interpretation of data presented in Alaska Department of Fish and Game management reports.

5. All operating or recently operating federal or state research research stations or field sites are plotted.

6. Various activities which might become sources of impact on the fisheries resources were plotted including potential gas pipeline stream crossings (Arctic National Wildlife Refuge), oil and gas wells (Arctic

National Wildlife Refuge), potential dam sites, existing airfields, and locations of mineral occurrence of potential economic value including concentrations of existing mineral claims.

j. Statewide Mylar Overlay of Major Anadromous Fish Streams

"Major" is defined as having a regular run of the indicated species in excess of 50,000 fish. Primary data for this section was obtained from Atkinson, Rose and Duncan (1967).

Coastal Marine and Anadromous Fishes

Noatak National Arctic Range

(0)	Arctic lamprey	Lampetra japonica
	Pacific herring	Clupea harengus pallasi
0	Bering cisco	Coregonus laurettae
(0)	Broad whitefish	Coregonus nasus
0	Least cisco	Coregonus sardinella
0	Pink salmon	Oncorhynchus gorbuscha
0	Chum salmon	Oncorhynchus keta
0	Coho salmon	Oncorhynchus kisutch
0	Sockeye salmon	Oncorhynchus nerka
*	Round whitefish	Prosopium cylindraecum
(0)	Arctic char	Salvelinus alpinus
*	Inconnu	Stenodus leucichthys
*	Pond smelt	Hypomesus olidus
	Capelin	Mallotus villosus
(0)	Rainbow smelt	Osmerus dentex
	Arctic cod	Boreogadus saida
	Saffron cod	Eleginus gracilis
	Fish doctor	Gymnelis viridis
	Wattled eelpout	Lycodes palearis
	Polar eelpout	Lycodes turneri
	Sparse toothed lycod	Lycodes varidens
*	Ninespine stickleback	Pungitius pungitius
	Fourline snakeblenny	Eumesogrammus praecisus
	Slender eelblenny	Lumpenus fabricii
	Stout eelblenny	Anisarchus medius
	Arctic Shanny	Stichaeus punctatus
	Langbarn	Leptoclinus maculatus
	Pacific sand lance	Ammodytes hexapterus
	Greenling	Hexogrammos sp.
	Hamecon	Artediellus scaber
	Antlered sculpin	Enophrys dicerans
	Arctic staghorn sculpin	Gymnocanthus tricuspis
	Irish Lord	Hemilepidotus sp. (possibly H. zapus)
	Spatulate sculpin	Icelus spatula
	Belligerent sculpin	Megalocottus platycephalus
	Plain sculpin	Myoxocephalus jaok
	Flathead sculpin	Myoxocephalus platycephalus
	Fourhorn sculpin	Myoxocephalus quadricornis
	Arctic sculpin	Myoxocephalus scorpioides
	Shorthorn sculpin	Myoxocephalus scorpius
	Warty sculpin	Myoxocephalus verrucosus
	Eyeshade sculpin	Nautichthys pribilovius
	Ribbed sculpin	Triglops pingeli
	Sturgeon poacher	Argonus acipenserinus
	Aleutian alligatorfish	Aspidophoroides bartoni
	Arctic alligatorfish	Aspidophoroides olriki
	Leatherfin lumpsucker	Eumicrotremus derjugini
	Striped seasnail	Liparis liparis
	Unnamed Clyclopterid	Liparis bristolense

Coastal Marine and Anadromous Fishes
Noatak National Arctic Range

Arrowtooth flounder	Atheresthes stomias
Flathead sole	Hippoglossoides elassodon
Bering flounder	Hippoglossoides robustus
Yellowfin sole	Limanda aspera
Arctic flounder	Liopsetta glacialis
Starry flounder	Platichthys stellatus
Alaska plaice	Pleuronectes quadrituberculatus

0 Anadromous

(0) Both anadromous and resident

* May enter coastal, brackish water

History of Subsistence Fishery
Noatak National Arctic Range, Alaska

The northern Eskimos of the village of Noatak historically have depended heavily upon fishing for subsistence. However, little published information is available to adequately document these activities. Traditionally, fishing methods included bow and arrow handlines, jigs, spears, gill nets and traps, primarily for Arctic char. Decoys, which usually were small carved images of fish, also were probably used by jigging in the water to attract fish (Rostlund 1952). Remnants of salmon spears and nets have been found in old village sites in nearby areas that date back to 1250 A.D. (Alaska Department of Fish and Game 1973). Considerable numbers of chum salmon were probably taken from the Noatak River for both human consumption and for sled dog feed.

In more recent years, subsistence fishing by Noatak villagers followed seasonal patterns. In the fall, char and whitefish are netted at the village and at fishing camps upriver until freeze-up, when hook and line fishing through the ice is predominant. During winter, ice fishing continues; and in the summer, temporary camps are set up, primarily at Sheshalik, for seal and beluga whale hunting. At the end of the hunt, some villagers fish for char and whitefish; and by mid-July, most families have moved to Kotzebue. During August, the Eskimos again return to the Noatak River. Here they net salmon and dry it for later use.

There are few inconnu in the Noatak River drainage, and they probably have not been used extensively. Jigging for inconnu through the ice on northern Hotham Inlet during the winter and spring is also practiced. Other species taken in the subsistence fishery recently are Arctic char, burbot, northern pike and grayling.

Dependence upon subsistence fishing may have been declining in this region during recent years as a result of increased employment opportunities and welfare payments. Also, mechanized cross-contry travel has become widespread which has reduced the need for many sled dogs; hence, fewer fish are taken and preserved as dog food.

The aboriginal methods of preserving the fish catch included both air drying and storage as well as burying and decay for the purpose of making a delicacy or seasoning, similar to the Eskimos who inhabited the Kaktovik area (Rostlund 1952).

History of Commercial Fishery
Noatak National Arctic Range, Alaska

The early history of commercial fishing in this region is poorly documented. Most of the available information deals with fishing activities around Kotzebue, where frequent mention is made of the Midnight Sun Packing Company, a processing facility which operated in Kotzebue from 1914 to approximately 1918. During these years, this processor packed canned "reds" and "silvers," as well as barrels of hard, salted salmon--probably chum.

In more recent years, commercial fishing has almost entirely centered around Kotzebue. Small boats are used to operate set and gill nets and the catch is delivered to Kotzebue. The season opens in late spring or early summer, and the salmon fishery area is restricted by Alaska Department of Fish and Game to waters east of a line from markers placed near Aukoolak Lagoon on Sheshalik Spit to Cape Blossom on Baldwin Peninsula. Species which have been taken in the commercial fishery are Arctic char, inconnu, chum salmon, and some whitefish, as well as a few salmon of other species.

History of Sport Fishery
Noatak National Arctic Range, Alaska

Kotzebue is the center for sport or recreational fishing activities in the area. A few Natives are engaged in guiding sport fishermen into the Noatak area from Kotzebue. Species sought include salmon, Arctic char, and a few inconnu, which may attain a weight of 80 pounds. Some inconnu are fished at the mouth of the Little Noatak River, but the fishing pressure here is light. Most sport angling is done by guided fishing parties and residents of Kotzebue and Noatak on the Noatak River, primarily during float trips.

Anadromous Species Abbreviations

AL = Arctic lamprey

AC = Arctic char

PS = Pink salmon

CS = Chum salmon

RS = Sockeye salmon

KS = King salmon

SS = Coho salmon

In = Inconnu

BWF = Broad whitefish

ACI = Arctic cisco

LC = Least cisco

WF = Whitefish (species unidentified)

RBS = Rainbow smelt

BC = Bering cisco

UN = Species unidentified

Anadromous Fish Habitat
Noatak National Arctic Range
and Associated Areas of Ecological Concern

Drainage Name	Anadromous Species (Habitat in miles)								
	AC	PS	CS	SS	RS	LC	BWF	[illegible]	[illegible]
Squirrel		60	70						
North Fork			10						
unnamed tributaries			10						
Noatak	280	110	380	X	105	X	X	X	
Eli	X	30	70						
unnamed tributaries			15						
Kelly (includes Kelly Lake)	X		25		15				
unnamed tributaries			5		5				
Nimiuktuk			5						
Cutler	X								
Rabbit Creek									X
[illegible]tal Habitat	280	200	590		125				

Key Anadromous Fish Spawning and Rearing Areas
Noatak National Arctic Range
and Associated Areas of Ecological Concern

Drainage Name	Anadromous Species (Key Area in miles)								
	AC	PS.	CS	SS	RS	LC	BWF.	IN	
Squirrel		45	70						
North Fork			10						
unnamed tributaries			5						
Noatak		80	150						
Eli		30	60						
unnamed tributaries			10						
Kelly (includes Kelly Lake)	X		25		10				
unnamed tributaries									
Nimiuktuk									
Cutler									
Rabbit Creek									
		155	330		10				

Magnitude of Runs or Escapements

Noatak National Arctic Range

Squirrel River	Chum Salmon		
Year	No. of Fish	Year	No. of Fish
1963	2,200	1970	4,418
1964	8,009	1971	6,628
1965	7,230	1972	32,126
1966	1,350	1973	12,345
1967	3,332	1974	32,523
1968	6,746		
1969	6,714		

Notes: Aerial survey

Noatak (total drainage)	Chum Salmon		
Year	No. of Fish	Year	No. of Fish
1963	2,605*	1970	138,145
1964	89,798	1971	41,064
1965	7,332*	1972	67,601*
1966	102,222	1973	36,034
1967	28,845		
1968	45,271		
1969	34,163*		

Notes: Aerial survey
*Incomplete survey
Wolfe (1960, 1962) estimates total Noatak runs of 1960 and 1961 at 1 million salmon

Combined Noatak-Kobuk river drainages	Chum Salmon		
Year	No. of Fish	Year	No. of Fish
1966	257,076		
1967	256,628		
1968	172,844		

Notes: Petersen Tag - recapture population estimates

Noatak (below Kelly River)	Chum Salmon		
Year	No. of Fish	Year	No. of Fish
1963	1,970*	1970	138,145
1964	89,798	1971	41,064
1965	4,177*	1972	[illegible]
1966	101,640	1973	[illegible]
1967	28,628	1974	[illegible]
1968	39,394		
1969	33,395		

Notes: Aerial survey
*Incomplete survey
low

Magnitude of Runs or Escapements

Noatak National Arctic Range

Noatak (Eli River) ▲ — Chum Salmon

Year	No. of Fish	Year	No. of Fish
1963	35*		
1966	12*		
1968	5,502		
1969	68*		
1972	3,286		
1974	2,216		

Notes: Aerial survey
*Incomplete survey - count probably low

Noatak (Kelly River and Lake) — Chum Salmon

Year	No. of Fish	Year	No. of Fish
1963	600	1974	6,978
1965	3,155		
1966	570		
1967	225		
1968	375		
1969	150		
1973	3,890		

Notes: Aerial surveys

Year	No. of Fish	Year	No. of Fish

Notes:

Year	No. of Fish	Year	No. of Fish

Notes:

Noatak — Arctic Char

Year	No. of Fish	Year	No. of Fish

Notes: In 1971 "several thousand" char were counted on Noatak during a chum salmon survey

Year	No. of Fish	Year	No. of Fish

Notes:

Year	No. of Fish	Year	No. of Fish

Notes:

Year	No. of Fish	Year	No. of Fish

Notes:

Chum Salmon		Kotzebue 331	
Year	No. of Fish	Year	No. of Fish
1963	5,835	1969	1,768
1964	7,753	1970	6,184
1965	8,058	1971	1,737
1966	3,640	1972	1,151
1967	4,032	1973	1,172
1968	4,324	1974	

Notes: Kotzebue village

ADFG estimates these harvest figures represent at least 70% of the actual harvest

Chum Salmon		Kotzebue 331	
Year	No. of Fish	Year	No. of Fish
1963	16,762	1969	14,458
1964	12,763	1970	4,120
1965	5,671	1971	9,919
1966	19,700	1972	741
1967	26,512	1973	216
1968	5,490	1974	4,330

Notes: Noatak village

ADFG estimates these harvest figures represent at least 70% of the actual harvest

Year	No. of Fish	Year	No. of Fish

Notes:

Year	No. of Fish	Year	No. of Fish

Notes:

Subsistence Harvest

Noatak National Arctic Range

Arctic Char — Kotzebue 331

Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish
1963	27,623	1970	3,700				
1964		1971	5,320				
1965		1972	1,492				
1966							
1967							
1968							
1969	32,350						

Notes: Noatak village

Notes:

Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish

Notes:

Notes:

Subsistence Harvest

Noatak National Arctic Range

Inconnu

Kotzebue
331

Year	No. of Fish	Year	No. of Fish
1966-67	10,060		
1967-68	21,871		
1968-69	4,362		
1970	3,520		
1971	682		
1972	311		
1973			

Notes: Kotzebue vicinity

Year	No. of Fish	Year	No. of Fish

Notes:

Year	No. of Fish	Year	No. of Fish

Notes:

Year	No. of Fish	Year	No. of Fish

Notes:

Commercial Harvest

Noatak National Arctic Range

King Salmon — Kotzebue 331

Year	No. of Fish	Year	No. of Fish
1963	7	1970	
1964		1971	1
1965		1972	*
1966	1	1973	5
1967	1	1974	
1968	2		
1969			

Notes: * Three salmon - species not identified

Pink Salmon — Kotzebue 331

Year	No. of Fish	Year	No. of Fish
1963	136	1970	
1964	5	1971	
1965		1972	*
1966		1973	5
1967	3	1974	
1968			
1969	48		

Notes: * Three salmon - species not identified

Sockeye Salmon — Kotzebue 331

Year	No. of Fish	Year	No. of Fish
1963		1970	
1964		1971	
1965		1972	*
1966		1973	
1967		1974	
1968			
1969			

Notes: * Three salmon - species not identified

Coho Salmon — Kotzebue 331

Year	No. of Fish	Year	No. of Fish
1963		1970	
1964		1971	
1965		1972	*
1966		1973	
1967		1974	
1968			
1969			

Notes: * Three salmon - species not identified

Commercial Harvest

Noatak National Arctic Range

Chum Salmon — Kotzebue 331

Year	No. of Fish	Year	No. of Fish
1963	54,445	1970	159,664
1964	76,499	1971	154,956
1965	40,034	1972	169,664
1966	30,764	1973	375,537
1967	29,400	1974	627,912
1968	30,384		
1969			

Notes: Tagging study indicates approximately 75% of chum salmon caught in this district are bound for the Noatak River drainage; remaining 25% are bound for Kobuk drainage.

Arctic Char — Kotzebue 331

Year	No. of Fish	Year	No. of Fish
1963		1970	2,095
1964		1971	3,649
1965		1972	7,746
1966	3,325	1973	640
1967	367	1974	2,605
1968	3,181		
1969	1,089		

Notes:

Whitefish — Kotzebue 331

Year	No. of Fish	Year	No. of Fish
1963		1970	
1964		1971	
1965		1972	
1966		1973	
1967		1974	254
1968			
1969			

Notes: Data limited.
No harvest quantities available

Inconnu — Kotzebue 331

Year	No. of Fish	Year	No. of Fish
1966-67		1974	
1967-68			
1968-69			
1970			
1971	277		
1972	1		
1973	3		

Notes: Taken during salmon season only

Commercial Harvest

Noatak National Arctic Range

Inconnu		Kotzebue 331	
Year	No. of Fish	Year	No. of Fish
1965-66		1973	1,087
1966-67		1974	
1967-68			
1968-69			
1970			
1971	179		
1972	2,325		

Notes: Special permit harvest only

Inconnu		Kotzebue 331	
Year	No. of Fish	Year	No. of Fish
1965-66	4,243	1973	1,090
1966-67	992	1974	2,535
1967-68	2,375		
1968-69	2,206		
1970	305		
1971	456		
1972	2,326		

Notes: Total harvest

Year	No. of Fish	Year	No. of Fish

Notes:

Year	No. of Fish	Year	No. of Fish

Notes:

Commercial Value

Noatak National Arctic Range

Chum Salmon			Kotzebue 331
Year	$ Value	Year	$ Value
1963	19,140	1970	186,000
1964	34,660	1971	200,000
1965	18,000	1972	260,000
1966	25,000	1973	925,735
1967	28,700	1974	1,475,600
1968	46,000		
1969	71,000		

Notes:

Arctic Char			Kotzebue 331
Year	$ Value	Year	$ Value
1963		1970	
1964		1971	3,685
1965		1972	9,600
1966		1973	737
1967		1974	
1968			
1969			

Notes:

Inconnu			Kotzebue 331
Year	$ Value	Year	$ Value
1966-67	1,390	1974	
1967-68	3,560		
1968-69	2,010		
1970	470		
1971	650		
1972	3,420		
1973	1,875		

Notes:

Year	$ Value	Year	$ Value

Notes:

Commercial Effort

Noatak National Arctic Range

Year	Commercial Licenses	Boat Days*	Set Net Registrations	Fathoms of Set Net	
1963	110	693	60	8,550	Notes: *
1964	81	560	52	5,550	$\frac{\text{(No. of Boats) x (Hours Fished)}}{24}$ = Boat Days
1965	61	410	45	5,450	
1966	64	548	44	4,650	
1967	54	410	30	3,600	
1968	90	643	59	6,750	
1969	77	800	46	5,400	
1970	160	1,368	77	9,800	
1971	198	1,393	91	11,100	
1972	202	3,666	101	13,100	
1973	390	3,663	156	19,250	
1974	401		191	26,500	

Sport Harvest

Noatak National Arctic Range

Arctic Char — Kotzebue 331

Year	No. of Fish	Year	No. of Fish

Notes: Fishery in Noatak River in vicinity of Noatak village.

Year	No. of Fish	Year	No. of Fish

Notes:

Year	No. of Fish	Year	No. of Fish

Notes:

Year	No. of Fish	Year	No. of Fish

Notes:

Anadromous Fish Inventory Update System
Noatak National Arctic Range, Alaska

Almost all the recent commercial fisheries investigations in the area have been done by the Division of Commercial Fisheries, Alaska Department of Fish and Game. This work has been conducted by a commercial fish biologist headquartered in Nome. Paul Cunningham is the biologist currently responsible for this area. Usually the most comprehensive statistical summaries are compiled in the Annual Management Report, Arctic-Yukon-Kuskokwim Region, an informal unpublished report compiled by the A-Y-K regional management biologists. This document is prepared at the Anchorage office with major contributions from the various field personnel. Usually this data will be available in the spring following the field season - probably April or May would be the optimum time to request data from the previous year.

Sport fish information is normally handled through the Fairbanks office of the Division of Sport Fish, Alaska Department of Fish and Game. A key contact for previous years has been Kenneth Alt, primarily due to his work with inconnu (sheefish) in the Kobuk and Selawik Rivers. These studies on inconnu and some additional investigations of Arctic char, primarily in the Wulik River northwest of Kotzebue, were conducted under the Federal Aid in Fish Restoration Study Program prior to 1972. No studies are currently active in the Kotzebue area under this program.

Anadromous Fish Inventory Study Needs
Noatak National Arctic Range, Alaska

1. The anadromous fish species and habitat of the upper Noatak River drainage are poorly known. Anadromous fish surveys need to be conducted upstream from the confluence of the Kelly and Noatak Rivers.

2. Key spawning areas for chum salmon are poorly delineated due to inadequate surveys of escapement in the Noatak River tributaries. More key spawning areas must exist and their value must be quite high, since current escapement estimates account for only a very small percentage of the probable run to the Noatak River. With a total run in the vicinity of one million chum salmon and an increasing commercial harvest, preparation of a spawning ground catalog is advised.

3. Sport harvest data (creel census) needs to be collected in more detail than is currently available, primarily for inconnu and Arctic char.

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Noatak National Arctic Range

Anadromous Fish Inventory

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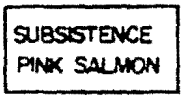
Anadromous Fish Stream with Identified Species

Key Spawning or Rearing Area

Key Area Value for Identified Species



Significant Harvest Locale
with Important Species Named

SELAWIK NWR

Proposed Refuge Name

Boundary of Proposed Refuge
and Area of Ecological Concern

Existing Refuge Boundary

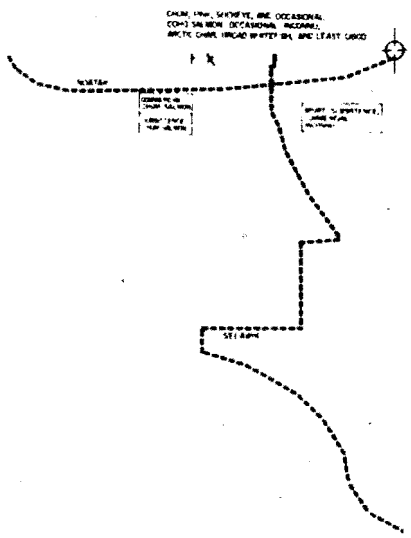
Fisheries Research Station

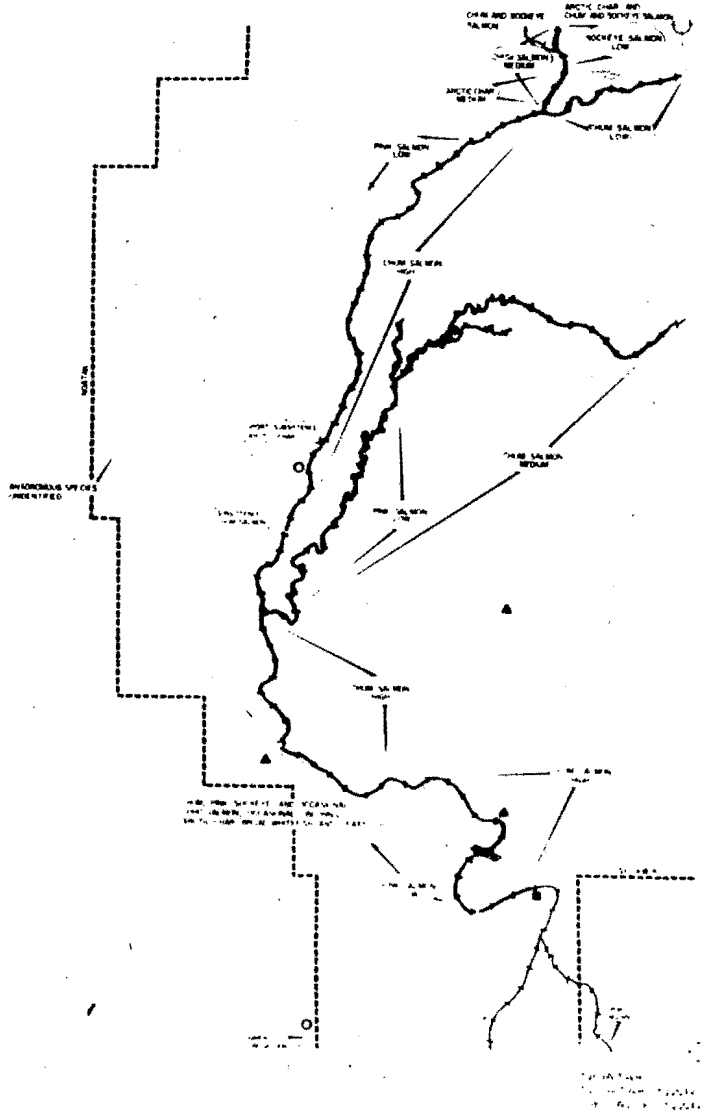
Airfield

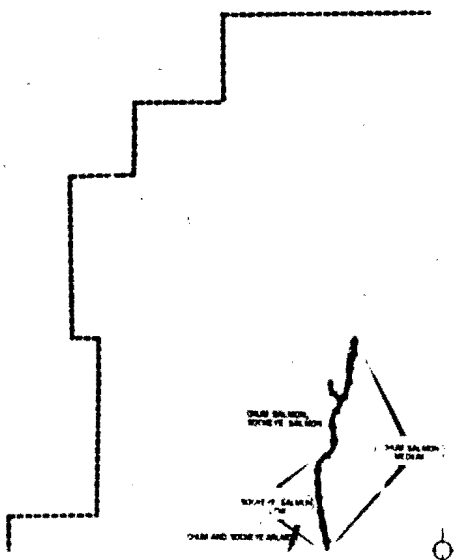
Mineral Location

Hydroelectric Dam Site

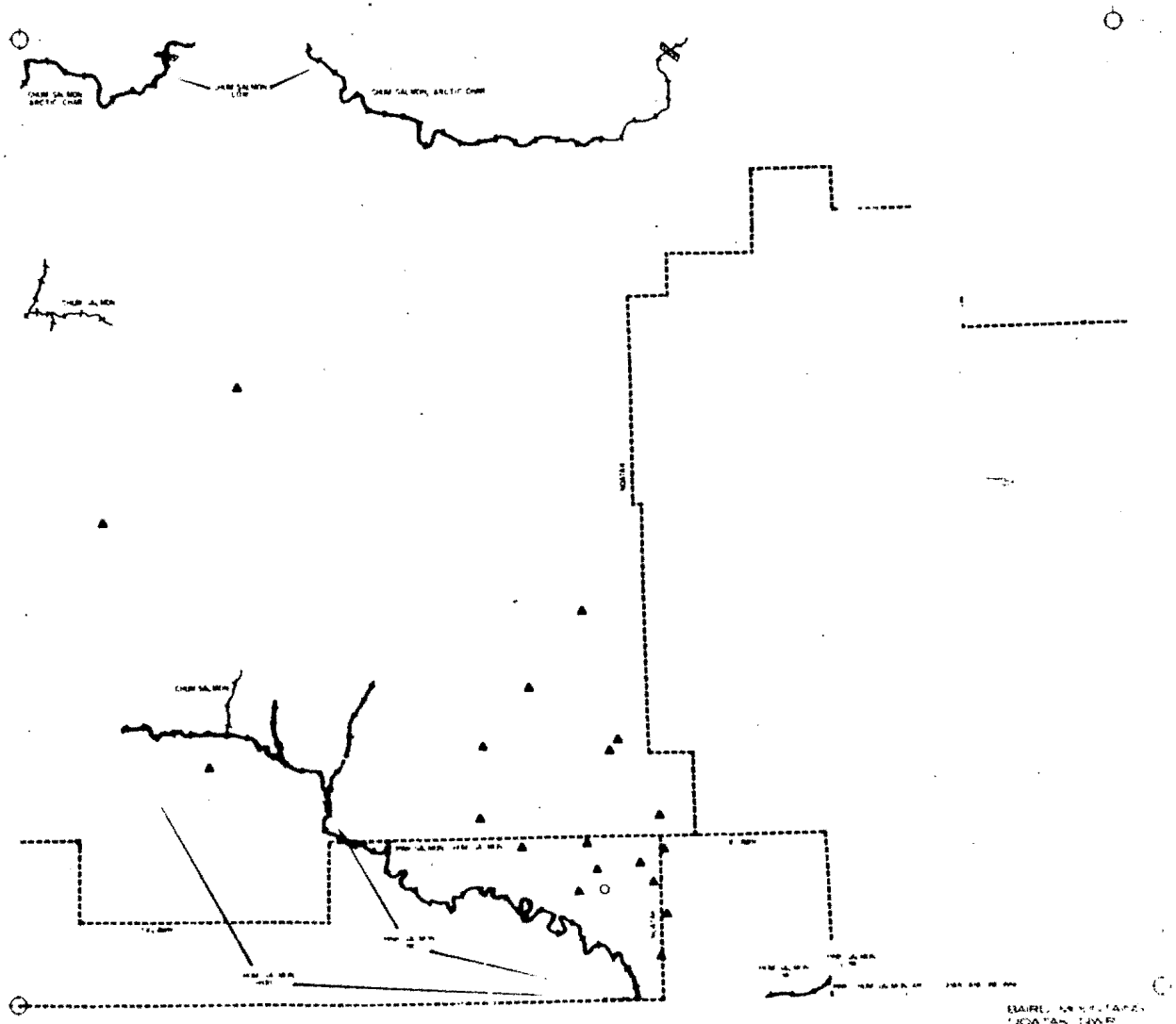
Oil or Gas Well

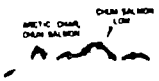




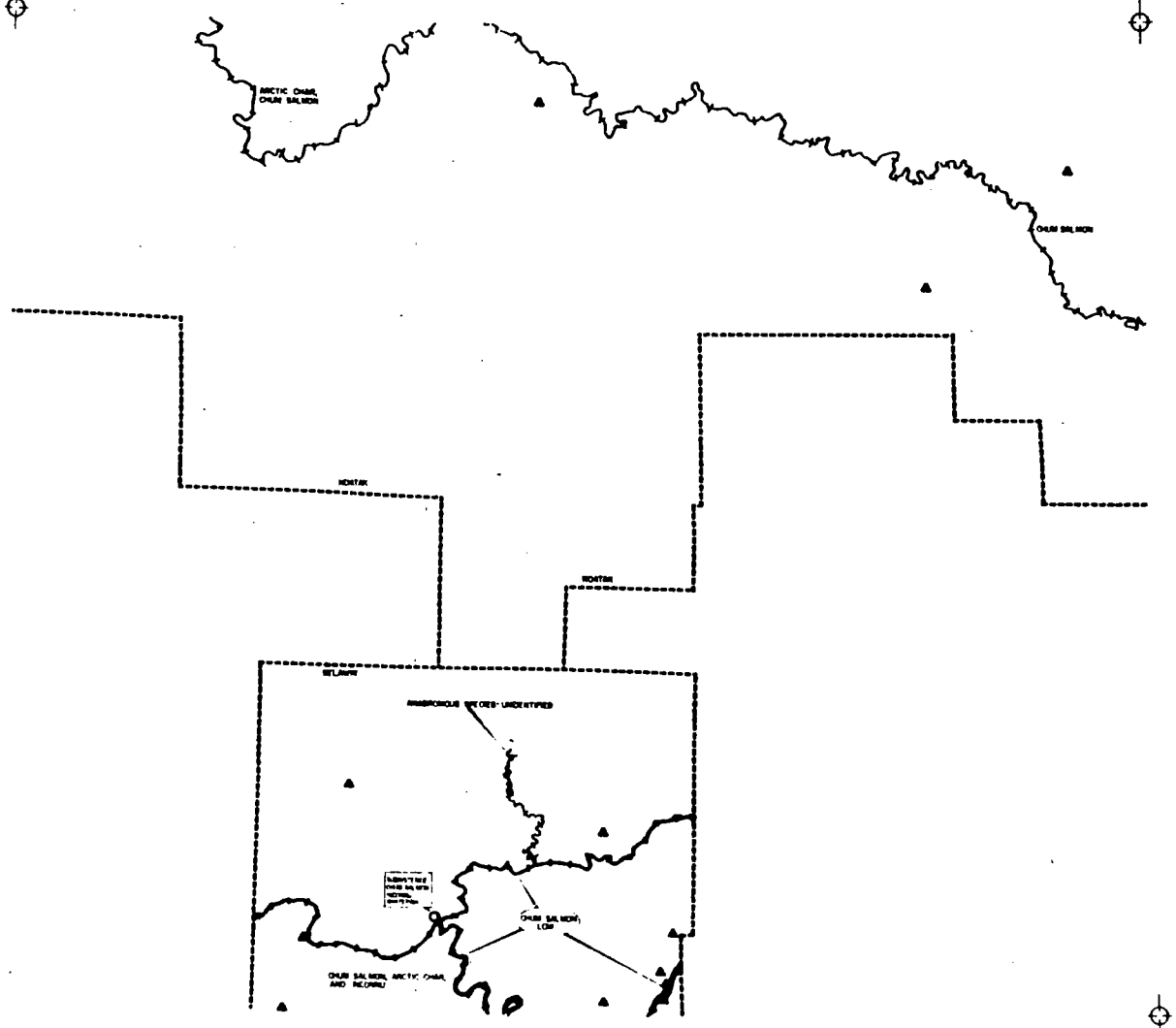


DE LONG MOUNTAINS
NOATAK NWR

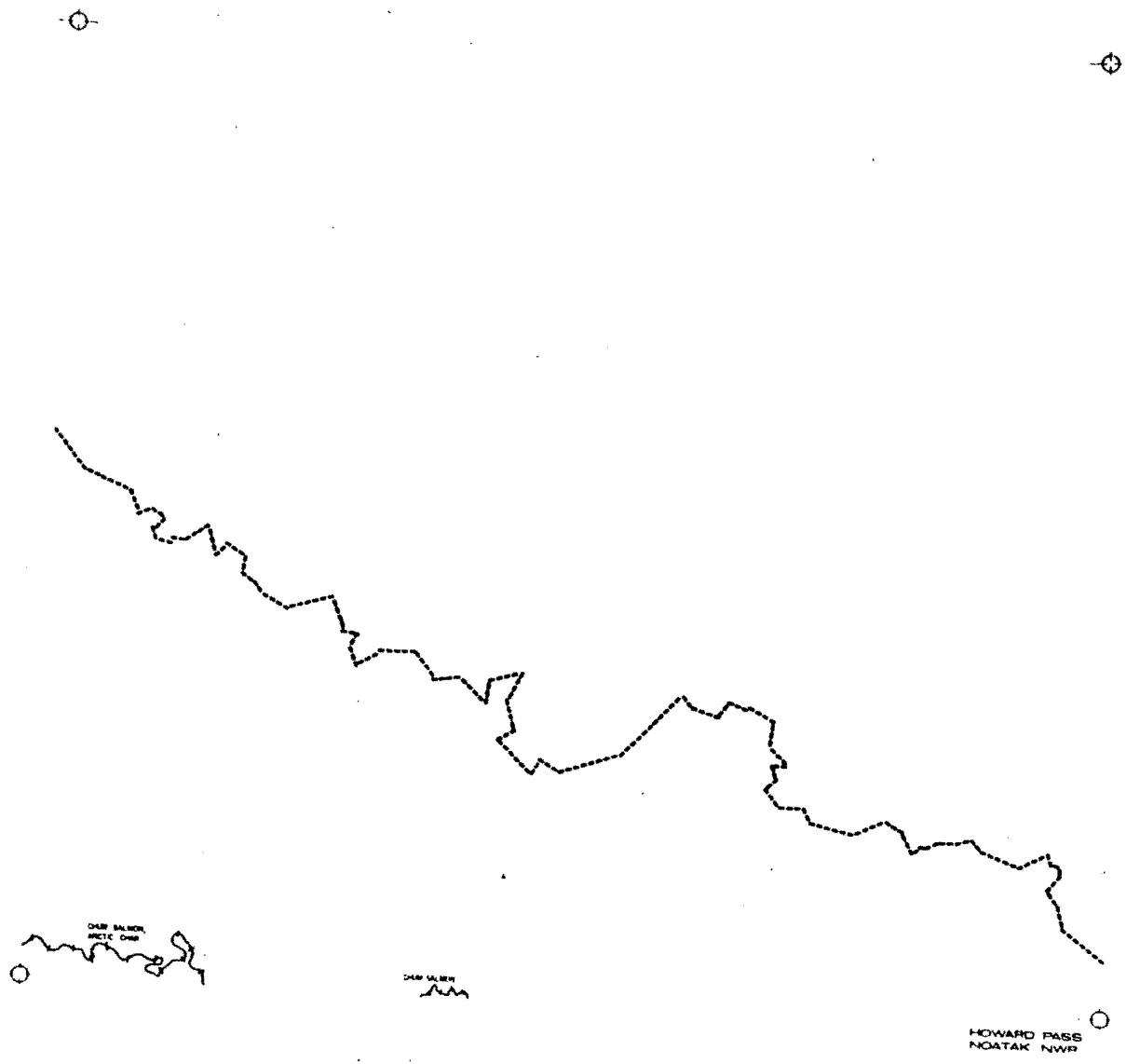


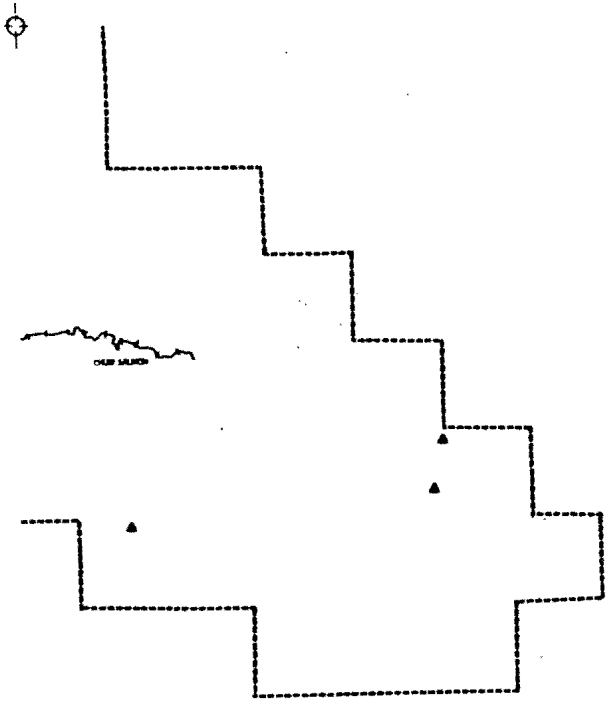


MISHEGUK MOUNTAIN
NOATAK NWR



AMBLER RIVER
NOATAK NWR
SELAWIK NWR


DALL SALMON
ARCTIC OWEN
DALL SALMON
HOWARD PASS
NOATAK NWR



SURVEY PASS
NOATAK NWR

KILLIK RIVER
NOATAK NWR

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