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The right to fishing trap sites was held over from one year to the next. Since fishing was not the mainstay of these people, only a few hundred fish were probably taken annually to supplement the subsistence harvest of game. In many cases the availability of gainful employment for Natives in the region also had an effect on the personal-use fishery.

Little dependence was placed on king salmon, since by the time the Natives were prepared for the season's fishing effort, the king salmon run was largely over. When taken, this species was highly prized, even though it was difficult to preserve due to high oil content and large size. Chum salmon, however, furnished the larger share of dried salmon, both for human use and for dog food. Air drying was the primary preservative method, although some were smoked.

In the sparsely populated regions of the Yukon, the dog team was indispensable to travel. Taking salmon for dog food was extremely important, and amounted to hundreds or thousands of tons annually, primarily Yukon River chum salmon. Only with the advent of the airplane and later the snowmobile did this need begin to decline. At present, the subsistence harvest of salmon for use as dog food is of little importance.

Subsistence catches of salmon have been recorded from the villages of Stevens Village, Beaver, Venetie, and Eagle. In recent years subsistence catches at these villages, and Fort Yukon, were comprised of king and chum salmon. From 1963 to 1972 the subsistence salmon harvest at Stevens Village averaged 4,654 chum and 690 chinook salmon annually.



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**ANADROMOUS FISH INVENTORY  
YUKON FLATS NATIONAL WILDLIFE REFUGE, ALASKA  
and Associated Area of Ecological Concern**

**Prepared for  
Fish and Wildlife Service  
by**

**Arctic Environmental Information and Data Center  
University of Alaska, Anchorage**

**Library  
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## References

### Yukon Flats National Wildlife Refuge

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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

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 interest.

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



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.

i. 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).

Anadromous Fish  
Yukon Flats National Wildlife Refuge

- (0) Arctic lamprey
- 0 Chum salmon
- 0 Coho salmon
- 0 Chinook salmon
- (0) Arctic char

Lampetra japonica  
Oncorhynchus keta  
Oncorhynchus kisutch  
Oncorhynchus tshawytscha  
Salvelinus alpinus

- 0 Anadromous
- (0) Both anadromous and resident

History of Subsistence Fishery  
Yukon Flats National Wildlife Refuge, Alaska

The Athapascan natives of the Yukon River flats region traditionally have depended heavily upon trapping and hunting, although the Hankutchin people, descendents of whom live in present day Eagle, were noted for their skill in catching large salmon. Fish was probably a staple food for residents of the area, but no more important than game or plants (Rostlund 1952). Fishing in this region employed a greater percentage of fish wheels than was employed in the Yukon River delta area. Some use in this area was made of dip nets, fish traps, spears, and fish hooks. Fish were preserved by drying in air or sunlight and stored for future use. Fish roe may have been buried and decomposed for the purpose of making a delicacy or a seasoning (Rostlund 1952).

During the first half of the 20th century, subsistence fishing in the upper Yukon River area exceeded the importance of the commercial fishery. Salmon probably contributed to the diet of the human inhabitants of the area since man first arrived in the region. Fish were required in larger quantities during the gold rush era, not only for human consumption but also to feed the increasing number of dog teams needed for winter travel. This demand probably increased from the turn of the century until about 1925, when a decline in mining activities and the completion of the Alaska Railroad in 1923 reduced river traffic along the Yukon River system (U.S. Department of the Interior 1964). Dog teams were further reduced with the advent of airplane mail transport in the early 1930's. Thus the number of fish wheels operating in the Yukon declined rapidly.

Villages in this sparsely populated interior region were advantageously located on main rivers and streams, and acted as base centers from which traditional fishing trips were made seasonally to fish campsites up or downriver.

History of Commercial Fishery  
Yukon Flats National Wildlife Refuge, Alaska

Records of commercial fishing in the Yukon River date to 1918, when commercial packing of salmon began in the Yukon Delta area. Most of the commercial harvest of salmon occurred in the lower downstream sections of the river, but an average of more than 1,800 salmon were commercially harvested from the Yukon in Alaska above Koyukuk during the period from 1963 to 1972. Commercial fishing is not permitted on any of the tributaries of the Yukon River at the present time.

The results of heavy commercial fishing in the lower river led to a decline in runs of fish to the upper reaches of the river. Controversy over the new commercial ventures continued for several years and motivated biological investigations during 1920. On the basis of this study, commercial fishing was restricted in the delta area, and by 1924 all commercial fishing in the area was eliminated. In 1930, commercial fishing was permitted outside the delta area and in 1935 was permitted within the river. Also in 1935, the use of fish-wheels as commercial gear for aboriginal people and permanent white residents of the Yukon basin was legalized.

Commercial harvest quotas were set in 1936, permitting the taking of 25,000 king salmon within the Yukon River. This quota remained in effect until 1954 when the river was divided into three subdistricts. The quota for the upper district was set at 5,000 kings (from Anvik to the Yukon Territory border). Since 1960, the Alaska Department of Fish and Game has managed the Yukon River commercial fishery and redistricted the upper Yukon River to include the area from Marshall to the Canadian border. At present, within the Yukon District, the proposed Yukon Flats area of interest encompasses part of Alaska Department of Fish and Game's management subdistrict 334-40, which extends from the mouth of the

Koyukuk River upstream to the Alaska-Canada border, including all tributary drainage streams and rivers. In this district, fishing is allowed seven days a week until quotas of 2,000 king salmon and 2,000 chum and coho salmon combined are taken (Alaska Department of Fish and Game 1973). In 1973, 101 commercial fishermen were registered with Alaska Department of Fish and Game, and 56 of these individuals planned to operate fishwheels within subdistrict 334-40. These data reflect an expansion of the upriver commercial fishery. In recent years, the salmon catch is canned, frozen or sold fresh to local stores at Eagle and Circle. Also, a small hand pack operation for salmon began at Rampart in 1953, and may have processed salmon taken from the Yukon River within the area of interest.

History of Sport Fishery  
Yukon Flats National Wildlife Refuge, Alaska

The only anadromous fish sport fishery in this region occurs on chinook, coho and king salmon, and arctic char. Fishing pressure is very light, if any at all, due to the area's inaccessibility and its low potential. Highway access in recent years has permitted only limited sport angling in the area--the Steese Highway to Circle, the Taylor Highway spur to Eagle, and most recently, the Yukon Haul Road associated with the trans-Alaska oil pipeline along the west border of the area of interest.

Fly-in or boat travel are the primary means of access into this region. Chandalar Lake is perhaps the most accessible because of its good landing strip. The Yukon and Charley Rivers offer good potential for salmon angling. Some sport fishing for salmon also may have occurred in recent years in lower Hodzana River, lower Beaver Creek, or lower Chandalar River. Sport fishing for other non-anadromous species also occurs in the area to some extent.



# **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  
Yukon Flats National Wildlife Refuge  
and Associated Areas of Ecological Concern

Drainage Name	Anadromous Species (Habitat in miles)							
	KS	CS	SS	AL	UN			
Yukon River	403	403	403	328				
Tolovana River					X			
Koyukuk River	X	X						
Jim River	X							
Beaver Creek	60	60	X					
Hodzana River	50	X	X					
Chandalar River	X	90	X					
East Fork		55						
Porcupine River	220	220	220					
Black River		95						
Salmon Fork		20						
Kevinjik Creek		12						
Sheenjek River	X	30	X					
Salmon Trout River					X			
Birch Creek	140	140						
Charley River	8	X	8					
Kandik River	X	X	X	X				
Nation River	X	X	X					
Tatonduk River	10	10						
Seventymile River					X			
Total Habitat	891	1,135	631	328				

Key Anadromous Fish Spawning and Rearing Areas  
Yukon Flats National Wildlife Refuge  
and Associated Areas of Ecological Concern

Drainage Name	Anadromous Species (Key Area in Miles)							
	KS	CS	SS	AL	UN			
Yukon River	403	403						
Tolovana River								
Koyukuk River								
Jim River								
Beaver Creek	45	45						
Hadzana River								
Chandalar River								
East Fork								
Porcupine River								
Black River								
Salmon Fork								
Kevinjik Creek								
Sheenjek River								
Salmon Trout River								
Birch Creek								
Charley River								
Kandik River								
Nation River								
Tatonduk River								
Seventymile River								
Key Area in Total	448	448						

Magnitude of Runs or Escapements  
Yukon Flats National Wildlife Refuge

Yukon River  
(Fishing Branch)

Chum Salmon

Year	No. of Fish	Year	No. of Fish
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1971	115,000		
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1972	35,326		
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1973	16,239		
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Notes: Fishing Branch River counts include Weir counts during 1972 and 1973 (Tributary of Porcupine River in Yukon Territory) fall chum run only

Yukon River

Chum Salmon

Year	No. of Fish	Year	No. of Fish
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1962	109,539-		
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	116,495		
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Notes: Peterson estimate of chum salmon passing Rampart

Yukon River  
(Chandalar)

Chum Salmon

Year	No. of Fish	Year	No. of Fish
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1962	12,000*		
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Yukon River  
(Sheenjek)

Chum Salmon

Year	No. of Fish	Year	No. of Fish
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1962	10,000*		
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1973	1,175**		
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Notes: \*Estimated chum escapement for total Chandalar system'

Notes: \*Estimated chum escapement for Sheenjek system  
\*\*Aerial survey for fall chum run

## Yukon Flats National Wildlife Refuge

Yukon River (upstream)		King Salmon		Yukon River		King Salmon	
Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish
1963	484	1970	625	1962	20,294*		
1964	587	1971	856				
1965	903						
1966	563						
1967	533						
1968	407						
1969	334						
Notes: Fishway counts at Whitehorse Dam, Yukon Territory				Notes: *Peterson estimate of kings passing Rampart			
Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish
Notes:				Notes:			

# Subsistence Harvest

## Yukon Flats National Wildlife Refuge

King Salmon				King Salmon			
		Yukon (334-40)				Yukon (334-40)	
Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish
1963		1970		1963		1970	
1964		1971	450	1964		1971	680
1965		1972	1,002	1965		1972	241
1966		1973	967	1966		1973	307
1967		1974		1967		1974	
1968		1975		1968		1975	
1969				1969			

Notes: Stevens village

Notes: Beaver village

King Salmon				King Salmon			
		Yukon (334-40)				Yukon (334-40)	
Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish
1963		1970		1963		1970	
1964		1971	647	1964		1971	-
1965		1972	520	1965		1972	345
1966		1973	536	1966		1973	225
1967		1974		1967		1974	
1967		1975		1968		1975	
1969				1969			

Notes: Fort Yukon village

Notes: Circle village

# Subsistence Harvest

## Yukon Flats National Wildlife Refuge

King Salmon

Yukon  
(334-40)

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

1963		1970	
1964		1971	111
1965		1972	235
1966		1973	267
1967		1974	
1968		1975	
1969			

Notes: Eagle village

King Salmon

Yukon  
(334-40)

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

1963		1970	
1964		1971	-
1965		1972	-
1966		1973	0
1967		1974	
1968		1975	
1969			

Notes: Venetie village

Year	No. of Fish	Year	No. of Fish
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Year	No. of Fish	Year	No. of Fish
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Notes:

Notes:

# Subsistence Harvest

## Yukon Flats National Wildlife Refuge

Other Salmon*				Yukon (334-40)			
Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish
1963		1970		1963		1970	
1964		1971	4,774	1964		1971	1,636
1965		1972	1,118	1965		1972	3,057
1966		1973	3,216	1966		1973	1,176
1967		1974		1967		1974	
1968		1975		1968		1975	
1969				1969			

Notes: Stevens village  
\*Mostly chums, but includes small numbers of coho salmon

Notes: Beaver village  
\*Mostly chums, but includes small numbers of coho salmon

Other Salmon*				Yukon (334-40)			
Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish
1963		1970		1963		1970	
1964		1971	3,207	1964		1971	-
1965		1972	1,597	1965		1972	52
1966		1973	2,732	1966		1973	52
1967		1974		1967		1974	
1968		1975		1968		1975	
1969				1969			

Notes:

Notes:



# Subsistence Harvest

## Yukon Flats National Wildlife Refuge

Other Salmon*				Yukon (334-40)				Other Salmon*				Yukon (334-40)			
Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish
1963		1970		1963		1970		1963		1970		1963		1970	
1964		1971	490	1964		1971		1964		1971	801	1964		1971	
1965		1972	391	1965		1972		1965		1972	50	1965		1972	
1966		1973	1,687	1966		1973		1966		1973	410	1966		1973	
1967		1974		1967		1974		1967		1974		1967		1974	
1968		1975		1968		1975		1968		1975		1968		1975	
1969				1969				1969				1969			
Notes: Eagle village *Mostly chums, but includes small numbers of coho salmon				Notes: Venetie village *Mostly chums, but includes small numbers of coho salmon											
Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish
Notes:				Notes:											

Commercial Harvest

Yukon Flats National Wildlife Refuge

King Salmon				Coho Salmon			
		Yukon Flats (334-40)				Yukon Flats (334-40)	
Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish
1963		1970	1,666	1963		1970	-
1964	1,081	1971	1,749	1964		1971	38
1965	1,863	1972	1,092	1965		1972	22
1966	1,988	1973	1,309	1966		1973	-
1967	1,449	1974		1967		1974	
1968	1,126	1975		1968		1975	
1969	985			1969	95		

Notes:

Notes:

Chum Salmon							
		Yukon Flats (334-40)					
Year	No. of Fish	Year	No. of Fish	Year	No. of Fish	Year	No. of Fish
1963		1970	907				
1964	-	1971	1,061				
1965	381	1972	1,254				
1966	-	1973	13,003				
1967	-	1974					
1968	-	1975					
1969	703						

Notes:

Notes:

Commercial Value

Yukon Flats National Wildlife Refuge

King Salmon				Coho Salmon			
		Yukon Flats (334-40)				Yukon Flats (334-40)	
Year	\$ Value	Year	\$ Value	Year	\$ Value	Year	\$ Value
1963		1970	8,330	1963		1970	-
1964	4,050	1971	9,340	1964	-	1971	31
1965	8,380	1972	6,440	1965		1972	20
1966	8,950	1973	9,750	1966		1973	-
1967	6,520	1974		1967		1974	
1968	5,220	1975		1968	-	1975	
1969	4,530			1969	52		

Notes:

Notes:

Chum Salmon							
		Yukon Flats (344-40)					
Year	\$ Value	Year	\$ Value	Year	\$ Value	Year	\$ Value
1963		1970	550				
1964		1971	680				
1965	130	1972	940				
1966		1973	15,300				
1967		1974					
1968		1975					
1969	350						

Notes:

Notes:

## Yukon Flats National Wildlife Refuge

Yukon District (334-40)

Year	Number of Commercial Licenses	Number of Set Nets	Number of Drift Nets	Number of Fish Wheels	
1963					
1964	18	4	-	7	
1965	35	7	-	20	
1966	20	5	-	17	
1967	-	5	-	-	
1968	-	8	-	13	
1969	21	14	-	11	
1970	36	17	1	16	
1971	57	27	2	26	
1972	56	29	5	25	
1973	101	40	1	56	
1974					
1975					

# Sport Harvest

## Yukon Flats National Wildlife Refuge

Yukon  
(334-40)

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

Notes: Little documented sport utilization  
of anadromous species in this area

Notes:

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

Notes:

Notes:

Anadromous Fish Inventory Update System  
Yukon Flats National Wildlife Refuge, Alaska

A limited amount of information on anadromous fishes in the Upper Yukon River drainage can be obtained from the Division of Commercial Fisheries, Alaska Department of Fish and Game. Generally, these studies are coordinated through the department's Anchorage office and have been recently conducted under the National Marine Fisheries Service Grant-in-Aid Study Program. Recently, these reports have been titled, Yukon River Anadromous Fish Investigations. The current research coordinator for this project is James Mauney. The opportune time to contact this agency for the most recent data would be early spring when results of the previous field season will have been compiled.

A secondary source of information each year is the Division of Sport Fish, Alaska Department of Fish and Game, under the Federal Aid in Fish Restoration Study Program. These studies are usually coordinated through the department's Fairbanks office, and the current biologist assigned to these studies is Michael J. Kramer. Investigations are usually conducted during the summer with results compiled during the autumn and winter. For the previous year's studies, a contact during the early spring months of March or April should be opportune for obtaining the latest updated information. Recently, reports dealing with the area in question have been titled Inventory and Cataloging of the Sport Fish and Sport Fish Waters in Interior Alaska.

Occasionally, studies are generated in relation to development projects occurring in this proposed refuge area. Most have been studies of fish inhabiting waters traversed by the Alyeska pipeline (Netsch 1975). Previous to this, numerous studies were compiled in relation to the proposed Rampart Canyon Dam. Continued contact should be made with Alyeska Pipeline Service Company in order to obtain any company-funded studies completed on fishery resources, although few may be expected now that the pipeline is far into construction. Contact should be made with such agencies as the U.S. Army Corps of Engineers concerning anadromous fish information if the Rampart Dam Project or any similar hydroelectric program is anticipated within the area of concern.

The most comprehensive statistical summaries of commercial anadromous fish data for the proposed refuge are compiled in the Annual Management Report, Arctic-Yukon-Kuskokwim Region, an informal, unpublished report by the A-Y-K regional management biologists of the Alaska Department of Fish and Game. This document is prepared at the Anchorage office with 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 the report for the previous year.

Anadromous Fish Inventory Study Needs  
Yukon Flats National Wildlife Refuge, Alaska

1. Anadromous fish habitat of the upper Yukon drainage is poorly known. Anadromous fish surveys need to be conducted in this area for all major drainages which might contain anadromous fish. These studies should be conducted late enough in the season so that the late run of chum salmon will be inventoried.

2. Key spawning areas for salmon are poorly delineated due to the turbidity of the Yukon and many of its tributaries. Many key spawning areas must exist and their value must be quite high, since escapement estimates compiled during the Rampart Canyon Dam studies indicate many tens of thousands of fish migrate into the upper Yukon.

3. Population estimates need to be conducted to ascertain the escapement levels for the upper Yukon. A few such studies were conducted during the early 1960's in conjunction with the Rampart Canyon Dam Project and indicated large escapements. Data that would accurately assess the size of the late chum salmon run are lacking.

4. A program of regular aerial surveys of identified spawning areas needs to be conducted where clear water streams have been identified as key spawning areas for chum, king, or coho salmon. Such counts are almost totally lacking from this area.

5. Sport harvest data (creel census) needs to be collected in more detail than is currently available, particularly where road access enables a significant number of fishermen to enter this pro-



6. Data on coho salmon are particularly lacking and needs to be placed on obtaining any information defining the spawning areas for this species.

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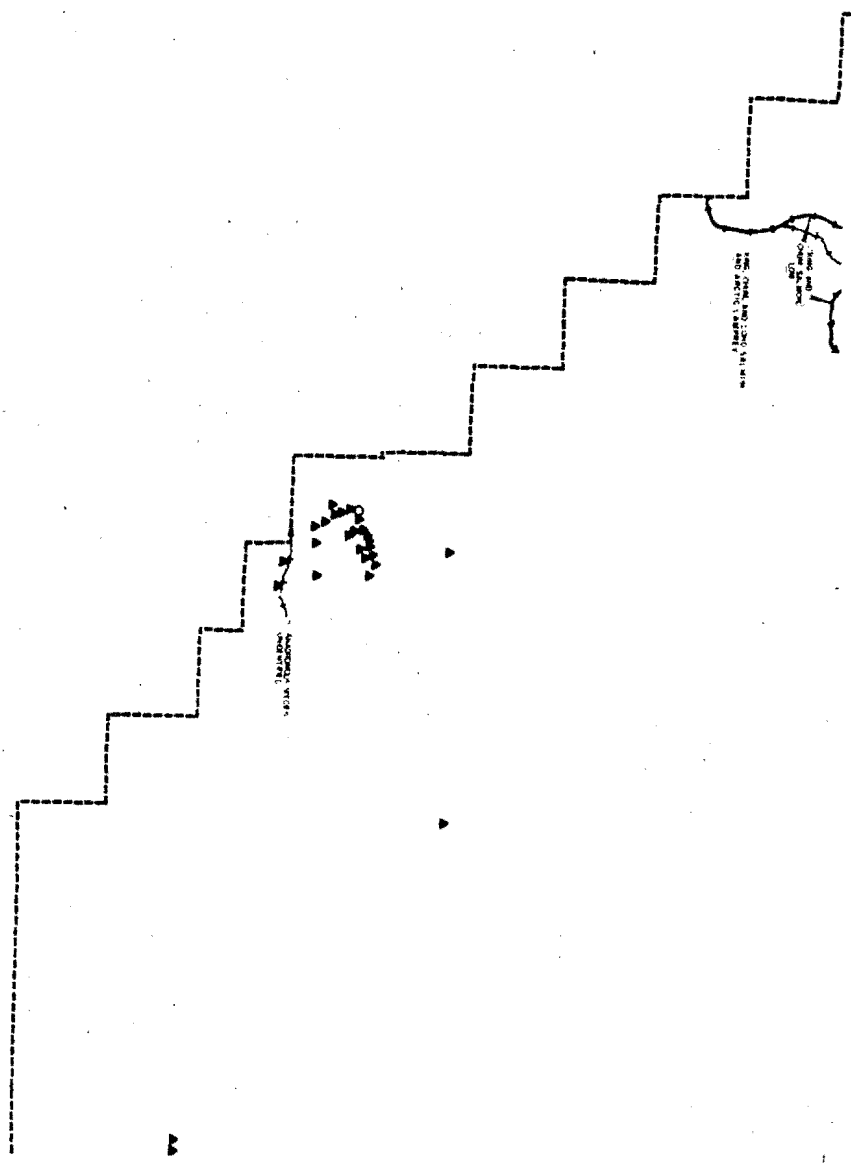
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Figure 795 (cont.)

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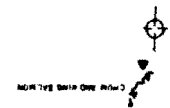




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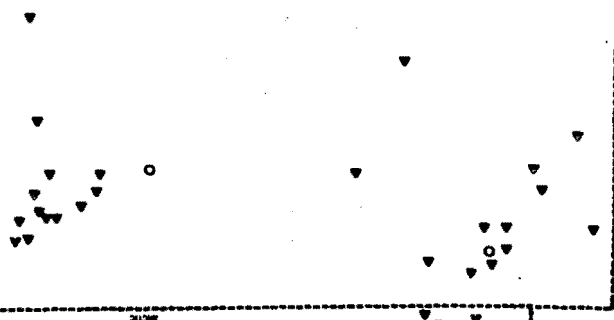


YUKON RIVER



CHANDALUA RIVER

YUKON PLATS

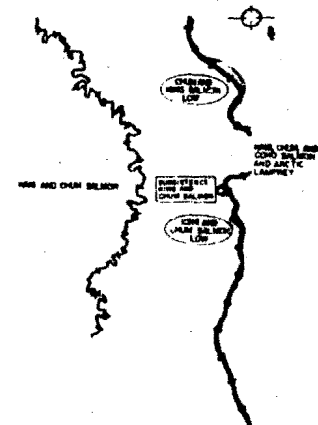


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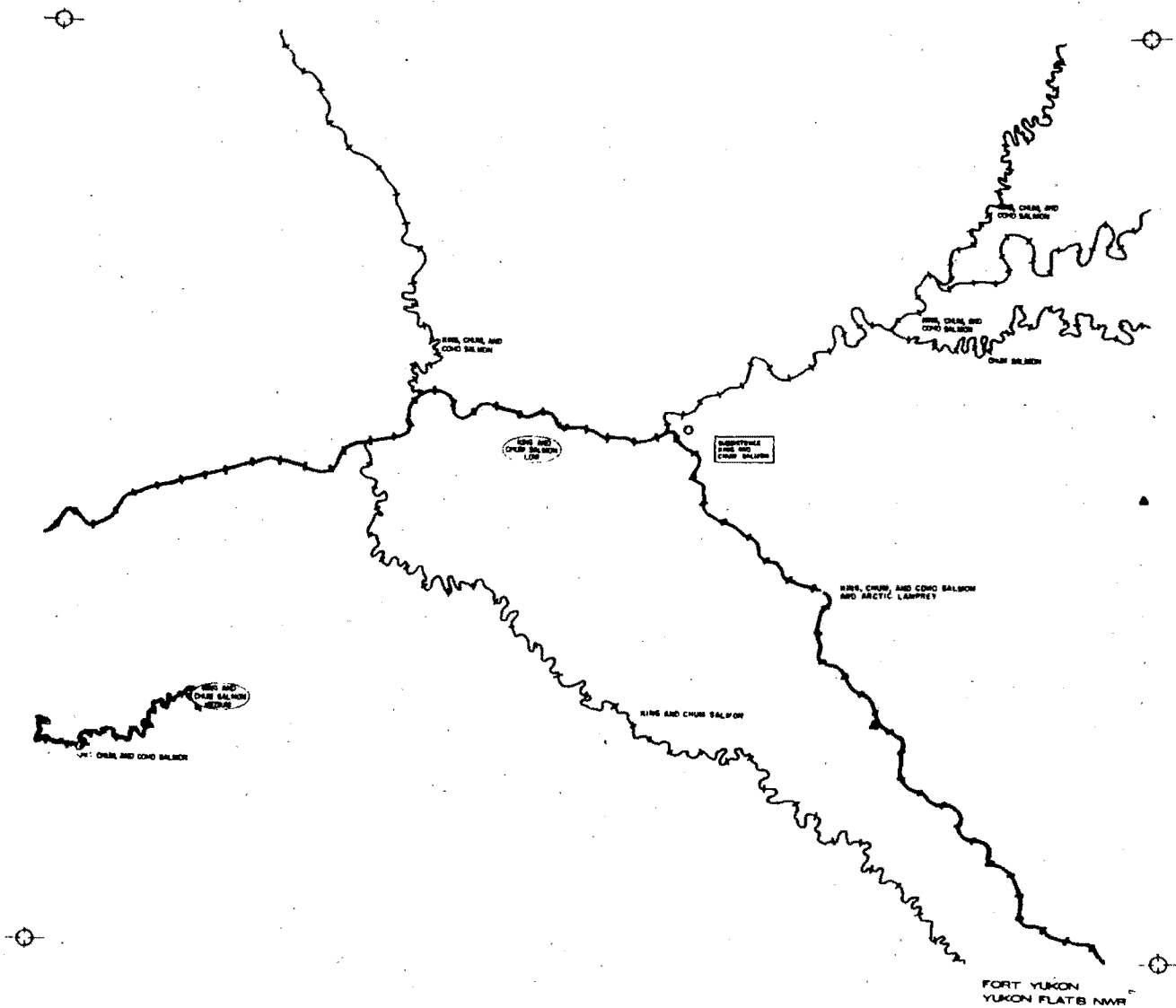


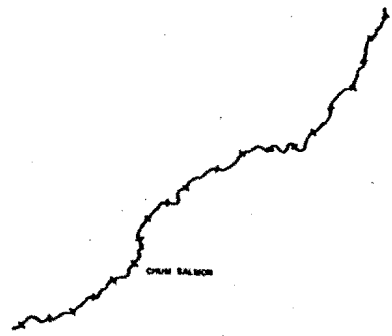
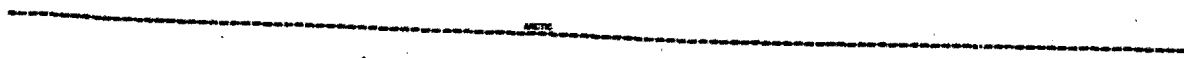
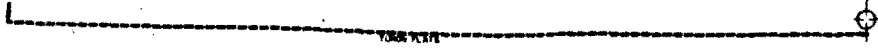




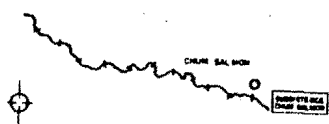
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YUKON FLATS NWR



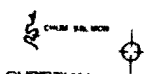




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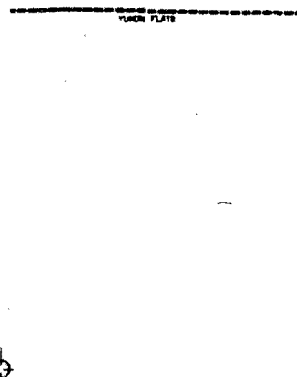
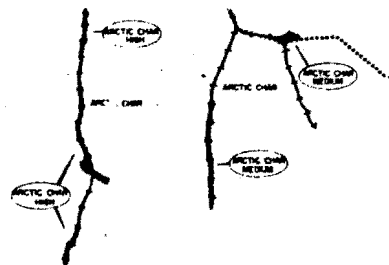
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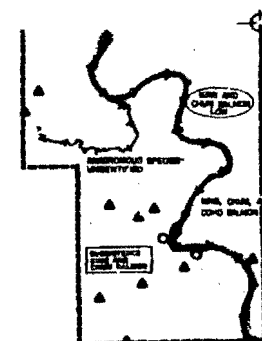
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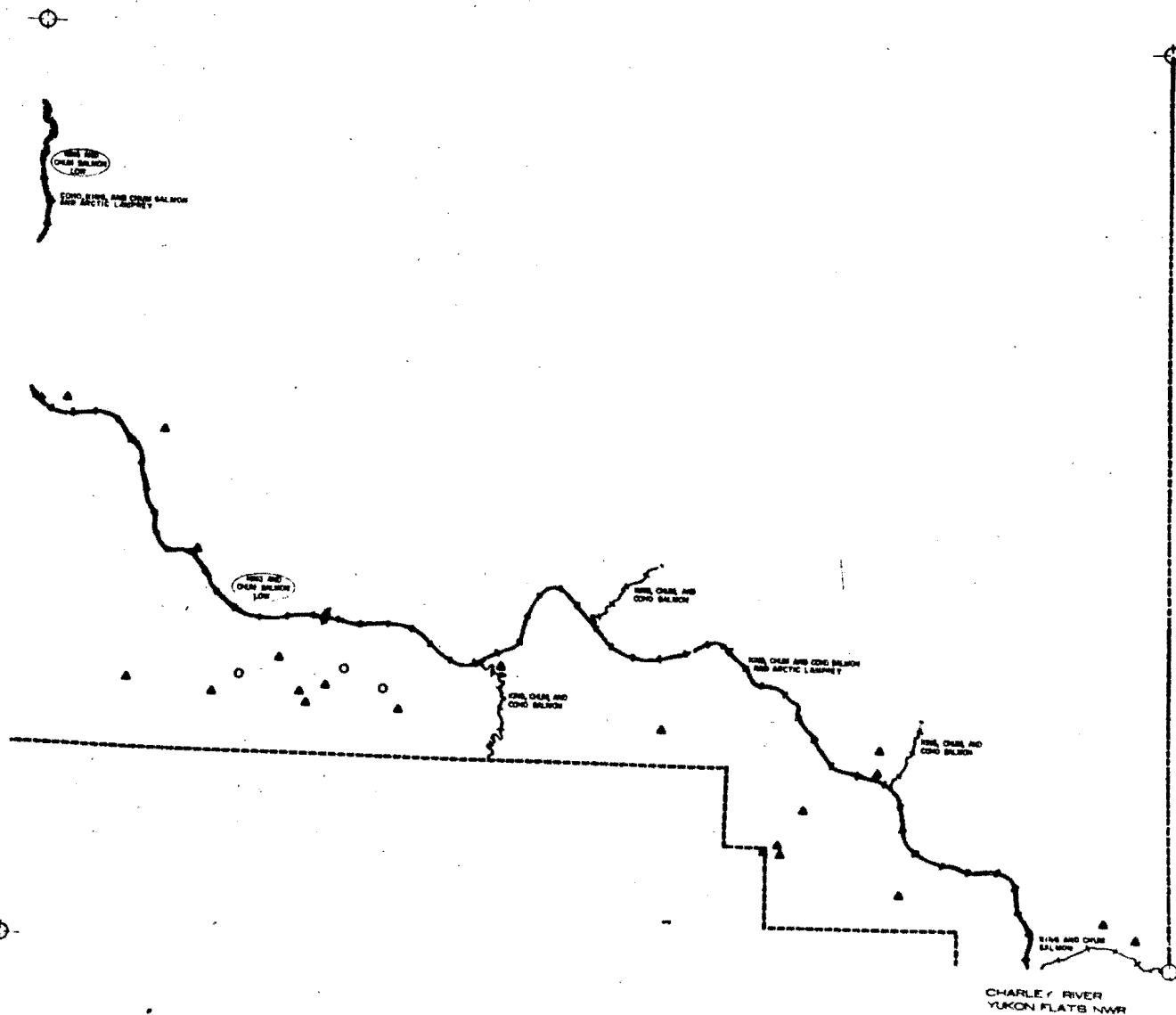
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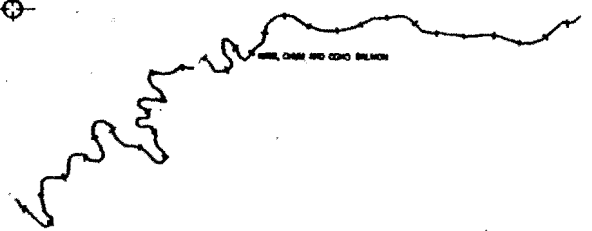


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CHARLES RIVER  
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WILK, CHAM AND CEDO SALMON

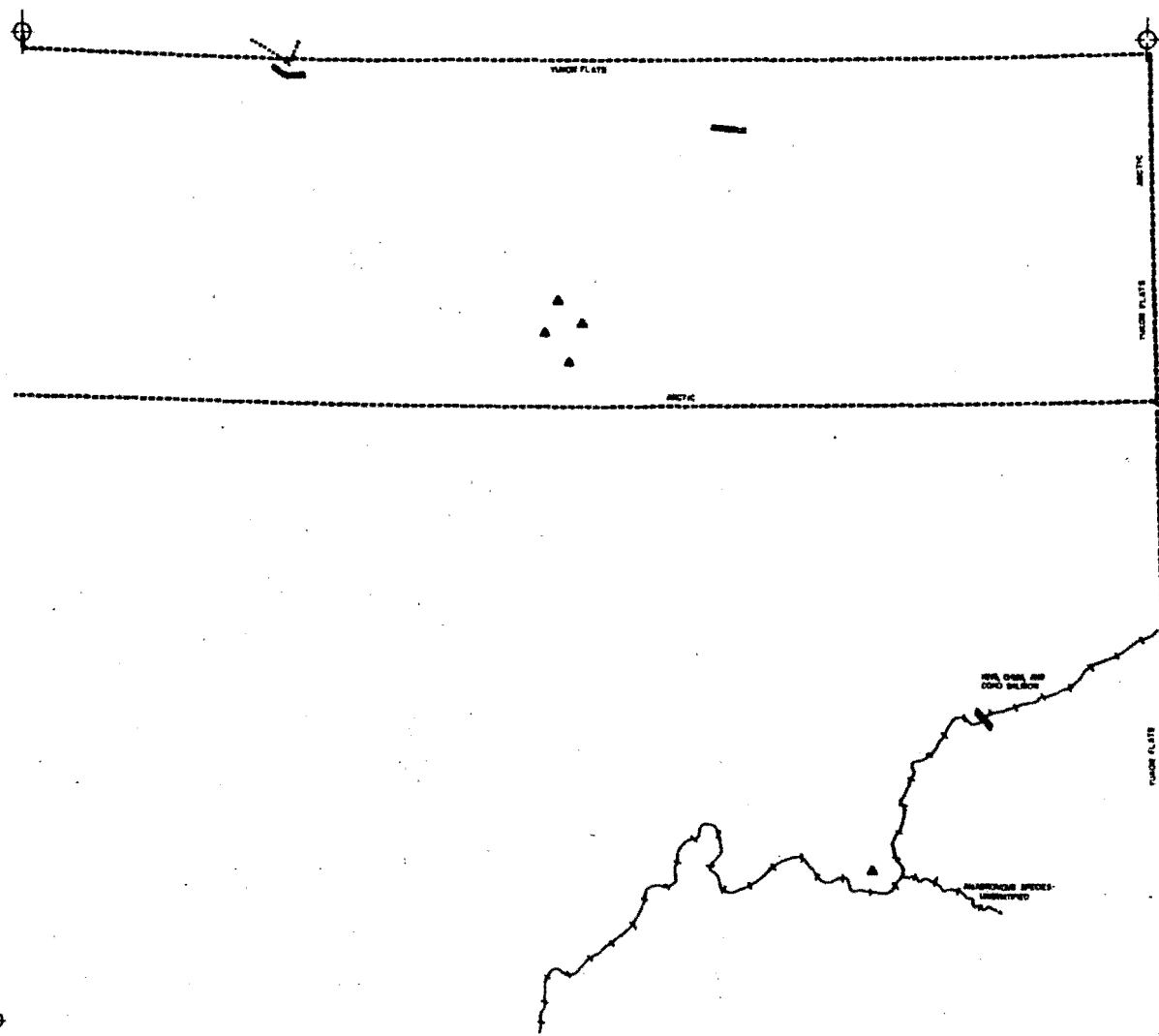


CHAM SALMON

CHAM SALMON



BLACK RIVER  
YUKON FLATS NWR



COLEEN  
ARCTIC NWR  
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