

Fishery Management Report No. 03-07

**Fishery Management Report for Sport Fisheries in the
Lower Yukon and Lower Kuskokwim Management
Area for 2001**

by
Robert Lafferty

April 2003

Alaska Department of Fish and Game

Division of Sport Fish



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PREFACE

The Division of Sport Fisheries (SF) of the Alaska Department of Fish and Game (ADF&G) is responsible for the management of the sport fisheries and resident fish populations and several marine fish species within the Lower Yukon/Lower Kuskokwim Management Area (LYLK). Salmon management in this area is a cooperative effort between the Divisions of Commercial Fisheries, Subsistence, and Sport Fisheries with consultation with the appropriate Federal managers.

This is the second of a series of Annual Management Reports (AMR) detailing the management activities of the Sport Fisheries in the LYLK rivers and Kuskokwim Bay area in 2001 and updating sport effort, catch and harvest information from the Statewide Harvest Survey for the year of 2000.

Information within this report represents Sport Fisheries Division's most recent work to define and update the catch, harvest and angler effort of sport fisheries in the LYLK. Catch, harvest and angler effort statistics were coalesced from Statewide Harvest Summaries, Survey and Inventory Reports, and department reports from Fishery Data, Management and Manuscript Series. The department regards this report as the most comprehensive source of sport fishing information for the Lower Yukon /Lower Kuskokwim Management Area. Funding support for the sole office located in Bethel is derived from Fish and Game general funds.

INTRODUCTION

This is the second AMR reporting fishery statistics for the sport fisheries of the LYLK. Prior to 2000, the LYLK was previously shared between the Southcentral and Arctic-Yukon-Kuskokwim (AYK) sport fisheries regions. This management area was created in part because of concerns by local residents regarding fish populations and increased development of sport fisheries. Previous information regarding this management area can be located in the AMR's of Bristol Bay and AYK.

The first section contains a management overview of the area sport fisheries. This section includes brief descriptions of the management area, the regulatory process governing sport fishery regulations, Statewide Harvest Survey (SWHS) and effort information. Additionally, this section contains information on management plans, current biological, social and land use issues within the management area. This section concludes with management, research, access projects and information sources within the area.

The focus of Section II is solely directed towards angler effort within the management area. A short review of the SWHS and specific angler effort of important area fisheries is represented in this section of the AMR.

Descriptions of the primary sport fisheries of the LYLK are located in Section III which is partitioned into two sub-sections: salmon, and resident fish species. Although there are five species of Pacific salmon in both the Yukon and Kuskokwim rivers, this sub-section only addresses the sport fisheries for chinook, coho, chum and sockeye salmon. The resident fish species sub-section, addresses seven fisheries; these include rainbow trout, Dolly Varden/ Arctic char, Arctic grayling, northern pike, sheefish, lake trout, and burbot. Each fishery description

will include a historical perspective, management goals and objectives in addition to a brief summary and outlook for the upcoming year.

SECTION I – MANAGEMENT AREA OVERVIEW

DESCRIPTION OF THE AREA

The LYLK includes those drainages downstream from Paimiut on the Yukon River and downstream from the Aniak River on the Kuskokwim River and all drainages in Kuskokwim Bay (Figure 1). Additionally, the LYLK includes all drainages that flow into the Bering Sea from Cape Newenham to the south and including the Pastolik River drainage to the north; Nunivak, St. Matthew, and adjacent islands are also included within the area as well.

The LYLK is partitioned into three sections; the lower Yukon River (Figure 2), lower Kuskokwim River (Figure 3), and Kuskokwim Bay (Figure 4).

Within the LYLK are two National Wildlife Refuges, the Yukon-Kuskokwim Delta Refuge and the Togiak Refuge. The entire 26 million acres of the Yukon-Kuskokwim Delta Refuge is within the LYLK as are several thousand acres of the Togiak Refuge in the headwaters of Kuskokwim Bay streams.

REGULATORY PROCESS

The regulatory process for fisheries management in the State of Alaska has become increasingly complex in recent years. Currently, some wildlife and fisheries resources of the State are under dual management by state and federal authorities. The dichotomy between agencies is quite simple, the State of Alaska constitution recognizes that all citizens should have equal access to the resources of the state. The federal government's role is dictated by the Alaska National Interest Lands Conservation Act (ANILCA) where rural preference is given during periods of wildlife and fisheries resource shortages. This dual subsistence management system has been implemented while pending litigation between the State of Alaska and federal government continues. In the interim, both federal and state fishery and wildlife agencies are making efforts to cooperate regarding subsistence fish and wildlife resource management with memoranda of understanding and management protocols defining roles of each agency. Occasionally, consensus between state and federal managers is not achieved and separate regulations are generated within each agency's jurisdiction.

Within federal jurisdiction (federal lands and non-navigable waters adjacent to federal land holdings) rural subsistence priorities are the primary focus of federal managers. Federal managers are mandated to maintain healthy populations of wildlife and fish on federal lands and non-navigable waters with a rural subsistence priority. In 2000, the Secretary of the Interior began enforcing federal authority to protect subsistence to rural residents of the State of Alaska. Regional Advisory Councils (RACs) and the Federal Subsistence Board were created and members were appointed. This Board and the RACs began focusing on subsistence issues in rural areas of the state on federal lands and adjacent waters. The Federal Subsistence Board can supersede state regulations regarding subsistence with a special action.

In contrast, the state is mandated to manage for sustained yield based on the Alaska constitution for all residents of the state. Many of the fish and wildlife species in Alaska migrate vast distances and do not recognize the boundaries between state and federal authority. Therefore,

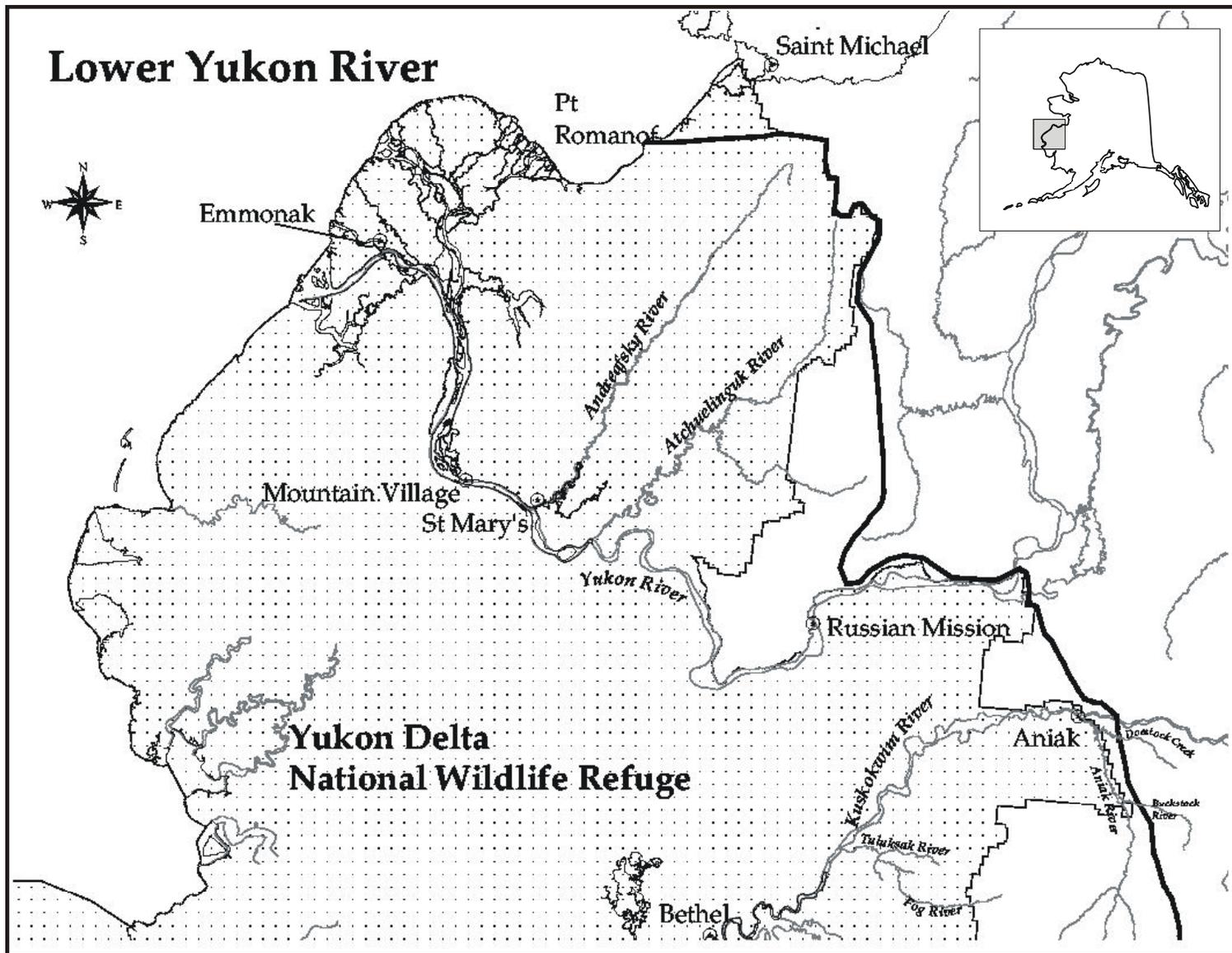


Figure 2.-Lower Yukon River area.

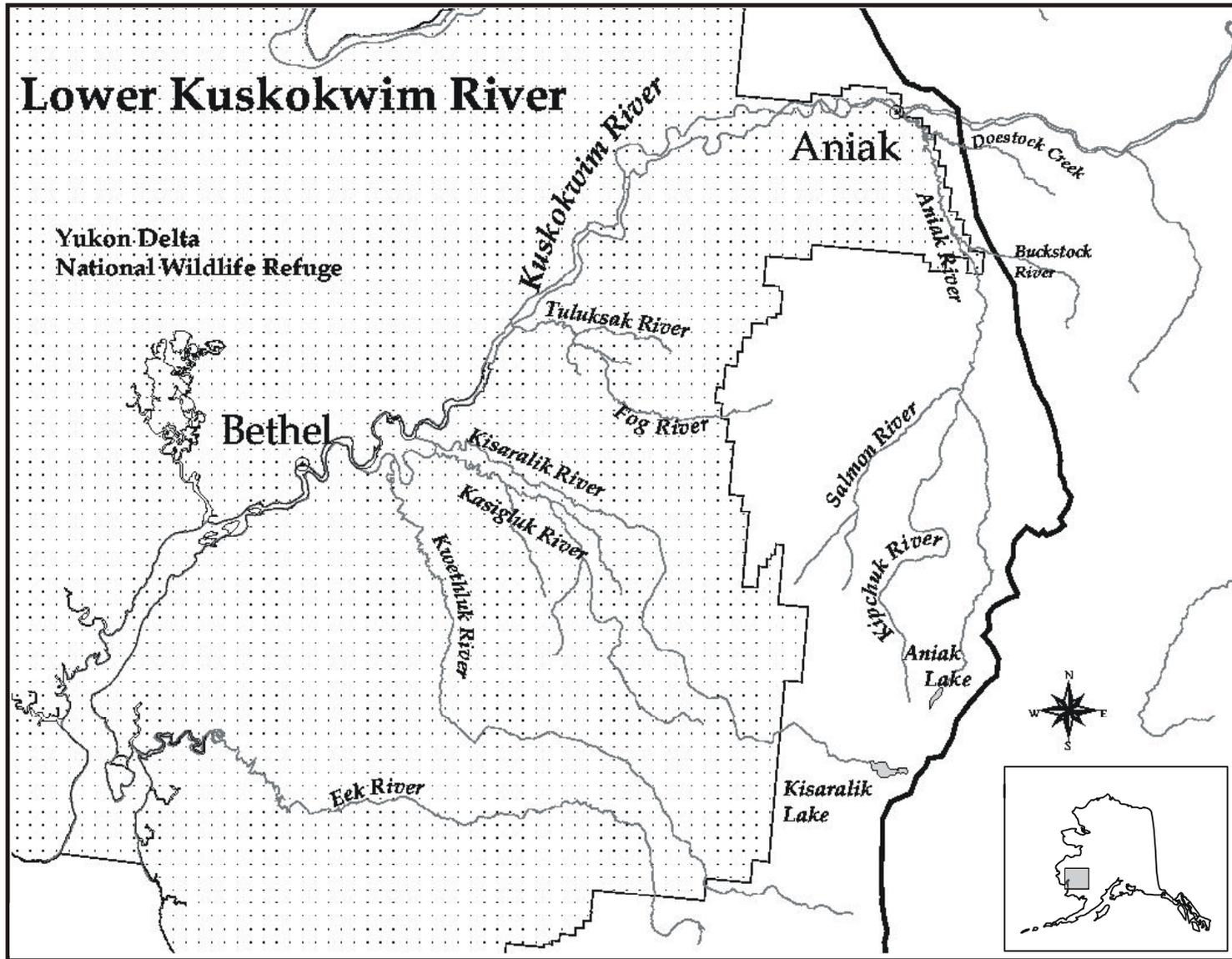


Figure 3.-Lower Kuskokwim River area.

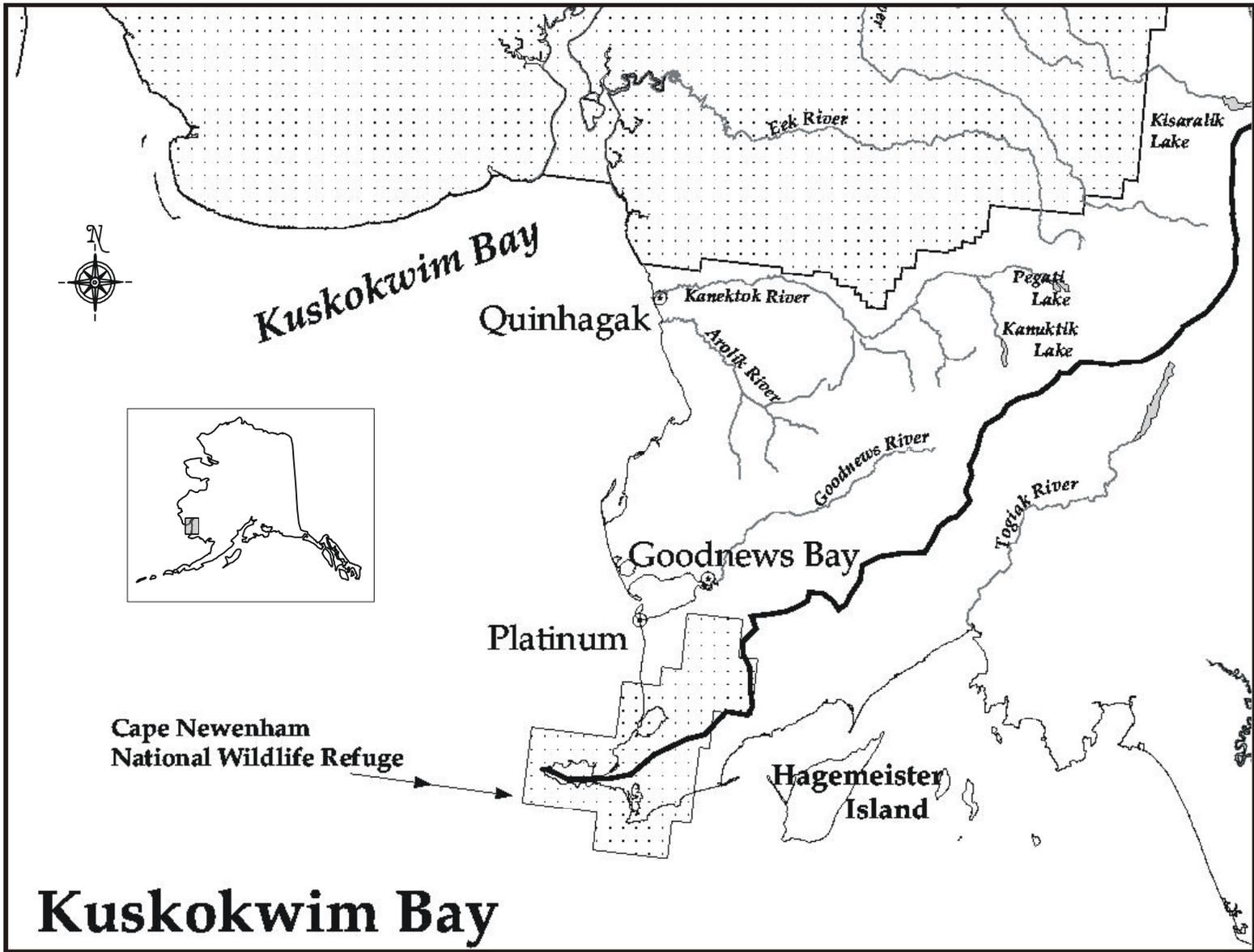


Figure 4.-Kuskokwim Bay area.

both state and federal management agencies strive for consensus through cooperative efforts and agreed protocols for dual management of subsistence uses of fish and wildlife resources on their respective lands and waters within the State of Alaska.

Fish and wildlife managers of the department use biological and harvest information to determine levels of harvestable surpluses of fish and game or aquatic plant resources that are available. The Board of Fisheries (BOF) allocates surpluses through management plans and regulation development between user groups in Alaska on state lands and waters.

Fishing regulations, including subsistence, commercial, personal use and sport fishing fall under the authority of the BOF and are implemented by the department and enforced by the Department of Public Safety. When there is a need to adjust inseason harvest potential, the commissioner has authority to make specific changes to the regulations in the form of an EO. Quite often, these EOs are framed within a management plan that has been approved by the BOF. Regional fishing regulations and management plans are reviewed on a three-year schedule. Fishing and hunting regulations under state authority are reviewed in a public forum. The BOF notifies the public by calling for proposals, these proposals are submitted to the BOF and then public comment is allowed for a given proposal. Comments are provided from the public in written or oral form during a local Fish and Game Advisory Committee (AC) or BOF meeting. The local advisory committees are intended to provide local input to propose regulations changes submitted by the public. Local AC's then vote on submitted proposals and make recommendations to the board. The AC's provide additional support to the BOF and Game by confirming conservation or development concerns at the local level. Often the chair of an advisory committee will report directly to the BOF during the public testimony segment of a scheduled meeting for that region of the state. There are currently 81 local fish and game advisory committees statewide divided into six regions across Alaska.

STATEWIDE HARVEST SURVEY

Research and Technical Services (RTS) of the Division of Sport Fisheries has been surveying the angling public with postal questionnaires since 1977 and annually produces the SWHS. Questionnaire recipients are randomly selected from zip codes from angler license sales throughout the State of Alaska. Surveys are based on the calendar year and a statewide report is often published the following September or October. Anglers are primarily asked locations of sport fish harvest, catch and effort-spent fishing by days and trips. This information is used to create a statewide database providing information on where sport fishing occurs, the extent of participation, the preference of participants, and species and numbers of major game fishes being caught and harvested. This information is essential for regulation and management of these sport fisheries. This data is utilized to evaluate existing policies, prioritize project planning, and evaluate on regulation effectiveness.

SPORT FISHING EFFORT

Effort from anglers has been increasing in the State of Alaska from the inception of the SWHS, 1977 to the mid 1990s (Table 1). During the late 1990s there was a slight decline in license sales and angler effort, however, Alaska sport fisheries continue to provide more than two million angler days of effort since 1986. The recent decreasing statewide trend of effort during the late 1990s has just materialized in the Arctic-Yukon-Kuskokwim (AYK) region. Angler effort

Table 1.-Annual sport fishing effort, in angler days, within the state of Alaska, Arctic-Yukon-Kuskokwim Region and Lower Yukon and Lower Kuskokwim Management Area waters as estimated by the SWHS, 1977–2000.

Year	Statewide	AYK		LYLK	
		Region	Percent	Man. Area	Percent
1977	1,197,590	123,161	10.3	a	
1978	1,285,063	145,492	11.3	a	
1979	1,364,739	126,096	9.2	a	
1980	1,488,962	160,266	10.8	a	
1981	1,420,172	148,886	10.5	a	
1982	1,623,090	198,791	12.2	a	
1983	1,732,528	199,361	11.5	a	
1984	1,866,837	199,041	10.7	14,597 ^b	7.3
1985	1,943,069	186,883	9.6	12,484 ^b	6.7
1986	2,071,412	194,713	9.4	11,842 ^b	6.1
1987	2,152,886	217,109	10.1	18,958 ^b	8.7
1988	2,311,291	233,559	10.1	26,171 ^b	11.2
1989	2,264,079	239,626	10.6	18,907 ^b	7.9
1990	2,453,284	245,629	10.0	15,858 ^b	6.5
1991	2,456,328	219,922	9.0	13,055 ^b	5.9
1992	2,540,374	181,852	7.2	14,404 ^b	7.9
1993	2,559,408	220,972	8.6	14,505 ^b	6.6
1994	2,719,911	209,987	7.7	18,117 ^b	8.6
1995	2,787,670	270,141	9.7	16,289 ^b	6.0
1996	2,006,528	201,166	10.0	16,420 ^b	8.2
1997	2,079,514	238,856	11.5	27,318 ^b	11.4
1998	1,856,976	227,841	12.3	27,913 ^b	12.3
1999	2,499,152	304,522	12.2	26,563 ^b	8.7
2000	2,627,805	241,574	9.2	20,030 ^b	8.3
Mean (All Yrs)	2,054,528	205,651	10.0	18,437	9.0
Mean (90-00)	2,413,367	231,683	9.6	19,461	8.4
Mean (96-00)	2,213,995	242,792	11.0	23,649	9.7

^a Specific SWHS data not available for the LYLK management area.

^b Does not represent SWHS data from the lower Yukon River from Paimiut to the mouth of the Yukon River.

within the AYK region exceeded the 240,000 days in 2000. Since 1996, angler effort within the LYLK has averaged approximately 23,700 angler days. Recent changes by the BOF in 2000, to the subsistence regulations of the Kuskokwim drainage allowing the use of rod and reel for subsistence purposes may be the cause of this slight decline in angler effort. In 2000, rod and reel was made a legal subsistence method within the AVCP region, and this was extended to the whole Kuskokwim drainage in 2001. Acceptance of rod and reel as a subsistence method now negates the requirement of purchasing a sport fishing license for Alaskan residents who wish to participate in the rod and reel fisheries of the Kuskokwim. Therefore, this action reduces the number of sport fish license sales and potential contacts for the SWHS and the shift from sport anglers to subsistence use in the LYLK.

SPORT FISHING HARVEST

Within the Kuskokwim and Kuskokwim Bay drainage recreational anglers primarily harvest salmon with resident species of secondary importance (Table 2). Coho salmon harvests exceed all other salmon species with an annual harvest range from 1,358 (1990) to 5,565 fish (1997) and averaging 3,400 coho salmon. The 2000 coho harvest of 3,300 was slightly below the average. In 2000, the chinook salmon annual harvest (1,200 fish) was well within the historical range of 786 (1991) to 3,401 (1998) and slightly below the average of 1,800 chinook salmon. Dolly Varden/Arctic char harvests mirrors chinook harvests, ranging from 800 to 3,500, while rainbow trout harvest for the entire area has dropped to approximately a hundred, a substantial decline from the average annual harvest of 500 rainbow trout. This harvest decline in rainbow trout can be attributed to the changes in the subsistence rod and reel regulations and increased awareness of anglers practicing catch and release. Other resident fish species with notable harvests are Arctic grayling and pike (Table 2).

SALMON MANAGEMENT POLICY

Recent Changes

Significant additional policies were adopted into regulations to guide the BOF and department in sustainable salmon management (5 AAC 2000a) and in establishing salmon escapement goals (5 AAC 2000b) during the January 2001 BOF meeting. These policies complement each other and are a reflection of the department and BOF continuing commitment to improve salmon management.

The Sustainable Salmon Management Policy (SSMP) is a comprehensive policy to guide management plan development and to ensure the conservation of the state's salmon resources in both fresh water and marine environments. Salmon conservation and management are based on principles and specific criteria, including habitat protection, escapement levels, effective management systems, recognizing data uncertainty and reporting to the BOF. Additionally, the policy provides a framework to identify stocks of concerns based on yield, management or conservation and an extensive definition of terms. The escapement goal policy supplement the SSMP to conserve and develop the state's salmon resources based on sustained yield principle.

The Statewide Salmon Escapement Goal Policy (SSEGP) was established to define concepts, criteria and procedures for initiating and modifying salmon escapement goals along with a process that allows public review to focus on allocative issues of the state's salmon resources. In 1992, the department began formalizing escapement objectives, however, it became evident

Table 2.-Kuskokwim-Kuskokwim Bay drainage sport fish harvest by fish species, 1989-2000.

Species	Year											
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Chinook Salmon	2,237	897	786	1,046	1,674	2,148	1,328	2,439	3,345	3,401	1,400	1,181
Coho Salmon	4,282	1,358	2,087	2,033	2,056	2,978	2,771	5,231	5,430	4,897	3,974	3,294
Sockeye Salmon	291	620	214	189	715	894	277	752	1,181	1,867	1,154	822
Pink Salmon	191	347	36	219	27	126	16	167	75	133	0	10
Chum Salmon	2,571	749	647	927	731	1,626	455	517	384	596	520	359
Rainbow Trout	757	475	774	404	486	299	429	567	1,336	539	510	106
Lake Trout	1,086	72	272	356	218	40	215	126	404	141	128	152
Dolly Varden/Arctic char	3,545	1,797	2,924	802	1,499	1,398	1,260	1,743	3,337	1,581	2,038	1,612
Arctic Grayling	2,622	1,340	2,603	545	739	850	845	663	1,292	3,554	1,290	361
Northern Pike	1,785	231	2,018	752	995	828	655	344	408	2,711	548	531
Whitefish	571	88	158	286	253	183	0	20	614	1,220	9	214
Burbot	12	1,125	40	169	214	20	0	0	0	185	228	588
Sheefish	296	107	154	292	54	390	272	20	589	277	268	250
Smelt	1,324	211	0	1,136	3,343	2,292	633	1,313	27	3,333	0	68
Halibut	0	144	0	33	54	45	21	0	50	350	0	53

there were varying degrees of stock specific production information across the state's salmon stocks. Therefore, the existing salmon escapement goal policy was not representative of the existing stock specific production information. The recently adopted escapement goal policy recognizes that identifying escapement goals for sustained yield management is a continuing process.

Yukon and Kuskokwim chinook and chum salmon stocks were recognized as stocks of yield concern, the inability to maintain expected yields or harvestable surpluses with the use of specific management actions. A yield concern is less severe than management and conservation concerns. Principles of these policies were applied to the management plans of Yukon and Kuskokwim salmon stocks to ensure that adequate escapement objectives are identified and harvest strategies developed to achieve escapement objectives.

MANAGEMENT PLANS

Currently, there are only two (2) sport fishing specific management plans for the LYLK, the Southwest Rainbow Trout Plan and Aniak River Plan. These plans address time, area, and method and means of harvesting salmon and resident fish species in designated waters. Quite often area sport fishing regulations are not considered a management plan, but should be. The objectives are the same, to provide opportunities to harvest a relatively small proportion of the sustainable surplus over the fishing season without unnecessary disruptions to the sport fishery. In the past, management plans have been designed to give managers guidance over inseason management, frequently addressing salmon management. Salmon management in the LYLK is governed by subsistence regulations and several management plans directed at controlling commercial fisheries harvests. Subsequently, managers from Commercial Fisheries Division take a lead role in the management of salmon in this area of the state. Most of the subsistence and commercial fishing regulations are interconnected to provide opportunity to harvest salmon surpluses on the Yukon and Kuskokwim rivers.

Salmon Management Plans

Subsistence fishing seasons and periods are the guiding regulations in the harvest of salmon in the Yukon and Kuskokwim rivers (5AAC 2000c and 5 AAC 2000d, respectively). There are eight salmon management plans that guide commercial fishing in the lower Yukon and lower Kuskokwim area. Six salmon management plans are focused on the salmon stocks of the Yukon River and two for the Kuskokwim area. In the Yukon River there are four specific salmon management plans and two salmon management plans directed at particular tributaries:

1. Yukon River King Salmon (5AAC 2000e);
2. Yukon River Summer Chum Salmon (5AAC 2000f);
3. Yukon River Fall Chum Salmon (5AAC 2000g);
4. Tanana River Salmon (5AAC 2000h);
5. Anvik River Chum Salmon (5AAC 2000i); and,
6. Yukon River Coho Salmon (5AAC 2000j).

In the Kuskokwim area, including streams in the Kuskokwim Bay, there are two salmon management plans:

1. Kuskokwim River Salmon (5AAC 2000k); and,

2. District 4 (Quinhagak) Salmon (5AAC 2000l).

Recent Changes

In October 2000, during a BOF work session, the department identified western Alaska salmon stocks of concern with chronic inability to achieve escapement goals. The BOF informed the department that these issues would be addressed during the January meeting under the new Sustainable Salmon Fisheries Policy. Five of the six salmon stocks identified with yield concern are in the LYLK: Kuskokwim River Chinook Salmon, Kuskokwim River Chum Salmon, Yukon River Chinook Salmon, Yukon River Summer Chum Salmon, and Yukon River Fall Chum Salmon.

Prior to the January meeting the BOF and department began a series of town meetings with local advisory committees to seek public input and suggestions for rebuilding Yukon and Kuskokwim chinook and chum salmon stocks. The department and BOF were seeking input regarding subsistence fishing opportunities that would be acceptable to the rural public that relies on the salmon stocks of Kuskokwim and Yukon rivers.

During the January 2001 BOF meeting the Sustainable Salmon Management Policy was applied to the existing chinook and chum salmon management plans of the Yukon and Kuskokwim rivers. Resulting modifications were formulated into comprehensive rebuilding measures by placing windows of salmon passage in migratory routes in freshwater and marine environments. Windows included: restrictions to the Area M fishery, moving the northern commercial fishing boundary of W-4 (Quinhagak) three miles south (Oyak Creek), closing the Kuskokwim commercial fishery during the months of June and July, adjusting the subsistence fishing schedule to four consecutive fishing days in the Kuskokwim and basing sport fishery restrictions on in-season abundance, except for the Aniak River. Many of the existing and a few new restrictions in the Aniak sport fishery were included within the Kuskokwim rebuilding plan, including the continuation of the annual chinook salmon season May 1-July 25 with a daily limit of 2 chinook salmon and annual limit of 2 greater than 20 inches. On the Aniak River, a combined bag and possession limit of three other salmon species (pink, sockeye and coho) per day remains in effect. No retention of chum salmon remains in effect in the Aniak River. Additionally, the Yukon commercial fisheries would only open based on in-season assessments to ensure escapement objectives are met, and subsistence schedules would be flexible to ensure escapement objectives were met. Sport fisheries management would be commensurate with inseason abundance.

Prior to the recreational fishing season the Division of Sport Fish issued an EO in May of 2001 to reduce the daily bag and possession limit of chinook and chum salmon to reduce harvest potential and bolster salmon escapements in the Kuskokwim. The Federal government asserted their authority through the Federal Subsistence Board to restrict the uses of chinook and chum salmon to only residents of the drainage within their jurisdiction (lands and adjacent waters of the Yukon-Kuskokwim Delta Refuge). This action closed the sport fisheries for chinook and chum salmon in most tributary streams of the lower Kuskokwim and lower Yukon. However, the sport fishery remained open for all other species and the chinook and chum sport fisheries proceeded in state waters, unless in-season abundance indicated the likelihood of not meeting escapement objectives.

Prior to these management modifications, Kuskokwim subsistence regulations within the AVCP region were modified to allow rod and reel method and means (5AAC 2000m) in March 2000.

This action was extended to the whole Kuskokwim drainage during the summer of 2001. Unfortunately these actions have decreased the department's ability to monitor stock specific harvest of salmon and resident fish in the LYLK through the SWHS from Sport Fisheries Division. In the past, local residents of the AVCP region using rod and reel were required to purchase a sport-fishing license. By purchasing a license, license holders were included in the statewide postal harvest survey that estimates salmon and resident fish catch and harvest in a stock specific manner. A harvest survey conducted by Subsistence Division estimates the salmon harvests based on households, this is expanded to estimate community uses of fishery resources. Estimates of numbers and pounds of fish by species are calculated on a community basis. The survey results from Sport Fish and Subsistence Divisions are substantially different; both surveys have different designs to estimate specific harvests. Eliminating the requirement of purchasing a sport fishing license when using rod and reel in the Kuskokwim has eroded the department's ability to determine stock specific harvests within the LYLK. This will have significant impacts to the department to monitor stock specific harvests of resident fish and salmon with rod and reel in the future. Also, these rod and reel subsistence regulations make enforcement difficult without any identity requirement of residency and complicating enforcement of sport fishing regulations.

Resident Fish Management Plans

As recently as the 1990s sport fishing bag limits were generous and were used as a surrogate for subsistence uses in the Kuskokwim drainage. With the advent of rod and reel being accepted as legal method for subsistence uses in the entire Kuskokwim drainage (July 2001) and lower Yukon (March 2000). Management of resident fish species in the LYLK is under subsistence and sport fishing regulations. The subsistence regulations of the Kuskokwim and lower Yukon are an exception to resident species management throughout the state of Alaska. This is the only area of the state where a resident of Alaska can harvest unlimited quantities of resident fish with the exception of the Aniak River. The Aniak River has the only subsistence management plan in the LYLK. The only other plan guiding the management of resident fish, the Southwest Alaska Rainbow Trout Management Plan, encompasses a larger region of the State of Alaska. Within the Kuskokwim drainage and Kuskokwim Bay there are several tributaries which have considerable headwater reaches under special management to protect rainbow trout stocks under sport fishing regulations.

Southwest Alaska Rainbow Trout Management Plan

During the February 1990 BOF meeting, the Board adopted regulations implementing criteria for establishing special management areas for trout (5 AAC 2000n). Special management areas were created to provide a diversity of sport fishing opportunity, such as catch and release, fly-fishing only or trophy designation.

This management plan has three primary aspects.

1. Native rainbow trout populations will be managed to maintain historic size and age composition and at stock levels sufficient such that enhancement (or stocking) is not needed to supplement wild populations.
2. A diversity of sport fishing opportunities for wild trout should be provided through establishment of special management areas by regulation. Selection of areas for special management will be based on criteria to be adopted by the BOF. Selection criteria is inclusive of the following: stock status, history of special management, proximity to local

community, legal access, overlap with freshwater net fisheries, abundance and size of rainbow trout, water characteristics, clear geographical boundaries, importance of the rainbow trout fishery to sport fishing industry, geographical distribution of special management.

3. Management strategies should be consistent with prudent economic development of the State's recreational sport fishing industry and at the same time acknowledge the intrinsic value of these fishery resources to the people of Alaska.

Implementation of this plan:

- Expanded the Wild Trout Zone from the Iliamna drainage to include the drainages of Bristol Bay, Kuskokwim Bay and lower Kuskokwim River including the Aniak River drainage.
- Established eight catch-release areas.
- Established six fly-fishing catch-and-release only areas.
- Established eleven unbaited single hook artificial lure only areas to protect rainbow trout stocks in Southwest Alaska.

Aniak River Resident Fish Management Plans

Temporary sport and subsistence management plans for resident fish species were sunsetted in December 2000 in the Aniak River, for prior regulation history see Lafferty (2001). Subsequently regulation changes were made during the January 2001 BOF meeting regarding the management of subsistence and sport fisheries in the Aniak River. To provide flexibility and uncomplicated bag and possession limits for both subsistence and recreational anglers, the BOF adopted an aggregate (group) bag limit for the Aniak River fisheries. Subsistence anglers (any Alaskan resident) would be restricted during the period of June 1 through August 31 to an aggregate bag limit of six (6) fish, of which no more than three (3) could be salmon and three (3) resident fish species upstream of Doestock Creek. Additionally, subsistence anglers cannot retain rainbow trout upstream of Doestock Creek between June 1 through August 31. To provide continuity between subsistence and sport fishing regulations, the aggregate bag limit was carried over to the recreational fishery in the Aniak River, however, the sport fishing regulations are more conservative in nature. Rainbow trout may not be retained throughout the drainage at any time. All other resident fish species have a daily bag and possession limit of one (1), however the aggregate bag limit only allows three (3) fish a day in the Aniak River. Additionally, lures are restricted to unbaited, single-hook artificial upstream of Doestock Creek year around following the catch and release implementation of the Southwest Rainbow Trout Management Plan in the 1990s.

Land Use Management Plans

The Togiak and Yukon-Kuskokwim National Wildlife refuges produce Fisheries Management Plans (FMPs) within the LYLK. These plans generally acknowledge the state's authority for the management of sport fisheries and have little direct effect on the day-to-day management of the area's fisheries. Department staff have worked with the U.S. Fish and Wildlife Service (USFWS) refuge staff to develop these plans. These plans are essentially a list of fishery-related issues and concerns and projects that address these concerns. Each refuge plan has a five-year duration, then a review process begins. In 1999, the Togiak FMP was adopted and a

comprehensive conservation-planning phase was implemented. The Togiak Comprehensive Conservation Plan (CCP) has been under development and public review began in December 2001, additional review will continue into 2002. There are significant numbers of suggestions within this plan that address sport-fishing issues in Kuskokwim Bay. The State has responded to several sport fishing issues within the Togiak CCP, particularly the issue of quality of sport fishing opportunity and quality of subsistence opportunities. The Yukon-Kuskokwim Delta Refuge FMP was adopted in 1992 and has been gradually implemented.

A Public Use Management Plans (PUMP) has been adopted for the Togiak Refuge and allows for certain activities on refuge lands. Commercial sport fishing services are a significant portion of the Togiak Refuge PUMP. Much of the sport fishing effort within the Togiak Refuge is guided, therefore the plan affects guided access and activities that effect opportunity in the sport fisheries. In general the PUMP established levels of commercial use on a river by river basis. Unguided uses are presently unconstrained in the Togiak PUMP. The Togiak PUMP is complex, requiring operators to submit prospectus applications and bid for the privilege to provide services.

The Togiak PUMP was adopted in 1991. Since adoption, four minor amendments have been made. On schedule in 1995, the Togiak Refuge began review and revision of the plan when the amount of guided use equaled visitor use. The department assisted refuge staff during the PUMP review process. Public review was planned for 1999, however this review was postponed anticipating the 1999 Togiak Refuge CCP. Present work is incorporating findings from both plans. Occasional differences of opinion occur between the state and USF&W regarding management authority on the Togiak Refuge, these are generally minor and are quickly remedied.

BIOLOGICAL, SOCIAL AND LAND USE ISSUES

Often biological and social issues are interconnected in the LYLK management area. Most of the rural residents are subsistence users and have expressed resentment toward sport fisheries and catch-and-release practices. The Yup'ik culture believes that the practice of catch-and-release is disrespectful to the fish and hence take this as a personal affront to their cultural teachings.

The land status surrounding the Arolik River continues to be in dispute between the Federal and State Governments. There are two issues the department's navigability team is addressing with the Arolik River.

1. The Bureau of Land Management (BLM) determined that portions of the Arolik River were non-navigable and under the Alaska Native Claims Settlement Act (ANCSA) conveyed shorelands to Quanirtuuq Inc. corporation as part of their entitlement under the Act. However, the State of Alaska received title to inland navigable water bodies as provided in the Statehood Act of 1958 and the U.S Submerged Lands Act of 1953. Therefore the State of Alaska asserts that those shorelands were not in federal ownership and were not BLM's to convey.
2. The Togiak National Wildlife Refuge continues to provide the federal viewpoint that Quanirtuuq Inc. has rights to these waters and shorelands, and has provided exclusive use to several fishing services.

Currently there are conflicts between subsistence users in the upper and lower Kuskokwim drainage. Subsistence users lower in the river complete their subsistence harvest much earlier than subsistence users upstream. To remedy this, the Kuskokwim Salmon Working Group was created. Once the lower river subsistence users complete their harvest, typically there is public pressure to have a commercial fishery. The Working Group is a collection of subsistence users, elders, commercial and sport fishers along with the department. However, the recent Kuskokwim rebuild plan provides equity to both upriver and downriver users by applying a set schedule of subsistence fishing during the months of June and July. Additionally, the commercial fishery in the Kuskokwim is temporarily closed during the months of June and July. The subsistence lifestyle of the LYLK inhabitants is closely tied to commercial fishing once subsistence needs are met.

Presently, there are no major access issues for sport fishing in the LYLK. However, residents of the area have concerns on the amount of anglers using the fishery resources within this management area. Often area residents submit fishery proposals that attempt to reduce anglers access through restrictive fishing regulations. As residents begin to understand that land managers govern angler access, the department will need to become more vigilant on changes of land use.

CURRENT MANAGEMENT AND RESEARCH ACTIVITIES

Sport fishing management and research have been extremely challenging during the second year of the LYLK. The Division has continued to invest considerable amounts of time and expertise in the Federal Subsistence Program to provide funding for management and research projects in the LYLK. During 2001, Sport Fisheries staff conducted several projects in the Kuskokwim drainage. These include the Holitna radio telemetry study to evaluate the proportion of chinook, chum and coho salmon counted at the Kogrukluq weir operated by Commercial Fisheries. Also a rod and reel survey was conducted in the lower Aniak River to estimate the sport fishing effort, catch and harvest during late June through August. Both of these projects were cooperative projects with the Kuskokwim Native Association and Commercial Fisheries Division. Findings from these studies will be available in the spring of 2002.

Additionally, the division has focused on the recent charge from the BOF to develop a strategic research plan for chinook and chum salmon in the Kuskokwim River. Multiple divisions of the department participated in creating a draft research plan that targeted existing data gaps in the department's programs and understanding of Kuskokwim chinook and chum salmon stocks. This research plan Merritt (2001) is attached to the action plans for Kuskokwim River chinook and chum salmon that was reviewed during the January 2001 BOF meeting.

ACCESS PROJECTS

There are currently no access projects in this management area. However, there are some concerns for angler access in the Kanektok River. The Quinhagak airport is being relocated away from the Kanektok River. Existing easements from the airport lands to the river will return to the land holdings of the Native Village of Kwinhagak (NVK) once the new airport is completed. This land status change has the potential to move the current access point for the angling public. This is more of an inconvenience where anglers may in the future need to exit the river at the old boat harbor. The division will continue to monitor this issue and help provide options in the future.

INFORMATION AND EDUCATION SOURCES

At the regional level there is a single coordinator position that provides area support from the Fairbanks Sport Fish Informational Center. At the area level, the area manager is the sole local public contacts that supplies local information and educational (I&E) needs. Local teachers, scouting groups and local fly fishers have contacted the Bethel office for assistance and support. The weekly fishing reports posted on the regional web site are the most current source of information to the angling public in the LYLK. Angler publications are continuing to evolve in this area of the state. Additionally, a database was revised of local license vendors that are interested in participating in posting sport fishing EOs. Work has begun toward developing an I&E plan for sport fisheries in the AYK region in 2001 and is expected to continue development during 2002.

The Division of Sport Fish has also ventured in to a strategic planning with staff and public. This ongoing process will be instrumental for the public to understand and evaluate the performance goals of the division and the development of public input to ensure the division is pursuing goals outlined by the public through a planning process.

SECTION II – EFFORT

DESCRIPTION OF STATEWIDE HARVEST SURVEY

Stream or stock specific estimates of angler harvest, catch and effort are estimated across the state through a postal questionnaire. Estimates of sport angler harvest, catch and effort are reported annually and the report is commonly referred to as the SWHS (Mills 1977-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. *In prep.*). This survey randomly selects anglers based on their residence zip code and questionnaires are sent out at the end of the calendar year. This voluntary survey asks anglers to record their days of fishing at specific locations and the catch and harvest of salmon and resident freshwater fish and saltwater fish. Because this survey is based on the calendar year, the estimates and report are not generated until fall of the following year.

Sport Fisheries Division uses the SWHS extensively, because of the wide expanses and number of sport fisheries within the state. This survey has been collecting angler harvest statistics since 1977. There have been many additions to the SWHS since the initial postal questionnaire to address concerns on the harvest of salmon and resident fish throughout Alaska. This survey is the backbone of sport fisheries management in the State of Alaska. Managers rely on this report to monitor most sport fisheries. Often estimates generated by the SWHS come into question and in some instances the Division of Sport Fish will initiate an in-season survey to validate these estimates. The SWHS is an excellent tool for estimating sport fishing harvests, catches and angler effort in large fisheries, which have large numbers of angler participation. However, the smaller fisheries are recognized by fishery managers to have less precise estimates and are used as indices of harvest and catch. As the level of angler participation increases in a given fishery so does the level of confidence that department has in the SWHS estimate for that fishery. Comparisons of SWHS estimates and in-season harvest surveys are regularly published in the annual report.

As new sport fisheries develop in the LYLK, the focus of the SWHS shifts from an area perspective to a stock or stream specific nature. Stock specific information is useful for

regulating fishery development to conserve salmon and resident fish in given water bodies of the LYLK.

OVERVIEW OF AREA EFFORT

The sport fisheries began to develop in the LYLK during the mid 1980s. It was during this time period that sport fisheries in this area began to surface in the SWHS. Largely, sport fisheries of the LYLK were small, isolated, and were receiving little effort and hence small catch and harvest. As sport fisheries developed, the SWHS started to partition the prominent area fisheries by stream/river in 1983 (Table 3).

Angling effort in the LYLK is third in ranking of the angling effort in the AYK region, second to the upper Copper/ upper Susitna and Tanana Management Areas. This is no surprise when considering the distribution of the human population in the AYK region.

Angling effort in the lower Kuskokwim and Kuskokwim Bay reached a high of 26,400 angler days in 1996, but these areas average about half of this amount. Recently anglers have been expending twice the amount of effort in the streams and lakes of Kuskokwim Bay in comparison to the lower Kuskokwim River. There are clearly three sport fisheries that dominate the area; they are the Kanektok, Aniak and Goodnews rivers. All three of these streams provide salmon and rainbow trout fisheries in a wilderness setting.

Angler Effort in 2000

Angling effort in 2000 was slightly above average with 17,200 angler days (Table 3), but this level of effort is a decline from recent effort trend in the area. The approximate 5,000 angler day decline in angler effort may be a result of the recent changes in subsistence regulations allowing rod and reel fishing without a sport fishing license and declining chinook returns to the Yukon and Kuskokwim rivers. Average effort was documented for Kuskokwim Bay streams and slightly to below average effort on the lower Kuskokwim tributaries. Fluctuations of angler effort in the Goodnews River are probably a reflection of fishing services availability. Effort in the Kanektok River remained stable, just slightly above the historical average. The decline to approximately zero effort in the Arolik is probably a reaction to the access and land issues.

Angling effort in the Aniak River during 2000 was slightly below the historic average (Table 3). The temporary catch and release regulations and restrictions during the last two weeks of the chinook season in the Aniak River probably had some effect on this level of effort. The effort on the Kisaralik River was above average and broke the 2,000 level within the historical record. For unknown reasons the annual angling effort on the Kwethluk River is alternating between 500 and 1,500 angler days. If we assume that most anglers are fishing on a weekly float trip, fishing for six days of the float trip, then the lower Kuskokwim had approximately 1,000 anglers and Kuskokwim Bay had approximately 1,900 anglers.

Table 3.-Angler effort (angler days) in the lower Kuskokwim River and Kuskokwim Bay area of Alaska, 1983-2000.

Year	Kuskokwim Bay					Lower Kuskokwim River					Grand
	Kanektok	Goodnews	Arolik	Other	Total	Aniak	Kisaralik	Kwethluk	Other	Total	Total
1983	1,517	742		20	2,279	253			2,682	2,935	5,214
1984	6,881	1,010		344	8,235	383			1,149	1,532	9,767
1985	4,630	4,214		243	9,087	87			694	781	9,868
1986	8,825	229		61	9,115	1,116			703	1,819	10,934
1987	9,689	2,372		2,073	14,134	507			1,920	2,427	16,561
1988	12,697	1,219		5,233	19,149	2,437			2,724	5,161	24,310
1989	4,382	1,315		4,381	10,078	4,035			3,504	7,539	17,617
1990	4,525	1,507		4,512	10,544	1,964			3,610	5,574	16,118
1991	3,078	1,328		2,656	7,062	3,078			2,126	5,204	12,266
1992	4,972	1,387		2,068	8,427	2,604		640	1,654	4,898	13,325
1993	3,791	2,276		2,844	8,911	2,056		554	2,275	4,885	13,796
1994	6,505	2,038		1,406	9,949	1,815	1,463	466	1,124	4,868	14,817
1995	5,512	1,030		743	7,285	3,569	369	387	1,600	5,925	13,210
1996	8,305	2,322		625	11,252	3,964	1,525	1511	2,891	9,891	21,143
1997	9,706	5,011	1,475	1,807	17,999	4,778	1,578	642	1,445	8,443	26,442
1998	8,114	4,007	347	1,158	13,626	5,548	1,021	1498	1,306	9,373	22,999
1999	8,194	8,353	308	705	17,560	3,235	1,316	402	1,992	6,945	24,505
2000	7,231	4,038	13	121	11,403	2,141	2,084	1,131	472	6,100	17,503
Average	6,586	2,467	536	1,722	10,894	2,421	1,337	803	1,882	5,224	16,118

Observations of Angler Effort in 2001

Although estimates for 2001 will not be available until September of 2002, observations of angler effort can be characterized as below average throughout LYLK, except for Kuskokwim Bay fisheries, which were average. A combination of high water conditions and special action by the Federal Subsistence Board to restrict the uses of chinook and chum salmon to only residents of the area, along with poor public announcements by the Federal Subsistence Board cause confusion with the angling public. Because of the poor information dissemination effects of the special action, the public may have been misinformed, leading many anglers to look for other fishing destinations in Alaska. A creel survey on the Aniak River indicated that effort was down 50% or more, this trend is expected across all sport fisheries in the Kuskokwim drainage in 2001.

SECTION III – FISHERIES

SALMON FISHERIES

Chinook Salmon Fishery Description: Overview

Chinook salmon are present in most streams throughout the LYLK. Chinook salmon are predominately caught and harvested in tributaries of Kuskokwim Bay and tributaries of the lower Kuskokwim River. The largest sport fisheries for chinook salmon are located in the Kanektok and Aniak rivers. These two sport fisheries average approximately 6,600 and 2,400 angler days of effort (Table 3), respectively, across all fish species. Very few chinook salmon are caught and harvest in the sport fisheries in the lower Yukon River tributaries, downstream of Paimiut.

The Yukon and Kuskokwim rivers tributaries contain large runs of chinook salmon, but many streams are broad and turbid, thus directing the sport fishing to clearwater tributaries. These sport fisheries attract a very small number of anglers to western Alaska each year.

Historical Perspective and Fishery Management

Sport harvests and effort are estimated through the SWHS and reported by Mills (1983-1994), Howe et al. (1995, 1996, 2001a-d) and Walker et al. (*In prep.*). These estimates of harvest and catch are summarized in the previous AMR (Lafferty 2001). Additional Kuskokwim area commercial and subsistence harvest information can be found in the Commercial Fisheries Division AMR (Burkey et al. 1997-2000 and 2001). Lower Yukon commercial and subsistence harvest information is reported in the Commercial Fisheries Division AMR (Bergstrom et al. 1999) and BOF Reports (Vania 2000, Vania and Golembeski 2000). Sport Fish Division has monitored both the Kanektok and Aniak river sport fisheries with additional in-season harvest surveys and stock assessment projects in the past (Minard 1987, Minard and Brookover 1988; Dunaway and Bingham 1992, Dunaway and Fleischman 1995, Dunaway 1997; Lafferty and Bingham *In prep.*). Additionally, the U.S. Fish and Wildlife Service, Togiak Refuge, has collected age and size data from chinook salmon spawning in the Kanektok since 1994 (Lisac and MacDonald 1995, MacDonald 1996). Kenai Fishery Resources Office of U.S. Fish and Wildlife Service reports salmon escapements of the east fork of the Andreafsky River, in the lower Yukon River (Zabkar and Harper 2001).

The department has focused on assessing salmon escapements and harvest monitoring through several programs in the Kuskokwim area. Commercial harvest monitoring is conducted through

fish tickets and surveys are utilized to estimate harvests from the subsistence and sport fisheries. Salmon escapement is monitored through aerial surveys, sonar, test fishing, and weirs in the Kuskokwim River. There are similar programs in the Yukon, but on a larger scale. The primary chinook salmon escapement programs in the Kuskokwim are aerial surveys, and the Kogrukluks weir. There have been recent weir additions and consideration for more weir operations in the future. Although, mainstem sonar has been considered in the past, a mark-recapture experiment will be initiated in the early summer of 2002 at Kalskag to assist in understanding run strength and escapement.

Escapements of chinook salmon in the Yukon are monitored with test fishing, sonar, mark-recapture experiments, weirs, and counting towers. There are several Biological Escapement Goals (BEGs) for chinook salmon in the Yukon, including the Andreafsky River and a few in the Kuskokwim area. However, most of the Kuskokwim chinook escapement objectives are based on aerial survey information. Often these aerial surveys are sporadic because of plane availability or weather conditions and this method of evaluating escapement has been unsatisfactory in understanding Kuskokwim chinook salmon production. Therefore, the department has invested in weir operations in locations where feasible, quite often these weir locations are specific spots where it is physically possible to maintain a weir, not necessary based on stock size of chinook salmon escapements. Many of the larger tributaries and probably the larger stocks of chinook salmon, such as the Aniak and Holitna rivers have no complete assessment other than sporadic aerial surveys of chinook salmon or a singular tributary weir on the Kogrukluks River (Holitna tributary). The test fishing in the lower Kuskokwim, near Bethel, only provides indices of daily passage and not a measure of escapement.

In 2001, Federal Subsistence funds became available to assist in escapement evaluation in the Kuskokwim. Prior to the injection of this research money the department evaluated research needs for the Kuskokwim through a strategic planning exercise using the Analytic Hierarchy Process (Saaty 1990) utilizing software Expert Choice (Forman et al. 1983). Providing more escapement information was the primary result of the strategic planning (Merritt 2001). One of the 2001 projects was designed to evaluate the proportion of the Holitna escapement passing the Kogrukluks weir and the proportion below the weir (Wuttig and Evenson 2001). This tagging project is a major step in understanding chinook, chum and coho salmon production in the Holitna River. Because of the success of this project in 2001, this project is planned to be implemented in 2002 to a mainstem mark-recapture project to assess chinook, chum and coho salmon abundance upstream of Kalskag. This is a joint project with Commercial Fisheries to combine the coho fish wheel project with the telemetry work. Kuskokwim salmon escapement or weir projects in recent years are improving the department's ability to count escapement and are integral parts to understanding and complying with the sustainable salmon policy and the development of escapement objectives. However aerial surveys remain an important component of chinook salmon assessment in the Kuskokwim area (Table 4).

Regulatory chronology of area sport fisheries for chinook salmon:

- 1965 – Kuskokwim drainage chinook salmon bag limit of 15 per day, 30 in possession;
- 1985 – daily bag and possession limits for chinook salmon were decreased to 5 chinook salmon, with no size restrictions;
- 1988 – daily bag and possession limits were decreased to 3 chinook salmon, of which only 2 can be greater than 28 inches or larger;

Table 4.–Peak aerial survey index counts of chinook salmon in tributaries of the lower Kuskokwim River, 1975-2000^a

Year	Eek River	Kwethluk River	Kisaralik River	Tuluksak River	Aniak River	Kipchuk River ^b	Salmon River ^b
1975			118			94	
1976				139		177	
1977		2,290		291			562
1978	1,613	1,732	2,417	403			289
1979		911					
1980	2,378			725			1,186
1981		1,783	672		9,074		894
1982	230				2,645		185
1983	188	471	731	129	1,909		231
1984		273	157	93	1,409		
1985	1,118	629		135			
1986					909		336
1987	1,739	975		60		193	516
1988	2,255	766	840	188	945		244
1989	1,042	1,157	152		1,880	994	631
1990	1,983	1,295	631	166	1,255	537	596
1991	1,312	1,002		342	1,564	885	583
1992					2,284	670	335
1993					2,687	1,248	1,082
1994		848	1,021		1,848	1,520	1,218
1995			1,243		3,174	1,215	1,442
1996					3,496		983
1997			439	173	2,187	855	980
1998		27	457		2,239	353	
1999							
2000					714	182	152
SEG ^c		1,200	1,000	400	1,500		600
Median ^d	1,460					670	

^a Estimates are from peak aerial surveys conducted between July 20 and July 31 under fair, good, or excellent conditions.

^b Tributaries of Aniak River

^c Applying current Salmon Escapement Goal Policy (5 AAC 2000o) to previous published BEG from Buklis (1993).

^d Median of years 1975 through 1994.

- 1997 – May 1 to July 25, sport fishing season was established to protect spawning fish. In some locations fishing gear was restricted to single-hook artificial lures;
- 2001 – statewide acceptance in freshwater, that all chinook salmon less than 20 inches are considered “jack salmon” and does not count towards daily bag and possession limit; and,
- within the Aniak River drainage, only 2 chinook salmon greater than 20 inches allowed in the daily bag limit and no more 2 chinook greater than 20 inches in annual bag limit.

Sport harvests of chinook salmon are very small and minor in comparison to the commercial and subsistence harvests of the area (Tables 5-7). However, there is angler desire to participate in the chinook fisheries of the Kuskokwim area (Tables 8 and 9). The average angler-stay in western Alaska for fishing is at least five days which equates to approximately 2,300 anglers utilizing the tributaries of the Kuskokwim Bay and 1,200 anglers coming to tributaries in the lower Kuskokwim River. Overall, 3,500 anglers are harvesting 1,900 chinook salmon and catch and releasing 11,000 chinook salmon during 1998, 1999 and 2000. It is doubtful that hooking mortality is a significant factor, all of the salmon delayed mortality studies associated with hook and line gear in Alaska are conducted in areas adjacent to marine waters. Most of the anglers participating in the Kuskokwim area chinook fisheries are via float trips in tributary headwaters, a significant distance from estuarine waters. Furthermore most of the area headwaters have single-hook requirements to protect rainbow trout (i.e. special management). Accepting that delayed hooking mortality is minor, the over all mortality (harvest + maximum delayed mortality (Bendock 1992) of chinook salmon associated with the sport fisheries is less than 3,000 chinook salmon when the sport fisheries are unrestricted with bag limit of three. The Kuskokwim Area chinook harvest is small when compared to other chinook salmon harvests of the area.

Summary of 2001 Season

Poor chinook salmon performance during recent years in both the Kuskokwim and Yukon rivers was the foundation for the rebuilding plan of the BOF in January 2001. The rebuilding plan goal was to meet escapement objectives and if possible provide subsistence opportunities based on amounts necessary for subsistence (ANS) and reduced harvest potential in the sport fisheries based on abundance. Commercial opportunities were closed until escapement trends were improved.

A February news release notified the public of BOF actions and additional reductions to the sport fishery harvest potential, by reducing the bag and possession limit to one chinook or one chum salmon per day in the Kuskokwim River (Appendix A). An EO was issued May 25, 2001 to reduce the sport bag and possession limit (Appendix B). Effective June 1 the Federal Subsistence Board took additional action to restrict the uses of chinook and chum salmon to only residents of the Yukon and Kuskokwim drainages within their jurisdiction (Appendix C).

By mid June it was apparent that further restrictions were necessary to conserve chinook salmon in the Yukon. Subsistence schedule was reduced further and sport fishing opportunities were closed in all tributaries of the Yukon except for the Tanana River (Appendix B).

Chinook salmon closed by regulation on July 25 without further disruptions to the sport fishery in the LYLK. Fishing conditions during the chinook salmon were predominantly poor, high water and turbid water had significant impact on angler success during June and July of 2001.

Table 5.-Harvest of chinook salmon in the commercial, subsistence, test and sport fisheries of the Kuskokwim River, 1960-2000.

Year	Harvest				Total
	Commercial ^a	Subsistence ^b	Test Fishery	Sport ^c	
1960	5,969	18,887			24,856
1961	18,918	28,934			47,852
1962	15,341	13,582			28,923
1963	12,016	34,482			46,498
1964	17,149	29,017			46,166
1965	21,989	24,697			46,686
1966	25,545	49,325	285		75,155
1967	29,986	59,913	766		90,665
1968	34,278	32,942	608		67,828
1969	43,997	40,617	833		85,447
1970	39,290	69,612	857		109,759
1971	40,274	43,242	756		84,272
1972	39,454	40,396	756		80,606
1973	32,838	39,093	577		72,508
1974	18,664	27,139	1,236		47,039
1975	22,135	48,448	704		71,287
1976	30,735	58,606	1,206		90,547
1977	35,830	56,580	1,264	33 ^e	93,707
1978	45,641	36,270	1,445	116 ^e	83,472
1979	38,966	56,283	979	74 ^e	96,302
1980	35,881	59,892	1,033	162 ^e	96,968
1981	47,663	61,329	1,218	189 ^e	110,399
1982	48,234	58,018	542	207 ^e	107,001
1983	33,174	47,412	1,139	420	82,145
1984	31,742	56,930	231	273	89,176
1985	37,889	43,874	79	85	81,927
1986	19,414	51,019	130	49	70,612
1987	36,179	67,325	384	355	104,243
1988	55,716	70,943 ^d	576	528	127,763
1989	43,217	81,176	543	1,218	126,154
1990	53,504	85,979	512	394	140,389
1991	37,778	85,554	117	401	123,850
1992	46,872	64,795	1,380	367	113,414

-continued-

Table 5.-Page 2 of 2.

Year	Harvest				Total
	Commercial ^a	Subsistence ^b	Test Fishery	Sport ^c	
1993	8,735	87,512	2,483	587	99,317
1994	16,211	93,242	1,937	1,139	112,529
1995	30,846	96,436	1,421	541	129,244
1996	7,419	78,063	247	1,432	87,161
1997	10,441	81,577	332	1,227	93,577
1998	17,359	81,265	210	1,434	100,268
1999	4,705	73,194	98	252	78,249
2000	444	64,893	64	105	73,807
1988-2000 Average	25,634	80,356	763	740	107,493
Percent Harvest	23.8%	74.7%	0.7%	0.7%	
1998-2000 Average	7,503	73,117	124	597	81,341
Percent Harvest	9.2%	89.9%	0.2%	0.7%	

a. District 1 and 2; also includes harvests in District 3 from 1960 to 1965.

b. Estimated subsistence harvest expanded from villages surveyed.

c. Statewide Harvest Survey (1977-2001).

d. Beginning in 1988, subsistence estimates are based on new methodology, not comparable with previous years.

e. Estimated by proportion.

Table 6.-Harvest of chinook salmon in the commercial, subsistence, and sport fisheries and chinook salmon escapement in the Kanektok River, 1960–2000.

Year	Harvest			Total	Escapement Index ^c	Minimum Total Run
	Commercial ^a	Subsistence ^b	Sport			
1960	0			0	6,047	6,047
1961	4,328			4,328		
1962	5,526			5,526	935	6,461
1963	6,555			6,555		
1964	4,081			4,081		
1965	2,976			2,976		
1966	278			278	3,718	3,996
1967	0	1,349		1,349		
1968	8,879	2,756		11,635	4,170	15,805
1969	16,802			16,802		
1970	18,269			18,269	3,112	21,381
1971	4,185			4,185		
1972	15,880			15,880		
1973	14,993			14,993	814	15,807
1974	8,704			8,704		
1975	3,928			3,928		
1976	14,110			14,110		
1977	19,090	2,012		21,102	5,787	26,889
1978	12,335	2,328		14,663	19,180	33,843
1979	11,144	1,420		12,564		
1980	10,387	1,940		12,327	6,172	18,499
1981	24,524	2,562		27,086	15,900	42,986
1982	22,106	2,402		24,508	8,142 ^d	32,650
1983	46,385	2,542	1,511	50,438	8,890	59,328
1984	33,633	3,109	922	37,664	12,182	49,846
1985	30,401	2,341	672	33,414	13,465	46,879
1986	22,835	2,682	938	26,455	3,643	30,098
1987	26,022	3,663	508	30,193	4,223	34,416
1988	13,883	3,690 ^f	1,910	19,483	11,140	30,623
1989	20,820	3,542	884	25,246	7,914	33,160
1990	27,644	6,013	503	34,160	2,563	36,723
1991	9,480	3,693	316	13,489	2,100	15,589
1992	17,197	3,447	656	21,300	3,856	25,156

-continued-

Table 6.-Page 2 of 2.

Year	Harvest				Escapement Index ^c	Minimum Total Run
	Commercial ^a	Subsistence ^b	Sport	Total		
1993	15,784	3,368	1,006	20,158	4,670	24,828
1994	8,564	3,995	751	13,310	7,386	20,696
1995	38,584	2,746	739	42,069		§
1996	14,165	3,075	689	17,929	6,107	24,036
1997	35,510	3,433	1,632	40,575	8,080	48,655
1998	23,158	4,041	1,475	28,674		§
1999	18,426	3,167	854	22,447	1,118 ^e	§
2000	21,229	3,106	833	25,168		§
1988-2000 Average	19,801	3,640	942	24,922	5,583	28,829
Percent Harvest	81%	15%	4%			
1998-2000 Average	20,938	3,438	1,054	25,430		
Percent Harvest	82%	14%	4%			

a. Quinhagak District commercial harvest. Source: Burkey et al. 2001, Appendix C3.

b. Subsistence harvest by the community of Quinhagak. Source: Burkey et al. 2001, Appendix A12.

c. Unexpanded observed counts made from fixed-wing aircraft between 20 July and 5 August. Source: Burkey et al. 2001, Appendix C4.

d. 1982 escapement survey after August 5, late for chinook salmon.

e. Escapement survey on July 14, before peak.

f. Beginning in 1988, subsistence estimates are based on new methodology, not comparable with previous years.

g. No total run estimate because of no escapement information or not appropriate survey date.

Table 7.-Harvest of chinook salmon in the commercial, subsistence, and sport fisheries and chinook salmon escapement in the Goodnews River, 1981-2000.

Year	Harvest			Total	Escapement Index ^c	Minimum Total Run
	Commercial ^a	Subsistence ^b	Sport			
1981	7,190	1,409		8,599	11,454	20,053
1982	9,476	1,236		10,712	4,332	15,044
1983	14,117	1,066	31	15,214	20,420	35,634
1984	8,612	629		9,241	12,003	21,244
1985	5,793	426	323	6,542	10,810	17,352
1986	2,723	555		3,278	6,186	9,464
1987	3,357	816		4,173	6,762	10,935
1988	4,964	310 ^d		5,274	8,131	13,405
1989	2,966	467	68	3,501	4,806	8,307
1990	3,303	682		3,985	11,292	15,277
1991	912	682	26	1,620	6,473	8,093
1992	3,528	252	23	3,803	3,757	7,560
1993	2,117	488	81	2,686	7,076	9,762
1994	2,570	657	163	3,390	11,722	15,112
1995	2,922	552	41	3,515	14,701	18,216
1996	1,375	526	157	2,058	8,907	10,965
1997	2,039	449	86	2,574	10,153	12,727
1998	3,675	718	431	4,824	8,381	13,205
1999	1,888	871	223	2,982	9,786	12,768
2000	4,442	703	243	5,388	6,876	12,264
<hr/>						
1988-2000						
Average	2,730	566	140	3,508	8,390	12,128
Percent Harvest	78%	16%	4%			
<hr/>						
1998-2000						
Average	3,335	764	299	4,398	8,348	12,746
Percent Harvest	76%	17%	7%			

a. Quinhagak District commercial harvest. Source: Burkey et al. 2001, Appendix D4.

b. Subsistence harvest by the community of Quinhagak. Source: Burkey et al. 2001, Appendix D4.

c. Unexpanded observed counts made from fixed-wing aircraft between 20 July and 5 August. Source: Burkey et al. 2001, Appendix D4.

d. Beginning in 1988, subsistence estimates are based on new methodology, not comparable with previous years.

Table 8.-Angler harvest and catch of chinook salmon in the Kanektok, Goodnews, Arolik, and other Kuskokwim Bay rivers, 1983-2000.

Year	Kanektok River		Goodnews River		Arolik River		Other Rivers		Kuskokwim Bay Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983	1,511		31				210		1,752	
1984	922						137		1,059	
1985	672		323				43		1,038	
1986	938						25		963	
1987	508						177		685	
1988	1,910						264		2,174	
1989	884		68				240		1,192	
1990	503	4,044					54	333	557	4,377
1991	316	1,742	26	68			93	176	435	1,986
1992	656	3,153	23	47			71	284	750	3,484
1993	1,006	5,245	81	469			143	1,249	1,230	6,963
1994	751	1,483	163	230			257	339	1,171	2,052
1995	739	3,226	41	279			42	174	822	3,679
1996	689	6,354	157	1,126			190	2,197	1,036	9,677
1997	1,632	13,244	86	1,569	0	0	147	203	1,865	15,016
1998	1,475	9,528	431	3,171	30	30	77	346	2,013	13,075
1999	854	4,205	223	3,823	0	115	12	25	1,089	8,168
2000	833	6,086	243	1,527	0	0	0	0	1,076	7,613
Average	933	5,301	146	1,231	8	36	121	484	1,162	4,227
1998-00 Average	1,054	6,606	299	2,840	10	48	30	124	1,393	9,619

Table 9.-Angler harvest and catch of chinook salmon in the Aniak, Kisaralik, Kwethluk and other lower Kuskokwim rivers, 1983-2000.

Year	Aniak River		Kisaralik River		Kwethluk River		Other Rivers		Lower Kuskokwim Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983							168		168	
1984							137		137	
1985							43		43	
1986							24		24	
1987							178		178	
1988							264		264	
1989	738						240		978	
1990	285	1,181					55	333	340	1,514
1991	214	222					94	176	308	398
1992	172	827			31	47	71	285	274	1,159
1993	300	1,426			0	47	144	1,249	444	2,722
1994	437	573	148	196			257	339	842	1,108
1995	279	2,729					42	174	321	2,903
1996	592	3,375					190	1,038	782	4,413
1997	801	12,943	49	678	49	108	49	128	948	13,857
1998	1,058	5,896	6	74	75	467	44	167	1,183	6,604
1999	134	2,776	0	12	0	0	109	153	243	2,941
2000	10	435	11	343	20	171	0	0	40	949
Average	418	2,944	43	261	29	140	117	367	418	2,143
1998-00										
Average	401	3,036	5	143	32	213	51	107	489	3,498

Fishery Outlook

Lower Kuskokwim and Lower Yukon Rivers

Given the recent poor performances of chinook salmon returns in the Kuskokwim and Yukon rivers, a below average return is expected in 2002 for both drainages. The 2002 Kuskokwim and Yukon chinook returns are not expected to provide an adequate surplus for an average commercial harvest. The department's ability to forecast chinook salmon returns is very limited. However, staff remains hopeful that 2001 chinook returns to the Yukon and Kuskokwim are an indication of improved run performance. The department believes the actions and direction of the BOF through the rebuilding process are necessary to improve escapement trends of chinook salmon in the Yukon and Kuskokwim drainages. The department is approaching the 2002 season with little expectation of commercial fishing in the Yukon, however, a small limited commercial fishery maybe possible, if surplus above escapement needs is observed. A commercial fishery for chinook salmon in the Kuskokwim is highly unlikely with current subsistence demands. Recreational anglers should expect similar restrictions to possession and bag limits that occurred in 2001.

Kuskokwim Bay Tributaries

The 2001 chinook salmon escapement into the Goodnews River appears to be below average, but parental escapements of 1996-1998 were average to slightly above average and are expected to provide a surplus beyond escapement requirements and provide opportunity for both commercial and sport fishing. The lack of chinook salmon escapement information in the Kanektok River is problematic, especially with recent declines in chinook salmon production in western Alaska. Recently, Commercial Fisheries Division has begun operating the Kanektok weir, hopefully a functional weir will be operational during the 2002 field season to enumerate salmon escapement. The department is not proposing any changes to the chinook salmon fisheries of Kuskokwim Bay, however, with the concern over western Alaska chinook salmon stocks, it is quite possible that both commercial and sport fishing restrictions may be enacted in season based on escapement abundance and historical commercial fishery performance.

Coho Salmon Fishery Description

Overview

Coho salmon are present in most area streams and are caught and harvested in tributaries of the Kuskokwim Bay and tributaries of the lower Kuskokwim River. There is a large commercial harvest of coho salmon in the Kuskokwim River, in the last 20 years the commercial harvest has ranged from 130,800 in 1997 to record harvest of 937,300 coho salmon in 1996 (Table 10). The historic commercial harvest has averaged approximately 450,000 coho salmon in the Kuskokwim River. The largest coho salmon sport fisheries in the area are located in the Kanektok and Aniak rivers. These two sport fisheries average approximately 6,700 and 2,500 angler days of effort, respectively, for all fish species. There are very few coho salmon caught and harvested in the sport fisheries in the lower Yukon River tributaries, downstream of Paimiut. However, there is local concern over developing sport fisheries throughout the area, including the Andreafsky River.

The Yukon and Kuskokwim river tributaries contain large runs of coho salmon. The stream characteristics are typically broad channels and turbid water thereby reducing the sport fishing

Table 10.-Harvest of coho salmon in the commercial, subsistence, test and sport fisheries in the Kuskokwim River, 1960-2000.

Year	Harvest			Total
	Commercial ^a	Subsistence ^b	Test Fishery ^c	
1960	2,498			2,498
1961	5,044			5,044
1962	12,432			12,432
1963	15,660			15,660
1964	28,613			28,613
1965	12,191			12,191
1966	22,985			22,985
1967	56,313			56,313
1968	127,306			127,306
1969	83,765			83,765
1970	38,601			38,601
1971	5,253			5,253
1972	22,579			22,579
1973	130,876			130,876
1974	147,269			147,269
1975	81,945			81,945
1976	88,501			88,501
1977	241,364			241,364
1978	213,393			213,393
1979	219,060			219,060
1980	222,012			222,012
1981	211,251			211,251
1982	447,117			447,117
1983	196,287			197,662
1984	623,447			624,889
1985	335,606	24,236		359,978
1986	659,988	29,693		690,903
1987	399,467	17,917		419,151
1988 ^c	524,296	38,387		563,610
1989	479,856	52,918		535,233
1990	410,332	44,791		455,704
1991	500,935	50,331		552,269
1992	666,170	40,168		708,030

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Table 10.-Page 2 of 2.

Year	Harvest				Total
	Commercial ^a	Subsistence ^b	Test Fishery ^c	Sport ^d	
1993	610,739	31,737		980	643,456
1994	724,689	33,050		1,925	759,664
1995	471,461	36,277		1,497	509,235
1996	937,299	32,741		3,423	973,463
1997	130,803	29,032		2,408	174,491
1998	210,481	24,864		2,419	237,764
1999	23,593	25,003		1,998	50,594
2000	261,379	33,786		1,689	296,854
<hr/>					
1988-2000					
Average	457,849	36,391		1,769	496,009
Percent Harvest	92.3%	7.3%		0.4%	
<hr/>					
1998-2000					
Average	165,151	27,884		2,035	195,071
Percent Harvest	84.7%	14.3%		1.0%	

a. District 1 and 2; also includes harvests in District 3 from 1960 to 1965.

b. Estimated subsistence harvest expanded from villages surveyed.

c. Test fishery coho harvests not available.

d. Statewide Harvest Survey (1977-2001).

e. Beginning in 1988, subsistence estimates are based on methodology, previous estimates are not comparable.

largely to clear water tributaries. These sport fisheries attract a very small number of anglers to western Alaska.

Historical Perspective and Fishery Management

Sport harvests and effort are estimated through the SWHS and reported by Mills (1983-1994), Howe et al. (1995, 1996, 2001a-d) and Walker et al. (*In prep.*). Commercial and subsistence harvests are managed by the Commercial Fisheries Division located in Bethel and are reported in their Annual Management Report series (Burkey et al. 1997-2001). The Kanektok River has the most complete commercial, subsistence, sport harvest and escapement information on coho salmon in the area (Table 11). Sport Fish Division has monitored both the Kanektok and Aniak with additional in-season harvest surveys and stock assessment projects in the past (Minard 1987, Minard and Brookover 1988; Dunaway and Bingham 1992, Dunaway and Fleischman 1995, and Dunaway 1997). Additionally, the U.S. Fish and Wildlife Service from the Togiak Refuge has collected age and size data from coho salmon spawning in the Kanektok since 1994 (Lisac and MacDonald 1995 and MacDonald 1996).

The department has focused on assessing salmon escapements and harvests through several programs in the Kuskokwim area. Harvest monitoring is conducted through fish tickets and surveys designed to estimate harvests from subsistence and sport fisheries. Salmon escapement is monitored through aerial surveys, sonar, test fishing and weirs in the Kuskokwim drainage. There are similar programs in the Yukon, but on a larger scale. The primary coho salmon escapement programs in the Kuskokwim are aerial surveys, and Kogrukluq weir. The Bethel test fishery only provides indices of daily passage. Recent weir projects in the Goodnews, Kwethluk and Tuluksak rivers have been added to escapement assessment of the area. There is consideration for more weir operations in the future. Additionally, an investigative mark-recapture experiment was conducted in 2001, in the mainstem of the Kuskokwim River utilizing fish wheels to capture coho salmon upstream of Kalskag.

Escapements of coho salmon in the LYLK are monitored with aerial surveys from fixed wing aircraft. Counts are unexpanded and represent minimum escapements. There are only a few Biological Escapement Goals (BEGs) for coho salmon in this area, and weather conditions seldom allow reliable aerial surveys to be flown to index coho salmon escapements. However, salmon escapement or weir projects in recent years are improving the department's ability to count coho escapement (Burkey et al. 2000; Appendix A7) and begin the process to develop escapement objectives in accordance with the department's Escapement Goal Policy (ADF&G 2000).

Sport harvests of coho salmon are very small in comparison to the commercial and subsistence harvests in the area (Tables 10–12). However, anglers desire to participate in the coho fisheries is great. The average angler stay in western Alaska for fishing is at least five days which equates to approximately 3,500 anglers utilizing the tributaries of the Kuskokwim Bay and 1,500 anglers coming to tributaries in the lower Kuskokwim River. Overall, 5,000 anglers are harvesting 3,600 coho salmon and catch and releasing 32,000 coho salmon (Tables 13 and 14). Delayed mortality has been a concern in some coho fisheries within the state, however these coho fisheries are near estuarine waters. Most of the anglers participating in the Kuskokwim area are on float trips in tributary headwaters, and furthermore these headwaters have special management regulations to protect rainbow trout, single-hook artificial lures. Accepting that

Table 11.—Harvest of coho salmon in the commercial, subsistence, and sport fisheries and coho salmon escapement in the Kanektok River, 1983-2000.

Year	Harvest			Total	Escapement Index ^c	Minimum Total Run
	Commercial ^a	Subsistence ^b	Sport			
1983	32,442		367	32,809		
1984	132,151		1,895	134,046	46,830	180,876
1985	29,992		622	30,614		
1986	57,544		2,010	59,554		
1987	50,070		2,300	52,370	20,056	72,426
1988	68,605	4,317 ^d	1,837	74,759		
1989	44,607	3,787	1,096	49,490	1,755	^d
1990	26,926	4,174	644	31,744		
1991	42,571	3,232	358	46,161	4,330	50,491
1992	86,404	2,958	275	89,637		
1993	55,817	2,152	734	58,703		
1994	83,912	2,739	675	87,326		
1995	66,203	2,561	970	69,734	2,900	^e
1996	118,718	1,467	875	121,060	23,656	^f 144,716
1997	32,862	1,264	1,220	35,346	23,166	^g 58,512
1998	80,183	1,702	751	82,636		
1999	6,184	2,021	1,091	9,296	10,120	19,416
2000	30,529	1,088	799	32,425		
1988-2000						
Average	56,013	2,574	1,029	60,983		
Percent Harvest	92%	4%	2%			
1998-2000						
Average	38,965	1,604	880	41,449		
Percent Harvest	94%	4%	2%			

^a Quinhagak (District 4) commercial harvest (Burkey et al. 2001; Appendix C3).

^b Subsistence harvests by the community of Quinhagak (Burkey et al. 2001; Appendix A12).

^c Unexpanded observed count made from fixed-wing aircraft between 20 August and 5 September. Source Burkey et al. 2001; Appendix C4.

^d Beginning in 1988, subsistence estimates are based on new methodology, not comparable with previous years.

^e Considered early aerial survey, before peak spawning.

^f Incomplete aerial survey, poor survey conditions.

^g Escapement based on tower count ending August 21.

Table 12.-Harvest of coho salmon in the commercial, subsistence, and sport fisheries and coho salmon escapement in the Goodnews River, 1983-2000.

Year	Harvest			Total	Escapement Index ^c	Minimum Total Run
	Commercial ^a	Subsistence ^b	Sport			
1983	19,660		168	19,828		
1984	71,176			71,176	249	
1985	16,498	11	386	16,895	282	
1986	19,378	8		19,386	163	
1987	29,057	43		29,100	62	
1988	30,832	1,162 ^d		31,994	6	
1989	31,849	907	224	32,980	145	
1990	7,804	1,646		9,450		
1991	13,312	1,828	297	15,437	1,978	
1992	19,875	1,353	138	21,366		
1993	20,014	1,226	189	21,429	1,451	
1994	47,499	512	170	48,181		
1995	17,875	305	114	18,294	5,415	
1996	43,836	352	466	44,654	10,869	
1997	2,983	397	855	4,235	9,619	13,854
1998	21,246	331	574	22,151	35,441	57,592
1999	2,474	582	789	3,845	11,545	15,390
2000	15,531	517	795	16,843	19,676	36,519
1988-2000 Average	20,315	855	419	22,374		
Percent Harvest	94%	4%	2%			
1998-2000 Average	13,084	477	719	14,280	22,221	36,500
Percent Harvest	92%	3%	5%			

^a Goodnews Bay (District 5) commercial harvest (Burkey et al. 2001; Appendix C3).

^b Subsistence harvests by the communities of Goodnews Bay and Platinum (Burkey et al. 2001; Appendix A12).

^c Majority of coho run not counted, except weir operations during 1997-2000 into October. No interpolation for 1992 and 1994 because of significant portions of high water effecting weir operations. Source Burkey et al. 2001; Appendix D6.

^d Beginning in 1988, subsistence estimates are based on new methodology, not comparable with previous years.

Table 13.-Angler harvest and catch of coho salmon in the Kanektok, Goodnews, Arolik, and other Kuskokwim Bay rivers, 1983-2000.

Year	Kanektok River		Goodnews River		Arolik River		Other Rivers		Kuskokwim Bay Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983	367		168				714		1,249	
1984	1,895						864		2,759	
1985	622		386				74		1,082	
1986	2,010						684		2,694	
1987	2,300						1,232		3,532	
1988	1,837						1,356		3,193	
1989	1,096		224				905		2,225	
1990	644	4,044					260	333	904	4,377
1991	358	2,404	297	1,176			338	553	993	4,133
1992	275	3,174	138	1,571			291	707	704	5,452
1993	734	3,741	189	645			295	1,334	1,218	5,720
1994	675	1,322	170	456			755	1,089	1,600	2,867
1995	970	3,602	114	761			233	623	1,317	4,988
1996	1,251	5,084	466	1,375			379	1,153	2,096	7,612
1997	1,220	14,366	855	2,915	221	276	703	2,179	2,989	19,736
1998	751	15,017	574	7,852	74	737	172	184	1,571	23,790
1999	1,091	13,677	789	12,185	11	621	12	1,281	1,903	27,764
2000	799	13,043	795	9,045	0	0	0	0	1,594	22,088
Average	1,050	7,225	397	3,798	74	409	515	858	1,868	7,140
1998-00 Average	880	13,912	719	9,694	28	453	61	488	1,689	24,547

Table 14.-Angler harvest and catch of coho salmon in the Aniak, Kisaralik, Kwethluk and other lower Kuskokwim rivers, 1983-2000.

Year	Aniak River		Kisaralik River		Kwethluk River		Other Rivers		Lower Kuskokwim Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983							571		571	
1984							864		864	
1985							74		74	
1986							684		684	
1987							1,232		1,232	
1988							1,355		1,355	
1989	939						905		1,844	
1990	182	1,181					260	333	442	1,514
1991	327	1,432					338	553	665	1,985
1992	235	575			624	1,790	291	708	1,150	3,073
1993	213	753			313	566	295	1,334	821	2,653
1994	507	852	72	492			755	1,089	1,334	2,433
1995	852	2,246					233	623	1,085	2,869
1996	986	3,746					196	5,233	1,182	8,979
1997	978	4,576	182	838	274	490	102	127	1,536	6,031
1998	1,128	3,639	172	2,638	714	3,204	61	184	2,075	9,665
1999	436	3,971	270	2,315	131	774	98	700	935	7,760
2000	440	8,531	199	1,231	220	1,705	0	52	859	11,519
Average	602	2,864	179	1,503	379	1,422	462	994	1,039	3,249
1998-00										
Average	668	5,380	214	2,061	355	1,894	53	312	1,290	9,648

delayed hooking mortality is minor; the over all harvest of coho salmon is less than 5,000 fish in sport fisheries of the Kuskokwim Area. Area sport harvests of coho salmon are insignificant to the commercial and subsistence harvests.

Historically, daily bag limits for coho salmon were very liberal in 1986, allowing 15 fish per day, 30 fish in possession. In 1987, the Board recognized the significance of the harvest potential of the Kanektok sport fishery and reduced bag and possession limits to 5 fish daily. These bag limits remained the standard for most of the area, except recent changes in the Aniak River. The liberal bag and possession limits were adopted to accommodate subsistence fishers who were using rod and reel for subsistence purposes, but were required to purchase a sport-fishing license. Repeatedly, harvest surveys conducted on the Kanektok River indicate that sport anglers rarely (7-15%) had taken a full bag limit of coho salmon and most of the anglers (61-66%) elected to take no fish, even though 95% of them had caught and released a fish (Dunaway and Bingham 1992, Dunaway and Fleischman 1995).

Concerns from the Central Kuskokwim Advisory Committee prompted the BOF to create the Aniak River Salmon Management Plan out of the regular three-year cycle during the March 2000 meeting. This temporary plan was a series of species-specific regulations restricting bag / possession limits and implementing catch and release for chum and coho salmon with a sunset clause. During the period of May 1 through August 31 only one coho salmon may be harvested above the Buckstock River and chum salmon may not be possessed year-around in this section of the Aniak River. The Aniak Management Plan became the most restrictive remote fishery within the State of Alaska. The sunset clause attached to the Aniak Management Plans required the BOF to review this set of regulations at the January 2001 meeting. Members of the public and sport fishery industry indicated that these temporary regulations were far too restrictive, a compromise set of regulations were accepted based on aggregate daily bag limit. Aggregate daily bag limits were consistent with the subsistence regulations of the Aniak River, however, subsistence possession limits were more generous. Anglers were allowed up to three (3) coho salmon a day in the Aniak River, in all other locations of the Kuskokwim anglers were allowed a daily bag limit of five (5) coho salmon.

Summary of 2001 Season

Conservation concerns consistent with the Kuskokwim and Yukon rivers rebuilding plans for chinook and chum salmon restrained the commercial coho fishery opening until August of 2001 in the Kuskokwim River. The Yukon commercial fishery for coho salmon had potential, but there was no buyer interest with poor prices being offered for coho salmon. These actions did allow subsistence users the opportunity to concentrate on coho salmon to assist them in meeting their subsistence needs with poor returns of chinook salmon in the Yukon and Kuskokwim rivers. Overall, the coho runs appeared to be average with the latter portion of both returns showing signs of weakness in the Yukon and Kuskokwim rivers. Area coho escapements provided anglers with above average coho fishing from late July into late September in many streams of the LYLK. Sport fishing harvests of coho salmon during 2001 are expected to be average to above average for the LYLK.

Fishery Outlook

Lower Yukon / Lower Kuskokwim/ Kuskokwim Bay

Recent trends in coho salmon production have provided surpluses for commercial and sport fisheries during the past ten years. Coho salmon returns to the area have become widely

fluctuating during the last five years. The coho escapements of 1992 and 1996 have dominated coho production in the Kuskokwim in the recent past. Coho salmon returns to the Kuskokwim area are primarily four years of age, so the 1998 brood will be the main parent year for the 2002 return. Coho escapement monitoring during 1998 was limited to the Kogrukluuk weir on the Holitna River (Burkey et al. 2001; Appendix A7). The coho escapement in the Kogrukluuk in 1997 was 12,600 coho which is half of the BEG of 25,000 coho salmon. If these coho escapements are any indication of coho returns to the Kuskokwim area, then the department could expect an average return to the Kuskokwim Bay fisheries and below average return for the Kuskokwim River. The department's forecasting ability for projecting coho salmon returns is less than exact during most years.

Chum Salmon Fishery Description

Overview

Yukon and Kuskokwim chum salmon stocks are primarily harvested for subsistence and commercial uses. There has been a long history of subsistence use of chum salmon in the Yukon and Kuskokwim rivers; in the Kuskokwim River chum salmon were documented as being used for subsistence in 1922 (Burkey et al. 2000). In the past, the subsistence fishery has had few restrictions in the Kuskokwim River and most of the harvest has been taken using gillnets, either drift or setnet. Directed commercial fishing for chum salmon in the Kuskokwim River started in 1971. This fishery has continued and expanded with management utilizing catch monitoring. In 1983 escapement based management began in the Kuskokwim River.

Sport harvests of chum salmon are very small and minor in comparison to subsistence and commercial harvests (Table 15). However, the angler desire to participate in the chum salmon fisheries is great. Approximately 5,000 anglers are harvesting 850 chum salmon and catch and releasing 20,000 chum salmon (Tables 16 and 17). There is very little hooking mortality because many of the anglers are on float trips in tributary headwaters, and furthermore these headwaters have special management regulations to protect rainbow trout (i.e. single-hook artificial lures). Accepting that delayed hooking mortality is minor, the overall harvest of chum salmon is less than 1,500 fish in sport fisheries of the Kuskokwim Area.

Historical Perspective and Fishery Management

Chum salmon escapement goals were established in 1983 for several Kuskokwim River tributaries based on average observed escapements, since 1960. Escapement base management assumes that providing adequate / average numbers of spawners will produce sustainable yields of salmon and return salmon runs to historic levels. As the department's knowledge on stock specific production increases refinements can be made to attempt to reach maximum sustainable yields.

The department has focused on assessing salmon escapements and harvests through several programs in the Kuskokwim Area. Harvest monitoring is conducted through fish tickets and surveys designed to estimate harvests from the subsistence and sport fisheries. Salmon escapement is monitored through aerial surveys, sonar, test fishing and weirs in the Kuskokwim

Table 15.-Harvest of chum salmon in the commercial, subsistence, test and sport fisheries in the Kuskokwim River, 1960-2000.

Year	Harvest				Total
	Commercial ^a	Subsistence ^b	Test Fishery	Sport	
1960	0	301,753 ^c			301,753
1961	0	179,529 ^c			179,529
1962	0	161,849 ^c			161,849
1963	0	137,649 ^c			137,649
1964	0	190,191 ^c			190,191
1965	0	250,878 ^c			250,878
1966	0	175,735 ^c	502 ^d		176,237
1967	148	208,445 ^c	338		208,931
1968	187	275,008 ^c	562 ^d		275,757
1969	7,165	204,105 ^c	384		211,654
1970	1,664	246,810 ^c	1,139		249,613
1971	68,914	116,391 ^c	254		185,559
1972	78,619	120,316 ^c	486		199,421
1973	148,746	179,259 ^c	675		328,680
1974	171,887	277,170 ^c	2,021		451,078
1975	184,171	176,389 ^c	1,062		361,622
1976	177,864	223,792 ^c	2,101		403,757
1977	248,721	198,355 ^c	576	129 ^f	447,781
1978	248,656	118,809 ^c	2,153	555 ^f	370,173
1979	261,874	161,239 ^c	412	259 ^f	423,784
1980	483,211	165,172 ^c	2,058	324 ^f	651,305
1981	418,677	157,306 ^c	1,793	598 ^f	578,374
1982	278,306	190,011 ^c	504	1,125 ^f	469,946
1983	276,698	146,876 ^c	1,069	922	425,565
1984	423,718	142,542 ^c	1,186	520	567,966
1985	199,478	94,750	616	150	294,994
1986	309,213	141,931 ^c	1,693	245	453,082
1987	574,336	70,709	2,302	566	647,913
1988	1,381,674	151,967 ^e	4,379	764	1,538,784
1989	749,182	139,687	2,082	2,023	892,974
1990	461,624	126,508	2,107	533	590,772
1991	431,802	93,075	931	378	526,186
1992	344,603	96,491	15,330	608	457,032

-continued-

Table 15.-Page 2 of 2.

Year	Harvest				Total
	Commercial ^a	Subsistence ^b	Test Fishery	Sport	
1993	43,337	59,396	8,451	359	111,543
1994	271,115	72,025	11,998	1,280	356,418
1995	605,918	67,862	17,473	226	691,479
1996	207,877	88,965	2,864	280	299,986
1997	17,026	39,970	790	86	57,872
1998	207,809	63,537	1,140	291	272,777
1999	23,006	43,601	562	180	67,349
2000	11,570	51,696	1,038	26	64,330
1988-2000 Average	365,888	84,214	5,319	541	455,966
Percent Harvest	80.2%	18.5%	1.2%	0.1%	
1998-2000 Average	80,795	52,945	913	166	134,819
Percent Harvest	59.9%	39.3%	0.7%	0.1%	

a. Districts 1 and 2, only; no chum harvests reported in District 3.

b. Estimated subsistence harvest expanded from villages surveyed.

c. Composite harvest includes chum salmon and small chinook, sockeye and coho salmon.

d. Includes a small number of small sockeye salmon.

e. Beginning in 1989, subsistence estimates based on new methodology, previous estimates are not comparable.

f. Estimated based on proportion.

Table 16.-Angler harvest and catch of chum salmon in the Kanektok, Goodnews, Arolik, and other Kuskokwim Bay rivers, 1983-2000.

Year	Kanektok River		Goodnews River		Arolik River		Other Rivers		Kuskokwim Bay Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983	315		10				461		786	
1984	376						260		636	
1985	149		124				75		348	
1986	777						123		900	
1987	111						283		394	
1988	618						382		1,000	
1989	537		0				442		979	
1990	202	4,532					187	523	389	5,055
1991	80	1,382	189	527			105	393	374	2,302
1992	251	3,994	0	402			91	380	342	4,776
1993	183	4,849	156	924			129	1,135	468	6,908
1994	156	6,386	15	381			496	1,186	667	7,953
1995	213	5,049	0	315			5	82	218	5,446
1996	200	8,155	0	351			9	352	209	8,858
1997	212	11,041	24	1,111	0	43	62	517	298	12,712
1998	213	11,560	50	2,955	0	17	11	175	274	14,707
1999	293	14,241	47	7,561	0	0	0	16	340	21,818
2000	231	10,200	12	4,243	0	24	0	0	243	14,467
Average	284	7,399	48	1,877	0	21	173	433	493	5,833
1998-00										
Average	246	12,000	36	4,920	0	14	4	64	286	16,997

Table 17.-Angler harvest and catch of chum salmon in the Aniak, Kisaralik, Kwethluk and other lower Kuskokwim rivers, 1983-2000.

Year	Aniak River		Kisaralik River		Kwethluk River		Other Rivers		Lower Kuskokwim Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983							369		369	
1984							260		260	
1985							75		75	
1986							123		123	
1987							283		283	
1988							382		382	
1989	1,140						442		1,582	
1990	182	571					187	523	369	1,094
1991	169	656					105	393	274	1,049
1992	304	1,670			30	91	92	380	426	2,141
1993	101	2,412			0	2,269	129	1,135	230	5,816
1994	231	1,342	58	1,123			496	1,186	785	3,651
1995	127	2,785					5	82	132	2,867
1996	110	3,888					56	3,588	166	7,476
1997	86	2,369	0	9	0	53	0	125	86	2,556
1998	101	2,664	0	163	8	296	15	378	124	3,501
1999	139	4,055	0	456	41	176	0	22	180	4,709
2000	0	3,914	13	2,091	0	85	0	0	13	6,090
	224	2,393	14	768	13	495	168	710	326	2,275
1998-00 Average	80	3,544	4	903	16	186	5	133	106	4,767

drainage. There are similar programs in the Yukon, but on larger scale. The primary chum salmon escapement programs in the Kuskokwim are aerial surveys, Aniak Sonar, Kogrukluq weir and Bethel test fishery. There have been recent weir additions and consideration for more weir operations in the future. There is a mainstem Kuskokwim tagging project that is under development in 2002 by Commercial Fisheries staff.

Exceptionally poor runs of Kuskokwim River drainage chum salmon in 1993 and 1994 resulted in extensive restrictions in the sport and commercial fisheries. The sport harvest of chum salmon was prohibited by EO during 1993 and reduced to a bag limit to one chum salmon per day in 1994. In 1997, on July 10, an EO closed sport fishing (including catch and release) for chum salmon in the Kuskokwim drainage for the remainder of the 1997 season.

In March of 2000, the BOF created two management plans, one for salmon and one for resident fish. The Aniak Salmon Management Plan is a series of species specific regulations restricting bag / possession limits and implementing catch and release for chum and coho salmon. Chum salmon may not be possessed year-around upstream of the Buckstock River. During the period of May 1 through August 31 only one coho salmon may be harvested above the Buckstock River. However, the mechanics of implementing this management plan became complex because emergency regulations are only valid for 180 days and the change in bag / possession limits was greater than 180-day limit. With concurrence from the BOF, a permanent regulation was created with a sunset clause. This sunset clause requires the BOF to address this regulation at every three-year scheduled meeting with or without a proposal addressing this regulation. The regulation became effective on May 9 and expires on December 31, 2000. This management plan is up for review during the January 2001 BOF meeting.

Summary of 2001 Season

Poor chum salmon performance during recent years in both the Kuskokwim and Yukon rivers was the foundation for the rebuilding plan of the BOF in January 2001. The rebuilding plan goal was to meet escapement objectives and provide subsistence opportunities based on amounts necessary for subsistence (ANS) and reduced harvest potential in the sport fisheries based on abundance. Commercial opportunities were closed until escapement trends are improved.

A February news release notified the public of BOF actions and additional reductions to the sport fishery harvest potential, by reducing the bag and possession limit to one chinook or one chum salmon per day in the Kuskokwim River (Appendix A). An EO was issued May 25, 2001 to reduce the sport bag and possession limit (Appendix B). Effective June 1 the Federal Subsistence Board took additional action to restrict the uses of chinook and chum salmon to only residents of the Yukon and Kuskokwim drainages within their jurisdiction (Appendix C).

By mid June it was apparent that further restrictions were necessary to conserve chum salmon in the Yukon. The subsistence schedule was reduced further and sport fishing opportunities were closed in all tributaries of the Yukon except the Tanana River (Appendix B). In mid July the Kuskokwim chum return began to falter and restrictions were implemented, the subsistence schedule was reduced from four days to two days a week during the last two weeks of July and the sport fishery was closed for the remainder of the calendar year.

Fishery Outlook

Lower Yukon / Lower Kuskokwim/ Kuskokwim Bay

Recent trends in chum salmon production have provided limited surpluses for commercial and sport fisheries in the past ten years. The chum salmon harvests in the commercial fisheries in Kuskokwim Bay are incidental from directed fisheries at chinook, sockeye and coho salmon. Commercial harvests of Kuskokwim chum salmon in the 1990s have generally declined from harvests that occurred in the 1980s. Annual harvests have decreased by approximately 57% from the 1980s to 1990s where median harvests in the 1980s were 420,000 chum salmon; the median harvests in the 1990s were 240,000. Similar declines have been seen in both the summer and fall chum salmon runs of the Yukon River. The Yukon and Kuskokwim chum salmon runs are typically age-4 and age-5. The parent year escapements of 1997 and 1998 were considered adequate (meeting BEGs) or above average for providing chum salmon surplus for 2002. However, parent year escapements from 1993 to 1995 were considered adequate or above average in the Kuskokwim and Yukon rivers, but expected returns from these broods have not materialized. There are a myriad of climatic conditions that effect salmon survival in both freshwater and marine environments. Unfortunately, the department has little information on these weather-induced phenomenon's on juvenile salmon either in freshwater or marine environments. Poor Yukon and Kuskokwim chum salmon performance prompted the BOF to initialize conservative management plans that emphasize stock rebuilding by ensuring adequate escapements in reductions to historical harvests. Therefore the outlook for chum salmon in the Kuskokwim and Yukon rivers is below average.

Sockeye Salmon Fishery Description

Overview

Sockeye salmon are present in the Kuskokwim drainage, but are more plentiful in Kuskokwim Bay tributaries. Again sport harvests are small and minor in comparison to the commercial and subsistence harvest of the area (Table 18). Commercial fisheries of Kuskokwim Bay target sockeye salmon during late June through mid July. The average sockeye harvest in the commercial fisheries is greater than 60,000 and 40,000 fish, respectively for the Quinhagak and Goodnews districts (Burkey et al. 2001). Recreational sockeye catches in the Kanektok and Goodnews rivers are in the thousands and recently the Kanektok sport fishery has exceeded 5,000 fish in 2000. Recent annual sport harvests of sockeye salmon in these rivers have recently ranged between 100 and 1,000 fish (Table 19). Sport harvests of sockeye salmon in the Kuskokwim have rarely exceeded 200 fish with catches less than 500 sockeye a year (Table 20). Sockeye catches and harvests in the sport fisheries of Kuskokwim Bay tributaries are negligible in comparison to the commercial and subsistence harvests of sockeye salmon.

Historical Perspective and Fishery Management

The sockeye salmon stocks of the Kanektok and Goodnews rivers are the largest in the Kuskokwim area. Sockeye stocks of the Kuskokwim River are relatively small and located sporadically throughout the drainage. Most anglers venturing to western Alaska are interested in chinook and rainbow trout opportunities; however, sockeye and coho salmon opportunities have been becoming increasingly important to recreational anglers. Anglers seeking sockeye fishing opportunities in the Kanektok and Goodnews rivers focus their efforts during the month of July during the later part of the chinook salmon season. Sport harvests and effort are estimated through the SWHS reported by Mills (1983-1994), Howe et al. (1995, 1996, 2001a-d) and

Table 18.-Harvest of sockeye salmon in the commercial, subsistence, test and sport fisheries in the Kuskokwim River, 1960-2000.

Year	Harvest				Total
	Commercial ^a	Subsistence ^b	Test Fishery ^c	Sport ^d	
1960	0				0
1961	0				0
1962	0				0
1963	0				0
1964	0				0
1965	0				0
1966	0				0
1967	0				0
1968	0				0
1969	322				322
1970	117				117
1971	2,606				2,606
1972	102				102
1973	369				369
1974	136				136
1975	23				23
1976	2,971				2,971
1977	9,379				9,379
1978	733				733
1979	1,054				1,054
1980	360				360
1981	48,375				48,375
1982	33,154				33,195
1983	68,855			41	68,855
1984	48,575				48,647
1985	106,647	32,822		72	139,665
1986	95,433	18,873		196	114,523
1987	136,602	23,158		217	160,051
1988	92,025	30,775 ^e		291	122,833
1989	42,747	35,224		33	78,052
1990	84,870	36,276		61	121,184
1991	108,946	52,984		38	162,061
1992	92,218	32,066		131	124,632

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Table 18.-Page 2 of 2.

Year	Harvest				Total
	Commercial ^a	Subsistence ^b	Test Fishery ^c	Sport ^d	
1993	27,008	49,348		348	76,715
1994	49,365	37,159		359	86,619
1995	92,500	27,791		95	120,606
1996	33,878	34,213		315	68,220
1997	21,989	40,097		423	62,509
1998	60,906	35,425		178	96,509
1999	16,976	46,677		54	63,707
2000	4,130	41,783		46	45,913
<hr/>					
1988-2000					
Average	55,966	38,449		182	94,597
Percent Harvest	59.2%	40.7%		0.2%	
<hr/>					
1998-2000					
Average	27,337	41,295		56	68,669
Percent Harvest	39.8%	60.1%		0.1%	

a. District 1 and 2; includes harvest in District 3 from 1960 and 1965.

b. Estimated subsistence harvest expanded from villages surveyed.

c. Test fishery sockeye harvests not available.

d. Statewide Harvest Survey (1977-2001).

e. Beginning in 1988, subsistence estimates are based on new methodology, previous estimates are not comparable.

Table 19.-Angler harvest and catch of sockeye salmon in the Kanektok, Goodnews, Arolik, and other Kuskokwim Bay rivers, 1983-2000.

Year	Kanektok River		Goodnews River		Arolik River		Other Rivers		Kuskokwim Bay Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983	0		14				247		261	
1984	143						156		299	
1985	12		75				62		149	
1986	200		122				98		420	
1987	153		266				0		419	
1988	109						637		746	
1989	101		146				22		269	
1990	462	3,293					73	97	535	3,390
1991	88	1,147	63	2,003			25	126	176	3,276
1992	66	1,290	8	90			57	246	131	1,626
1993	331	1,887	53	321			260	1,296	644	3,504
1994	313	3,622	70	207			494	530	877	4,359
1995	148	733	34	380			42	64	224	1,177
1996	335	2,157	87	1,119			120	186	542	3,462
1997	607	2,155	61	1,625			10	248	678	4,028
1998	942	3,987	502	3,402			60	148	1,504	7,537
1999	496	4,537	561	1,999			0	278	1,057	6,814
2000	694	5,700	82	997			11	11	787	6,708
Average	289	2,773	143	1,214			132	294	540	2,549
1998-00 Average	711	4,741	382	2,133			24	146	1,116	7,020

Table 20.-Angler harvest and catch of sockeye salmon in the Aniak, Kisaralik, Kwethluk and other lower Kuskokwim rivers, 1983-2000.

Year	Aniak River		Kisaralik River		Kwethluk River		Other Rivers		Lower Kuskokwim Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983										
1984										
1985										
1986										
1987										
1988										
1989	22								22	
1990	49	182							49	182
1991	38	151							38	151
1992	25	74			0	58			25	132
1993	17	79			19	19			36	98
1994	17	87	0	452					17	539
1995	43	166					10	21	53	187
1996	186	367							186	367
1997	391	353							391	353
1998	195	367							195	367
1999	21	407							21	407
2000	23	286	0	117				12	23	415
Average	86	229	0	285	10	39	10	17	59	178
1998-00										
Average	80	353	0	117	0	0	0	0	80	396

Walker et al. (*In prep.*). Commercial and subsistence harvests are managed by the Commercial Fisheries Division located in Bethel and are reported in their Annual Management Report series (Burkey et al. 1997-2000).

Sockeye management of Kuskokwim Bay is outlined under the District 4 Salmon Management Plan (5 AAC 2000L), sockeye management in Goodnews Bay, district 5 follows a similar regulation pattern, although there is no formal management plan (Burkey et al. 2001). Escapement based management has been challenging in Kuskokwim Bay. In the past, escapements have been evaluated by aerial surveys, however, multiple salmon species and frequent poor survey conditions has made documenting salmon escapements difficult. Seeking different methods of assessing salmon escapements has not been an easy task, within the Kanektok, towers and sonar have been attempted, but water conditions, technical support staff and budgetary constraints have limited salmon enumeration effectiveness. However, a weir using resistance board design has had some promising results with changing the weir location to a site with a stable substrate. Unfortunately, the Kanektok River weir site is 42 miles upstream from the mouth and the commercial fishery. If this weir site is functional, additional assessment will need to be done to evaluate the escapement spawning downstream of the weir. The Goodnews River weir is located 15 miles upstream of the mouth and commercial fishery on the middle fork and represents an index of salmon escapement. Additional salmon assessment has been conducted to evaluate the contribution of salmon escapement in the mainstem of the Goodnews River in relation to index counts from the weir (Menard 1998 and 1999). Salmon escapement objectives for the Goodnews River have been established in 1992 (Buklis 1993): 3,500 chinook; 25,000 sockeye; 15,000 chum and 17,000 coho salmon by aerial survey. Salmon escapement objectives for the Kanektok River are slightly larger: 5,800 chinook; 15,000 sockeye; 30,500 chum and 25,000 coho salmon by aerial survey. Successful aerial surveys counting salmon escapement in the Kanektok River have been dismal for the last seven years, very few surveys were conducted during peak spawning, this has made escapement based management problematic. However, commercial fisheries management has followed a simple fishing schedule based on historic mean CPUE and this has worked to provide sustained yields so far. The declining profitability of commercial fishing in the area has aided to the conservative harvests in the Quinhagak district.

Summary of 2001 Season

Anglers reported good catches of sockeye salmon in both the Kanektok and Goodnews rivers during the month of July. Fishing was hampered by extended periods of rainfall, making recreational fishing difficult during periods of participation. Commercial harvests were below the ten-year average for sockeye salmon (63,000 and 40,000, respectively) in both Quinhagak and Goodnews Bay districts. The Quinhagak harvest was less than 35,000 sockeye and less than 30,000 sockeye for Goodnews Bay. Commercial effort during 2001 declined because of poor salmon market conditions and the availability of other employment. The escapement of Goodnews River sockeye salmon fell short of the 25,000 sockeye goal with a escapement shy of 22,500 fish.

In the Kuskokwim, subsistence fisherman commented on the abundance and large size of sockeye salmon during early July.

Fishery Outlook

Lower Kuskokwim and Kuskokwim Bay

The department's ability to forecast salmon returns is very limited. The parent escapement records that will produce the 2002 run were above the escapement objectives in 1997, 1998 and 1999. It is assumed that above average escapements will provide average to above average sockeye returns to Kuskokwim Bay.

RESIDENT SPECIES FISHERIES

Rainbow Trout Fishery Description

Overview

Rainbow trout of the LYLK are found only in the lower Kuskokwim River tributaries and tributaries of Kuskokwim Bay. These stocks of rainbow trout are at the northern range of their distribution. Many of these rainbow trout stocks in the Kuskokwim area are small, slow growing, mature at older age and are not particularly abundant. With any population on the edge of its distribution, it is more sensitive to changes in climatic changes and food availability. The Southwest Alaska Rainbow Trout Management Plan recognizes these factors and provides policy for conservative management and maintenance of rainbow trout stocks in the lower Kuskokwim River and Kuskokwim Bay.

Rainbow trout stocks of the Kanektok River are considered "world class" with recent annual catch rates exceeding more than 20,000 rainbow trout in 1997. Rainbow trout catch rates from the Kanektok River rival those of the premier rainbow trout stocks of Alagnak and Copper rivers of Bristol Bay and the trophy rainbow trout area on the Kenai River, between Kenai and Skilak lakes. With catch rates in excess of 20,000 rainbow trout, the Kanektok River is the largest rainbow trout fishery in the Kuskokwim Bay and lower Kuskokwim River. The rainbow trout fisheries in the Aniak and Goodnews rivers are the next largest rainbow trout fisheries in this area. These three fisheries are the primary interest of the angling public; angling services have increased in recent years as each of these streams gains increased popularity.

Historical Perspective and Fishery Management

Interest in rainbow trout fishing opportunities has increased in the Kuskokwim area. Anglers seeking rainbow trout and salmon fishing opportunities in a remote Alaska setting continue to focus on western Alaska streams. Angler effort in the Kuskokwim area has increased as services become more readily available.

Angler effort in all sport fisheries of the Kanektok River has seen rapid increase from 1,500 angler days in 1983 to over 12,000 angler days in 1997 (Table 3). In recent years angler effort has remained steady with approximately 8,000 angler days in the Kanektok, and the Goodnews River has approached the 8,000-angler day level during 1999, but effort has dropped to half of this in 2000. Angler effort in the Aniak sport fisheries has been above 5,500 during 1997 and 1998, again a decline in effort occurred in 2000 with effort dropping to 2,000 angler days. Angler effort is directed towards chinook and coho salmon but rainbow trout is an important attraction. It is the author's opinion that the resulting effort declines are from the transition of local people utilizing the subsistence rod and reel regulations and recent salmon declines.

Total area-wide rainbow trout harvest have rarely exceeded 1,500 fish on a given year, and the recent three-year average is less than 400 rainbow trout (Tables 21 and 22). Several on-site creel

Table 21.-Angler harvest and catch of rainbow trout in the Kanektok, Goodnews, Arolik, and other Kuskokwim Bay rivers, 1983-2000.

Year	Kanektok River		Goodnews River		Arolik River		Other Rivers		Kuskokwim Bay Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983	640		52				467		1,159	
1984	312						552		864	
1985	156		451				26		633	
1986	259						111		370	
1987	132						230		362	
1988	400						599		999	
1989	126		316				107		549	
1990	281	7,810					79	1,205	360	9,015
1991	182	5,856	258	2,776			129	517	569	9,149
1992	55	1,496	0	1,282			123	835	178	3,613
1993	130	4,106	145	3,994			71	1,535	346	9,635
1994	59	4,779	19	945			45	326	123	6,050
1995	198	3,046	43	1,263			10	1,324	251	5,633
1996	138	6,833	36	1,581			0	914	174	9,328
1997	231	27,325	433	9,653	43	1,798	25	525	732	39,301
1998	0	13,567	97	5,738	0	631	8	877	105	20,813
1999	73	11,151	133	5,926	0	2,070	12	159	218	19,306
2000	0	6,019	0	2,446	0	24	11	110	11	8,599
Average	187	8,363	153	3,560	11	1,131	145	757	445	7,802
1998-00 Average	24	10,246	77	4,703	0	908	10	382	111	16,239

Table 22.-Angler harvest and catch of rainbow trout in the Aniak, Kisaralik, Kwethluk and other lower Kuskokwim rivers, 1983-2000.

Year	Aniak River		Kisaralik River		Kwethluk River		Other Rivers		Lower Kuskokwim Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983							467		467	
1984							552		552	
1985							26		26	
1986							111		111	
1987							230		230	
1988							600		600	
1989	101						107		208	
1990	35	2,216					79	1,205	114	3,421
1991	76	1,881					129	517	205	2,398
1992	32	934			71	158	123	835	226	1,927
1993	10	1,144			58	333	72	1,535	140	3,012
1994	8	656	124	1,226			45	326	177	2,208
1995	0	1,581					9	1,234	9	2,815
1996	24	3,347					357	3,329	381	6,676
1997	53	12,293	218	7,060	227	334	24	2,040	522	21,727
1998	349	5,004	0	1,289	69	980	23	2,242	441	9,515
1999	175	4,659	0	1,877	117	269	12	143	304	6,948
2000	24	4,643	47	3,076	24	1,054	0	0	95	8,773
Average	74	3,487	78	2,906	94	521	165	1,219	267	3,857
1998-00 Average	183	4,769	16	2,081	70	768	12	795	280	8,412

surveys in the Kanektok and Aniak rivers have been done to verify catch, harvest and angler effort (Lafferty and Bingham *In prep.*; Adams 1996; Dunaway 1997; Dunaway and Feischman 1995; Dunaway and Bingham 1992; Wanger 1991; Minard 1990; Minard and Brookover 1988; Minard 1987; Alt 1986). These studies main focus was on the sport fisheries where the rainbow trout fisheries were a part of the study except the study by Wanger (1991). Wanger attempted to estimate rainbow trout using a mark-recapture experiment, although several of the assumptions were invalid and a biased population estimate of 15,000 to 20,000 rainbow trout was obtained for a 32-kilometer study section. Expanding this information to a drainage wide estimate, the abundance of Kanektok rainbow trout was estimated to be in the range of 40,000 to 80,000 fish in 1986 and 1987. Another tagging study on the Kisaralik River rainbow trout in 1997 by the U.S. Fish and Wildlife Service estimated the rainbow trout population to be in excess of 16,000 rainbow trout in a 79-km study section (Harper, U.S. Fish and Wildlife Service, personal communication). The rainbow trout density estimates range from 200-rainbow trout/km in the Kisaralik River to 650-rainbow trout/km in the Kanektok River. Although these mark-recapture experiments were flawed because of the egress and migration of tagged fish within the study site, the density estimates are a rough approximation of density magnitude and provides confidence that existing catches by SWHS are sustainable and area rainbow trout stocks continue to be conservatively managed under the Southwest Alaska Rainbow Trout Management Plan.

Sport fishing effort, catch and harvest are estimated by the SWHS (Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. *In prep.*). In the past, subsistence harvest surveys have focused on salmon in the LYLK, but in 2000 the Subsistence Division began to estimate resident fish harvests, including rainbow trout on a community basis. Commercial Fisheries Division manages all of the subsistence fisheries.

Rainbow Trout Regulation Development in the Kanektok River

In 1969, the fishing season was open year around and daily bag limit of 15 fish (including rainbow trout) of which not more than 3 could exceed 20 inches in length.

In 1985, the rainbow trout bag limit was reduced to 2 per day, with no size limit.

In 1990, single-hook artificial lures required upstream of the Togiak National Wildlife Refuge boundary. Sport fishing was prohibited within 300 feet of legally set subsistence gillnet.

In 1998, the entire river was restricted to unbaited artificial lures the entire year. During the period of June 8 through October 31, catch and release for rainbow trout. From November 1 through June 7 daily bag and possession limit of 2 rainbow trout, with only one over 20 inches.

Rainbow Trout Regulation Development in the Lower Kuskokwim River Tributaries

During the mid 1980s bag limits were adopted in the Kuskokwim area to eliminate excessive harvests. Bag limits at this time were very liberal providing opportunity for local people to meet their subsistence needs.

During the February 1990 BOF meeting, the Board adopted regulations implementing a comprehensive management plan for rainbow trout in Southwest Alaska (ADF&G 1990). The plan provides guidance in the form of policy that gives the Board and the public clear understanding of the underlying principles by which rainbow stocks are to be managed and provides guidance to the board in developing future regulations.

This management plan has three primary aspects:

1. Native rainbow trout populations will be managed to maintain historic size and age composition and at stock levels sufficient such that enhancement (or stocking) is not needed to supplement wild populations;
2. A diversity of sport fishing opportunities for wild trout should be provided through establishment of special management areas by regulation (5 AAC 2000n). Selection of areas for special management will be based on criteria to be adopted by the BOF. Selection criteria is inclusive of the following: stock status, history of special management, proximity to local community, legal access, overlap with freshwater net fisheries, abundance and size of rainbow trout, water characteristics, clear geographical boundaries, importance of the rainbow trout fishery to sport fishing industry, geographical distribution of special management; and,
3. Management strategies should be consistent with prudent economical development of the state's recreational sport fishing industry while at the same time acknowledge the intrinsic value of this fishery resources to the people of Alaska.

Implementation of this plan:

- Expanded the Wild Trout Zone from the Iliamna drainage to include the drainages of Bristol Bay, Kuskokwim Bay and lower Kuskokwim River including the Aniak River drainage;
- Establish eight catch-release areas;
- Establish six fly-fishing catch-and-release only areas; and,
- Establish eleven unbaited single hook artificial lure only areas to protect rainbow trout stocks in Southwest Alaska.

In 1990, the Aniak River drainage (Figure 5) was effected by the designation of a catch and release special management area with unbaited single hook artificial lure restrictions above its confluence with the Doestock River to protect rainbow trout.

Aniak River

- Upstream of the Doestock Creek (at approximately river mile 12) only unbaited, single-hook artificial lures may be used. No retention of rainbow trout.
- Downstream of the Doestock Creek, two rainbow trout a day, with only 1 over 20 inches.

During 1997, upper sections of the Kisaralik, Kasigluk and Kwethluk rivers were recognized as special rainbow trout waters following the Southwest Rainbow Trout Management Plan. Single hook artificial lures only with a restricted bag limit to one fish less than 14 inches in a majority of the drainage.

Detailed rainbow trout regulations:

Kisaralik River

- Upstream of Akiak Village Lodge Site (at approximately river mile 12) only unbaited, single –hook artificial lures may be used. No retention of rainbow trout.



Figure 5.-Aniak River drainage.

- Downstream of the Akiak Village Lodge Site (at approximately river mile 12) two rainbow trout a day, with only 1 over 20 inches.

Kasigluk River

- In all flowing waters, only unbaited, single-hook artificial lures may be used.

Kwethluk River

- In all flowing waters upstream of the confluence of the Kwethluk River and Pocahontas Creek (at approximately river mile 25) only unbaited, single-hook artificial lures may be used. The bag and possession limit is 1 fish, 14 inches or less in length.

During the 2000 March BOF meeting, a subsistence rod and reel provision was accepted in the AVCP region of the Yukon–Kuskokwim Delta area. Acceptance of this rod and reel subsistence provision actually made all sport fishing regulations in the in AVCP region only effective for nonresident anglers. Since all Alaskan residents are considered subsistence users under state statutes and there were no bag or possession limits for subsistence users utilizing rod and reel, any Alaskan resident in the AVCP region could harvest any number of fish without restrictions. The only exception is the Aniak River; the Central Kuskokwim Advisory Committee recognized that any Alaskan resident may participate in state subsistence fisheries. Therefore, the Central Kuskokwim Advisory Committee felt that the same restrictions in the sport fishery for salmon and resident fish species should apply to all users. So a temporary Aniak River Subsistence Management Plan was created and the regulations mirrored the sport fishing regulations. The first subsistence catch and release fishery was created in the Aniak River. This temporary plan had a sunset clause for one year; the BOF addressed this plan during the January 2001 meeting.

The subsistence rod and reel regulation is in conflict with the Southwest Alaska Rainbow Trout Management Plan, except in the Aniak River. The BOF, ADF&G, and members of the public have invested considerable amounts of staff time developing a Southwest Alaska Rainbow Trout Management Plan that included stocks from the Kuskokwim Area. The only rainbow trout stock that is protected from unlimited harvests is the Aniak River stock during the months of June, July and August (5 AAC 2000p).

During the 2001 January BOF meeting additional regulations were enacted to protect lower Kuskokwim rainbow trout in the sport fishery. Catch and release regulations are in effect for the entire Aniak River drainage sport fishery, gear restrictions remain in effect upstream of Doestock Creek. The lower Kuskokwim tributaries of the Kisaralik, Kasigluk and Kwethluk rivers have consistent rainbow trout regulations, below a certain point in each drainage the bag and possession limit was reduced from two a day, with only one over 20 inches in length to one a day less than 14 inches in length, to protect mature spawning fishing in the lower reaches of these three streams.

Summary of 2001 Season

A late spring with high water conditions hampered early fishing opportunities in the lower Kuskokwim and Kuskokwim Bay streams. These conditions subsided during late June; high levels of precipitation during July again reduce fishing conditions. Recreational fishing is difficult during high water conditions, many anglers focused in the headwaters or secondary tributaries. Additionally, the federal action during June and July affected the selection of the lower Kuskokwim streams as fishing designation for anglers seeking fishing opportunities for both rainbow trout and chinook salmon.

Fishery Outlook

The rainbow trout stocks of the Kuskokwim area are well protected from non-resident anglers. High catch rates and low harvest rates are strong indicators of healthy fish populations. The outlook for rainbow trout stocks in the Kuskokwim area is good as long as the BOF in the short term recognizes the conflict between the Southwest Alaska Rainbow Trout Management Plan and subsistence rod and reel regulations. Resident fish populations rebuild slowly, with increasing probability of salmon restrictions in the Kuskokwim area; local people are going to rely on resident fish to help meet their subsistence needs. There is potential for abuse in the subsistence rod and reel fishery without bag and possession limits for this highly valued resource.

However, Governor Tony Knowles has initiated a wild/steelhead trout initiative in October of 2001. This initiative focus on providing:

- Adequate water for rainbow trout movement, rearing and spawning;
- Protecting critical habitat and water quality;
- Adequate food supplies (e.g. insects, salmon spawn/flesh and stream organisms);
- Gear that reduces injury and mortality (e.g. hooks are single and barbless);
- Secure fund for agencies through establishing a wild trout stamp; and,
- Establish catch and release, single hook artificial lure only regulations as a default for directed rainbow trout fisheries statewide with allowances for traditional and customary harvests and other special management options (fly-fishing only waters).

This initiative may provide the vehicle to address the conflict between the existing Southwest Rainbow Trout Management Plan and the current subsistence rod and reel regulations within the BOF cycle in 2004.

There are currently no major biological concerns for rainbow trout fisheries in the LYLK. Area stocks should continue to provide good angling opportunities for the 2002 season.

Dolly Varden/Arctic Char Fishery Description

Overview

Dolly Varden / Arctic char, hereon referred to as DV/AC, of the LYLK are found throughout the region. The distribution of both Dolly Varden and Arctic char overlap in this area of Alaska and there is little information to differentiate between the species, therefore they are treated as a composite. In general, populations of Dolly Varden are known to be both anadromous and strictly freshwater residents. Arctic char are scattered in many lakes across Alaska. The distributions and external characteristics of these species make identification a challenge.

Anglers focusing on DV/AC target mainly the clear water tributaries and lakes of the area. Within the LYLK, the largest catches of DV/AC occur in the tributaries of Kuskokwim Bay and the Aniak River. Many of the DV/AC are caught incidentally while anglers are fishing for salmon and rainbow trout. The regulations in place to protect rainbow trout also protect other resident fish species such as DV/AC. With catches generally exceeding 20,000 DV/AC, the Kanektok River is the largest fishery in the Kuskokwim Bay and lower Kuskokwim River (Table 23). Goodnews and Aniak river DV/AC fisheries are the next largest sport fisheries in the area (Tables 23 and 24). These three fisheries are of primary interest to the angling public;

Table 23.-Angler harvest and catch of Dolly Varden / Arctic char in the Kanektok, Goodnews, Arolik, and other Kuskokwim Bay rivers, 1983-2000.

Year	Kanektok Rivers		Goodnews River		Arolik River		Other Rivers		Kuskokwim Bay Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983	1,406		147				1,583		3,136	
1984	1,116						384		1,500	
1985	815		780				261		1,856	
1986	1,213						195		1,408	
1987	752						704		1,456	
1988	2,146						1,082		3,228	
1989	2,032		530				635		3,197	
1990	1,020	10,572					80	1,013	1,100	11,585
1991	389	10,757	605	9,936			361	2,629	1,355	23,322
1992	66	3,990	82	5,694			233	1,286	381	10,970
1993	378	10,136	343	8,156			206	3,917	927	22,209
1994	233	9,242	132	3,538			197	677	562	13,457
1995	212	6,231	158	2,336			95	1,110	465	9,677
1996	474	13,954	240	4,352			118	1,223	832	19,529
1997	789	41,748	1,071	23,498	21	685	14	1,570	1,895	67,501
1998	368	24,287	460	16,680	0	643	0	25	828	41,635
1999	615	21,700	917	18,174	33	3,248	34	811	1,599	43,933
2000	417	13,490	658	11,422	0	0	12	424	1,087	25,336
Average	802	15,101	471	10,379	14	1,144	344	1,335	1,490	16,064
1998-00										
Average	467	19,826	678	15,425	11	1,297	15	420	1,171	36,968

Table 24.-Angler harvest and catch of Dolly Varden / Arctic char in the Aniak, Kisaralik, Kwethluk and other lower Kuskokwim rivers, 1983-2000.

Year	Aniak River		Kisaralik River		Kwethluk River		Other Rivers		Lower Kuskokwim Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983							1,583		1,583	
1984							384		384	
1985							261		261	
1986							196		196	
1987							704		704	
1988							1,082		1,082	
1989	808						635		1,443	
1990	598	6,174					81	1,013	679	7,187
1991	547	3,514					360	2,629	907	6,143
1992	115	3,736			57	57	233	1,286	405	5,079
1993	260	9,340			97	349	206	3,917	563	13,606
1994	496	3,115	117	1,013			197	677	810	4,805
1995	481	3,454					95	1,110	576	4,564
1996	159	4,883					642	3,367	801	8,250
1997	316	12,066	413	4,708	243	243	14	1,189	986	18,206
1998	394	21,053	92	599	14	188	102	1,595	602	23,435
1999	114	5,909	181	3,875	0	44	34	342	329	10,170
2000	40	5,333	367	3,664	47	95	0	36	454	9,128
Average	361	7,143	234	2,772	76	163	378	1,560	709	6,143
1998-00										
Average	183	10,765	213	2,713	20	109	45	658	462	14,244

angling services have increased in recent years as each of these streams gains increasing popularity. Local residents seek DV/AC when salmon are not available as a fresh source of fish. Stock sizes of DV/AC in the LYLK remain unknown.

Historical Perspective and Fishery Management

Sport fishing effort, catch and harvest are estimated by the SWHS, estimates from the annual report are reviewed to ensure that sport harvests remain with sustainable yields. Sport fishing regulations are developed to match effort and harvest within sustainable bounds. Current regulations and harvests appear to be within sustainable levels for DV/AC of the LYLK. High catches with low harvests are good indications of healthy fish stocks. Additionally, the low harvest rates are not an indicator of depressed fish stocks but of an under utilized resource. Declining sport harvests of DV/AC from the early 1980s to the 1990s can be attributed to the additional protection from the Southwest Alaska Rainbow Trout Management Plan and changing attitudes of anglers regarding the harvest of DV/AC (Tables 23 and 24).

The current bag and possession limit for DV/AC are slightly different between the Yukon, Kuskokwim Bay and the lower Kuskokwim.

Yukon River

Daily bag and possession limit in flowing and saltwater is 10, with only 2 over 20 inches. In all lakes 2 a day with no size limit.

Kuskokwim Bay

Daily bag and possession limit in all flowing waters is 3, no size limit. In all lakes 2 a day with no size limit.

Lower Kuskokwim River

Daily bag and possession limit for DV/AC in all flowing waters, with the exception of the Aniak River, is 5, with only one over 20 inches. The daily bag and possession limits are more conservative in all lakes at 2 per day with no size limit.

In March of 2000, the BOF created a temporary management plan for the resident species in Aniak River. This plan is a series of species specific regulations restricting bag / possession limits and implementing catch and release utilizing time and area for grayling, DV/AC, pike, lake trout, sheefish, and whitefish. During the period of June 1 through August 31 all resident fish species caught above Doestock Creek must be released. Sport fishing regulations in the Aniak River downstream of Doestock Creek; follow the special Kuskokwim River regulations. This temporary plan had a sunset clause for one year; the BOF addressed this plan during the January 2001 meeting.

The only management action effecting DV/CA during the January 2001 BOF Meeting occurred in the Aniak River with the establishment of aggregate bag limit for resident fish species for both subsistence (5 AAC 2000p) and sport (5 AAC 2000q) anglers. A three (3) resident fish species limit was enacted for subsistence anglers during June, July and August. Sport anglers were restricted to an aggregate three (3) resident fish limit, but only allowing one fish of the following species: DV/AC, grayling, lake trout, sheefish, pike and burbot in any combination.

Summary of the 2001 Season

There were no anglers reporting problems locating DV/AC during 2001 in the LYLK, expect for poor fishing conditions attributed to the late spring and high rainfall during July. The lack of bag and possession limits for the subsistence rod and reel fishery is of concern to managers of resident fish species. Although no abuses were reported there is concern on how healthy resident fish stocks can be maintained with sustainable bounds with unrestricted harvests and no real stock specific harvest monitoring system in place.

Fishery Outlook

The DV/AC stocks of the Kuskokwim area are well protected from non-resident anglers. High catches rates and low harvest rates are strong indicators of healthy fish populations. The outlook for DV/AC and other resident fish species in the Kuskokwim area is good as long as the BOF in the short term recognizes that the department has invested substantial effort in regulation development to protect resident fish species in the past. Current rod and reel subsistence regulations with no bag or possession limits have potential for abuse and over exploitation with limited harvest monitoring in the subsistence fisheries. Resident fish populations require extensive periods to rebuild to provide sustainable yields once over exploitation has been documented and regulatory protection enacted. With increasing probability of salmon restrictions in the Kuskokwim area, local people are going to rely on resident fish to help meet their subsistence needs. The BOF and department need to pay close attention to subsistence harvests of resident fish.

There are currently no major biological concerns for DV/AC fisheries in the LYLK. Area stocks should continue to provide good angling opportunities for the 2002 season.

Arctic Grayling Fishery Description

Overview

Arctic grayling are probably the most widely distributed and abundant resident fish in the LYLK. Grayling are found throughout many lakes, streams and clear water tributaries of the area. Non-resident anglers access most of the area via float trips on the many of the clear water tributaries. Although the grayling stocks are perceived to be large, anglers often catch grayling while targeting salmon and rainbow trout. Current rainbow trout regulations provide additional protection to other fish species with gear and hook restrictions in local tributaries. Recent grayling harvests in the LYLK are less than 800 fish, this is a decrease of 1,000 grayling from the historic average (Tables 25 and 26). Recent sport catches are approximately 22,000 grayling, a doubling of the 10,000 historic average. The Aniak River is the largest grayling fishery in the area, with the Kanektok and Kisaralik fisheries the next largest sport fisheries. Stock sizes of grayling in the LYLK remain unknown.

Historical Perspective and Fishery Management

Sport fishing effort, catch and harvest are estimated by the SWHS, estimates from the annual report are reviewed to ensure that sport harvests remain within sustainable bounds. The focus of sport fishing regulations development is to enhance opportunity and maintain harvest within sustainable bounds. Current regulations and harvests appear to be within sustainable levels for Arctic grayling of the LYLK. High catch rates with low harvest rates indicate healthy fish stocks. Additionally, the low harvest rates are not an indicator of depressed fish stocks but an under utilized resource. The declining harvest rates of grayling from the early 1980s to the

Table 25.-Angler harvest and catch of Arctic grayling in the Kanektok, Goodnews, Arolik, and other Kuskokwim Bay rivers, 1983-2000.

Year	Kanektok River		Goodnews River		Arolik River		Other Rivers		Kuskokwim Bay Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983	231		178				4,343		4,752	
1984	169						1,033		1,202	
1985	87		416				694		1,197	
1986	213						513		726	
1987	244						1,124		1,368	
1988	164						1,593		1,757	
1989	58		198				875		1,131	
1990	123	3,940					398	2,296	521	6,236
1991	54	3,092	122	461			671	3,295	847	6,848
1992	23	391	0	609			163	2,278	186	3,278
1993	25	2,727	17	851			181	3,636	223	7,214
1994	0	1,599	0	1,813			332	1,674	332	5,086
1995	0	1,128	14	412			167	1,952	181	3,492
1996	0	2,960	47	941			66	2,702	113	6,603
1997	99	5,335	74	2,706	0	180	88	1,703	261	9,924
1998	33	5,576	28	3,126	0	221	105	1,365	166	10,288
1999	159	4,218	84	2,544	0	447	194	1,191	437	8,400
2000	25	3,632	0	1,726	0	0	0	86	25	5,444
Average	95	3,145	91	1,519	0	212	697	2,016	857	4,045
1998-00 Average	72	4,475	37	2,465	0	223	100	881	209	8,044

Table 26.-Angler harvest and catch of Arctic grayling in the Aniak, Kisaralik, Kwethluk and other lower Kuskokwim rivers, 1983-2000.

Year	Aniak River		Kisaralik River		Kwethluk River		Other Rivers		Lower Kuskokwim Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983							4,343		4,343	
1984							1,033		1,033	
1985							694		694	
1986							513		513	
1987							1,124		1,124	
1988							1,593		1,593	
1989	909						875		1,784	
1990	422	5,259					398	2,296	820	7,555
1991	1,085	4,841					671	3,295	1,756	8,136
1992	121	3,855			75	120	163	2,278	359	6,253
1993	288	5,580			47	166	181	3,636	516	9,382
1994	116	2,022	69	1,920			333	1,674	518	5,616
1995	53	2,266					167	1,952	220	4,218
1996	103	5,102					158	2,711	261	7,813
1997	162	15,089	303	3,746	256	499	20	984	741	20,318
1998	715	11,930	64	984	8	1,408	90	1,333	877	15,655
1999	437	8,659	63	3,641	0	226	211	609	711	13,135
2000	42	5,950	29	3,605	38	995	0	946	109	11,496
Average	371	6,414	106	2,779	71	569	698	1,974	998	6,088
1998-00										
Average	398	8,846	52	2,743	15	876	100	963	566	13,429

1990s can be attributed to the additional protection of the Southwest Alaska Rainbow Trout Management Plan and changing attitudes of anglers regarding the harvest of grayling (Tables 25 and 26).

In March of 2000, the BOF created a temporary management plan for the resident species in Aniak River. This plan is a series of species specific subsistence and sport fishing regulations restricting bag / possession limits and implementing catch and release utilizing time and area for grayling, Dolly Varden/Arctic char, pike, lake trout, sheefish, and whitefish. During the period of June 1 through August 31 all resident fish species caught above Doestock Creek must be released. Sport fishing regulations in the Aniak River downstream of Doestock Creek; follow the special Kuskokwim River regulations. This temporary plan had a sunset clause for one year; the BOF addressed this plan during the January 2001 meeting.

During the 2001 January BOF meeting, both the subsistence (5 AAC 2000p) and sport fishing bag and possession limits for resident fish (5 AAC 2000q) in the Aniak River were enacted with the establishment of an aggregate bag limit. A three (3) resident fish species limit was enacted for subsistence anglers during June, July and August. Sport anglers were restricted to an aggregate three (3) resident fish limit, but only allowing one fish of the following species: DV/AC, grayling, lake trout, sheefish, pike and burbot in any combination.

Summary of the 2001 Season

There were no anglers reporting problems of locating grayling during 2001 in the LYLK, expect for poor fishing conditions attributed to the late spring and high rainfall during July. The lack of bag and possession limits for the subsistence rod and reel fishery is of concern to managers of resident fish species. Although no abuses were reported there is concern on how healthy resident fish stocks can be maintained with sustainable bounds with unrestricted harvests and no real stock specific harvest monitoring system in place.

Fishery Outlook

The grayling stocks of the Kuskokwim area are well protected from non-resident anglers. High catches rates and low harvest rates are strong indicators of healthy fish populations. The outlook for grayling and other resident fish species in the Kuskokwim area is good as long as the BOF in the short term recognizes that the department has invested substantial effort in regulation development to protect resident fish species in the past. Current rod and reel subsistence regulations with no bag or possession limits have potential for abuse and over exploitation with limited harvest monitoring in the subsistence fisheries. Resident fish populations require extensive periods to rebuild to provide sustainable yields once over exploitation has been documented and regulatory protection enacted. With increasing probability of salmon restrictions in the Kuskokwim area, local people are going to rely on resident fish to help meet their subsistence needs. The BOF and department need to pay close attention to subsistence harvests of resident fish.

There are currently no major biological concerns for grayling fisheries in the LYLK. Area stocks should continue to provide good angling opportunities for the 2002 season.

Northern Pike Fishery Description Overview

Most northern pike are harvested in lakes, streams and tributaries of within the LYLK. Very few pike (less than 50) are being recorded through SWHS in the Kuskowim Bay area (Table 27).

Table 27.-Angler harvest and catch of Northern pike in the Aniak, Kisaralik, Kwethluk and other lower Kuskokwim rivers, 1983-2000.

Year	Aniak River		Kisaralik River		Kwethluk River		Other Rivers		Lower Kuskokwim Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983							6,420		6,420	
1984							1,520		1,520	
1985							1,595		1,595	
1986							856		856	
1987							878		878	
1988							4,019		4,019	
1989	70						3,383		3,453	
1990	18	53					213	2,376	231	2,429
1991	244	1,448					1,774	3,173	2,018	4,621
1992	43	794			60	231	504	1,956	607	2,981
1993	0	45			329	526	666	3,094	995	3,665
1994	54	698	0	18			565	2,694	619	3,410
1995	77	623					164	1,423	241	2,046
1996	10	399					176	1,950	186	2,349
1997	42	303	21	119	0	206	99	270	162	898
1998	553	1,883	67	67	18	247	85	241	723	2,438
1999	94	674	0	27	0	0	66	189	160	890
2000	0	298	11	55	0	153	296	557	307	1,063
Average	100	656	20	57	68	227	1,293	1,629	1,388	1,488
1998-00										
Average	216	952	26	50	6	133	149	329	397	1,464

The largest pike sport fishery occurs in the Aniak River. Local anglers seek pike when salmon are not available as a fresh source of fish, mostly during the winter months. Local subsistence fishermen will travel long distances by snow machine to fish for pike in the adjacent lower Yukon, within the Innoko River drainage. Most of the local Bethel subsistence effort is focused during the winter at the mouth of the Johnson River. Localized depletion is evident from repeated comments of only small “hammer handle” pike in the subsistence harvest. Stock sizes of pike in the LYLK remain unknown.

Historical Perspective and Fishery Management

Sport fishing effort, catch and harvest are estimated by the SWHS, estimates from the annual report are reviewed to ensure that sport harvests remain within sustainable bounds. The focus of sport fishing regulations development is to enhance opportunity and maintain harvest within sustainable bounds. Current regulations and harvests appear to be within sustainable levels for northern pike of the LYLK. High catch rates with low harvest rates indicate healthy fish stocks. Additionally, the low harvest rates are not an indicator of depressed fish stocks but an under utilized resource (Table 27).

Annual sport harvests of pike have decreased from the 1980s to the 1990s (Table 27). The reasons for these declines in harvests are unknown, but angler attitudes towards harvesting pike have may have changed in the 1990s or these harvest statistics may be truly representing only sport fishing harvest and not subsistence harvests of pike in the lower Kuskokwim area.

The current bag and possession limit for pike are slightly different between the Yukon and Kuskokwim rivers. The Yukon River pike daily bag and possession limit is 10, with no size limit. The Kuskokwim River pike daily bag and possession limit is 10, with no size limit, except for the following: For those waters downstream of the Holitna to the mouth of the Kuskokwim River, the daily bag and possession limit is 5, with only one over 30 inches, except in the Aniak River.

In March of 2000, the BOF created a temporary management plan for the resident species in Aniak River. This plan is a series of species specific subsistence and sport fishing regulations restricting bag / possession limits and implementing catch and release utilizing time and area for grayling, Dolly Varden/Arctic char, pike, lake trout, sheefish, and whitefish. During the period of June 1 through August 31 all resident fish species caught above Doestock Creek must be released. Sport fishing regulations in the Aniak River downstream of Doestock Creek follow the special Kuskokwim River regulations. This temporary plan had a sunset clause for one year; the BOF addressed this plan during the January 2001 meeting.

During the 2001 January BOF meeting, both the subsistence (5 AAC 2000p) and sport fishing bag and possession limits for resident fish (5 AAC 2000q) in the Aniak River were enacted with the establishment of an aggregate bag limit. A three (3) resident fish species limit was enacted for subsistence anglers during June, July and August. Sport anglers were restricted to an aggregate three (3) resident fish limit, but only allowing one fish of the following species: DV/AC, grayling, lake trout, sheefish, pike and burbot in any combination.

Summary of 2001 Season

There were no reported problems of anglers having difficulties locating northern pike during 2001 in the LYLK. The lack of bag and possession limits for the subsistence rod and reel fishery is of concern to managers of resident fish species. Although no abuses were reported there is

concern on how healthy resident fish stocks can be maintained within sustainable bounds with unrestricted harvests and no real stock specific harvest monitoring system in place.

Outlook

There are no current biological concerns for the sport fisheries for northern pike in this area. However, the subsistence fishery at the mouth of the Johnson River should have some type of evaluation to confirm public comments regarding the small size of the pike harvested during the winter fishery. Other area stocks should continue to provide good angling opportunities for the 2002 season.

Sheefish Fishery Description

Overview

Most sheefish are harvested in streams and tributaries within the LYLK. The largest sheefish sport fishery occurs in the Holitna River above the Aniak River in the upper Kuskokwim Management area. However there are a few local anglers that have recently begun prospecting for sheefish in the lower tributaries of the Yukon and Kuskokwim. In the 1960s there was a directed commercial fishery for sheefish in the winter on the Yukon River. Local anglers seek sheefish in spring and fall when salmon are not available as a fresh source of fish. Stock sizes of sheefish in the LYLK are unknown.

Historical Perspective and Fishery Management

Sport fishing effort, catch and harvest are estimated by the SWHS, estimates from the annual report are reviewed to ensure that sport harvests remain within sustainable yields. The focus of sport fishing regulations development is to enhance opportunity and maintain harvest within sustainable bounds. Current regulations and harvests appear to be within sustainable levels for sheefish of the LYLK. High catches with low harvests indicate healthy fish stocks (Table 28). Additionally, the low harvests are not an indicator of depressed fish stocks but an under utilized resource.

Annual sport harvests of sheefish have decreased from the 1980s to the 1990s (Table 28). The reasons for this decline in harvest is unknown, but angler attitudes towards harvesting sheefish may have changed in the 1990s or these harvest statistics may truly representing only sport fishing harvest and not subsistence harvests of sheefish in the lower Kuskokwim area.

The current bag and possession limit for sheefish is slightly different between the Yukon and Kuskokwim rivers.

Yukon River sheefish daily bag and possession limit is 10, with no size limit. Kuskokwim River sheefish daily bag and possession limit is 10, with no size limit, except for the following: For those waters downstream of the Holitna to the mouth of the Kuskokwim River, the daily bag and possession is 5, with no size limit, except in the Aniak River.

In March of 2000, the BOF created a temporary management plan for the resident species in Aniak River. This plan is a series of species specific subsistence and sport fishing regulations restricting bag / possession limits and implementing catch and release utilizing time and area for grayling, Dolly Varden/Arctic char, pike, lake trout, sheefish, and whitefish. During the period of June 1 through August 31 all resident fish species caught above Doestock Creek must be released. Sport fishing regulations in the Aniak River downstream of Doestock Creek follow the

Table 28.-Angler harvest and catch of sheefish in the Aniak, Kisaralik, Kwethluk and other lower Kuskokwim rivers, 1983-2000.

Year	Aniak River		Kisaralik River		Kwethluk River		Other Rivers		Lower Kuskokwim Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983							901		901	
1984							481		481	
1985							210		210	
1986							194		194	
1987							452		452	
1988							1,074		1,074	
1989							722		722	
1990							107	316	107	316
1991	13	141					141	398	154	539
1992	0	11					119	119	119	130
1993	0	626					54	1,326	54	1,952
1994	88	154					124	171	212	325
1995	9	623					94	537	103	1,160
1996	20	89					44	283	64	372
1997	22	225					127	469	149	694
1998	30	47	14	197	38	493	42	99	124	836
1999	81	290	0	0	0	0	27	69	108	359
2000	0	7	0	0	0	0	158	158	158	165
Average 1998-00	26	221	5	66	13	164	282	359	299	380
Average	37	115	5	66	13	164	76	109	130	453

special Kuskokwim River regulations. This temporary plan had a sunset clause for one year; the BOF addressed this plan during the January 2001 meeting.

During the 2001 January BOF meeting, both the subsistence (5 AAC 2000p) and sport fishing bag and possession limits for resident fish (5 AAC 2000q) in the Aniak River were enacted with the establishment of an aggregate bag limit. A three (3) resident fish species limit was enacted for subsistence anglers during June, July and August. Sport anglers were restricted to an aggregate three (3) resident fish limit, but only allowing one fish of the following species: DV/AC, grayling, lake trout, sheefish, pike and burbot in any combination.

Summary of 2001 Season

There were no reported problems of anglers having difficulties locating sheefish during 2001 in the LYLK, except for poor fishing conditions attributed to the late spring and high rainfall during July. The lack of bag and possession limits for the subsistence rod and reel fishery is of concern to managers of resident fish species. Although no abuses were reported there is concern on how healthy resident fish stocks can be maintained with sustainable bounds with unrestricted harvests and no real stock specific harvest monitoring system in place.

Outlook

There are no current biological concerns for the sheefish fisheries in this area. Area stocks should continue to provide good angling opportunities for the 2002 season.

Lake Trout Fishery Description

Overview

Most lake trout are harvested in lakes of the headwater rivers and tributaries within the LYLK. Many of these lakes are located in the lower Kuskokwim and Kuskokwim Bay area. Anglers utilize lakes in the headwaters to begin float trips on adjacent streams and rivers. However there are a few local anglers with float or ski planes fishing on local lakes for lake trout throughout the year. Local residents commonly seek lake trout when salmon are not available as a fresh source of fish. Stock sizes of lake trout in the lakes of the LYLK are unknown. Lake trout of the LYLK are no different than other stocks of lake trout in the State of Alaska. Lake trout are long lived, slow growing, late maturing fish that can be easily overexploited in a relatively short period of time. Many of the lakes that contain lake trout are high altitude alpine lakes that have a short open water period and are considered to have short growing period. Historical harvests of lake trout in other locations in the State of Alaska suggest that past sport fishing practices can deplete lake trout stocks in small lakes.

Historical Perspective and Fishery Management

Sport fishing effort, catch and harvest are estimated by the SWHS, estimates from the annual report are reviewed to ensure that sport harvests remain within sustainable yields. Sport fishing regulations are developed to match effort and harvest within sustainable bounds. Current regulations and harvests appear to be within sustainable levels for lake trout of the LYLK. High catch rates with low harvest rates indicate healthy fish stocks. Occasionally there is some misidentification between Dolly Varden / Arctic char and lake trout. Some of the large harvests that arise in the SWHS Report need further investigation from time to time to ensure proper identification for accurate reporting.

Annual sport harvests of lake trout have decreased from the 1980s to the 1990s (Tables 29 and 30). The reasons for this decline in harvest is unknown, but angler attitudes towards harvesting

Table 29.-Angler harvest and catch of lake trout in the Kanektok, Goodnews, Arolik, and other Kuskokwim Bay rivers, 1983-2000.

Year	Kanektok River		Goodnews River		Arolik River		Other Locations		Kuskokwim Bay Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983									0	
1984							117		117	
1985							7		7	
1986							555		555	
1987							14		14	
1988							90		128	
1989			38				7		7	
1990							27	308	27	308
1991			0	38			171	631	171	669
1992							155	810	164	857
1993		18	9	29			104	496	104	496
1994							0	448	0	448
1995	80	90	20	38			27	125	127	253
1996	27	182	9	283			0	203	36	668
1997	113	154	23	211	0	0	137	499	273	864
1998	0	333	40	230	0	0	0	29	40	592
1999	0	33	25	450	0	0	0	9	25	492
2000	0	61	9	163	0	0	0	63	9	287
Average	37	124	19	180	0	0	83	329	100	330
1998-00										
Average	0	142	25	281	0	0	0	34	25	457

Table 30.-Angler harvest and catch of lake trout in the Aniak, Kisaralik, Kwethluk and other lower Kuskokwim rivers, 1983-2000.

Year	Aniak River		Kisaralik River		Kwethluk River		Other Locations		Lower Kuskokwim Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983							419		419	
1984							545		545	
1985							10		10	
1986							555		555	
1987							14		14	
1988							91		91	
1989	63						7		70	
1990	18	475					27	308	45	783
1991							172	631	172	631
1992	47	555					155	810	202	1,365
1993		10					105	496	105	506
1994		0					0	448	0	448
1995	61	163					27	125	88	288
1996	9	54					56	203	65	257
1997	56	179	90	170	0	0	96	189	242	538
1998	9	62	67	282	0	0	15	44	91	388
1999	18	18	0	67	0	0	0	24	18	109
2000	9	27	0	9	0	0	28	120	37	156
Average	32	154	39	132	0	0	129	309	154	304
1998-00										
Average	12	36	22	119	0	0	14	63	49	218

lake trout have changed in the 1990s or these harvest statistics may truly be representing only sport fishing harvest and not subsistence harvests of lake trout in the lower Kuskokwim area.

The current bag and possession limit for lake trout is 4 per day, except for restrictions in the Aniak River. In March of 2000, the BOF created a temporary management plan for the resident species in Aniak River. This plan is a series of species specific regulations restricting bag / possession limits and implementing catch and release utilizing time and area for grayling, DV/AC, pike, lake trout, sheefish, and whitefish. During the period of June 1 through August 31 all resident fish species caught above Doestock Creek must be released. Sport fishing regulations in the Aniak River downstream of Doestock Creek follow the special Kuskokwim River regulations. This temporary plan had a sunset clause for one year; the BOF addressed this plan during the January 2001 meeting.

The only management action effecting lake trout during the January 2001 BOF Meeting occurred in the Aniak River with the establishment of aggregate bag limit for resident fish species for both subsistence (5 AAC 2000p) and sport (5 AAC 2000q) anglers. A three (3) resident fish species limit was enacted for subsistence anglers during June, July and August. Sport anglers were restricted to an aggregate three (3) resident fish limit, but only allowing one fish of the following species: DV/AC, grayling, lake trout, sheefish, pike and burbot in any combination.

Summary of the 2001 Season

There were no angler reports of problems of locating lake trout during 2001 in the LYLK. The lack of bag and possession limits for the subsistence rod and reel fishery is of concern to managers of resident fish species.

Outlook

The lake trout stocks of the Kuskokwim area are fairly well protected from non-resident anglers. Low harvest rates are strong indicators of healthy lake trout populations. The outlook for lake trout and other resident fish species in the Kuskokwim area is good as long as the BOF in the short term recognizes that the department has invested substantial effort in regulation development to protect resident fish species in the past. Current rod and reel subsistence regulations with no bag or possession limits have potential for abuse and overexploitation with limited harvest monitoring in the subsistence fisheries. Although relatively few subsistence users have airplane access to lake trout stocks of the area, small lakes have small lake trout populations that are slow to mature and very slow growing, so even a small abuse can cause significant damage to a lake trout population. Of all the resident fish species under unrestricted harvests, lake trout are probably most susceptible to overexploitation with a small harvest, particularly with no real stock specific harvest monitoring system in place. The BOF and department need to pay particularly close attention to subsistence and sport harvests of lake trout in LYLK.

There are currently no major biological concerns for lake trout fisheries in the LYLK. Area stocks should continue to provide good angling opportunities for the 2002 season.

Burbot Fishery Description

Overview

Most burbot are harvested in the rivers and tributaries within the LYLK. More than likely these burbot are harvested local anglers who are participating in subsistence activities in the area. Local residents commonly seek burbot when salmon are not available as a fresh source of fish.

Stock size of burbot in the LYLK is unknown and is believed to be fairly large. However local depletion has been known to occur in locations of intensive fishing, such as river mouths during the winter.

Historical Perspective and Fishery Management

Sport fishing effort, catch and harvest are estimated by the SWHS, estimates from the annual report are reviewed to ensure that sport harvests remain with sustainable yields. Sport fishing regulations are developed to match effort and harvest within sustainable bounds. Current regulations and harvests appear to be within sustainable levels for burbot of the LYLK. The low harvests are not an indicator of depressed fish stocks but an under utilized resource (Table 31).

The current bag and possession limit is 15 burbot a day. Burbot may be taken under statewide regulations. Burbot may be taken in fresh water with more than one line and hook, provided:

1. the total aggregate number of hooks may not exceed 15 or the daily bag limit for burbot in the waters being fished, whichever is less;
2. the hooks are single hooks with a gap between point and shank larger than $\frac{3}{4}$ inch;
3. each hook is set to rest on the bottom of lake or stream;
4. each line is identified with the angler's name and address; and,
5. each line is physically inspected at least once during a 24-hour period.

In March of 2000, the BOF created a temporary management plan for the resident species in Aniak River. This plan is a series of species specific regulations restricting bag / possession limits and implementing catch and release utilizing time and area for grayling, DV/AC, pike, lake trout, sheefish, and whitefish. Although burbot were not included in the temporary management plan of 2000 for the Aniak River, burbot were included in the January 2001 BOF discussions.

The only management action effecting burbot during the January 2001 BOF Meeting occurred in the Aniak River with the establishment of aggregate bag limit for resident fish species for both subsistence (5 AAC 2000p) and sport (5 AAC 2000q) anglers. A three (3) resident fish species limit was enacted for subsistence anglers during June, July and August. Sport anglers were restricted to an aggregate three (3) resident fish limit, but only allowing one fish of the following species: DV/AC, grayling, lake trout, sheefish, pike and burbot in any combination.

Summary of 2001 Season

There were no reported problems of anglers having difficulties locating burbot during 2001 in the LYLK. The lack of bag and possession limits for the subsistence rod and reel fishery is of concern to managers of resident fish species. Although no abuses were reported there is concern on how health resident fish stocks can be maintained with sustainable bounds with unrestricted harvests and no real stock specific harvest monitoring system in place.

Outlook

There are no current biological concerns for the burbot fisheries in this area. Area burbot stocks should continue to provide good angling opportunities for the 2002 season.

Table 31.—Angler harvest and catch of burbot in the Aniak, Kisaralik, Kwethluk and other lower Kuskokwim rivers, 1983-2000.

Year	Aniak River		Kisaralik River		Kwethluk River		Other Locations		Lower Kuskokwim Total	
	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
1983							472		472	
1984							0		0	
1985							105		105	
1986							146		146	
1987							126		126	
1988							91		91	
1989							47		47	
1990							1,125	1,125	1,125	1,125
1991							40	50	40	50
1992							169	169	169	169
1993					107	107	107	107	214	214
1994							20	20	20	20
1995							0	0	0	0
1996							0	0	0	0
1997					180	180	0	0	180	180
1998							136	298	136	298
1999	13	13	0	0	76	76	139	139	228	228
2000	0	0	0	0	0	0	588	588	588	588
Average	7	7	0	0	91	91	184	227	205	160
1998-00										
Average	7	7	0	0	38	38	288	342	317	371

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APPENDIX A
2001 NEWS RELEASES

A-Y-K REGION NEWS RELEASE

(Released: February 5, 2001)

FOR IMMEDIATE RELEASE

FISHING OUTLOOK FOR THE KUSKOKWIM DRAINAGE

SUBSISTENCE SALMON:

The 2001 outlook for Kuskokwim drainage chum and king salmon returns is below average to poor. During 1998, 1999, and 2000, returns of chum and king salmon to the Kuskokwim River have fallen below the escapement needs to maintain these stocks. The Board of Fisheries has responded by establishing a rebuilding plan for chum and king salmon in the Kuskokwim drainage. This plan would allow salmon to move through the primary harvest area in the lower Kuskokwim River during the month of June and July. The emphasis of this plan is to increase salmon escapement into the Kuskokwim River. To achieve this goal, the Board of Fisheries and the Alaska Department of Fish and Game, with suggestions from the public have set subsistence fishing opportunities at four consecutive days a week. The subsistence-fishing schedule will be applied incrementally up the Kuskokwim River to allow subsistence users to harvest resident fish species before salmon arrive in each particular section of the Kuskokwim River.

This fishing schedule will improve the escapement of king and chum salmon by allowing a three-day segment of the king and chum salmon return to pass through the intensive subsistence harvest area in the lower Kuskokwim River. This schedule will still allow subsistence users the opportunity to meet their subsistence needs, by spreading out opportunity during the months of June and July and provide equity throughout in the Kuskokwim River. It is anticipated that the Kuskokwim River commercial fishery will not open for chum salmon in the near future unless there is dramatic improvement in spawning escapements.

SPORT FISHING SALMON:

To improve spawning salmon escapements in the Kuskokwim River, Sport Fish Division will issue a preseason Emergency Order (EO) to restrict salmon harvest in June and July, 2001, to either one chum or one chinook salmon per day, for the entire Kuskokwim drainage. This EO will be issued in late April or early May before the sport fishery begins. The sport fishing spawning season closure for king salmon remains in effect for July 25. If further in-season restrictions are applied to the subsistence-fishing schedule, indicating that the harvest necessary for subsistence is in jeopardy and the subsistence priority will not be met, the sport fishery for that species of concern, either chum or chinook salmon will be closed by EO. The EO could be extended to coho salmon, if in-season indicators are poor during August.

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SPECIFIC REGULATION CHANGES TO THE KUSKOKWIM DRAINAGE:

The Fall Chum Salmon Management Plan calls for closure of the sport fishery for chum salmon when run size is estimated to be less than 600,000 fish; the number of fall chum salmon required for both escapement and subsistence needs. The management plan also directs the Department of Fish and Game to restrict subsistence fishing opportunity at run sizes less than 600,000 and to close the subsistence fishery when run size is estimated to be less than 350,000 fall chum salmon.

It is unlikely that the fall chum salmon run will improve such that escapement requirements will be met. All available measures must be taken to improve drainage wide fall chum salmon escapements.

Kisaralik River

The rainbow trout regulations in the Kisaralik River have been made simpler and similar to those rainbow trout regulations in the Kasigluk and Kwethluk Rivers. In the Kisaralik River, downstream of the Akiak Village Lodge site only one (1) rainbow trout less than 14 inches may be harvested each day. This sport fishing regulation will protect Kisaralik rainbow trout greater than 14 inches below the Akiak Village Lodge site. Sport anglers are still restricted to unbaited, single-hook artificial lures upstream of the Akiak Village Lodge site.

Aniak River

All of the sport fishing regulations in the Aniak River have changed to some degree. The sport fishing regulations for pink, sockeye and coho salmon allow a daily aggregate (group) bag limit of three salmon in any combination in the entire Aniak drainage. Chum salmon may not be possessed or retained in the entire Aniak drainage. There is an annual sport fishing bag limit of two king salmon greater than 20 inches in the Aniak River. Sport anglers harvesting a king salmon from the Aniak River will now be required to document the harvest of king salmon greater than 20 inches on the back of their sport fishing license. For those non-resident anglers less than 16 years of age that are not required to purchase a sport fishing license, a harvest card will be provided by ADF&G and local license vendors so under age anglers can document their king salmon harvests in the Aniak River.

Sport fishing regulations for resident fish species in the entire Aniak River have also been simplified, the daily aggregate bag limit is three fish, of which no more than one (1) can be of the following species: Arctic grayling, Dolly Varden/Arctic char, Northern pike, sheefish, lake trout, and burbot. The Northern pike length limit of one fish greater than 30 inches has been dropped. In the entire drainage, rainbow trout may not be possessed or retained. The unbaited, single-hook artificial lure regulation still remains in effect upstream of Doestock Creek.

Alaskan residents still fall under the subsistence fishing regulations within the Association of Village Council Presidents (AVCP) region of the state and should refer to those regulation while fishing in the AVCP region of the state.

A-Y-K REGION NEWS RELEASE

(Released: July 12, 2001)

Department Closes Sport Fishing for King Salmon in the George River Drainage

The Division of Sport Fisheries is closing the sport fishery for king salmon in the George River drainage and all waters within a one-quarter mile radius of its confluence with the Kuskokwim River, effective 12:01 A.M. Saturday July 14, 2001. This EO prohibits targeting and harvesting king salmon while sport fishing in the George River drainage. This EO will remain in effect until December 31, 2001.

The number of king salmon passing through the weir on George River is at a low level. As of July 9, 2001 cumulative escapement of king salmon through the weir was 1,676 compared with 5,402 and 6,741 in 1996 and 1997, respectively. In these earlier years, approximately 75% of the run had passed through the weir by this date. It is highly unlikely that escapement this year is going to improve. The current weir counts are similar to 2000 and 1999, when escapement goals were not achieved in other middle Kuskokwim River tributaries. This action will provide additional protection to George River king salmon that would have been potentially harvested in the sport fishery. All other current sport-fishing regulations for king salmon for the Kuskokwim River drainage remain in effect.

The chum salmon sport fishery is also closed by EO throughout the Kuskokwim drainage including the George River effective July 12, 2001. Current sport fishing regulations for other salmon and freshwater species remain in effect.

DISTRIBUTION:

Office of the Governor; Lt. Governor; Commissioner, Department of Fish and Game; Director, Division of Sport Fish; Regional Supervisors, Division of Sport and Commercial Fisheries; Members of Board of Fisheries; Director, Fish and Wildlife Protection; Detachment Commander and Area Officer, Local Fish and Game Advisory Chairman; Cook Inlet, Prince William Sound and Glennallen Area Biologists, Division of Sport Fish and Commercial Fisheries; Juneau, Region I; Fairbanks, Region III; and selected area newspapers, radio and television stations.

A-Y-K REGION NEWS RELEASE

(Released: July 11, 2001)

**Department Closes Sport Fishing for Chum Salmon in All Waters of the
Kuskokwim River Drainage**

The Division of Sport Fish is closing the sport fishery for chum salmon in all waters of the Kuskokwim River drainage, effective 12:01 A.M. Thursday July 12, 2001. This EO prohibits the taking of chum salmon while sport fishing in all waters of the Kuskokwim River drainage.

During the period of July 12 through December 31, all chum salmon caught during sport fishing for other fish species must be released back into the water unharmed. This EO will remain in effect until the sport fishery for chum salmon closes at the end of the regulatory year.

The combined findings from the Department's test fishery project, subsistence harvest reports and escapement weirs indicate a below average chum salmon run strength in the Kuskokwim River. Many lower Kuskokwim subsistence users have reported poor chum salmon catches. Chum salmon assessment of the Department's test fishery at Bethel indicates below average run strength. Escapements of chum salmon are low and are similar to 1999 and 2000 escapement levels in the George and Kogruklu Rivers. Additional restrictions to the subsistence salmon fishing schedule will be implemented in the lower Kuskokwim.

At this time, it is necessary to apply more conservative management measures for further conservation of Kuskokwim chum salmon when below average run strength is evident. Therefore the necessity of closing the sport fishery to the taking of chum salmon.

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A-Y-K REGION NEWS RELEASE

(Released: June 20, 2001)

YUKON RIVER KING SALMON SPORT FISHERY IS CLOSED, SUBSISTENCE SCHEDULE IS REDUCED, AND SUBSISTENCE GEAR IS RESTRICTED

As of June 18, the department estimates that the first 25% of the Yukon River king salmon run has passed through the lower river area. The cumulative catch rate in the Emmonak test fishery of 3.31 is substantially less than the recent 12-year average of 10.13 for this date.

The information from this test fishery is consistent with the 2001 pre-season outlook for weak returns of king salmon. Abundance of age-6 fish was expected to be poor in 2001 based on low returns of age-5 fish in 2000. Without large numbers of fish in younger age classes the 2001 return will be weak. Estimates of age composition from the test fisheries and from samples from the subsistence fishery show that age-6 fish comprise more than 80% of the run. Age-5 fish comprise less than 12 %; the 12-year average contribution of age-5 fish is approximately 30%.

All available data indicate low abundance of king salmon entering the Yukon River. Run assessment information from the Emmonak test fishery and subsistence harvest reports indicate that the king salmon run is well below average. At this time the department does not believe that king salmon escapement goals will be achieved. Under direction of the Yukon River Rebuilding Management Plan and in accordance with the Sustainable Fisheries Policy of the State of Alaska, it is necessary to take the following actions to reduce the harvest of king salmon in order improve spawning escapements.

The sport fishery for king salmon is closed in all waters of the Yukon River drainage, except for the Tanana River drainage, effective 12:01 A.M. Thursday, June 21, 2001. The Tanana River sport fishery will be managed using in-season run abundance and escapement information as provided for under provisions of 5AAC 70.060, KING SALMON SPORT HARVEST MANAGEMENT PLAN.

Subsistence salmon fishing in Districts 1, 2 and 3 will decrease from two 36-hour periods each week to two 24-hour periods each week. Beginning Tuesday, June 21 subsistence salmon fishing in District 1 will be allowed from 8:00 PM Thursday until 8:00 PM Friday and from 8:00 PM Monday until 8:00 PM Tuesday. Beginning Tuesday, June 24 subsistence salmon fishing in District 2 will be allowed from 8:00 PM Wednesday until 8:00 PM Thursday and from 8:00 PM Sunday until 8:00 PM Monday. Beginning Wednesday, June 27 subsistence salmon fishing in District 3 will be allowed from 8:00 PM Wednesday until 8:00 PM Thursday and from 8:00 PM Sunday until 8:00 PM Monday. All subsistence salmon fishing with gillnets and fish wheels must be stopped during subsistence fishing closures.

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Effective 6:00 PM Tuesday, June 26, during the District 4 subsistence salmon closed periods, subsistence fishermen using gillnets for whitefish and other non-salmon species are restricted to nets that have a maximum length of 60 feet and a stretched mesh size of four inches or less. In addition, fish wheels may not be used to harvest any species during the closed periods. All other legal gear types (beach seine, longline, fyke net, dip net, jigging gear, spear or a line attached to a rod or pole, handline, or lead) may still be used to subsistence fish for whitefish and other non-salmon species.

For additional information regarding state regulations, contact the Division of Commercial Fisheries in Emmonak at (907) 949-1320, in Fairbanks at (907) 459-7274, or the Division of Sport Fish in Fairbanks at (907) 459-7225 during regular office hours. For a 24-hour recording regarding current subsistence and personal use fishing schedules, call (907) 459-7387

A-Y-K REGION NEWS RELEASE

(Released: May 25, 2001)

***DEPARTMENT REDUCED SPORT FISHING DAILY BAG AND POSSESSION LIMIT
FOR CHINOOK AND CHUM SALMON IN ALL WATERS OF THE KUSKOKWIM RIVER
DRAINAGE***

The Division of Sport Fish is **reducing the daily bag and possession limit of chinook and chum salmon** in the all waters of the **Kuskokwim River drainage**, effective 12:01 A.M. Friday June 1, 2001. This EO prohibits the taking of more than one chinook or one chum salmon while sport fishing in all waters of the Kuskokwim River drainage. This preseason EO will remain in effect until additional in-season assessment is available to determine chinook and chum salmon run strength.

Poor returns of chinook and chum salmon in 1999 and 2000 to the Kuskokwim drainage failed to meet escapement goals needed to maintain these stocks. The outlook for chinook and chum salmon returns to the Kuskokwim in 2001 is uncertain but preseason indicators predict below average returns. The Department cannot reliably determine the run strength of Kuskokwim chinook and chum salmon without in-season assessment information. During the upcoming season, the Board of Fisheries has instructed the Department to manage Kuskokwim chinook and chum salmon stock more conservatively. The preseason reduction of the sport fishing daily bag limit to one chinook or one chum salmon per day for the entire Kuskokwim Drainage is consistent with the direction of the Board of Fisheries. This action will provide additional protection to Kuskokwim chinook and chum salmon stocks that may be harvested in the sport fisheries by effectively decreasing the sport harvest opportunity by 50% and by contributing to improving escapements of chinook and chum salmon in Kuskokwim tributaries. All other published sport-fishing regulations for the Kuskokwim River drainage remain in effect. These regulations include the chinook sport fishery closure date of July 25 to protect spawning chinook salmon and the new annual limit of two chinook salmon in the Aniak River.

The Board of Fisheries has developed a rebuilding plan for Kuskokwim chinook and chum salmon stocks in accordance with the Sustainable Salmon Fisheries Policy for Alaska. This plan emphasizes improving salmon spawning escapements and providing opportunities to maintain subsistence uses, when surpluses are available. The Department will continue to evaluate in-season run strength and take appropriate management actions to ensure escapement requirements are met. Until further in-season stock assessment information is available to quantify the chinook and chum salmon run strength, it is prudent to reduce the sport fishery harvest potential.

Waters subject to ANILCA Title VIII (including waters in which the United States has asserted a reserved water right) are open to fishing under state regulations but are subject to federal

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restrictions and closures. If you are planning on fishing in waters under federal subsistence jurisdiction, you must comply with federal regulations. To familiarize yourself with the federal regulations and how they may affect your planned activity, you should contact the federal agencies. In-season closures or temporary regulatory changes can occur at any time.

For more information, or a copy of federal regulations, contact:

U.S. Fish and Wildlife Service, Office of Subsistence Management, 1/800-478-1456, or any of the following agencies:

For National Parks and Preserves: National Park Service 907/257-2649

For National Wildlife Refuges: U.S. Fish and Wildlife Service 1/800-478-1456

For National Recreation Areas or National Petroleum Reserve in Alaska: Bureau of Land Management 907/271-5960

For National Forests: U.S. Forest Service 907/586-8806

APPENDIX B
2001 EMERGENCY ORDERS

Appendix B1.-Emergency Order No. 3-KS-01-01.

[Web link to Emergency Order No. 3-KS-01-01.](#)

Appendix B2.-Emergency Order No. 3-KS-03-01.

[Web link to Emergency Order No. 3-KS-03-01.](#)

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Appendix B3.-Emergency Order No. 3-CS-02-01.

[Web link to Emergency Order No. 3-CS-02-01](#)

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Appendix B4.-Emergency Order No. 3-KS-05-01.

[Web link to Emergency Order No. 3-KS-05-01.](#)

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APPENDIX C
2001 FEDERAL SUBSISTENCE BOARD SPECIAL ACTION

Appendix C1.-Special Action Request.

Special Action Request to the Federal Subsistence Board

Submitted by: Mike Savage with unanimous support by the Yukon-Kuskokwim Delta Federal Regional Advisory Council (vote 6 in favor, 0 opposed, 1 abstain). Mr. Savage is a subsistence fisherman and a Yukon-Kuskokwim Regional Council member from Lower Kalskag. He abstained from voting on his own request as presented at the Yukon-Kuskokwim Regional council public meeting in Kotlik, AK on March 15, 2001.

Subject: Sport fishing for chinook and chum salmon in the Kuskokwim River drainage.

The Special Action requests that the Federal Subsistence Board close sport fishing for chinook and chum salmon on Federal waters in the Kuskokwim River drainage. Federal waters include the main Kuskokwim River and all its tributaries upstream to and including the Aniak River to the Refuge boundary.

Chinook and chum salmon on the Kuskokwim River have been identified as stocks of concern and sport fishing will harm subsistence users who will suffer from the subsistence restrictions identified in fishing schedule. A closure to sport fishing for chinook and chum salmon would also help enhance the spawning escapement for these stocks of concern since much of the sport fishing does occur on or near the spawning grounds.

Subsistence users' needs will likely not be met on the middle and upper Kuskokwim River villages with a fishing schedule of four days per week and sport fishing should not be allowed in this situation. Also catch and release sport fishing would kill many fish even after they are released to the water and so should not be allowed.

The sport fishing closure should be effective starting June 1, 2001.

Appendix C2.-Memorandum of March 19, 2001.

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

Division of Sport Fisheries

TONY KNOWLES, GOVERNOR

460 Ridgecrest Drive
P.O. 1467
Bethel, AK 99559-1467
PHONE: (907) 543-1677
FAX: (907) 543-2021

MEMORANDUM

Date: March 19, 2001

To: Distribution

From: Bob Lafferty

Subject: Western Federal Subsistence RAC Actions of March 14-16.

This is more of an overview, for those people who were not at the Board of Fisheries meeting, and may need some basic information.

As many of you are aware the Western Federal Subsistence RAC met last week and developed a resolution to close the king and chum salmon sport fisheries within the Federal jurisdiction on the Kuskokwim River during the period of June 1-July 31. This includes all streams downstream of the Aniak River and including the Aniak River. The position of the Western RAC is one of fairness, with the creation of the subsistence-fishing schedule on the Kuskokwim during the recent Board of Fisheries (BOF) Meeting in January. Many people feel that subsistence schedule is unfair when sporting fishing continues seven days a week. The magnitude of the sport fishing harvest is inconsequential and carries no weight with the local people. Many people have voiced their opinions to close the sport fisheries in the Kuskokwim area. These concerns were heard at the BOF meeting, but the biological information indicated that small sport harvests are insignificant to the overall run. So local people have moved their concerns to the Federal Subsistence arena.

This resolution should not come as a surprise; Federal managers have voiced their concerns at the Board of Fisheries meeting. On several occasions the Yukon Delta National Wildlife Refuge manager has stated that four-day a week subsistence schedule is not enough and further thought the sport fisheries should be closed. This was submitted in writing at the Board of Fisheries. The Kuskokwim subsistence-fishing schedule has been portrayed as a restriction to subsistence fishing opportunity. When in fact several Federal managers believe that it is too liberal and will not reduce subsistence harvests. There has been growing concern, even though subjective, that with the current management strategy that compliance with the subsistence-fishing schedule is in question. It appears that the sport fishery is up for sacrifice. One must remember that we are dealing in the AVCP region and subsistence rod and reel regulations are in effect. Most of the local citizens do not realize that only non-resident anglers would be effected by the sport fishing closure, because all Alaskans are recognized as subsistence users by the State.

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In an attempt to avoid this train wreck, Sport Fish Division issued a news release on February 6, stating a pre-season Emergency Order (EO) would be issued on May 1 to reduce the daily bag limit of king and chum salmon to one. Further adjustments to the sport fishery would be made based on run performance from in-season assessment. This EO would effectively reduce the sport fishery harvest by half. Under this scenario the sport fishery would operate until a determination was made based on king and chum salmon run strength in accordance with the Kuskokwim Salmon Rebuilding Plan. Under the guidance of the BOF, the Kuskokwim Salmon Management Plan was changed to rebuild king and chum salmon stocks by placing windows of no net fishing to bolster escapements and provide equality throughout the drainage with a subsistence-fishing schedule. Unfortunately, the Department does not have ability to estimate run abundance, but does evaluate daily passage by test fishing at Bethel and escapement monitoring at several tributaries. It is the position of the Department that we do not have confidence in our ability to monitor Kuskokwim king and chum salmon run strength until we approach the 50 percentile of historical run timing. So a pre-season forecast is speculative, at best.

Additionally, during the recent BOF meeting the Division of Subsistence reported that amounts necessary for subsistence in the Kuskokwim drainage is 65,000 king salmon. The State's priority after meeting escapement needs is to provide the opportunity for subsistence users to harvest 65,000 king salmon. Several Board of Fisheries members asked if a four day a week fishing schedule would provide enough opportunity for the subsistence priority. Department staff responded that this was new ground and was a good first step, but asked for all the tools to make in-season adjustments to the subsistence fishery if they became necessary. Adjustments to the subsistence schedule would be based on run performance in accordance to the rebuilding plan.

At this time it is the State's best assessment that the Kuskokwim return in 2001 will be large enough to provide for escapement, subsistence and sport fisheries. During in-season management if the Kuskokwim king and chum salmon run is weaker than anticipated then the Department will take action to ensure that escapement needs are met.

Currently, Federal managers believe that the 4-day a week subsistence-fishing schedule is not enough to meet escapement needs. Additionally, the sport fishery harvests in the tributaries of the Aniak, Tuluksak, Kisaralik, Kisaralik, Kasigluk, Kwethluk and Eek rivers is jeopardizing the escapement of king and chum salmon for future subsistence uses. There are no biological escapement goals (BEG) for the king salmon in these rivers. There is a BEG for chum salmon in the Aniak River of 250,000 fish. Federal managers and perhaps RAC feel the that annual sport harvest of 800 king salmon and 200 chum salmon harvests in the lower Kuskokwim will jeopardize the ability of subsistence users to meet their needs or impacting escapements and future salmon returns.

This is clearly a reaction of not supporting the results of a lengthy public process with the BOF. There is no biological reason that the sport fisheries can not be open with a reduced bag limit, which will cut the harvest potential in half (400 king and 100 chum salmon) until further in season run strength is quantified. This is not a biological issue, but a political issue.

What are the ramifications if the resolution moves forward?

1. Non-residences will not be able to fish for king and chum salmon in lower Kuskokwim tributaries.
2. A small budding sport fishing industry will be eliminated.
3. Confusion regarding sport fishing regulations in the lower Kuskokwim.
4. Sport fishing effort is going to shift to streams upstream of the Aniak River.

A more important question is how do sport fisheries get reinstated in the lower Kuskokwim tributaries? When subsistence net fishing is unrestricted to seven days a week?

How much assistance do we plan on providing to the Federal managers or biologists on this analysis in preparation for the Federal Subsistence Board?

Appendix C3.-Subsistence Fishing Special Action May 31, 2001



FISH and WILDLIFE SERVICE
BUREAU of LAND MANAGEMENT
NATIONAL PARK SERVICE
BUREAU of INDIAN AFFAIRS

Federal Subsistence Board

3601 C Street, Suite 1030
Anchorage, Alaska 99503

SUBSISTENCE FISHING

**SPECIAL ACTION
MAY 31, 2001**

**FEDERAL
SUBSISTENCE
BOARD**

Under Authority of: **50 CFR Part 100.10 and .19
36 CFR Part 242.10 and .19**

Special Action Number: 2-KS-01-01

Issued at: Fairbanks, Alaska, May 31, 2001

Effective Dates: 8:00 p.m., Thursday May 31, 2001 for District 1
8:00 p.m., Sunday June 3, 2001 for District 2
8:00 p.m., Wednesday June 6, 2001 for District 3

Expiration Date: 8:00 p.m., Monday July 30, 2001 or until superceded by subsequent Special Action

EXPLANATION: The following explanation details forthcoming subsistence fishing on Yukon River Federal lands in a manner that allows for minimal impacts to the predicted poor returns of chinook and summer chum salmon yet provides a means of fishing on these stocks and other non-salmon species.

This Special Action provides for Federal subsistence fishing for salmon on Yukon River Federal lands under an adopted fishing schedule created during the 2001 State of Alaska Board of Fisheries meetings. Yukon River fishing Districts 1, 2 and 3 are subject to times stated in the schedule for subsistence fishing during the 2001 fishing season unless superceded by subsequent special action. Adopting the same subsistence fishing schedule is necessary to decrease confusion among users, increase the quality of escapement, spread the harvest throughout the run, to reduce the impact on any single component of the run, and spread the subsistence harvest opportunity among users. Affected Federal management areas include the Yukon Delta and Innoko National

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Appendix C3.-Page 2 of 3.

Wildlife Refuges.

In all Yukon River drainage districts, fishing for whitefish, suckers and other non-salmon species during closed salmon fishing periods is allowed seven days per week with gillnets of 4 inches or less stretch mesh and other legal gear except fishwheels.

REGULATIONS: 50 CFR Part 100.27(i)(3) (iii) is amended to read:

(iii) In the following locations, you may take salmon only during the open weekly subsistence fishing periods:

(C) Effective Thursday, May 31, 2001 at 8:00 p.m. you may take salmon from District 1 and its tributaries during two 36-hour periods per week occurring from Thursday 8:00 p.m. through Saturday 8:00 a.m. and Monday 8:00 p.m. through Wednesday 8:00 a.m.

(D) Effective Sunday, June 3, 2001 at 8:00 p.m. you may take salmon from District 2 and its tributaries during two 36-hour periods per week occurring from Sunday 8:00 p.m. through Tuesday 8:00 a.m. and Wednesday 8:00 p.m. through Friday 8:00 a.m.

(E) Effective Wednesday, June 6, 2001 at 8:00 p.m. you may take salmon from District 3 and its tributaries during two 36-hour periods per week occurring from Wednesday 8:00 p.m. through Friday 8:00 a.m. and Sunday 8:00 p.m. through Tuesday 8:00 a.m.

(xvii)

(A) During any commercial salmon fishing season closure of greater than five days in duration, you may take fish other than salmon only with gillnets with a stretched mesh size of 4 inches or less or with other legal gear except fishwheels.

Federal Subsistence Board

by delegation to

Monty Millard
U.S. Fish and Wildlife Service, Field Supervisor

JUSTIFICATION:

The Alaska Board of Fisheries adopted a subsistence salmon fishing schedule to increase the quality of escapement and spread subsistence harvest opportunity among all users. The schedule should provide reasonable opportunity for subsistence users to meet their needs during years of normal to below average runs. The goal of the schedule is to provide windows of time when no fishing will be allowed so that portions of the salmon run can migrate upriver with less exploitation. Subsistence fishing is open seven days a week until the schedule goes into effect.

It is anticipated that the trend of poor salmon production, first observed in the 1998 run, will continue this year and result in very poor salmon runs into the Yukon River. Last year's poor return of four and five-year old chinook salmon indicates that this year's run may be as poor or worse than last year. The loss of productivity has been the subject of much interest and concern and is probably due to poor ocean survival and other factors.

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Appendix C3.-Page 3 of 3.

No commercial fishing is expected this season. If this year's run comes in as poor as last year, subsistence harvests for chinook salmon may need to be reduced by half of the normal harvest in order to meet minimum spawning escapements. Last year, the subsistence harvest was 70% of normal and escapements were met in only two of the seven monitored chinook salmon spawning tributaries. Likewise, because of anticipated poor runs for summer and fall chum salmon, subsistence harvests for these salmon may also need to be reduced.

It is anticipated that the 2001 season will be as poor as last year. In order to protect the resource and meet minimum spawning escapements: The Area M/False Pass fishing time has been reduced by 70%; commercial fishing on the Yukon River will be closed; and, the Yukon River chinook salmon subsistence fishery harvest will need to be reduced by at least half of the normal catch.

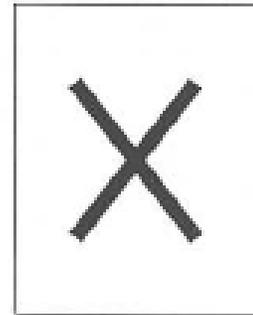
Appendix C4.-Subsistence Fishing Special Action June 12, 2001.



FISH and WILDLIFE SERVICE
BUREAU of LAND MANAGEMENT
NATIONAL PARK SERVICE
BUREAU of INDIAN AFFAIRS

Federal Subsistence Board

3601 C Street, Suite 1030
Anchorage, Alaska 99503



SUBSISTENCE FISHING

**SPECIAL ACTION
JUNE 12, 2001**

**FEDERAL
SUBSISTENCE
BOARD**

Under Authority of: 50 CFR Part 100.10 and .19
36 CFR Part 242.10 and .19

Special Action Number: 2-WF-02-01

Issued at: Fairbanks, Alaska, June 12, 2001

Effective Dates: 8:00 a.m., Tuesday June 12, 2001

Expiration Date: 8:00 a.m. Sunday August 11, 2001 or until superseded by subsequent Special Action

EXPLANATION: This Special Action provides for Federal subsistence fishing for non-salmon species on Yukon River Federal lands. Yukon River fishing Districts 1, 2 and 3 are subject to regulation of gillnet length and mesh size in order to conserve Yukon River salmon and provide opportunity to catch non-salmon species. Affected Federal management areas include the Yukon Delta and Inatoko National Wildlife Refuges.

REGULATIONS: 50 CFR Part 100.27(j)(3) (xvii) is amended to read:

(xvii) You may subsistence fish for non-salmon species seven days per week in the entire Yukon River drainage.

(A) In Yukon River Fishing Districts 1, 2 and 3 only gillnets of 60 feet maximum length with 4-inch or less stretched measure mesh and other

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Appendix C4.-Page 2 of 2.

legal gear may be used during closed subsistence salmon fishing periods.

Federal Subsistence Board

by delegation to

Monty Millard
U.S. Fish and Wildlife Service, Field
Supervisor

JUSTIFICATION:

The goal of this regulation is to provide opportunity for Federally qualified subsistence fishers to harvest non-salmon species on a seven day per week basis while conserving salmon. Limiting the gillnet length and mesh size will decrease the incidental catch of salmon and provide clear gear enforcement.

It is anticipated that the trend of poor salmon production, first observed in the 1998 run, will continue this year and result in very poor salmon runs into the Yukon River. Last year's poor return of four and five-year old chinook salmon indicates that this year's run may be as poor or worse than last year. The loss of productivity has been the subject of much interest and concern and is probably due to poor ocean survival and other factors.

No commercial fishing is expected this season. If this year's run comes in as poor as last year, subsistence harvests for chinook salmon may need to be reduced by half of the normal harvest in order to meet minimum spawning escapements. Last year, the subsistence harvest was 70% of normal and we met escapements in only two of the seven monitored chinook salmon spawning tributaries. Likewise, because of anticipated poor runs for summer and fall chum salmon, subsistence harvests for these salmon may also need to be reduced.

It is anticipated that the 2001 season will be as poor as last year. In order to protect the resource and meet minimum spawning escapements: The Area M/False Pass fishing time has been reduced by 70%; commercial fishing on the Yukon River will be closed; and, the Yukon River chinook salmon subsistence fishery harvest will need to be reduced by at least half of the normal catch.

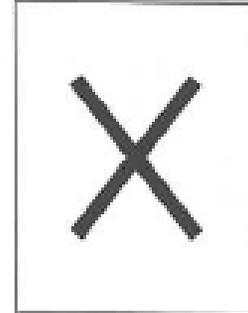
Appendix C5.-Subsistence Fishing Special Action June 13, 2001.



FISH and WILDLIFE SERVICE
BUREAU of LAND MANAGEMENT
NATIONAL PARK SERVICE
BUREAU of INDIAN AFFAIRS

Federal Subsistence Board

3601 C Street, Suite 1030
Anchorage, Alaska 99503



SUBSISTENCE FISHING

**SPECIAL ACTION
JUNE 13, 2001**

**FEDERAL
SUBSISTENCE
BOARD**

Under Authority of: 50 CFR Part 100.10 and .19
36 CFR Part 242.10 and .19

Special Action Number: 2-KS-03-01

Issued at: Fairbanks, Alaska, June 13, 2001

Effective Dates: 6:00 p.m., Wednesday June 13, 2001 for District 4

Expiration Date: 6:00 p.m., Sunday August 12, 2001 or until superceded by subsequent Special Action

EXPLANATION: The following explanation details forthcoming subsistence fishing on Yukon River Federal lands in a manner that allows for minimal impacts to the predicted poor returns of chinook and summer chum salmon yet provides a means of fishing on these stocks and other non-salmon species. This Special Action provides for Federal subsistence fishing for salmon on Yukon River Federal lands under an adopted fishing schedule created during the 2001 State of Alaska Board of Fisheries meetings. Yukon River fishing District 4 is subject to times stated in the schedule for subsistence fishing during the 2001 fishing season unless superceded by subsequent special action. Adopting the same subsistence fishing schedule is necessary to decrease confusion among users, increase the quality of escapement, spread the harvest throughout the run, to reduce the impact on any single component of the run, and spread the subsistence harvest opportunity among users. Affected Federal management areas include the Inriko, Koyukuk and Nowitna National Wildlife Refuges and Gates of the Arctic National Park and Preserve. In all Yukon River drainage districts, fishing for whitefish, suckers and other non-salmon species during closed salmon fishing periods is allowed seven days per week with gillnets of 4 inches or less stretch mesh and other legal gear except fishwheels.

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Appendix C5.-Page 2 of 3.

REGULATIONS: 50 CFR Part 100.27(i)(3) (iii) is amended to read:

(iii) In the following locations, you may take salmon only during the open weekly subsistence fishing periods:

(F) Effective Wednesday, June 13, 2001 at 6:00 p.m. you may take salmon from District 4 and its tributaries during two 48-hour periods per week occurring from Wednesday 6:00 p.m. through Friday 6:00 p.m. and Sunday 6:00 p.m. through Tuesday 6:00 p.m.

(xvii)

(A) During any commercial salmon fishing season closure of greater than five days in duration, you may take fish other than salmon only with gillnets with a stretched mesh size of 4 inches or less or with other legal gear except fishwheels.

Federal Subsistence Board

by delegation to

Monty Millard
U.S. Fish and Wildlife Service, Field
Supervisor

JUSTIFICATION:

The Alaska Board of Fisheries adopted a subsistence salmon fishing schedule to increase the quality of escapement and spread subsistence harvest opportunity among all users. The schedule should provide reasonable opportunity for subsistence users to meet their needs during years of normal to below average runs. The goal of the schedule is to provide windows of time when no fishing will be allowed so that portions of the salmon run can migrate upriver with less exploitation. Subsistence fishing is open seven days a week until the schedule goes into effect.

It is anticipated that the trend of poor salmon production, first observed in the 1998 run, will continue this year and result in very poor salmon runs into the Yukon River. Last year's poor return of four and five-year old chinook salmon indicates that this year's run may be as poor or worse than last year. The loss of productivity has been the subject of much interest and concern and is probably due to poor ocean survival and other factors.

No commercial fishing is expected this season. If this year's run comes in as poor as last year, subsistence harvests for chinook salmon may need to be reduced by half of the normal harvest in order to meet minimum spawning escapements. Last year, the subsistence harvest was 70% of normal and escapements were met in only two of the seven monitored chinook salmon spawning tributaries. Likewise, because of anticipated poor runs for summer and fall chum salmon, subsistence harvests for these salmon may also need to be reduced.

It is anticipated that the 2001 season will be as poor as last year. In order to protect the resource and meet minimum spawning escapements: The Area M/False Pass fishing time has been

Appendix C5.-Page 3 of 3.

reduced by 70%; commercial fishing on the Yukon River will be closed; and, the Yukon River chinook salmon subsistence fishery harvest will need to be reduced by at least half of the normal catch.

Appendix C6.-Draft staff analysis Special Action FSA01-02.

Tom Kron, 786-3604
Leadership Team Review Draft

DRAFT STAFF ANALYSIS SPECIAL ACTION FSA01-02

ISSUE

Special Action request FSA01-02, submitted by James Luke of Mountain Village, would close sport fishing for chinook and chum salmon in the Yukon River and its tributaries within the Yukon Delta National Wildlife Refuge (NWR) starting June 1, 2001.

DISCUSSION

Existing Regulation:

The Customary and Traditional Use (C&T) Determinations (50 CFR 100.24(a)(2)) for Yukon River drainage:

<u>Species</u>	<u>Determination</u>
<i>Salmon, other than Yukon River fall chum salmon</i>	<i>Residents of the Yukon Area, including the community of Stebbins.</i>
<i>Yukon River fall chum salmon</i>	<i>Residents of the Yukon River drainage, including the communities of Stebbins, Scammon Bay, Hooper Bay, and Chevak</i>

Proposed Special Action:

FSA01-02 The Yukon River and its tributaries within the Yukon Delta National Wildlife Refuge, are closed to sport fishing for chinook and chum salmon for 60-days starting June 1, 2001.

Extent of Federal public lands/waters;

Federal jurisdiction extends throughout the lower Yukon River drainage, within the boundary of the Yukon Delta NWR. The Refuge boundary includes waters from the Yukon River mouth upstream to, and including, the southern mouth of the Innoko River (Map 1).

This Special Action request is specifically for the Yukon Delta NWR. There are other Federal Conservation Unit Lands (Innoko NWR, Koyukuk NWR, Nowitna NWR, Kanuti NWR, Yukon Flats NWR, Arctic NWR, Tetlin NWR, Gates of the Arctic National Park and Preserve, Yukon-Charlie Rivers National Preserve, Denali National Park and Preserve, White Mountain National Recreation Area, Steese National Conservation Area) within the Yukon drainage which might also be considered (Map 2).

Appendix C6.-Page 2 of 8.

Tom Kroa, 786-3604
Leadership Team Review Draft

Regulatory History

-*"Unless otherwise restricted in this section, you may fish in the Yukon-Northern Area at any time."* (50 CFR 27(i)(3)(1))

-*"You may take salmon only by gillnet, beach seine, fish wheel, or rod and reel"* (50 CFR 27(i)(3)(xiv))

-In Yukon Districts 1, 2 and 3:

- *"You may not take salmon for subsistence purposes during the 24 hours immediately before the opening of the commercial salmon fishing season"* (50 CFR 27(i)(3)(v))
- *"After the opening of the commercial salmon fishing season through July 15, you may not take salmon for subsistence 18 hours immediately before, during and for 12 hours after each commercial fishing period. After July 15, you may not take salmon for subsistence for 12 hours immediately before, during and for 12 hours after each commercial fishing period."* (50 CFR 27(i)(3)(vi))
- *"You may not possess king salmon taken for subsistence purposes unless the dorsal fin has been removed immediately after landing."* (50 CFR 27(i)(3)(xxi))

The State of Alaska sport fishing regulations (ADF&G 2001a) for the period April 15, 2001 through April 14, 2002 for the Yukon River drainage (excluding the Tanana River) allows for:

<u>Species</u>	<u>Daily bag, possession, and size limits</u>
King Salmon	>20 inches- 3(only 2 over 28 inches) <20 inches- 10
Other Salmon	10 no size limit"

Sport fishing regulations and management plans are administered by the State of Alaska. During their January 2001 meeting, the Alaska Board of Fisheries adopted the following wording within the Yukon River King Salmon Management Plan concerning the sport fishery for salmon: "The sport fishery in the Yukon River drainage will be managed consistent with sustained yield principles found in the Sustainable Salmon Fisheries Policy, the state priority for subsistence, and applicable management plans. When restrictions are necessary for conservation, they will be made commensurate with the level of fish abundance." ADF&G has not as yet identified any specific plans to further restrict the chinook and chum salmon sport fishery on the Yukon River this summer.

Current Events Involving Chinook and Summer Chum Salmon

The Yukon River has had recent years of poor chinook and summer chum salmon returns. Based on the most recent information from ADF&G (2001b), it is highly unlikely the 2001 chinook and summer chum salmon runs will support a commercial harvest. Subsistence fishing will have to be intensively managed to meet escapement objectives and subsistence harvests of chinook and summer chum salmon may be 50% or less than average (ADF&G

Appendix C6.-Page 3 of 8.

Tom Kron, 786-3604
Leadership Team Review Draft

2001b). The reduction of subsistence fishing opportunity will be spread along the whole river (ADF&G 2001b).

At a U.S.-Canada, Yukon River Panel meeting in Whitehorse, Yukon Territory during the week of March 26-30, 2001, the Panel agreed that subsistence salmon harvest levels in Alaska and aboriginal fisheries in Canada should be held to about half of the normal level in 2001 to help provide for resource conservation.

Based on the above information, it can be anticipated that the 2001 Yukon river subsistence harvests for chinook and summer chum salmon will likely fall below the low end of the Amounts Necessary for Subsistence that have been identified by the Alaska Board of Fisheries (ADF&G 2001c).

In previous years, the Yukon River was open to subsistence fishing 7 days/week, 24 hours/day prior to a commercial opening. At their January 2001 meeting, the Alaska Board of Fisheries identified chinook and chum salmon in the Yukon River drainage as stocks of concern by the Alaska Board of Fisheries. Beginning this year, at the start of the season, State regulations provide a subsistence fishing schedule for a maximum of two 36-hour periods per week in Districts 1, 2 and 3. This schedule may be altered by the ADF&G and/or the Federal Subsistence Board, if necessary, based on preseason or inseason indicators. Restricted subsistence fishing schedule options have been presented to fishers by ADF&G (ADF&G 2001d). The Alaska Board of Fisheries adopted this schedule for the Yukon to help spread the subsistence fishing opportunity and to provide windows for salmon to reach their spawning grounds. The subsistence fishing schedule should help get more chinook and chum salmon upriver to the spawning grounds and spread the subsistence opportunity along the whole river. The salmon runs will be assessed inseason by ADF&G and Federal fishery managers who will coordinate subsistence fishery management actions based on the perceived strength of the runs. The Federal manager expects to adopt a subsistence fishing schedule by Special Action consistent with that adopted by the State just prior to the fishing season.

There is a plan for a coordinated information outreach effort by State and Federal staff to inform fishers along the Yukon River about the expected poor returns of chinook and chum salmon this summer. The basic message will cover the chinook and chum salmon management actions for 2001, the biology behind these actions, and the consequences of not taking these actions to conserve these salmon for future generations.

Biological Background

Despite drastic subsistence, commercial, sport and personal use harvest reductions and other fishing restrictions to the Yukon River drainage during the past three years, chinook and summer chum salmon spawning escapements in most areas of the Yukon have been poor. There has been a declining trend in the Yukon River returns of chinook and summer chum salmon (Figures 1 and 2). The returns of summer chum salmon and Canadian bound chinook salmon reached record low levels in 2000.

Appendix C6.-Page 4 of 8.

Tom Kron, 786-3604
Leadership Team Review Draft

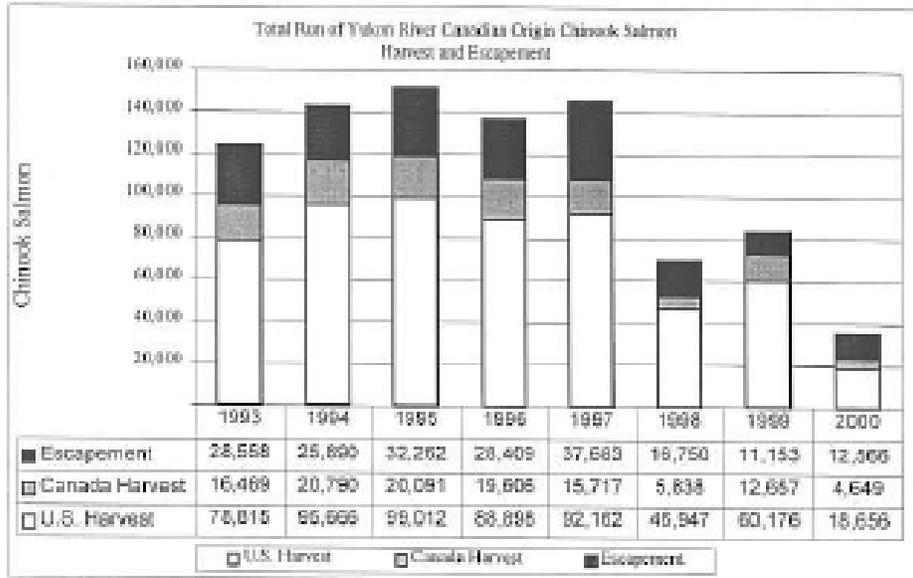


FIGURE 1. Estimated harvest (U.S. and Canadian) and escapement of Canadian origin chinook salmon 1993-2000 (ADF&G and USF&WS 2001).

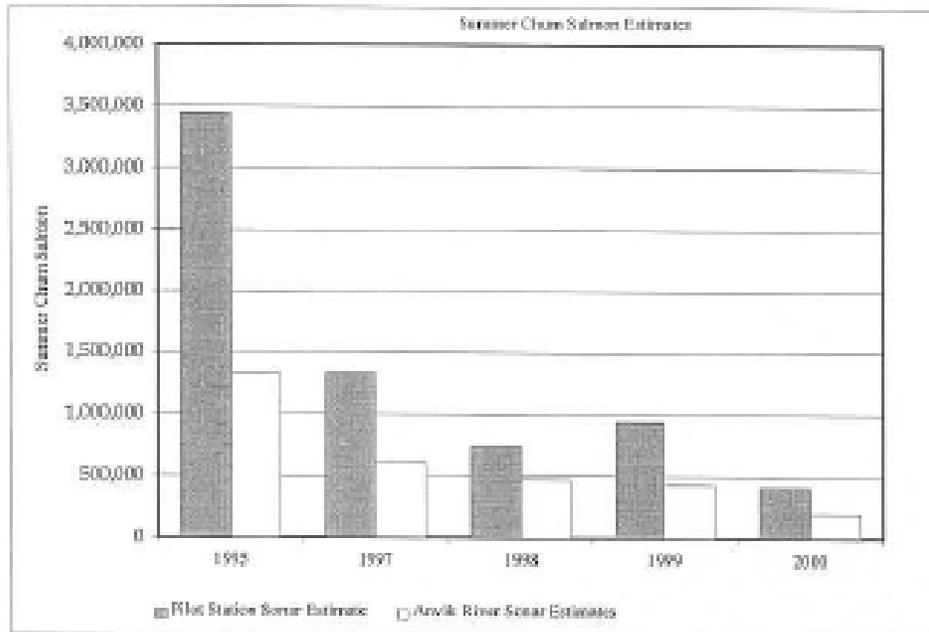


FIGURE 2. Yukon River summer chum salmon estimates 1995-2000 (ADF&G and USF&WS 2001).

Appendix C6.-Page 5 of 8.

Tom Krcn, 786-3604
Leadership Team Review Draft

The 2001 salmon runs to the Yukon River may very well be worse than they were last year. Sibling, brood-year relationships for chinook salmon are normally good indicators of salmon run strength in subsequent years. Returns of the larger age 6 and 7 year old chinook salmon are expected to be very poor based on the very poor returns of age 5 and 6 year olds in 2000. Age 6 and 7 chinook normally make up more than 60% of the run. There is less certainty about what to expect from summer chum salmon runs in 2001.

There is always some level of uncertainty regarding a salmon run outlook. We know from past history that outlooks are sometimes wrong, and as such, we must proceed circumspectly. The current data is a strong indicator of expected poor returns of chinook salmon in 2001. Until inseason information becomes available, we are obligated to approach the season very conservatively.

The USF&WS operates a fish counting weir on the East Fork of the Andreafsky River since 1994. This project will allow for an inseason assessment of chinook and summer chum salmon escapements there. Over the past 7-years, the average annual count at this project has been 4,069 chinook salmon. The number of returning fish has declined since the project's inception and the return in 2000 was the lowest observed (1,344 chinook salmon) (Harper and Zabkar 2000). The average annual count at this project has been 93,637 summer chum salmon. The number of returning chum salmon has generally declined since the project's inception and the count in 2000 was the lowest observed (22,918 summer chum salmon) (Harper and Zabkar 2000). Escapement goals have not yet been adopted for the Andreafsky Weir for chinook and summer chum salmon, but comparisons can be made based on salmon counts for that project in other years.

Harvest History

Numerous subsistence users along the upper Yukon were not able to meet their subsistence salmon needs in 2000. Subsistence harvests of chinook and chum salmon in 2000 were among the lowest on record. Many middle and upper Yukon River residents reported not having their subsistence needs met, while Lower Yukon residents generally met their needs.

Sport fishing for chinook and summer chum salmon within the Yukon Delta NWR is limited and occurs primarily in the Andreafsky River near the village of St. Marys. The estimated annual sport harvests (1989-1999) in the Andreafsky River ranged from 0 to 160 chinook salmon/year and averaged 28/year. For this same time period, the estimated annual sport harvest of summer chum salmon ranged from 0 to 112 and averaged 48/year. Additional fish were caught and released (Burr 2001). Limited sport fishing may be occurring in other clear water tributaries as well. The sport harvest in freshwater tributaries does not affect the subsistence harvest in the upper Yukon River communities. These sport harvests were likely taken by a mix of non-resident and resident (both urban and rural) anglers. The sport harvest of chinook and summer chum salmon on Federal Conservation Units upstream from the Yukon Delta NWR appears to be even smaller than that reported for the Andreafsky River (Burr 2001).

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Some non-Federally qualified subsistence users have subsistence fished on Federal Conservation Units within the Yukon River drainage in years past. For example, there are a number of urban Alaskan who travel to the Yukon Delta NWR during the commercial salmon season; while there, these individuals have also subsistence fished.

Effect of the Special Action Request

The effect of the original special action request would be to eliminate sport harvest of chinook and summer chum salmon on the Yukon Delta NWR. The chinook and summer chum salmon sport fishery occurs within the clear water streams of the of the Yukon Delta NWR and as such, the impact of the original Special Action request could be expected to only affect salmon populations within these lower Yukon tributaries. The sport salmon fisheries have generally occurred upstream in the tributaries from where most of the subsistence fishing activities occur. The original Special Action request would eliminate chinook and summer chum salmon sport fishing opportunity for both Alaska residents and non-resident.

This issue has implication to the Yukon River drainage as a whole and the use of Yukon River chinook and summer chum salmon by non-federally qualified subsistence users. It is appropriate to consider broadening this Special Action to include all Federal Conservation Units within the Yukon River drainage and all non-Federally qualified subsistence users.

The outlook for 2001 and recent years' poor chinook and summer chum salmon returns in the Yukon River drainage raise conservation concerns for both species. It is questionable whether chinook and summer chum salmon escapement needs will be met in 2001. There is a need to rebuild the depressed chinook and summer chum salmon stocks due to multiple years of poor returns. With each additional year of poor spawning escapements, the likelihood of future poor salmon runs will increase.

Subsistence users have voiced concern about a sport fishery being open while they are being restricted. These concerns raise some doubt regarding how approximately 1400 subsistence fishing households might respond to subsistence restrictions on the Yukon River if a continuing sport fishery exists. This is of concern given the need for public support in the future should additional subsistence restrictions be necessary, and the need to maintain future runs of chinook and summer chum salmon in the Yukon River drainage. Public support for any management action is critical to help meet desired escapements.

Given the restrictions to the traditional subsistence gillnet fishing this season, more subsistence fishers may elect to use subsistence hook and line gear to harvest chinook and chum salmon within the tributaries of the Yukon River. This would place additional pressure on salmon populations in these areas.

By modifying the Special Action, all non-federally qualified subsistence harvest of chinook and summer chum salmon would be eliminated. This would eliminate the sport

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and commercial fisheries on or adjacent to Federal Conservation Units. Alaskans from urban areas would not be able to subsistence fish under State subsistence regulations on or adjacent to these Federal Conservation Units. It is important for the inseason fishery manager to be empowered to remove such restrictions inseason in the event that it appears that escapements and subsistence needs will be met.

This Special Action would negatively affect the guides, outfitters and shuttle services operating in support of the small salmon sport fishery there. Sport fishing for other fish species would continue. An ADF&G Area Sport Fish Manager (Burr 2001, page 31) observed that: "The closure of sport fisheries for chinook salmon in the Yukon River placed a severe economic burden on fledgling local businesses without any real biological benefit. Maintaining a constant level of fishing opportunity throughout the season is critical for the local economic benefits that can accrue from these cottage industries. Complete closures of the recreational fishery should be contemplated only when substantial subsistence restrictions are needed."

PRELIMINARY CONCLUSION

Support with modification

Proposed wording for a Special Action: Unless you are a Federally qualified subsistence user, you may not harvest chinook and summer chum salmon from the Yukon River or its tributaries within or adjacent to any Federal Conservation Unit. The Federal inseason manager is authorized to remove this restriction in-season in the event that a harvestable surplus is identified in excess of the number of fish needed for escapement and subsistence.

Justification

Based on the returns of Yukon River chinook and summer chum salmon returns recent years and the expected poor outlook for this year, we do not expect to meet both escapement and subsistence needs in 2001. It is clear that with a smaller return of chinook and summer chum salmon, the subsistence schedule does represent a restriction to the subsistence fishery. The preseason, stated expectation is that subsistence harvests of chinook and summer chum salmon may be 50% or less than average. Harvests are being restricted in order to assure the continued viability of the chinook and summer chum salmon populations.

If the salmon returns are better than expected, and it can be demonstrated that escapement and subsistence needs will be met, the inseason manager should have the flexibility to remove this restrictions to provide the opportunity for state managed sport, commercial and fisheries on Federal Conservation Units within the Yukon River drainage.

LITERATURE CITED

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Appendix C7.-Special Action request to the Federal Subsistence Board from James Luke.

James Luke
P.O. Box 32004
Mountain Village, AK 99682
(907)591-2712

March 21, 2001

Special Action Request to the Federal Subsistence Board

Subject: Sport fishing for chinook and chum salmon in the lower Yukon River drainage down stream from Old Paradise Village.

The Special Action requests that the Federal Subsistence Board close sport fishing for chinook and chum salmon on the Federal waters in the lower Yukon River drainage. Federal waters include the main Yukon River and all its tributaries on the Yukon-Kuskokwim Delta Refuge.

Chinook and chum salmon on the lower Yukon River have been identified as stocks of concern and sport fishing will harm subsistence users who will suffer from the subsistence restrictions identified in fishing schedule. A closure to sport fishing for chinook and chum salmon would also help enhance the spawning escapement for these stocks of concern since much of the sport fishing does occur on or near the spawning grounds.

Subsistence users' needs will likely not be met on the lower, middle and upper Yukon River villages with a fishing schedule of three days per week and sport fishing would kill many fish even after they are released to the water and should not be allowed.

The sport fishing closure should be effective starting June 1, 2001.

Submitted By: James Luke
Mountain Village

Appendix C8.-Special Action request to the Federal Subsistence Board from Dan Coffey.



FISH and WILDLIFE SERVICE
BUREAU of LAND MANAGEMENT
NATIONAL PARK SERVICE
BUREAU of INDIAN AFFAIRS

Federal Subsistence Board

3601 C Street, Suite 1030
Anchorage, Alaska 99503



FOREST SERVICE

MAY 30 2001

FWS/OSM/C:/CoffeyLtr

Mr. Dan Coffey, Chairman
Alaska Department of Fish and Game
Board of Fisheries
1255 West 8th Street
P.O. Box 25526
Juneau, Alaska 99802-5526

Dear Chairman Coffey:

Copies of your letter dated May 8, 2001, were distributed to the Federal Subsistence Board before the members deliberated special action requests, FSA01-01 and FSA01-02, on May 9 -10, 2001. Your letter stated that the Board of Fisheries opposed the Federal Staff Committee recommendations for the special action requests. You also urged the Federal Subsistence Board "to allow the outcome of our deliberative public process to stand and to honor the initial goals to work collaboratively through the dual management process."

Recognizing the importance of maintaining a cohesive and coordinated management program with ADF&G and the Board of Fisheries, the Federal Subsistence Board diligently sought for a means to work towards some common ground with the State. However, during the deliberations of these SARs the conflict between our respective mandates became apparent. Consistent with Section 802 of ANILCA, the Federal Subsistence Board must provide for subsistence uses as the priority over other consumptive uses while assuring the continued viability of fish and wildlife populations. This is the banner that the Board must uphold in making its decisions. Based on the poor performance of the chinook and chum salmon runs during the past three years and the expected poor outlook for 2001, the Federal Subsistence Board decided to close all fishing for summer chum and chinook salmon in the Federal waters of the Yukon and Kuskokwim drainages, except to subsistence fishing by those rural residents qualified under Federal regulations. This will result in closing all sport and commercial fishing for these runs in Federal jurisdiction. The Federal in-season managers will work in consultation with ADF&G fisheries managers to reopen these fisheries if chinook and summer chum runs improve so that subsistence restrictions and conservation goals can be met.

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Mr. Dan Coffey

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The Federal Subsistence Board acknowledges the work accomplished by the Board of Fisheries this past winter. I feel very confident the decisions your Board made will play a major part in rebuilding the salmon runs of these two very important drainages. Given that the Federal and State processes are independent of each other and we have yet to develop a regulatory coordination protocol, the Federal Subsistence Board remains committed to working cooperatively with the State. Ever since the Board of Fisheries meeting in January, Federal and State staff have spent much time and effort working together to help local residents appreciate the seriousness of the situation and to gain their support of our mutual efforts to rebuild these critically impacted salmon runs. I believe you would agree that without broad public support, the efforts that the State and Federal governments are trying to implement this year and in future years will prove futile. That is why we must succeed in gaining this all-important public support this first year, if our hopes of rebuilding these runs are to materialize. I hope that we can continue to work together on this public effort.

In summary, the Federal Subsistence Board did its very best in trying to find common ground. Given the Board's mandate, the Board decided that favorable actions on the special action requests were necessary in view of the low anticipated size of the chinook and chum salmon runs, and the voluntary effort being asked of subsistence users to reduce their harvests.

Sincerely,



Mitch Demientieff, Chair
Federal Subsistence Board

cc: Mr. Frank Rue - Commissioner Alaska Department of Fish and Game
Mr. Niles Cesar - BIA
Mr. Fran Cherry - BLM
Mr. Rob Amberger - NPS
Mr. Jim Caplan - Acting Regional Forester, FS
Ms. Cathleen Short - USFWS
Mr. David Allen - USFWS
Mr. Marshall Jones - Acting Director, USFWS
Mr. Ron McCoy - DOI
Mr. Harry Wilde - Chair Yukon-Kuskokwim Delta Regional Advisory Council
Mr. Gerald Nicholia - Chair Eastern Interior Regional Advisory Council
Mr. Ron Sam - Chair Western Interior Regional Advisory Council

Appendix C9.-Letter to Tom Boyd addressing two Special Action requests submitted to the Federal Subsistence Board.

May 4, 2001

Tom Boyd, Assistant Regional Director
Office of Subsistence Management
U.S. Fish and Wildlife Service
3601 C Street
Anchorage, AK 99503

Dear Mr. Boyd:

This letter addresses two Special Action Requests (SARs) submitted to the Federal Subsistence Board (FSB) asking for sport fishing closures on the lower Yukon and Kuskokwim drainages. I understand federal staff modified the original SARs and recommended closure of all salmon fishing to all but federally qualified subsistence users on all waters within or adjacent to federal conservation units. This greatly expands upon the original requests and in so doing, presents additional issues not covered by my recent letter on this subject. Once again, I urge the committee to reconsider their recommendation for the Kuskokwim SAR, and the Yukon SAR as well. Our reasoning on these two (modified) SARs is basically the same, with a few differences noted below.

Our approach to issues raised in the SARs is embodied in the Alaska Board of Fisheries' process, the Sustainable Salmon Fisheries Policy for Alaska, state law mandating subsistence as a priority use, and a fully integrated inseason salmon management, data gathering, and public involvement capability. Action by the federal subsistence program, which would pre-empt the state's authority and actions in this situation, is unwarranted and unnecessary.

In January 2001, the Alaska Board of Fisheries addressed concerns for AYK area chinook and chum salmon by taking unprecedented conservation-based actions to restrict harvest along the entire migratory path of the stocks. These actions followed extensive deliberations in which state and federal fisheries staff and the affected public were fully engaged. Actions taken for the Yukon River included:

- Establishing a subsistence fishing schedule consistent with migratory timing, to be altered by emergency order as appropriate according to pre-season or in-season indicators;
- Reduction in summer chum interception through a 60 percent reduction in fishing time in Area M;
- Providing the department emergency order authority for waters; seasons; bag, possession, and size limits; and special provisions for hook and line subsistence salmon and resident species in the Yukon Area of the AVCP Region;

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Mr. Tom Boyd

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May 4, 2001

- Modifying the Yukon River Summer Chum Salmon Management Plan by establishing guidelines for managing summer chum salmon fisheries based on inseason calculation of run size.

Alaska Board of Fisheries actions for the Kuskokwim River included:

- Establishing a four days per week subsistence net fishing schedule;
- A reduction in size of fishing district W4;
- A reduction in bag and possession limits for chinook and chum salmon in the sport fishery;
- Maintaining the spawning season closures in the sport fishery for chinook salmon;
- Reduction in summer chum interception through a 60 percent reduction in fishing time in Area M;
- Granting authority to the department to adjust bag limits for subsistence rod and reel fisheries inseason. (The department has issued a news release stating its intent to restrict the Kuskokwim sport fishery, by emergency order, to either one chinook or chum salmon per day. The news release also indicated the department's intent to close the sport fishery for chinook and chum salmon in the event the subsistence fishery is further restricted or there is a likelihood of not meeting escapements.)

The Board of Fisheries determined the above measures were necessary and sufficient to address concerns for conservation and subsistence use of AYK chinook and chum salmon. State law requires restrictions and closures to other consumptive uses in order to provide reasonable opportunity for subsistence use. The department has stated its intent to close the sport fishery within these drainages immediately if it becomes necessary to protect subsistence opportunity or achieve escapements. More specifically, as we have said in public meetings and meetings with federal staff, by mid-June ADF&G salmon managers will determine whether early returns justify further restrictions in sport and other harvests. At this point in the run, salmon will not yet have reached tributaries and sport harvest will not have begun.

It should be clear the department is prepared to take all actions necessary to achieve escapements and provide for subsistence use including change the subsistence fishing schedule, close other fisheries, and make any other regulatory changes inseason, based on inseason run strength information.

We question whether the federal staff committee has considered all the ramifications of a pre-season closure of federal reserved waters to all but federally qualified subsistence users. Some traditional patterns of subsistence use on both the Kuskokwim and the Yukon would be prohibited by the proposed actions. Uncertainty in boundaries of federal reserved waters will likely complicate efforts to fish legally and will provide an unnecessary burden on users and enforcement personnel.

As we consider the staff recommendations from a management perspective, we see no analysis of the number of fish purported to be "saved" by a preseason closure. Similarly, we see no reference to the information base or standard managers will use to determine if escapement and subsistence needs are being met, so federal waters can be reopened to other uses. Complexity of

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fisheries management and the possibility of unforeseen consequences could significantly increase with passage of the SARs.

In summary, if the recommendations of the staff committee are adopted by the FSB, the reach of the Federal Subsistence Program in Alaska would be unnecessarily expanded, very likely to the detriment of many subsistence and other fishermen. The department stands by the Board of Fisheries' deliberative process and the department's management program for addressing conservation and subsistence needs in Alaska in general and in the AYK area in particular. Again, I urge the staff committee to reconsider their position on this issue.

Sincerely,

Frank Rue
Commissioner

cc: Mitch Dementieff, Chair, Federal Subsistence Board
Dave Allen, USFWS
Members, Alaska Board of Fisheries

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Mr. Tom Boyd

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May 4, 2001

bcc: Kelly Hepler
Diana Cote
Doug Mccum
Frank Rue

