

Fishery Management Report No. 09-51

**Fishery Management Report for Sport Fisheries in the
Yukon Management Area, 2008**

by

John Burr

December 2009

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



Symbols and Abbreviations

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Weights and measures (metric)		General		Measures (fisheries)	
centimeter	cm	Alaska Administrative		fork length	FL
deciliter	dL	Code	AAC	mideye to fork	MEF
gram	g	all commonly accepted		mideye to tail fork	METF
hectare	ha	abbreviations	e.g., Mr., Mrs., AM, PM, etc.	standard length	SL
kilogram	kg			total length	TL
kilometer	km	all commonly accepted			
liter	L	professional titles	e.g., Dr., Ph.D., R.N., etc.	Mathematics, statistics	
meter	m			<i>all standard mathematical</i>	
milliliter	mL	at	@	<i>signs, symbols and</i>	
millimeter	mm	compass directions:		<i>abbreviations</i>	
		east	E	alternate hypothesis	H _A
Weights and measures (English)		north	N	base of natural logarithm	<i>e</i>
cubic feet per second	ft ³ /s	south	S	catch per unit effort	CPUE
foot	ft	west	W	coefficient of variation	CV
gallon	gal	copyright	©	common test statistics	(F, t, χ^2 , etc.)
inch	in	corporate suffixes:		confidence interval	CI
mile	mi	Company	Co.	correlation coefficient	
nautical mile	nmi	Corporation	Corp.	(multiple)	R
ounce	oz	Incorporated	Inc.	correlation coefficient	
pound	lb	Limited	Ltd.	(simple)	r
quart	qt	District of Columbia	D.C.	covariance	cov
yard	yd	et alii (and others)	et al.	degree (angular)	°
		et cetera (and so forth)	etc.	degrees of freedom	df
Time and temperature		exempli gratia		expected value	<i>E</i>
day	d	(for example)	e.g.	greater than	>
degrees Celsius	°C	Federal Information		greater than or equal to	≥
degrees Fahrenheit	°F	Code	FIC	harvest per unit effort	HPUE
degrees kelvin	K	id est (that is)	i.e.	less than	<
hour	h	latitude or longitude	lat. or long.	less than or equal to	≤
minute	min	monetary symbols		logarithm (natural)	ln
second	s	(U.S.)	\$, ¢	logarithm (base 10)	log
		months (tables and		logarithm (specify base)	log ₂ , etc.
Physics and chemistry		figures): first three		minute (angular)	'
all atomic symbols		letters	Jan, ..., Dec	not significant	NS
alternating current	AC	registered trademark	®	null hypothesis	H ₀
ampere	A	trademark	™	percent	%
calorie	cal	United States		probability	P
direct current	DC	(adjective)	U.S.	probability of a type I error	
hertz	Hz	United States of		(rejection of the null	
horsepower	hp	America (noun)	USA	hypothesis when true)	α
hydrogen ion activity	pH	U.S.C.	United States	probability of a type II error	
(negative log of)			Code	(acceptance of the null	
parts per million	ppm	U.S. state		hypothesis when false)	β
parts per thousand	ppt, ‰		use two-letter	second (angular)	"
			abbreviations	standard deviation	SD
volts	V		(e.g., AK, WA)	standard error	SE
watts	W			variance	
				population	Var
				sample	var

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The Fishery Management Reports series was established in 1989 by the Division of Sport Fish for the publication of an overview of management activities and goals in a specific geographic area, and became a joint divisional series in 2004 with the Division of Commercial Fisheries. Fishery Management Reports are intended for fishery and other technical professionals, as well as lay persons. Fishery Management Reports are available through the Alaska State Library and on the Internet: <http://www.sf.adfg.state.ak.us/statewide/divreports/html/intersearch.cfm>. This publication has undergone regional peer review.

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PREFACE

This report provides information for the Yukon Management Area (YMA) and is one in a series of reports annually updating fisheries management information within Region III. The report is provided for the BOF, Fish and Game Advisory Committees (ACs), the general public, and other interested parties. It presents fisheries assessment information and management strategies that are developed from that information. In addition, this report includes a description of the fisheries regulatory process, geographic, administrative, and regulatory boundaries, funding sources, and other information concerning Division of Sport Fish management programs within the area.

The goals of the Division of Sport Fish of the Alaska Department of Fish and Game (ADF&G) are to protect and improve the state's recreational fisheries resources by managing for sustainable yield of wild stocks of sport fish, providing diverse recreational fishing opportunities, and providing information to assist the BOF in optimizing social and economic benefits from recreational fisheries. In order to implement these goals, the division has in place a fisheries management process.

A regional review is conducted annually during which the status of important area fisheries is considered and research needs are identified. Fisheries stock assessment research projects are developed, scheduled, and implemented to meet information needs identified by fisheries managers. Projects are planned within a formal operational planning process. Biological information gathered from these research projects is combined with effort information and input from user groups to assess the need for and development of fisheries management plans, and to propose regulatory strategies.

Division of Sport Fish management and research activities are funded by ADF&G and Federal Aid in Fisheries Restoration funds. ADF&G funds are derived from the sale of state fishing licenses. Federal aid funds are derived from federal taxes on fishing tackle and equipment established by the Federal Aid in Sport Fish Restoration Act (also referred to the Dingell-Johnson Act or D-J Act). D-J funds are provided to states at a match of up to three-to-one with the ADF&G funds. Additional funding specified for providing, protecting, and managing access to fish and game is provided through a tax on boat gas and equipment established by the Wallop-Breaux (W-B) Act. Other peripheral funding sources may include contracts with various government agencies and the private sector.

This area management report provides information regarding the YMA and its fisheries for 2008, with preliminary information from the 2009 season. This report is organized into two primary sections: a management area overview including a description of the management area and a summary of effort, harvest and catch for the area, and a section on significant area fisheries including specific harvest and catch by species and drainage.

ABSTRACT

Information specific to recreational fisheries in the Yukon Management Area in 2008 and preliminary information for 2009 is presented. Estimates of fishing effort, total catch and effort is summarized up through the 2008 season. This information is provided to the Alaska Board of Fisheries, as well as to the general public and interested parties. Summaries of major fisheries within the area are detailed, including descriptions of the performance of these fisheries, regulatory actions by Alaska Board of Fisheries, social and biological issues, and descriptions of ongoing research and management activities.

Key words: Yukon, sport fisheries, sport fishery management, fisheries management plan, Anvik River, Nowitna River, Dall River, Innoko River, Dalton Highway, northern pike, Dolly Varden, king salmon, coho salmon, Arctic grayling

EXECUTIVE SUMMARY

This document provides a wide array of information specific to the recreational angling opportunities that exist within the Yukon Management Area. Information specific to the proposals that the Alaska Board of Fisheries (BOF) will address at its January 26–31, 2010 meeting are contained within several sections of this report. As a means to assist BOF members in acquiring information in a timely manner, Appendix G has been constructed (page 78). This table guides the reader to specific information contained within the text, table, and graphic format that will be useful in evaluating regulatory proposals.

INTRODUCTION

The BOF divides the state into eighteen regulatory areas to organize the sport fishing regulatory system by drainage and fishery. These areas (different from regional management areas) are described in Title 5 of the Alaska Administrative Code Chapters 47–74. The Division of Sport Fish of Alaska Department of Fish and Game (ADF&G) divides the state into three administrative Regions with boundaries roughly corresponding to groups of the BOF regulatory areas. Region I covers Southeast Alaska (the Southeast Alaska regulatory area). Region II covers portions of Southcentral and Southwest Alaska (including the Prince William Sound, Kenai Peninsula, Kenai River drainage, Cook Inlet-Resurrection Bay Saltwater, Anchorage Bowl, Knik Arm, Susitna River drainages, West Cook Inlet, Kodiak, Bristol Bay, and the Alaska Peninsula and Aleutian Islands regulatory areas). Region III includes Upper Copper River and Upper Susitna River area and the Arctic-Yukon-Kuskokwim Region (including the North Slope, Northwestern, Yukon River, Tanana River, and Kuskokwim-Goodnews regulatory areas).

Region III is the largest geographic region, encompassing the majority of the landmass of the state of Alaska (Figure 1). The region contains over 1,146,000 km² (442,500 mi²) of land, some of the state's largest river systems (Yukon, Kuskokwim, Colville, Noatak, Upper Copper and Upper Susitna River drainages), thousands of lakes, thousands of miles of coastline, and streams. Regional coastline boundaries extend from Cape Newenham in the southwest, around all of western, northwestern and northern Alaska to the Canadian border on the Arctic Ocean. Region III as a whole is very sparsely populated, with the most densely populated center located in the Tanana River Valley. Fairbanks (population about 30,000) is the largest community.

For administrative purposes, Division of Sport Fish has divided Region III into six fisheries management areas (Figure 1). They are:

- Northwestern/North Slope Management Area (Norton Sound, Seward Peninsula, Kotzebue Sound, and North Slope drainages);
- Yukon Management Area (the Yukon River drainage except for the Tanana River drainage);
- Upper Copper/Upper Susitna Management Area (the Copper River drainage upstream of Canyon Creek and Haley Creek, and the Susitna River drainage above the Oshetna River);
- Upper Tanana River Management Area (the Tanana River drainage upstream from Banner Creek and the Little Delta River);
- Lower Tanana River Management Area (the Tanana River drainage downstream from Banner Creek and the Little Delta River); and,
- Kuskokwim-Goodnews Management Area (the entire Kuskokwim River drainage and Kuskokwim Bay drainages).

Area management biologists for the six areas are located in Nome/Fairbanks, Fairbanks, Glennallen, Delta Junction, Fairbanks, and Bethel/Fairbanks, respectively.

THE ALASKA BOARD OF FISHERIES

The BOF is a seven-member board that sets fishery regulations and harvest levels, allocates fishery resources, and approves or mandates fishery conservation plans for the State of Alaska. BOF members are appointed by the governor for three-year terms and must be confirmed by the legislature.

Under the current operating schedule, the BOF considers fishery issues for regulatory areas or groups of regulatory areas on a 3-year cycle. Proposals to create new or modify existing regulations and management plans are submitted by ADF&G and the public (any individual can submit a proposal to the BOF) for evaluation by the BOF. During its deliberations the BOF receives input and testimony through oral and written reports from ADF&G staff, members of the general public, representatives of local Advisory Committees (ACs), and special interest groups such as fishermen's associations and clubs. The public provides its input concerning regulation changes and allocation through submission of written proposals and testifying directly to the BOF, by participating in local AC meetings, or by becoming members of local ACs.

ADVISORY COMMITTEES

Local ACs have been established throughout the state to assist the Boards of Fish and Game in assessing fisheries and wildlife issues and proposed regulation changes. AC members are nominated from the local public and voted on by all present during an AC meeting. Most active committees in urban areas meet in the fall and winter on a monthly basis. Rural committees generally have only one fall and one spring meeting due to funding constraints. AC meetings allow opportunity for direct public interaction with ADF&G staff attending the meetings that answer questions and provide clarification concerning proposed regulatory changes regarding resource issues of local and statewide concerns. The Boards Support Section within ADF&G's

Division of Administration provides administrative and logistical support for the BOF and ACs. During 2008, ADF&G had direct support responsibilities for 82 ACs in the state.

Within the Yukon Management Area (YMA) there are ten ACs: Eagle, Upper Tanana/40-Mile, Yukon Flats, Central, Tanana-Rampart-Manley (TRM), Middle Yukon, Koyukuk, Grayling-Anvik-Shageluk-Holy Cross (GASH), Ruby, and Lower Yukon. In addition, the Delta and Fairbanks ACs often comment on proposals concerning fisheries in the YMA.

RECENT BOARD OF FISHERIES ACTIONS

The BOF meets annually, but deliberates on each individual regulatory area on a 3-year cycle. YMA fisheries will next be considered during January 2010. Only one proposal concerning sport fisheries in the YMA is scheduled for review at this time. This proposal seeks to adjust the date of the spring spawning closure in the *Yukon River Area Wild Arctic Grayling Management Plan (5 AAC 73.055)*. If the proposal is adopted, the catch-and-release spawning season dates would change by one day (May 30 to May 31) to align the regulations with the dates specified in the management plan for the YMA.

The BOF most recently considered fisheries for the YMA in February 2007. During the meeting, the BOF considered and adopted two proposals affecting sport fisheries in the YMA (Appendix A1). The daily and possession limit for northern pike *Esox lucius* in the Nowitna River drainage was reduced from 10 fish to five fish, of which only one fish can be 30 inches or longer. The BOF amended lake trout *Salvelinus namaycush* regulations by adopting a region-wide lake trout management plan. This plan provides a regulatory framework for consistent, conservative management of lake trout populations in the YMA as well as the other five management areas within Region III.

During 2004, the BOF adopted five proposals affecting YMA sport fisheries for Arctic grayling *Thymallus arcticus*, lake trout, and Dolly Varden *Salvelinus malma* (Appendix A2). The BOF adopted a *Wild Arctic Grayling Management Plan* which groups regulatory options into three management categories. All YMA Arctic grayling fisheries but one are presently under the background regulation of five fish per day with no size limit. The Arctic grayling fishery at Nome Creek (Beaver Creek drainage) continues under a catch-and-release only regulation and is under the Special Management category. The regulations for lake trout and Dolly Varden in lakes in the YMA have been combined; the current regulation is two fish (lake trout and/or Dolly Varden) in combination, no size limit.

ADF&G EMERGENCY ORDER AUTHORITY

ADF&G has emergency order (EO) authority (5 AAC 75.003, 2007) to modify time, area, and daily/possession limit regulations. EOs are implemented to address conservation issues not adequately controlled by existing regulations. Once implemented, an EO is in effect until the situation is resolved or the BOF can formally take up the issue. EOs are also used as a tool for inseason management of fisheries. Inseason management is usually in accordance with a fisheries management plan approved by the BOF. One emergency order was issued under this authority for the YMA during 2008 and two emergency orders were issued in 2009.

In 2008, Emergency Order 3-KS-01-08 reduced the daily and possession limit for Chinook (king) salmon *Oncorhynchus tshawytscha* to one king salmon in all waters of the Yukon River drainage, effective July 3, 2008, due to the weak king salmon return. In 2009, Emergency Order

3-KS-01-09 reduced the daily and possession limit for king salmon in all tributaries of the Yukon River drainage to one king salmon and prohibited retention of king salmon in the mainstem Yukon River, effective June 1, 2009 due to the weak king salmon return. In addition, Emergency Order 3-CS-01-09 prohibited retention of chum salmon *O. keta* in all waters of the Yukon River drainage (excluding the Tanana River drainage) effective September 4, 2009. Due to the poor fall chum salmon return, this emergency order prohibited the retention of chum salmon.

FEDERAL SUBSISTENCE

The Alaska National Interest Lands Conservation Act (ANILCA) established a priority subsistence use of fish and game for federally-qualified rural residents on lands and waters for which the federal government asserts jurisdiction. The state of Alaska has also established a priority for subsistence use of fish and game by Alaskan residents (AS 16.05.258) on all lands and waters, but cannot discriminate between rural and urban residents (Alaska State Constitution Article VIII, sections 3 and 15). Because of this difference, the federal government asserted authority to ensure a priority subsistence use of fish and game for rural residents on federal lands and certain adjacent waters. On October 1, 1999 the federal government asserted regulatory authority for assuring rural priority for subsistence fisheries on federal public lands, which includes non-navigable waters on public lands. Following the “Katie John” decision by the 9th Circuit Court in 1995, the federal government expanded the definition of public land to include waters for which the federal agencies assert federal reserved water rights. Under current practice, the federal land management agencies adopt regulations to provide for priority subsistence use by qualified rural residents in non-navigable waters within federal public lands (including Bureau of Land Management (BLM) lands) and in navigable waters adjacent to or within federal conservation system units (generally does not include BLM lands). The State retains all other fish and wildlife management authorities, including management on federal land.

Development of regulations for subsistence fisheries under the federal subsistence program occurs within the established Federal Subsistence Board (FSB) process. The public provides its input concerning regulation changes by testifying in Federal Subsistence Regional Advisory Council (RAC) meetings or by becoming council members. Ten RACs have been established throughout Alaska to assist the FSB in determining local subsistence issues and providing recommendations on proposed fishing and hunting regulations on the fish and game populations under consideration. Each RAC meets twice a year, and subsistence users and other members of the public can comment on subsistence issues at these meetings.

Within the YMA the subsistence fisheries for which the federal government asserts management responsibility include those in Gates of the Arctic National Park, Yukon-Charley Rivers National Preserve, Steese National Conservation Area, White Mountain National Recreation Area, Innoko National Wildlife Refuge (NWR), Kanuti NWR, Koyukuk NWR, Nowitna NWR, Yukon Flats NWR, Yukon Delta NWR, Beaver Creek National Wild and Scenic River (NW&SR), Birch Creek NW&SR, and Fortymile NW&SR. Subsistence fisheries within the above listed areas fall under the purview of the Eastern, Western, and Yukon-Kuskokwim Delta RACs. The most recent meeting of the Yukon-Kuskokwim Delta RAC was in Bethel (October 2–3, 2009). The Western Interior RAC met in Aniak October 6–7. The last meeting of the Eastern Interior RAC was in Ft. Yukon (October 13–14, 2009). At these meetings, federal fishery proposals concerning gillnet mesh size and depth restrictions and implementation of special fishing periods

for rural residents were addressed and council recommendations were forwarded to the FSB. In addition, proposals to the BOF concerning subsistence salmon fisheries were reviewed and council positions were forwarded to the BOF for consideration during its January 2010 meeting

REGION III DIVISION OF SPORT FISH RESEARCH AND MANAGEMENT

STAFFING

Region III Division of Sport Fish staff biologists are organized into a research group and a management group. The management group consists of a management supervisor, an area biologist for each of the six management areas, one or more assistant area management biologists, and two stocked water biologists. Area biologists evaluate fisheries and propose and implement management strategies through plans and regulation in order to meet divisional goals. A critical part of these positions is interaction with the BOF, ACs, and the general public. Stocked waters biologists plan and implement the regional stocking program for recreational fisheries. The regional management biologist assigned to the Region III headquarters office in Fairbanks also administers the regional fishing and boating access program.

The research group consists of a research supervisor, a salmon research supervisor, a resident species supervisor, research biologists, and various field technicians. Research biologists plan and implement fisheries research projects in order to provide information needed by the management group to meet divisional goals. The duties of the management and research biologists augment one another.

STATEWIDE HARVEST SURVEY

Sport fishing effort and harvest of sport fish species in Alaska have been estimated and reported annually since 1977 using a mail survey (Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d, Walker et al. 2003, Jennings et al. 2004, 2006a-b, 2007, 2009a-b, *In prep a-b*). The Statewide Harvest Survey (SWHS) is designed to provide estimates of effort, harvest, and catch on a site-by-site basis. It is not designed to provide estimates of effort directed towards a single species. Species-specific catch-per-unit-effort (CPUE) information can seldom be derived from the report. Two types of questionnaires are mailed to a stratified random sample of households containing at least one individual with a valid fishing license (resident or nonresident). Information gathered from the survey includes participation (number of anglers and days fished), number of fish caught and number harvested by species and site. These surveys estimate the number of angler-days of fishing effort expended by sport anglers fishing Alaskan waters as well as the sport harvest. Beginning in 1990, the survey was modified to include estimation of catch (release plus harvest) on a site-by-site basis. Survey results for each year are not available until the following year; hence, the results for 2008 were not available until fall 2009. Additionally, creel surveys have been selectively used to verify the mail survey for fisheries of interest or for fisheries that require more detailed information or inseason management.

The utility of SWHS estimates depends on the number of responses received for a given site (Mills and Howe 1992). In general, estimates from smaller fisheries with low participation are less precise than those of larger fisheries with high participation. Therefore, the following guidelines were implemented for evaluating survey data:

1. Estimates based on fewer than 12 responses should not be used other than to document that sport fishing occurred;
2. Estimates based on 12 to 29 responses can be useful in indicating relative orders of magnitude and for assessing long-term trends; and,
3. Estimates based on 30 or more responses are generally representative of levels of fishing effort, catch, and harvest.

For purposes of reporting and organizing statistics in the SWHS, the YMA is designated as survey area (Y).

SECTION I: MANAGEMENT AREA OVERVIEW

MANAGEMENT AREA DESCRIPTION

The YMA consists of approximately 407,858 km² of extremely varied topography, climate, and zoogeography. The Yukon River is the largest river in Alaska and its drainage constitutes the fifth largest in North America. The YMA (Figure 2) includes all of the Yukon River drainage in the United States except for the Tanana River drainage. The area as a whole is sparsely populated. The communities within the management area are invariably located near water, because of the importance of fish and/or marine mammals as a food source to native people historically and today.

Access to most of the area is limited to water or air travel. Major river systems provide transportation corridors during winter, as well as during open water months. Road access to the Yukon River is provided by the Dalton Highway, by the Steese Highway at Circle and by the Taylor Highway at Eagle. With the exception of the Dalton Highway, these gravel roads are not maintained during winter.

Land ownership and jurisdictions fragment this large area into a complex mosaic. The federal government is the major land manager through its jurisdiction over lands in two National Parks and Preserves (Yukon–Charley and Gates of the Arctic), five National Wildlife Refuges (Yukon Flats, Kanuti, Koyukuk, Nowitna, and Innoko), the White Mountains National Recreation Area, the Steese National Conservation Area, and numerous Wild and/or Scenic Rivers, as well as other classifications of federal lands. Lands held by the State of Alaska, Native corporations, and other private landowners comprise the remaining landmass. Arvey et al. (1995) provides a detailed description of the geology of the YMA.

FISHERY RESOURCES

Virtually all freshwater and migratory fish species sought by anglers in Alaska are available in the YMA. All populations are wild; there is presently no enhancement of fish populations in the management area. Five species of Pacific salmon are available in tributaries of the Yukon River, including king salmon, coho salmon *Oncorhynchus kisutch*, chum salmon, sockeye salmon *O. nerka*, and pink salmon *O. gorbuscha*.

Unique opportunities to fish for freshwater resident species in remote wilderness settings exist throughout this management area. Exceptionally large northern pike and inconnu (sheefish) *Stenodus leucichthys* are available in the Innoko, Kaiyuh, and Nowitna river drainages. Opportunities to fish for Arctic grayling *Thymallus arcticus*, Dolly Varden *Salvelinus malma*, northern pike, burbot *Lota lota*, and lake trout are very widespread and fishing pressure on these wild stock is very light. The Dalton Highway is a popular destination and provides road access to adjacent lakes and streams which support stocks of Arctic grayling, Dolly Varden, and lake trout. Wild stocks of rainbow trout *Oncorhynchus mykiss* do not occur naturally in drainages north of the Kuskokwim River. Additional species of whitefish that are of importance to fisheries in the Yukon Area include broad whitefish *Coregonus nasus*, Arctic cisco *Coregonus autumnalis*, and Bering cisco *Coregonus laurettae*.

ESTABLISHED MANAGEMENT PLANS AND POLICIES

Regulations governing fisheries in the YMA are found in 5 AAC 73.005 through 5 AAC 73.065 (sport fishing), in 5 AAC 01.200 through 5 AAC 01.249 (subsistence fishing), and in 5 AAC 05.001 through 5 AAC 05.380 (commercial fishing).

Fisheries-specific management objectives for the management area have been identified in management plans for Arctic grayling and lake trout. In addition, a series of general divisional criteria have been prepared to guide establishment of fishery objectives, and include:

1. **Management and protection of existing fish resources.** Divisional activities should strive to manage and protect Alaska's wild fish stock resources for future generations;
2. **Public use and benefits of existing fish resources.** Alaska's fishery resources should be made available for public use and benefit on a sustained yield basis;
3. **Rehabilitation of depressed stocks and damaged habitat.** Division activities should strive to restore and maintain fish stocks and habitat damaged by man's activities; and,
4. **Enhancement of natural production or creation of new opportunities.** The Division should pursue creation of new sport fishing opportunities through rehabilitation of natural stocks or creation of new fisheries where these opportunities do not negatively impact other fisheries.

Two regionwide management plans that affect fisheries in the area have been completed. A regional management plan for Arctic grayling was adopted by the BOF in January 2004 (5 AAC 70.055, 2004). This plan supersedes a previous Yukon River drainage management plan for Arctic grayling. A management plan for lake trout in the AYK region was adopted by the BOF for the Upper Copper/Upper Susitna Management Area in December 2005. The *Wild Lake Trout Management Plan* (5 AAC 70.040, 2007) was adopted for the remainder of the AYK region by the BOF in February 2007 (Burr 2006). Revision of existing plans, as well as the development of additional fisheries management plans, will occur as needed in response to changes in use patterns as new quantitative information becomes available.

A cooperative planning effort for the Dall River northern pike fishery provided a management plan for this fishery (Burr 2001). Cooperators include ADF&G, the Stevens Village Natural Resources Office, the Yukon Flats National Wildlife Refuge, and members of the Fairbanks AC.

MAJOR ISSUES

1. Dalton Highway recreational fisheries. The opening of the entire length of the Dalton Highway (North Slope Haul Road) to public travel in 1994 provided new access to lakes and streams along the route. Increases in recreational fishing effort and harvest have resulted in reductions in bag limits for northern pike and Arctic grayling and in a no-harvest regulation for lake trout within the highway corridor. The State of Alaska is in the process of paving the Dalton Highway north of the Yukon River. Sport fishing by road construction crews and by increasing numbers of visitors will likely bring greater fishing effort to fish stocks in the highway corridor. Due to the unproductive fisheries habitat in the region, the likelihood of overexploitation of these stocks is considered high.
2. Development of new sport fisheries in rural Alaska. Relatively rapid development of sport fisheries in remote areas has resulted in friction between local residents and the non-local anglers. In many instances, local people have historically enjoyed nearly exclusive use of fishery resources. Sport fishing guides and other anglers seeking less crowded fishing opportunities in wilderness settings continue to “discover” less well known, but potentially, high quality fisheries. As currently popular fishing destinations in other parts of Alaska become increasingly crowded, anglers and guides are likely to continue to travel farther to participate in Alaska’s fisheries. In addition to the social friction caused by this change in use patterns of remote areas and to some extent because of this friction, the ADF&G will be increasingly expected to provide information on the status of stocks for which there is currently only the most rudimentary information. This is likely to be the biggest challenge in the management of sport fisheries in the YMA. Recent experiences at the Dall and Innoko rivers are examples of the type of challenges that should be anticipated (see page 24).
3. Rod and reel subsistence. In 2000, the BOF included rod and reel gear as a legal subsistence fishing method for harvest during the open water season in the Association of Village Council Presidents (AVCP) area of the Lower Yukon and Kuskokwim rivers. In 2001, rod and reel subsistence fishing was extended upstream to include the remainder of the Kuskokwim River drainage by emergency regulation in response to a petition to the BOF from Nikolai Native Village and the Western Interior RAC. Until these actions were taken, rod and reel for subsistence fishing was permitted only through the ice under State regulations. The primary concern with this potential change is how to manage for sustainable fish populations with legalization of rod and reel gear for subsistence fishing. It is likely that rural resident use patterns have incorporated rod and reel in past subsistence harvests, and legalization of this gear will not greatly affect local use patterns. Since all Alaskans qualify for subsistence, resident anglers could choose to rod and reel fish under subsistence regulations instead of sport fish regulations. The greatest concerns relate to changes in urban resident behavior in regard to license sales, visitation to rural fisheries, harvests of fish populations, and ability to measure these harvests absent harvest surveys or permits.
4. Rural resentment of sport fishing and sport anglers. Some rural Alaskans have a cultural bias against the concept of "sport fishing" and feel that people do not have the right to "play" with food resources. The bias is particularly strong toward catch-and-release practices. This conflict of values has led to resentment toward sport anglers who wish to fish on private and public lands within the YMA.

5. Federal fishery management for subsistence in Alaska's navigable waters. In October 1999, federal fishery managers assumed responsibility for ensuring a rural subsistence priority on navigable waters adjacent to or within the boundaries of federal conservation units. There is continued concern that a result of this action will be reduced opportunity for sport fishing throughout the state. Because of the large amount of federal public land within the YMA and because of the high proportion of subsistence users, this loss of opportunity is of acute concern for sport fishermen in the area. Recent proposals to the FSB to exclude recreational anglers from popular fisheries have required substantial efforts by ADF&G staff to maintain current opportunities.

ACCESS PROGRAM

The Wallop-Breaux amendment to the Federal Aid in Sport Fish Restoration Act (D-J) mandates that at least 15% of the federal funds collected from taxes on boat gas and sport fishing equipment be used by the states for the development and maintenance of motorized boating access facilities. A broad range of access facilities can be approved for funding if they are constructed to achieve a State fishery management objective. These facilities can include boat ramps and lifts, docking and marina facilities, breakwaters, fish cleaning stations, rest rooms, and parking areas.

To date, relatively few access projects have been proposed for rural YMA. Access funds were used for construction of a concrete boat launch to the Yukon River in cooperation with the city of Galena. Other projects currently under consideration include improved access and parking at the Yukon River, Dalton Highway bridge boat launch and a boat launch at Birch Creek on the Steese Highway.

INFORMATION AND EDUCATION

Information regarding regulations, publications, fishing reports, news releases and emergency orders for the YMA can be found at the ADF&G, Division of Sport Fish website (<http://www.sf.adfg.state.ak.us/statewide/index.cfm>). Information on rivers and lakes is also available from the Alaska Department of Natural Resources website (www.dnr.state.ak.us/parks/aktrails/index.htm). Federal agencies provide information on waterbodies in National Parks and Preserves, National Wildlife Refuges, and Wild and Scenic Rivers. A listing of addresses and contact numbers for these information sources can be found in Appendix B1.

There are three regional information and education (I&E) staff located in the Fairbanks office. An Information Officer II and a seasonal Fisheries Technician III respond to questions from the public at the office and via phone and e-mail. In addition, I&E staff distribute and update fishery brochures, fishing regulations, the regional webpage, coordinate the Fairbanks Outdoor Show booth and Kid's Fish & Game Fun Day, and the Becoming an Outdoorswoman (BOW) program. An Education Associate II coordinates the sport fishing component of the Alaska Conservation Camp and works with schools in various communities throughout the region to provide a curriculum in sport fishing and aquatic education.

SPORT ANGLING EFFORT, HARVEST AND CATCH

Estimates of angling effort in the YMA averaged approximately 10,000 angler-days during the last five (2003–2007) and ten (1998–2007) year periods. Angling effort in the region and statewide has also, on average, remained relatively stable during this period (Table 1).

The vast majority of the YMA and its fishable waters occur away from highways and motor vehicle roads of any kind. Small communities are scattered along major river systems of Interior Alaska and along the western coast. The communities are invariably located near water to facilitate transportation and because of the importance of fish as a food source to local people historically and today. Residents of these rural communities harvest a substantial amount of fish and game resources for subsistence use, but fishing is usually conducted with high catch-per-unit-of-effort gear types such as fish wheels and nylon gillnets. Recently, rod and reel fishing gear was added to the types of legal subsistence fishing gear in the lower portion of the Yukon River drainage. Recreational or sport fishing with rod and reel is practiced to some extent by rural residents, but often as an extension of subsistence activities and less for recreational purposes. Consequently, harvest estimates of sport-caught fish from rural Alaska are generally low because local residents usually fish under subsistence regulations and because the small amount of sport fishing done is usually conducted as a subsistence activity. Since statewide harvest estimates are based upon surveys of licensed sport anglers, rural harvests are probably not fully documented.

Sport harvest of all species combined from the YMA averaged more than 12,000 fish until the early 1990s with the peak harvest of 14,720 in 1989 (Appendix C1). Since that time annual harvests have declined and have averaged about 7,500 fish (Table 2). The most recent estimate (2008) is 5,793, the second lowest estimate since 1977 when the statewide angler survey was initiated. The harvest in the YMA has been dominated by freshwater resident species, primarily Arctic grayling, northern pike, and sheefish. Pacific salmon (all species combined) comprise only about nine percent of the total sport harvest in the management area (Appendix C1).

Sport catch of all species in the YMA has been estimated since 1990 (Table 2). Numbers reported as catch include fish that are caught and kept (harvested) and those that are caught and released. During the most recent 5-year period, more than 85% of all fish caught in the YMA were released. The proportion of catch-and-release activity varies by species. For example, only 7% of burbot caught between 2002 and 2006 were released compared with 92% of northern pike, 89% of Arctic grayling, 75% of lake trout and 85% of king salmon.

OTHER USER GROUPS - COMMERCIAL AND SUBSISTENCE FISH HARVESTS

Important subsistence and commercial fisheries exist in the Yukon River drainage and form an economic base for income and employment in many local communities. Commercial and subsistence harvests for all species of salmon are much larger than are sport harvests (Appendices D1–D3). In contrast to fisheries for salmon, the majority of the harvest of freshwater fish is by subsistence and sport users. Currently there are very limited commercial fisheries for sheefish, whitefish, and lamprey.

In the Yukon River drainage, salmon harvests have historically been dominated by chum salmon (Appendices D1–D3). King salmon, while less abundant, is a very important species for commercial sale and is preferred for subsistence use in many parts of the area. Between 1998

and 2004 the number of king salmon harvested in the commercial fishery exceeded the combined number of chum salmon (summer and fall) primarily due to reduced opportunities for chum salmon roe sales. The commercial harvest of coho salmon is primarily incidental to the fall chum salmon fishery. Pink salmon occur throughout the YMA in streams near the coast, but, while numerically dominant in some years, the species is not exploited to a great extent in commercial or subsistence fisheries.

Commercial harvests of all salmon species in the Yukon River averaged more than one million salmon annually from 1977 to 1996 (Appendices D1–D3). Weak returns of king and chum salmon since 1997, particularly through 2002, resulted in much lower than average commercial harvests. In 2001, there was no directed commercial fishery for king or chum salmon in the Yukon River drainage. Recently commercial harvests have increased but have not reached historical levels (Appendices D1–D3). Poor king salmon runs in 2008 and 2009 resulted in no commercial fishery directed at king salmon.

SECTION II: FISHERIES

Waters within the YMA offer some of the most remote and diverse sport fishing opportunities available in Alaska. Opportunities to catch trophy northern pike, sheefish, Dolly Varden, lake trout, and Arctic grayling within wilderness settings are well known. Sport fishing opportunities for salmon are currently not as well developed. However, angling for king and coho salmon has increased during recent years in the Yukon River drainage as pressure on other popular sites outside the YMA continues to increase. Marine sport fisheries within the boundaries of the YMA are extremely rare.

This section provides a summary of sport fisheries by species that were considered significant in the YMA during 2008 to 2009. Discussion of each fishery will address: 1) historical perspective; 2) recent fishery performance (stock status); 3) fishery objectives and management; 4) current issues; 5) recent actions by the BOF; and, 6) ongoing and recommended management and research activities. Recent fishery performance will focus on data from 2008. Information regarding the 2009 season will be included as available, but estimates of sport effort and harvest are not yet available for the 2009 season. Tables summarizing historic sport fish harvests by species are provided for reference (Table 2; Appendix C1).

YUKON RIVER DRAINAGE SALMON

King, chum, and coho salmon are important subsistence and commercial species in the Yukon River drainage. However, harvest by sport anglers has, to date, been minimal.

Background and Historical Perspective

King salmon are found throughout the Yukon River drainage. Chum salmon, composed of a summer run and a fall run, are numerically the most abundant species and are distributed throughout the drainage. Coho salmon are less abundant and spawn in large numbers in only a few identified streams. Pink salmon are locally abundant in some years but are not thought to migrate upstream of the Anvik River (approximately 250 river mi from the Bering Sea). Sockeye salmon occur occasionally, but only a few fish are taken annually in commercial or subsistence harvests. The locations of spawning sites for sockeye salmon have not been identified.

Annual sport harvests of salmon in the Yukon River drainage have historically been, and continue to be, primarily from streams of the Tanana River drainage. Sport fisheries in the Tanana River drainage are discussed within the Fishery Management Reports for the Upper and Lower Tanana Management Areas (Brase 2009; Parker 2009). Sport harvests are reported from other streams and drainages in the Yukon River watershed, primarily from the Andreafsky, Anvik, Porcupine, and Koyukuk rivers and their tributaries (Tables 3–5). Approximately 12,000 people live along the Yukon River and its tributaries (excluding the Tanana River). Most of these people depend to some extent on salmon for livelihood, subsistence, or both. Rural residents customarily use high yield fishing methods such as gillnet and fish wheel, where a larger volume harvest can be taken in the turbid mainstem of Yukon River. Rod and reel fishing for salmon is practiced in clear water tributaries of the Yukon River drainage by some rural residents and by non-local residents who visit for the purpose of sport fishing. Consequently, the reported sport harvest does not reflect the abundance of salmon in the drainage.

Recent Fisheries Performance

A period of increased variability in run strength of Yukon River king and chum salmon began in 1997 with the 2000 runs the worst on record for both species. In September 2000 the BOF classified the Yukon River king salmon stock as a yield concern, the Yukon River summer chum salmon stock as a management concern and most of the Yukon River drainage fall chum salmon stock as a yield concern. Fall chum salmon stocks in the Toklat and Fishing Branch rivers were classified as management concerns. The *Policy for the Management of Sustainable Salmon Fisheries* (SSFP; 5 AAC 39.222) defines a yield concern as an inability to maintain expected yields or harvestable surpluses above the stock's escapement needs despite the use of specific management measures. A management concern is defined as the chronic inability to meet existing escapement goals for the stock. Between 2001 and 2003, increases in escapements were due primarily to more conservative management. Through 2007, king and chum salmon runs continued to improve over the very poor runs of 1999–2000. However, in 2008 and 2009, the number of king salmon returning to the Yukon River drainage was again less than expected. In 2009, the number of fall chum salmon returning was also well below the level anticipated.

Summary of Yukon Salmon Runs 2008-2009

Assessment of the 2008 king salmon run indicated that the run was well below average. Because of the weak run in 2007, it was recognized prior to the beginning of the season that the run might not be large enough to support even a small directed commercial harvest. The first pulse, as estimated by the Pilot Station sonar project, was very weak and there was concern that the run might be too small to support an average level of subsistence harvest (50,000 fish), meet escapement goals in Alaska, and meet the interim management escapement goal (IMEG) of >45,000 fish into Canada. While the second and third pulses did provide higher estimates of total run size, the run was still too weak to provide for even a small commercial fishery targeting king salmon. During the second and third pulses, subsistence fishing windows were reduced throughout the mainstem Yukon River to enhance escapement of king salmon to Canada. In addition, in the lower river districts Y1–Y3, mesh size was restricted to 6" or less following the first pulse to enhance passage of king salmon while providing harvest opportunity for summer chum salmon. Subsistence fishing restrictions were not implemented in the Tanana and Koyukuk river drainages because of low fishing effort in these areas, and in the case of the Tanana River, assessment projects are available to manage the Tanana River separately. Sport fishery bag limits in Yukon River tributaries other than the Tanana River drainage were reduced

from 3 to 1 as the second pulse of king salmon reached these areas. In a commercial fishery targeting summer chum salmon, approximately 4,600 king salmon were harvested. This is the lowest commercial harvest in decades, except for the 2001 season when no king salmon were harvested in the commercial fishery (Appendix D1). Spawning escapement for the Canadian portion of the Yukon River drainage estimated by Eagle sonar project near the Alaska-Canada border was approximately 32,500 king salmon, 28% below the Canadian Interim Management Escapement Goal (IMEG) of >45,000 king salmon.

The king salmon run in 2009 was also weak. Because managers anticipated a weak run and because the Canadian border passage goal had not been attained in the past two seasons, a series of meetings and teleconferences were held prior to the start of the season. The purpose of these meetings was to provide managers, fishermen, tribal council representatives, and other stakeholders the opportunity to work cooperatively to identify options and practical management strategies that would assist in getting adequate numbers of fish to the spawning grounds, particularly to Canada.

The king salmon fishery was managed very conservatively. No commercial fishery directed at king salmon was allowed. All salmon fishing was closed as the first pulse of king salmon migrated upstream to the Canadian Border with the goal of conserving the greatest number of Canada-bound fish. Subsistence fishing time on the remaining pulses was reduced by one half. The sport fishery for king salmon in the mainstem was closed preseason on June 1 and remained closed for the remainder of the season. The sport fish harvest limit was reduced in all tributaries from three to one king salmon. Between July 1 and 16, king salmon caught during commercial fishing for summer chum salmon in districts Y-1 through Y-5 could be released alive or retained for subsistence use, but could not be sold. A total of 3,752 king salmon were reported caught on commercial fish tickets, but were not sold. The total commercial harvest of king salmon in 2009 was 316 fish. These fish were taken during the last commercial fishing period targeting summer chum salmon in district Y-2 (131 fish), and during the fall chum salmon season (185 fish).

The cumulative passage estimate for June 1 through August 9, 2009 from the Pilot Station sonar project was 122,474 king salmon. The estimates from Pilot Station through June 23 are considered to be conservative because high water conditions made assessment of the early portion of the run challenging. Postseason evaluation of king salmon escapements in Alaskan tributaries indicates that most escapement goals within Alaska were met. Estimated border passage by the Eagle sonar was approximately 68,000 king salmon (harvest by the village of Eagle was deducted from this estimate). This passage estimate fulfills harvest sharing agreements with Canadian fisheries and meets the IMEG to Canadian spawning grounds.

In 2008, the summer chum salmon run was weak and similar in size to the run in 2007. Estimated escapement to the East Fork Andreafsky (57,259) was below the lower end of the BEG range (65,000–135,000). A large pink salmon run resulted in species apportionment problems for Pilot Station and Anvik River sonar projects. Additional post season analysis was needed for resolution. Pilot Station sonar estimated a passage through July 18 of 1.7 million summer chum salmon. The adjusted estimated escapement of summer chum salmon into the Anvik River was 374,929 and was within the escapement goal. The Anvik River again accounted for about a quarter (23%) of the Pilot Station cumulative passage estimate. The renewed market interest in summer chum salmon continued in 2008. Due to concern for king salmon run strength, the commercial fishery for chum salmon was restricted to ≤6" mesh in districts Y1–Y2 and the openings were delayed until after the first of July. Attempts were made

to schedule these openings when king salmon abundance was low. Total commercial harvest of 151,667 summer chum salmon for the Yukon River drainage was 206% above the 1998–2007 average harvest of 49,675 fish (Appendix D2).

Pilot Station passage estimates for summer chum salmon in 2009 through July 18 was 1,283,206 fish. Despite adequate total run size, summer chum salmon escapement was variable among projects with generally poor performance in the lower portion of the drainage and higher escapements in the upper tributaries. The East Fork Andreafsky and Anvik rivers failed to meet BEGs with historically low numbers. Escapements to the Gisasa and Tozitna rivers were also below expected levels. In contrast, the number of summer chum salmon at Henshaw Creek was twice the number expected and the second highest recorded for this project. Escapements to the Salcha and Chena rivers in the Tanana drainage also exceeded expected levels. Commercial fishing periods directed at summer chum salmon were delayed until an estimated 85% of the king salmon run had passed the lower river districts. Nets were restricted to 6-inch maximum mesh size. The total commercial harvest was 170,272 summer chum salmon, 140% above the 1999–2008 average of 63,341 fish (Appendix D2).

The estimate of the total fall chum salmon run (including estimates of harvest and escapements) in 2008 was 730,000 fish. The run was approximately five days later than average and composed of three primary pulses. The commercial fishery landed approximately 120,000 fall chum salmon, which was more than the recent five-year average harvest of 92,000 (Appendix D2). The subsistence fishery reported mixed results due primarily to poor weather conditions; the preliminary estimate of subsistence harvest was 80,000 to 90,000 fish. The drainagewide escapement of fall chum salmon was estimated to be about 500,000 well within the escapement goal range of 300,000 to 600,000 fish.

The 2009 fall chum salmon run was expected to be average in size but was much weaker than projected. The run was a few days late compared to average run timing and was composed of two small and one moderately sized pulses. During the season, fall chum salmon escapements were projected to fall below the 300,000 escapement goal. Subsistence fishing time was reduced by about one third and personal use fisheries were closed for a portion of the run to assure that escapement goals in most areas would be met. The sport fishery was closed September 4, in accordance with the fall chum salmon management plan. Post season assessments have revised the drainagewide escapement estimate and suggest that it was within the 300,000 to 600,000 escapement goal range. The preliminary postseason total run estimate was approximately 450,000–500,000 fall chum salmon. This is below the 1974–2008 averages of all years (876,000) and of odd numbered years (687,000). Extremely low water conditions and difficulties with test fishing for species apportionment probably resulted in conservative estimate of fall chum salmon and a possible overestimate of coho salmon at Pilot Station. The total commercial harvest was approximately 25,000 fall chum salmon, well below the recent five-year average of 114,000 fish.

Coho salmon have an overlapping, but somewhat later, run timing with fall chum salmon. The escapement assessment for coho salmon is quite limited and relies heavily on information from commercial and personal use harvests. The Pilot Station sonar is terminated during the coho run as are many of the other assessment projects due to expense and/or icing conditions. The only escapement goal that is presently in place for the Yukon River drainage is the Delta Clearwater River in the Tanana River drainage. The current escapement goal (5,200–17,000), was established in 2004, and replaced the previous minimum goal of 9,000 fish. The goal continues to be based on a boat survey during peak spawning.

In 2008, the Yukon River coho salmon run was slightly below average in strength with normal run timing. The Pilot Station Sonar index of 136,000 was about 14% less than the recent 10-year average (1998–2007) of 158,000. The estimated escapement of coho salmon to the Delta Clearwater River was 7,500 fish (the current escapement goal is 5,200–17,000). The estimate of the commercial harvest of coho salmon in the Alaska portion of the Yukon drainage for 2008 is approximately 36,000 fish, less than the recent five-year average of 43,000 fish (Appendix D3).

The coho salmon run in 2009 was determined to be adequate to meet escapement needs. Coho salmon run timing was approximately normal and the Pilot Station sonar passage estimate of 207,000 was well above the average of 143,000 for the project. However, extremely low water conditions and difficulties with test fishing for species apportionment likely resulted in conservative estimate of fall chum salmon and a possible overestimate of coho salmon at Pilot Station. The estimated escapement of coho salmon to the Delta Clearwater was 16,850 fish, well within the bounds of the escapement goal. The total commercial harvest was approximately 8,000 coho salmon and below the recent five-year average of 45,000 fish (Appendix D3).

Summary of Catch and Harvests in Yukon Salmon Sport Fisheries in 2008

Estimated sport harvest of king salmon from the entire Yukon Management Area (Tanana River excluded) was 155 (SE = 94) fish during 2008 (Tables 2 and 3). The 2008 estimated harvest is similar to estimates from recent seasons. The results indicate the low level of harvest by sport anglers. Total sport catch (including harvested and released fish) of king salmon in the YMA was estimated to be 685 (SE = 352) fish in 2008 (Table 2). As in previous years, most of the estimated catch and harvest of king salmon during the 2008 season came from Lower Yukon River drainages. The Anvik River has been the most important site in recent years.

Sport fisheries harvested an estimated 310 (SE = 200) chum salmon in 2008 (Tables 2 and 4). All reported harvests of chum salmon was from Lower Yukon drainages, most of which came from the Anvik and Andreafsky rivers. Total catch of chum salmon (harvested and released) from the recreational fisheries in 2008 was estimated to be 2,689 (SE = 1,373) fish, with most of this catch coming from the Andreafsky and Anvik rivers (Table 2).

Sport harvest of coho salmon during 2008 was estimated to be 171 (SE = 101) fish (Table 2). The recent 5-year average harvest was 411 coho salmon. Total catch from the sport fishery during the reporting period was estimated to be 1,277 (SE = 801); the 5-year average is 2,349. As with other salmon sport fisheries in the Yukon River drainage outside of the Tanana River drainage, most of the coho fishery occurs downstream of the Koyukuk River and primarily, in the Anvik and Andreafsky rivers (Table 5).

The sport fisheries for these three principal species of salmon have all generally demonstrated modest increases in catch and harvest in recent years (Appendix C1). This modest growth is likely a result of improved run sizes beginning in 2002 and a relaxation of restrictive management. The weak king salmon runs experienced in 2008 and 2009 resulted in the first restriction in the sport fishery in several years. However, relative to the size and the productivity of the Yukon River system, the estimated sport harvest continues to be extremely light and is unlikely to impact the runs to a measurable degree.

Fishery Objectives and Management

Yukon River drainage commercial, subsistence, and personal use fisheries are managed by the Division of Commercial Fisheries. As with other fish and wildlife populations, subsistence use

has been designated as the highest priority among beneficial uses. Management of these fisheries is complex due a wide range of stock-specific abundances, overlap of inter- and intra-specific run timing, the immense size of Yukon River drainage, allocation between numerous user group and international management treaties. ADF&G is generally unable to manage individual stocks in this mixed stock fishery because of inadequate stock-specific information.

Guideline harvest ranges have been established for commercial fisheries targeting king salmon, summer chum salmon, and fall chum salmon throughout the Alaskan portion of the Yukon River drainage (Appendix D4). The ADF&G attempts to manage the commercial fisheries such that the harvest in each district is proportionally similar to respective guideline harvest ranges. Management plans have been developed and adopted by the BOF for summer and fall chum salmon (Appendices D5 and D6).

Under the current management strategy, the commercial fishery for coho salmon is incidental to the commercial fishery directed at fall chum salmon. In November 1998, the BOF adopted the *Yukon River Coho Salmon Management Plan* (5 AAC 05.369) and modified the plan in January 2007 (Appendix D7). This plan provides for a directed commercial fishery for coho salmon under specific circumstances. In most years, fall chum salmon will continue to be the primary species of management concern during the fall season with only incidental catches of coho salmon. In 2007 and 2008, sufficient numbers of fall chum salmon and coho salmon were present to meet conditions outlined in the *Yukon River Coho Salmon Management Plan* for a commercial fishery targeting coho salmon.

In response to the guidelines established in the SSFP, the BOF classified the Yukon River king salmon stock as a yield concern in September 2000. This determination was based on an inability, despite the use of specific management measures, to maintain expected yields or harvestable surpluses above the stock's escapement needs since 1998 and the anticipated low return and harvest in 2001. The BOF classified the Yukon River summer chum salmon stock as a management concern. This classification was based on a chronic inability to meet existing escapement goals for the summer chum salmon stock since 1998.

During the winter of 2000/2001, the BOF developed a rebuilding plan for Yukon king and chum salmon stocks in accordance with the SSFP for Alaska. This plan emphasizes improving salmon spawning escapements while providing opportunities to maintain subsistence uses when surpluses are available. The BOF developed a subsistence salmon fishing schedule. The purpose of the schedule was to provide more equitable allocation of fish among subsistence fishers throughout the drainage and to improve the quality of the escapement.

ADF&G has developed a preseason management strategy in cooperation with the U.S. Fish and Wildlife Service (USFWS) staff annually since 2001. This strategy is described and distributed annually in an information sheet (Appendix D8). Since 2004, the preseason strategy has been to begin the season following the subsistence fishing schedule developed by the BOF. In the event of a poor run, the subsistence schedule will be further reduced to meet escapement goals. If the run is strong and surplus fish are available, the subsistence fishery will follow the pre-2001 schedule (open except before and after commercial openings) and commercial fisheries will be permitted.

Stocks of concern were reviewed by the BOF in October 2009. At that time ADF&G recommended that the BOF continue the classification of yield concern for king salmon. The BOF adopted ADF&G's recommendation.

Sport fisheries for salmon in the YMA have very limited impact on stocks of salmon, in comparison to commercial, subsistence, and personal use fisheries. There is very little effect that management of the sport fishery can have on the annual status of the various salmon stocks. Therefore, the goal of sport fishery management is to maintain a reliable level of opportunity for anglers to participate in the fisheries throughout the season. To this end, emergency actions to restrict harvest and/or inseason regulations for the sport fishery are generally not contemplated unless it becomes apparent that the size of the run is so small that restrictions in the subsistence fishery will be necessary. In the case of summer chum salmon and fall chum salmon management, the BOF has identified the threshold run size at which emergency restrictions in the sport and personal use fisheries will occur (Appendices D5, D6).

In 2008, an emergency order was issued on July 3 to reduce the sport daily and possession limit to one king salmon. The order was issued to coincide with reduction of subsistence fishing from two 48-hour periods per week to two 24-hour periods in District Y4. The Anvik River enters the Yukon River near the lower boundary of district Y4 and is the only site that regularly supports sport fishing effort for king salmon in the YMA. In 2009, two emergency orders were issued concerning the sport fisheries for Yukon River salmon stocks. As described under the section “Summary of Yukon Salmon Runs 2008-2009,” the sport fishery for king salmon in the mainstem was closed preseason on June 1, 2009 and remained closed for the remainder of the season. In addition, sport fishery bag limits in Yukon River tributaries other than the Tanana River drainage were reduced from 3 to 1. This action was taken as part of a coordinated management effort to reduce the harvest of king salmon, particularly those migrating to Canada. On September 1, 2009 another emergency order was issued to close the sport fishery for fall chum salmon in the Yukon River drainage (excluding the Tanana River drainage). This action was taken as prescribed by the *Yukon River Drainage Fall Chum Salmon Management Plan* (5 AAC 01.249 (2)(c)) because inseason assessment of the run indicated that minimum escapement goals would not be attained.

Current Issues and Fishery Outlook

The primary issue concerning salmon fisheries is the uncertain performance of salmon returning to the Yukon River drainage. Another issue affecting all users (including recreational anglers) of stocks of salmon in the YMA is the claim by federal land management agencies to the right to manage fish and wildlife resources to provide a rural subsistence priority. The state of Alaska also provides for a priority subsistence use of these resources, but is unable to discriminate between rural and urban users due to constitutional restraints. There continues to be concern that federal regulations will result in loss of opportunity for non-subsistence uses of fish resources, particularly recreational uses. This concern was realized in 2001 when federal personnel issued a special action prior to the beginning of the season. The action closed salmon fishing in all waters where federal regulations apply in the Yukon and Kuskokwim rivers to all but qualified rural residents. This action precluded all use for commercial, recreational, and state subsistence purposes of salmon in waters in which the federal agencies have asserted jurisdiction.

The unanticipated closure of sport fisheries for king salmon in the Yukon River in 2000 and 2001 placed a severe economic burden on fledgling local businesses that directly or indirectly support sport anglers, without any real biological benefit. Maintaining a constant level of fishing opportunity throughout the season is critical for local economic benefits that can accrue from these cottage industries. Complete closure of the recreational fishery should be contemplated

only when substantial subsistence restrictions are needed, and should be implemented by specific tributary.

The outlook for the 2010 king salmon run is uncertain but the run will likely be below average to poor. Weak king salmon runs realized in 2000 and 2001 produced below average returns through 2007. With improved run size since 2002 (due largely to conservative management), a stronger run in 2008 was anticipated, but did not materialize. Also in both 2007 and 2008 the proportion of fish of Canadian origin was down to 37% and 36%, which is lower than the average figure of about 50%. The 5-year-old component was stronger in 2008 as was anticipated based on the above average proportion of 4-year olds in 2007. Still, the 2008 and 2009 runs were the first in several seasons that were too weak to support a commercial fishery. Considering the poor runs experienced in 2008 and 2009, we expect that there will be no commercial fishery directed at king salmon in the main stem Yukon River in 2010. Depending on final run projections, conservation management measures may need to be repeated in 2010. If a poor run develops, the sport fishery will be managed in a manner consistent with run strength. The intent of sport fishery management continues to be to provide a predictable level of opportunity for anglers throughout the season, while providing for conservative management of Yukon River drainage king salmon, particularly for fish bound for Canada.

Recent Board of Fisheries Action

In 1987, bag and possession limits were established throughout the drainage for sport fisheries for all salmon species. In 1994, the BOF opened the Ray River and the Yukon River within the Dalton Highway Corridor to king salmon fishing (Burr et al. 1998). The BOF adopted the *Yukon River King Salmon Management Plan* in January 2001 and modified the plan in 2002 (5AAC 05.360, 2004). In this plan, the subsistence fishing schedule is described and guideline commercial fishing harvest ranges for Yukon River District are established. The *Yukon River Fall Chum Salmon Management Plan* (Appendix D5) was adopted in 1994 and has been subject to numerous modifications; the most recent in 1998. The *Yukon River Summer Chum Salmon Management Plan* (Appendix D6) was adopted in January 2001. A *Yukon River Coho Salmon Management Plan* (Appendix D7) was adopted in November 1998 and modified in 2007. The plan seeks to provide a directed commercial fishery on coho salmon stocks in the drainage.

Current or Recommended Research and Management Activities

Currently, there is no active research program concerning the salmon sport fishery in the Yukon River drainage because of the minor nature of the fishery.

The Anvik River is one of very few locations in the Yukon River drainage outside of the Tanana River drainage where catch and harvest of salmon has regularly been reported (Tables 3–5). Up to three sport fish guiding businesses presently use this drainage. These sport fisheries target king and coho salmon, primarily for catch-and-release. Resident species including northern pike, Arctic grayling, and Dolly Varden are sought as secondary targets. Most anglers participating in the fishery are guided and are nonresidents, although local residents do participate in the fishery. Current levels of harvest are low and are reflected in results from the SWHS. Over-flights of the Anvik River have been conducted periodically during early July to describe the distribution of angling effort during the peak of the king salmon season. Aerial surveys of the Anvik River sport fishery during the king season should be conducted in 2010.

YUKON RIVER NORTHERN PIKE

Background and Historical Perspective

Sloughs, interconnected lakes, and the lower sections of large rivers throughout most of the management area are inhabited by northern pike. Many of the lowland area waters are particularly noted for large northern pike.

In the Yukon River, drainage most fishing for northern pike occurs during the open water season. Northern pike are targeted in early summer immediately following spawning and throughout the summer months. Northern pike are often fished in the fall in combination with hunting activities. Some sport and subsistence harvest is taken during winter months through the ice with hook and line gear. Spearing and bow and arrow techniques are also legal means and account for a small proportion of the total harvest, but most sport harvest of northern pike is taken with rod and reel.

Historically, fishing for northern pike in the YMA has been conducted by Alaska residents near towns or villages or where access is provided by road or boat. New or recently reestablished sport fish guiding businesses are promoting opportunities to catch trophy northern pike in the Nowitna, Koyukuk, Kaiyuh/Khotol, Anvik and Innoko rivers (Table 6). In these remote locations where sport fish guiding services have become available, most of the angling effort is by guided anglers and most of the guided fishermen are nonresidents.

Within the YMA, most catch of northern pike has come from five primary locations: the Porcupine, Dall, Nowitna, Koyukuk, and Innoko rivers. The Porcupine and Koyukuk rivers are the two largest first-order tributaries of the Yukon River. Sport fishing within these drainages is dispersed and site-specific fishing effort is light. The level of effort directed at northern pike in the Dall, Nowitna, and Innoko rivers is relatively larger.

Dall River. Northern pike populations situated near the Dalton Highway on the Yukon River have experienced more angling pressure than have populations in other parts of the drainage. Following construction of the highway in the mid-1970s, a summer season sport fishery targeting northern pike developed at the Dall River. Residents of Stevens Village located near the mouth of the Dall River expressed concern over encroachment by outside visitors and by what they perceived as a depletion of resources, particularly northern pike.

Because of these concerns and the increased use of this fish stock, a series of stock assessment projects and use survey studies were conducted on the population and the fishery between 1987 and 2001 (Arvey and DeCicco 1989; Arvey and Burkholder 1990; Burr and James 1996; Chythlook and Burr 2002). During this period, sport fishing regulations were changed from 10 per day without size limit to 5 per day with only 1 fish 30 inches or larger (1988). During 1999 and 2000, a management plan was developed by ADF&G, Stevens Village Office of Natural Resources, and USFWS which describes a management area for special management of northern pike (Appendix E1). In 2001, the BOF adopted a special regulation for the Dall River management area consistent with the recommendations of the management plan. For a more complete description of the issues, study results, planning efforts and management actions taken refer to Burr (2004).

Nowitna River. The Nowitna River enters the Yukon River approximately 130 km downstream from the mouth of the Tanana River. The Nowitna River was designated a Wild and Scenic River in 1980 and most of the mainstem of the river and its major tributaries are included within

the boundaries of the Nowitna National Wildlife Refuge. The lower 50 miles of the river pass through a large wetland as a single-channel meander with numerous connected oxbow lakes and sloughs.

The Nowitna River offers one of the best opportunities in Alaska for sport anglers to catch large northern pike and sheefish in a wilderness setting. Most (>75%) of the sport fishing effort occurs within the lower 30 miles of the river and connected waters. The fishery occurs almost entirely during the open water season, with a substantial portion of the fishing effort and harvest of northern pike occurring during September concurrent with hunting activities. Both guided and unguided anglers participate in the fishery. In recent years, up to six sport fishing guides have registered with Nowitna NWR.

Innoko River. The Innoko River and its tributaries drain a large flat wetland area and the foothills of the Kuskokwim Mountains. The Innoko River enters the Yukon River near the village of Holy Cross. This river system, with its extensive wetlands, provides excellent habitat for whitefish and northern pike. The Lower Innoko River and this part of the Yukon River continue to produce some of the largest northern pike in the state. In 1995 a new sport fish guiding business catering to anglers seeking catch-and-release opportunities for trophy-sized northern pike began operating in the Lower Innoko River, using a large houseboat as a movable base of operations. Nearby, on the Anvik River, a long-standing sport fishing lodge was renovated and reopened. More recently, additional smaller businesses have begun to provide sport fish guiding services in the Innoko River system; two of these businesses are operated by residents of the Holy Cross area.

Recent Fisheries Performance

Little quantitative information is available concerning the status of northern pike stocks in much of the YMA, but because of limited access, fishing effort is light except on those stocks near towns and villages where angling and subsistence gillnetting effort may be more intense.

In the most recent five and ten-year periods (2003–2007, 1998–2007) little change was observed in total harvest or catch from the Yukon River reporting area (Table 7). Harvest estimates for 1998–2007 averaged 1,969 compared with 1,895 for 2003–2007. Estimated harvest in 2008 was less, but well within the range of observed values in the period. Catch estimates during the most recent 5-year period averaged 23,168 showing a large degree of catch-and-release fishing for this species (Table 7). The estimate of total catch for 2008 was only about 8,700 northern pike, about one-third of recent average catch estimates.

Dall River. Recent estimates of fishing effort and harvest in the Dall River sport fishery indicate that this fishery has, on average, remained stable. During the last 5-year period (2003–2007), fishing effort at the Dall River averaged about 480 angler-days (Table 7). However, estimated angler effort in 2008 (100 angler-days) was substantially lower than average.

Estimated harvests of northern pike from the Dall River have been higher than from other YMA locations in most recent years. Since 1995, this fishery has provided on average nearly 20% of all northern pike harvested from the YMA. In 2001 and 2002, following the new regulation adopted by the BOF prior to the 2001 season, harvests were markedly reduced (Table 7). However, in 2003 harvests again increased with the estimated harvest in 2004 higher than other recent estimates. Consistent with lower fishing effort, estimated harvest from 2008 (13 northern pike) is much lower than most other recent estimates.

Catch of northern pike between 1990 and 1999 showed an increasing trend, with the estimate for 1999 (3,320) exceeding all previous levels. Since 2003, the total estimated catch has again increased with two of these three years (3,600 in 2003 and 12,000 in 2004) higher than all other annual estimates. These results, combined with little change in fishing effort, suggest that catch rates may be increasing in this fishery. During this period the proportion of the northern pike catch that is released by anglers has increased. Between 1990 and 2000, 77% were released, compared with 91% released between 2001 and 2006. Although the estimated total catch of northern pike from the Dall River in 2008 was lower than other recent estimates, about 95% were released. The high proportion of released fish was expected with the adoption of the regulation in 2001 that requires the release of all northern pike between 30 and 48 inches. Results are also consistent with anecdotal accounts of anglers reporting good catches of fish larger than 30 inches with a few much larger fish.

Nowitna River. Until 2001, the Nowitna River accounted for about 15% of the sport fish harvest and 33% of the total catch of northern pike in the YMA (excludes the Tanana River drainage). In the recent 5-year period, the proportion of the YMA catch and harvest of northern pike from the Nowitna River has averaged about 7% of the harvest and 13% of the total catch of all Yukon River sites. This apparent change was, in part, the result of increased use of northern pike in other Yukon River drainage fisheries, notably the Dall River and Innoko River fisheries. In both 2006 and 2007, estimates of catch and harvests of northern pike and fishing effort (for all species) from the Nowitna River were again higher than recent average figures. Estimated level of sport fishing effort by guided and unguided anglers in the Nowitna River was approximately 1,000 angler-days during 2006 and 2007 (Table 7). Estimated annual sport harvest of northern pike in these years was about 200 fish. In 2008, the estimated harvest (130 fish) was similar to recent average harvests, but total catch (917 fish) was substantially less than most other recent estimates.

A study was conducted in 1997 to assess stock status of northern pike in the Lower Nowitna River. The objectives of the study were to estimate abundance and size composition of northern pike in three sloughs connected to the river during early, mid, and late summer (Burr 1998; Burr and Roach 2003). In addition to accruing current information on this northern pike stock, the goal of the study was to formulate a sampling protocol that would facilitate future sampling of this and other similarly situated northern pike stocks. The study found large numbers of northern pike in mature age and size categories. However, although estimates of abundance were obtained, the magnitude of movement of fish in and out of these sloughs and between sloughs was far greater than anticipated and confounded the application of the study findings to future sampling efforts. The movements of individually marked fish indicate that northern pike using the Lower 20 miles of the river are part of a single large stock. The study concluded that the population is currently lightly exploited and that current levels of fishing pressure were within sustainable limits. A recommendation of the study was to conduct a radiotelemetry experiment in the lower Nowitna River in order to describe the timing and magnitude of seasonal movements of this stock (Burr and Roach 2003).

In 2005 a radiotelemetry study was initiated in the Lower Nowitna River. The research goal of the study was to obtain understanding of the season movements of northern pike over a 2-year period. Knowledge of seasonal movements would facilitate representative sampling of northern pike in the lower 25 miles of the drainage and assist in the design of future mark-recapture experiments within an appropriately sized index area and within an appropriate time period.

Movements of radiotagged northern pike in this study showed that some fish captured in the study area (lower 25 miles of the river) travel upstream of the Titna River (more than 100 river miles) during late summer and remained there throughout the winter. Other fish remained within the study area, while still others traveled fifty or more miles up or downstream in the Yukon River. These preliminary results that northern pike inhabiting the Nowitna River use a very large portion of the Nowitna River drainage during the annual cycle and that the fish must be considered as a single stock for management purposes. The field studies were completed in 2007 and a completion report should be available during 2009.

Innoko River. Estimates of sport fishing effort (for all species) in the Innoko River generally increased through 2004. Current fishing effort is estimated to be about 700 angler-days annually (Table 7). During this timeframe, estimates of harvest of northern pike have changed little, averaging less than 100 northern pike per year. In contrast, estimates of total catch increased to an average figure of about 10,000 fish between 2001 and 2006, but have been substantially lower in recent years. Estimated total catch in 2008 was about 1,100 northern pike. Most of the increase observed earlier in the decade was likely from guided anglers taking advantage of recently developed facilities and services.

In 2000–2001 a need was identified for better information on the status of northern pike stocks in the Innoko River drainage and on the patterns and levels of use by sport and subsistence fishers. Absence of current stock status studies was contributing to differing perceptions on the status and trends of the northern pike population in the area. Local perception was that reduced catch rates, fewer large fish, and a growing number of sport anglers indicated a stock at risk. ADF&G biologists believed that the northern pike stock was healthy based on the presence of exceptionally large fish, fish in old age classes and low harvest levels.

A stock assessment project of northern pike inhabiting the Innoko River was conducted in 2002–2004 (Scanlon 2009). The project used radiotelemetry to describe seasonal movements and geographic area used by this stock. The project also provided information on the age and size composition of northern pike in the area.

A separate, but related, project was also conducted in 2002–2004 (Brown et al. 2005). The purpose of this project was to describe current subsistence use patterns of freshwater fish, including geographic distribution of subsistence fishing for northern pike during winter and summer. The project also gathered information on size and sex composition of the winter subsistence catch and tag returns from fish tagged during the summertime sport fishery.

These studies found that northern pike spawning in the Innoko River drainage travel extensively (> 200 miles seasonally) but generally remain within the Innoko River drainage during the open water season (do not travel into the Yukon River or neighboring drainages). In contrast, during winter these fish were regularly found in the Yukon River near Holy Cross and Paimiut Slough.

Sport fishing effort in the Innoko River drainage is confined to the open water season and occurs within the Innoko River and connected lakes and sloughs. The open water season subsistence fishery primarily occurs in the Yukon River or at the mouth of tributaries. The winter subsistence fishery for northern pike occurs in both the Innoko River and in the nearby Yukon River. Along with residents of the Yukon River communities, an additional group of winter season subsistence users was identified during the study. Residents of communities situated on the Kuskokwim River travel across country during spring to harvest northern pike in the Lower Innoko/Paimiut slough area. The two fisheries (sport and subsistence) are therefore generally

segregated in time and in geographic location. Annual movements of northern pike tracked with radiotelemetry, together with tag returns by the subsistence fishery of northern pike marked from the sport fishery demonstrate that the fish targeted by these two user groups are from a single stock migrating seasonally throughout a very large open system.

Several residents of the area expressed concern that activities of the emerging guided sport fishery is resulting in declining numbers of large northern pike. Both sport and subsistence fisheries selectively catch large northern pike. The sport fishery targets large fish because they are highly valued by sport anglers. Fishing mortality is believed to be low since nearly all sport fish guides in the area insist that their clients practice catch-and-release only fishing. The level of incidental mortality from catch-and-release fishing is not known, but is believed to be less than 10% based on other studies (e.g., Burkholder 1992). The subsistence fishery also targets large northern pike that are preferred for traditional foods. It is assumed that nearly all northern pike caught in the subsistence fishery are killed. Northern pike sampled from the winter subsistence fishery were large (24 to 41 inches) mostly females (62%) and nearly all fish (99%) were in pre-spawning condition. The proportion of northern pike in larger and older age classes may decrease if a substantial increase in fishing effort by one or both fisheries occurs.

Fishery Objectives and Management

The goal of management of northern pike in the YMA is to maintain naturally reproducing populations of northern pike with characteristics that will provide sport fisheries with qualities that are desired by anglers. Management of northern pike in most of the YMA is structured to encourage participation in the fishery through liberal harvest limits. These regulations reflect the light level of use of northern pike within most of the YMA. Liberal regulations also provide harvest opportunity with rod and reel gear for rural residents within the sport fish regulation framework. In areas where northern pike fisheries are more intensive, management seeks to provide consumptive use (harvest), while maintaining northern pike in large size (>30 in TL) groups. As fishing effort increases, management for continued harvests will be structured around a daily limit of more than one northern pike, with a size limit structured to limit harvest of northern pike in large size groups.

ADF&G monitors sport fisheries with the SWHS to track levels of harvest and effort at various sites and to detect changes in the distribution of fishing among sites. Using this harvest data, selected fisheries are closely monitored with creel surveys and other research projects. Length composition is used as an indicator of stock status for northern pike populations; the presence of large size fish within samples collected is used as an indicator of lightly exploited riverine populations. ADF&G uses this information to remain responsive to changes in these fisheries.

A special regulation was established for the Dall River fishery following a public management planning effort. ADF&G, together with the Stevens Village Natural Resource Office, and interested fish and game advisory committees, jointly developed a *Fisheries Management Plan for the Dall River Northern Pike Fishery*. The goal of this planning process is to maintain a high quality northern pike stock for the benefit of local and non-local users. A summary of the current plan, including the shared policies, objectives, and issues/action items is found in Appendix D.

- The current objective for the Dall River northern pike fishery is to maintain the proportion of northern pike 30 inches and larger at 0.3 (30%) in the assessed population¹.

Current Issues and Fisheries Outlook

At the present time, all available information suggests that northern pike stocks in the Yukon River drainage are healthy. Levels of catch and harvest, although low, have remained stable or have increased modestly throughout the area. Where assessments of local stocks have been conducted, the presence of substantial portions of fish sampled in large size and old age categories further suggests light levels of exploitation.

Dall River. New regulations for the Dall River fishery were adopted by the BOF during January 2001 which require the release of all northern pike between 30 and 48 inches. As a result, the opportunity to harvest large northern pike in this fishery was greatly restricted. Current regulations provide for harvest of smaller northern pike and for catch-and-release fishing of large northern pike (daily limit is 4 fish less than 30 inches and 1 fish 48 inches or longer). While fishing effort and total harvest have changed little, current estimates suggest that catch rates may be increasing in this fishery. If catch rates of large fish increase, additional angler participation is expected for the fishery. Growth of the fishery will be closely monitored. Management efforts should be consistent with the shared goals outlined in the *Fisheries Management Plan for the Dall River Northern Pike Fishery*. The intended effect of the current regulation is to increase the survival of large northern pike, thereby increasing the size of fish available for catch-and-release. The outlook for fishing at the Dall River is good in terms of the number and size of fish expected to be available.

Nowitna River. The population of northern pike inhabiting the Nowitna River is not believed to be in danger of overexploitation. However, ADF&G recognized a need for new sport regulations consistent with other popular northern pike sport fisheries in the Yukon and Tanana areas that would help to control the loss of large adult northern pike. In January 2007, the BOF adopted a proposal to reduce the harvest of large (≥ 30 inches) northern pike (daily limit of 5 fish, only 1 may be 30 inches or longer). As with other fisheries where a similar regulation has been established, the intent is to increase the survival of large northern pike and thereby increase the size of fish available for catch-and-release and allow for a limited harvest. With this regulation, the outlook for northern pike fishing in the Nowitna River is good with an increased proportion of larger fish available in the population over time.

Innoko River. Growth of the guided sport fishery for northern pike in the Innoko River is the source of concern for many residents of local GASH communities. Many residents of this area hold traditional beliefs and live traditional subsistence lifestyles. There is limited acceptance of catch-and-release fishing as practiced by many visiting anglers. Local residents have reported reduced catch rates during winter and summer fishing with rod and reel. Residents also are concerned over increased wintertime use of northern pike stocks by non-local rural residents. They report that groups travel from communities downstream in the Yukon River drainage and from the nearby Kuskokwim River area to subsistence fish for northern pike through the ice.

The stock of northern pike inhabiting the Lower Innoko River is not believed to be in danger of overharvest. Movements of radiotagged northern pike show that these fish travel extensively

¹ The assessed population includes the portion of the population that is accessible to the sampling gear used in stock assessment. For the Dall River this includes fish larger than 19 inches TL (450 mm FL)

throughout a large area of connected rivers, lakes, and sloughs. The population size of northern pike in this area, though unknown, is likely to be very large. Approximately 3,000 northern pike were tagged with numbered Floy anchor tags between 2001 and 2004. Recapture rate in the sport fishery of these tagged fish has been less than 2% annually (Scanlon 2009). To date, only six of these tagged fish have been reported captured in the subsistence fishery. A substantial portion of fish in this stock are in old and large size categories as shown in samples collected during tagging (Scanlon 2009) and from the subsistence fishery (Brown et al. 2005). The large amount of undisturbed habitat, large population size, and presence of many size and age groups, combine to make this stock very resilient to moderate increase in fishing effort and harvest. Abundance of northern pike in the area is not likely to change due to overfishing. However, if either the subsistence use by local or non-local residents or the sport use grows substantially, a decrease in the proportion of very large and old fish is possible.

Recent Board of Fisheries Action

Current sport fishing regulations for northern pike in the YMA were established in 1987. Prior to 1987, there were no bag, possession, or size limits for northern pike within most of the area. Proposals submitted by ADF&G to and adopted by the BOF in 1987 established the current background regulation of 10 per day, with no size limit for most of the YMA. Because of concern for the maintenance of Yukon River northern pike stocks near the Dalton Highway Bridge, the BOF adopted a more restrictive regulation of five per day, with only one fish ≥ 30 inches for Yukon River tributaries between the Hodzana and Tanana rivers.

Opening of the entire Dalton Highway to public travel in 1994 caused concern that increases in recreational use would result in localized depletions of freshwater fish populations in waters adjacent to the roadway. The BOF addressed this concern in 1994 by adopting new regulations for many of the resident fish species in the highway corridor (Burr et al. 1998). The northern pike bag and possession limit was reduced to five fish with only one 30 inches or larger.

Current sport fishing regulations for the Dall River fishery were adopted by the BOF during January 2001. Regulations established special bag, possession and size limits for northern pike in the Dall and Little Dall River drainages. The regulations are consistent with the recommendations of the *Fisheries Management Plan for the Dall River Northern Pike Fishery*. Current regulations are:

- Open season – May 20–September 30;
- Daily and possession limit is four northern pike less than 30 inches and one fish 48 inches or larger;
- No harvest of northern pike 30–48 inches; and,
- No bait allowed.

In 2001, the BOF adopted regulations governing the sport fishery for northern pike in the Innoko River. The bag limit is three northern pike per day of which only one may be 30 inches or larger. The sport fishery regulation adopted for the Innoko River fishery is consistent with the regulatory strategy outlined in the *Yukon River Northern Pike Fishery Management Plan* and recommendations of the GASH (Grayling, Anvik, Shageluk and Holy Cross) AC.

In 2007, the sport regulation for northern pike in the Nowitna River drainage was reduced from 10 per day without size limit to five fish with only one 30 inches or larger. The intent of this regulation is to reduce the harvest of large fish (>30 inches) as discussed above.

Current or Recommended Research and Management Activities

The northern pike sport fishery in the YMA has gained a higher profile as a result of better access provided by guiding services and facilities established in recent years. ADF&G will continue to monitor levels of fishing effort, catch and harvest throughout the YMA with the intent of identifying additional sites for stock assessment. To ensure the continued quality of these stocks, continued careful monitoring of sport fishing effort, catch, and harvest is needed with anticipated growth in both sport and subsistence fisheries.

Dall River. To assess the effectiveness of the new protected slot length limit established in 2001, it will be necessary to assess the Dall River northern pike stock periodically with the goal of estimating the proportion of northern pike larger than 30 inches (the lower end of the current slot limit). A need for better methodology for assessing length compositions of northern pike stocks in large open riverine systems has been identified. A field project initiated on Birch Creek in 2007 seeks to assess proposed methodology.

Nowitna River. The popular Nowitna River fishery continues to provide a substantial portion of the total catch and harvest of northern pike in the YMA. Field work for the radiotelemetry study of northern pike inhabiting the Lower Nowitna River was completed in 2007. Complete analysis of these data and completion of the report should provide a clearer understanding of the geographic range, spawning areas, and annual movements of this stock. Further assessment of the characteristics of the sport fishery and of the northern pike stock inhabiting the lower portion of the Nowitna River may be recommended depending on the results of the radiotelemetry study.

Innoko River. Given the potential impact by growth in the sport and subsistence fisheries on the proportion of large northern pike present in the Lower Innoko River, ADF&G will closely monitor these fisheries for growth in fishing effort or changes in patterns of use. In addition to closely inspecting estimates of catch, effort, and harvest in the sport fishery, ADF&G should establish a sampling protocol to monitor changes in proportion of large fish in the sport fish catch.

Seasonal movements and age and size composition of northern pike in the Innoko River upstream of Shageluk should be investigated. According to information recorded by Brown et al. (2005), this area (Holikachuk to several miles upstream of Iditarod) is especially important to residents of Shageluk and Grayling for harvesting freshwater fish. The guided sport fishery also targets northern pike in the area. The northern pike stock in this area is believed to be generally distinct from the Lower Innoko River stock studied by Scanlon (2009) and Brown et al. (2005). To date, no movement of northern pike between these areas has been detected by recapture of Floy tagged fish or by movements of radiotagged fish.

YUKON RIVER ARCTIC GRAYLING

Background and Historical Perspective

Arctic grayling are distributed throughout the entire drainage, from extreme headwaters in Canada to streams that originate in the Yukon Delta. Sport fishing effort is likewise widespread. Historic documentation of harvests (Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker

et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, *In prep a-b*) indicates that the heaviest sport utilization has occurred in the middle part of the Yukon River drainage, between the Porcupine River downstream to the Koyukuk River. Within this section, most of the catch and harvest comes from the Koyukuk River tributaries, including those that are crossed by the Dalton Highway. Improved road access has also been provided to Nome and Beaver creeks, other popular middle Yukon River sites. In addition, an important component of the catch (but not harvest) of Arctic grayling comes from the Anvik River in the Lower Yukon River section. Most of this fishing effort is believed to come from clients staying at a fishing lodge located on the Upper Anvik River. Virtually all other Arctic grayling harvests in the drainage are from streams that have no, or very limited, road access. Historic sport effort and harvests in these systems are estimated to be small relative to road accessible streams (Table 8).

Dalton Highway. The sport fishery for Arctic grayling from Koyukuk River tributaries accessed from the Dalton Highway account for about 50% of the harvest and 60% of the catch of Arctic grayling from the entire Koyukuk River drainage (Table 8). Given the relatively small portion of the Koyukuk River drainage that is accessible from the Dalton Highway, Arctic grayling stocks along this road are subjected to the highest level of use by anglers in the drainage.

The Jim River (Dalton Highway) supports the largest regional stock, and in many years, the largest harvest by sport anglers (Fish 1997; Table 8). The Jim River is one of the most accessible of the streams crossed by the Dalton Highway because the road parallels the stream for many miles. In contrast, most other streams generally flow perpendicular to the roadbed. Between 1995 and 1997, studies were conducted to obtain baseline abundance and composition data for stocks of Arctic grayling in rivers and streams crossed by the Dalton Highway. Studies concluded that catchability of fish in the Jim River is not affected by accessibility from the highway, and that fishing pressure at easily accessible locations along the river is probably not great enough to cause changes in catchability throughout the summer (Fish 1997).

A study of the movement of Arctic grayling captured in the Jim River summer fishery was conducted in 1997 and 1998 using radiotelemetry. The goals of the study were to locate spawning and overwintering habitats of Arctic grayling and to determine the fidelity of Arctic grayling to summer feeding grounds in the Jim River. This study found that most fish tagged in the Jim River remain in the Jim River through the winter (Fish 1998). A smaller proportion (about 35%) wintered in other locations, including the South Fork Koyukuk River, the Middle Fork Koyukuk River and Prospect Creek. During the spawning season, most Arctic grayling were located in the Jim River in either the fishery area or in the Lower Jim River. Some fish (< 20%) were located during the spawning season in Fish Creek, Prospect Creek, and the South Fork Koyukuk River. The migration characteristics and patterns of habitat use are very similar to those of other stocks of Arctic grayling inhabiting other clearwater rapid-runoff rivers in Interior Alaska (Tanana Valley). This study suggests that Arctic grayling in the Jim River are probably a distinct stock of fish that may share overwintering and feeding habitat with other related Koyukuk River stocks.

In 2000 and 2001, a study was conducted to estimate maturity schedules for Arctic grayling in the Jim River (Gryska 2003). This study found that Arctic grayling in this system mature at larger size and at an older age than do Arctic grayling in the Chena River; 50% maturity was estimated at 7 years and at about 300 mm FL (13 inches TL) compared with 5 years and 270 mm (12 inches TL) for the Chena River stock. In January 2004, the Alaska BOF adopted new

regulations for the Dalton Highway Arctic grayling fishery. The 12 inch minimum length limit was rescinded; the daily bag limit remains at five fish.

Nome/Beaver Creek. Excellent access has been provided to Beaver Creek by way of the improved road to Nome Creek. Beginning in the early 1990s, BLM upgraded the roadbed and initiated construction of multiple campgrounds. In 1999, construction of the campgrounds and the expanded road system leading to Nome Creek and its confluence with Beaver Creek was completed. This road system is located near the Fairbanks population center and has resulted in increased visitor use and an increased catch of Arctic grayling in this area.

Baseline studies conducted by BLM during the late 1980s indicated a very small resident Arctic grayling population in Nome Creek. Concern over increased fishing effort and potentially high levels of exploitation of the Arctic grayling stock in this 3rd order tributary prompted ADF&G to propose increasingly restrictive regulations for Nome Creek, culminating in the current catch-and-release only regulation that was adopted by the BOF in the winter 1994–1995.

During 2000, a mark-recapture experiment was conducted in a 30-mile section of Beaver Creek (excluding Nome Creek) to assess the Arctic grayling population (Fleming and McSweeney 2001). The study found a very high population density (1,325 fish per river mile) of small Arctic grayling (>150 mm FL, most 220–250 mm FL) with age classes age-3 and age-4 dominating. The density of Arctic grayling larger than 250 mm FL in the study area was substantially less (200–350 fish per river mile), with larger fish distributed farther upstream in general. As a result of this information, a new sport fishing regulation (five per day without size limit) was adopted for Beaver Creek during the 2001 BOF meeting.

Recent Fishery Performance

Estimated average harvest of Arctic grayling from the YMA in the recent 5-year period (2003–2007) was 2,830 fish, which reflects little change over historic levels (3,053 fish, 1998–2007). In 2008, an estimated 2,531 grayling were harvested (Table 8). Catch estimates for the YMA have averaged about 22,000 annually since 1998; estimated catch in 2008 was approximately 21,000 Arctic grayling (Table 8). These data reflect a continued low, but stable, level of use of the species in the YMA as a whole.

Dalton Highway. Sport fisheries for Arctic grayling in the YMA along the Dalton Highway have harvested an average of approximately 300 fish annually since 1998. In most years, more Arctic grayling are harvested from the Jim River than from the other streams along the roadway (Table 8). In 2005 and 2006, no Arctic grayling harvest was reported from the Jim River, but harvest from the Jim River typically accounts for 30% or more of the Dalton Highway total. In 2008, 173 (38%) of the estimated 458 Arctic grayling harvested from the Dalton Highway were from the Jim River. Total estimated catch from waters along the Dalton Highway since 1998 has averaged about 3,200 fish of which about 2,000 came from the Jim River (Table 8). Estimated catch for the Dalton Highway Arctic grayling fishery was greater in 2008 (7,500 fish); only the estimated catch in 2006 was higher. The low use estimates for 2005 probably reflect lower visitor use due to large forest fires in the area in July and August. The recent higher estimates of catch and harvest may reflect the effect of road improvements and the new regulation adopted for this fishery in January 2004.

Nome/Beaver Creek. The SWHS combines Beaver Creek and Nome Creek data into a single estimate. The estimated annual catch of Arctic grayling from Nome and Beaver creeks averaged

approximately 6,700 fish for the most recent 5-year period (Table 8). Estimated catches from 2007 (13,500 fish) is the highest on record for this fishery while the 2008 estimate is the lowest. The harvest of Arctic grayling from Beaver Creek (Nome Creek is closed to harvest) has averaged about 400 fish during the last 5- and 10-year periods. The low estimates of Arctic grayling use reported from 2008 are likely a result of high water conditions during July and early August.

Fishery Objectives and Management

Management strategies for Arctic grayling stocks in the YMA are found in the *AYK Wild Arctic Grayling Management Plan* (5 AAC 70.055, 2004). The goal of management is to maintain naturally reproducing populations of Arctic grayling with characteristics that are sustainable and are desirable to the public.

The “regional management approach” for sport fishery regulation is currently applied to all Arctic grayling fisheries in the YMA except for Nome Creek in the Beaver Creek drainage. Under the regional regulation, the daily limit is five fish, bait is permitted, and the season is open year round. The Nome Creek fishery is regulated under the “special management approach”. In Nome Creek, the fishery is open year round, but is restricted to catch-and-release. In addition, from April 1 through May 31, only unbaited, single-hook, artificial lures may be used. To date, fishery objectives are in place for two fisheries in the YMA: the Dalton Highway and Nome/Beaver Creek.

Dalton Highway. The fishery objective for the Dalton Highway Arctic grayling fishery is to maintain total harvest of Arctic grayling from the Jim River below 10% of the estimated abundance of fish larger than 250 mm FL in the assessed area. The most recent applicable estimate of abundance is 12,000 fish (Fish 1998). Catch and harvest estimates from the SWHS provide the measure of fishing mortality. For the purpose of this management scheme, 10% of all fish released are added to the estimate of harvest to incorporate mortality of released fish. The performance of the Jim River Arctic grayling fishery will serve as a proxy for the Arctic grayling fishery in the Yukon drainage portion of the Dalton Highway.

New regulations for the Dalton Highway Arctic grayling fishery were adopted in January 2004:

- Daily and possession limit is 5 fish, no size limit.

The length limit (12 inch minimum size, adopted in 1994) was rescinded for this fishery because all estimates of effort and harvest, and stock status studies indicated that these stocks could sustain greater levels of harvest. Also, the 12 inch minimum length limit that had been in place was not large enough to attain the goal of delaying recruitment to the fishery until maturity was attained (Gryska 2003). In order to be effective at protecting pre-spawning fish, the length limit would need to be increased to at least 13 inches. If it becomes necessary to reduce fishing mortality on these stocks, a reduction in daily limit with no length limit is recommended.

Nome/Beaver Creek. The goal of management for Nome Creek is to minimize fishing mortality of Arctic grayling within this small tributary of Beaver Creek with a catch-and-release fishery.

The fishery objective for Beaver Creek is to maintain total harvest of Arctic grayling below 10% of the estimated abundance of fish larger than 250 mm FL in the assessed area. The most recent estimate of abundance of grayling larger than 250 mm FL in the assessed area is 9,900 fish (Fleming and McSweeney 2001). Catch and harvest estimates from the SWHS provide the

measure of fishing mortality. For the purpose of this management scheme, 10% of all fish released are added to the estimate of harvest to incorporate mortality of released fish.

Current sport fishing regulations were adopted by the BOF for Beaver Creek Arctic grayling fishery in January 2004. The current regulations for Nome Creek and Beaver Creek are:

- Only unbaited, single hook, artificial lures may be used April 1 – May 31;
- Nome Creek – catch-and-release only for the entire year; and,
- Beaver Creek (from its headwaters downstream to its confluence with the Yukon River, except for Nome Creek) – daily and possession limit is 5 fish, no size limit.

Current Issues and Fishery Outlook

Dalton Highway. Local roadside depletion of fish stocks near crossings of the Koyukuk River tributaries by the Dalton Highway has been a concern because such depletions would reduce angling opportunity for sport fishers traveling this route. A study (Fish 1997) concluded that catchability of fish in the Jim River was not affected by accessibility from the highway, and that fishing pressure at easily accessible locations along the river is not great enough to cause changes in catchability throughout the summer.

Substantial increases in the levels of angler effort, catch, and harvest have been expected as a result of the large improvements in the road surface (most of the highway north of the Yukon River and south of Wiseman was paved beginning in 2001). However, while modest increases in visitor use have been recorded at the visitor center in Coldfoot (Appendix F1), only the most recent estimates (2006–2008) of angler effort and Arctic grayling catch has reflected any evidence of significant increases in the sport fishery. With better road access and with a somewhat less restrictive sport fishing regulation, ADF&G anticipates that the participation in the road-side fishery for Arctic grayling will increase.

Prior to the 2004 season, the minimum length limit was rescinded from the regulation for the Dalton Highway Arctic grayling sport fishery. A modest increase in the harvest of Arctic grayling from area waters was expected and was realized. However, estimated harvests since 2004 have remained substantially below the established harvest threshold of 1,200 fish, (or 10% of 12,000, the last abundance estimate for Arctic grayling in the Jim River). Continued modest increases in angler effort, catch, and harvest are expected in this fishery. Results from the SWHS and the survey from the visitor center in Coldfoot will be reviewed annually to detect changes in this fishery.

In addition to changes in the sport fishery, a new gillnet subsistence fishery in these streams was authorized by the BOF during winter 2004. To date, only two individuals have participated in this new permit fishery and harvests have been insignificant. If this permit fishery grows, the additional subsistence harvest will need to be factored into the estimated annual harvest. In this case, due to the state's subsistence priority, adjustments would be needed in the regulation of the sport fishery to ensure that harvest levels remain sustainable.

Nome Creek/Beaver Creek: Improved access to Beaver and Nome creeks has resulted in a growing sport fishery for Arctic grayling, particularly in Nome Creek (catch-and-release fishery). Only modest increases in visitor use and in angling effort are anticipated as the recreational destination becomes more popular. With adoption of new regulations in 2001, no changes in the fishery regulations for Nome and Beaver creeks are anticipated. Current annual

harvest levels from Beaver Creek have not yet approached the 1,000 fish threshold level established in the objective for this fishery.

Recent Board of Fisheries Action

Dalton Highway. In 1994, the BOF reduced the bag and possession limit for Arctic grayling within the Dalton Highway Corridor from 10 to 5 fish and added a minimum length limit of 12 inches. This action was taken in response to increases in recreational use and harvest (Burr et al. 1998). As described above (Fisheries Objectives and Management), the 12 inch minimum size limit was rescinded in 2004.

Nome Creek/Beaver Creek. In 1994, the BOF adopted a catch-and-release only regulation for Arctic grayling in Nome Creek in anticipation of continued increasing recreational use of this small tributary of Beaver Creek. In January 2004, the sport fishery bag limit regulation for Beaver Creek from its headwaters downstream to its confluence with O'Brien Creek, except for Nome Creek, was reduced from 10 to 5 per day.

Current or Recommended Research and Management Activities

At present, there is little concern for overharvest of Arctic grayling in streams crossed by the Dalton Highway or in the Nome/Beaver Creek fishery. Conservative annual sustainable harvest target levels have been established.

For the Dalton Highway, a reassessment of the stocks will be needed as fishing effort and harvests increase and begin to approach threshold use levels. In addition, a concurrent on-site creel census is recommended to better describe the sport fishery.

A reassessment of the Arctic grayling stock inhabiting Nome Creek (Beaver Creek drainage) is recommended to determine if a sustainable harvest opportunity currently exists. The catch-and-release only regulation in place for Nome Creek was based on anticipated increasing angler effort on a small portion of the watershed. The most recent study completed on the Nome creek stock is from the late 1980s and was based on catch-per-unit-effort from sport tackle. A more recent quantitative assessment of an adjacent 30-mile section of the Beaver Creek population, excluding Nome Creek, found a very high population density (1,325 fish per river mile) of small Arctic grayling (>150 mm FL, most 220–250 mm FL) with age classes age-3 and age-4 dominating (Fleming and McSweeney 2001).

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REFERENCES CITED

- Arvey, W. D. and A. L. DeCicco. 1989. Northern pike in the vicinity of the Yukon River haul road crossing, 1988. Alaska Department of Fish and Game, Fishery Data Series No. 105, Juneau.
- Arvey, W. D. and A. Burkholder. 1990. Stock assessment of northern pike in the vicinity of the Yukon River haul road crossing, 1988 and 1989. Alaska Department of Fish and Game, Fishery Manuscript No. 90-1, Anchorage.
- Arvey, W. D., J. Burr, A. L. DeCicco, J. Hallberg and J. Parker. 1995. Fishery Management Report for sport fisheries in the Arctic-Yukon-Kuskokwim, Tanana River, and Northwest Alaska regulatory areas, 1992. Alaska Department of Fish and Game, Fishery Management Report No. 95-9, Anchorage.
- Brase, A. 2009. Fishery Management Report for Recreational Fisheries in Lower Tanana Management Area in 2007. Alaska Department of Fish and Game, Fishery Management Report No. 09-23, Anchorage.
- Brown, C., J. Burr, K. Elkin and R. J. Walker. 2005. Contemporary subsistence uses and population distribution of non-salmon fish in Grayling, Anvik, Shageluk and Holy Cross. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 289, Fairbanks,
- Burkholder, A. 1992. Mortality of northern pike captured and released with sport fishing gear. Alaska Department of Fish and Game, Fishery Data Series No. 92-3, Anchorage.
- Burr J. M. 1998. Effects of post-capture handling on mortality in northern pike. Alaska Department of Fish and Game, Fishery Data Series No. 98-34, Anchorage.
- Burr, J. 2001. Fishery Management Report for sport fisheries in the Arctic-Yukon-Kuskokwim Management Area, 1999-2000. Alaska Department of Fish and Game, Fishery Management Report No. 01-03, Anchorage.
- Burr, J. 2004. Fishery Management Report for sport fisheries in the Arctic-Yukon-Kuskokwim Management Area, 2002-2003. Alaska Department of Fish and Game, Fishery Management Report No. 04-02, Anchorage.
- Burr, J. M. 2006. AYK lake trout management plan. Alaska Department of Fish and Game, Fishery Management Report No. 06-52, Anchorage.
- Burr, J. M. and D. James. 1996. Dall River cooperative research project, 1995. Alaska Department of Fish and Game, Fishery Data Series No. 96-34, Anchorage.
- Burr, J. M. and S. Roach. 2003. Abundances, length and age compositions, and CPUE of northern pike within selected sloughs of the Nowitna River, 1997. Alaska Department of Fish and Game, Fishery Data Series No. 03-16, Anchorage.
- Burr, J. M., A. L. DeCicco, J. Hallberg and J. Parker. 1998. Fishery Management Report for sport fisheries in the Arctic-Yukon-Kuskokwim, Tanana River, and Northwest Alaska regulatory areas, 1993-1994. Alaska Department of Fish and Game, Fishery Management Report No. 98-5, Anchorage.
- Chythlook, J, and J. M. Burr. 2002. Seasonal movements and length composition of northern pike in the Dall River, 1999-2000.
- Fish, J. T. 1997. Stock Assessment of Arctic grayling in the Jim River and other streams adjacent to the Dalton Highway, 1995-1997. Alaska Department of Fish and Game, Fishery Manuscript Series, No. 97-3, Anchorage.
- Fish, J. T. 1998. Radio-telemetry studies of Arctic grayling in the Jim River (Dalton Highway) during 1997 – 1998. Alaska Department of Fish and Game, Fishery Manuscript Series, No. 98-04, Anchorage.
- Fleming, D. F. and I. McSweeney. 2001. Stock assessment of Arctic grayling in Beaver and Nome Creeks. Alaska Department of Fish and Game. Fishery Data Series No. 01-28, Anchorage.
- Gryska, A. D. 2003. Length and sge at maturity of Arctic grayling in the Jim River. Alaska Department of Fish and Game. Fishery Data Series No. 03-04, Anchorage.
- Howe A. H., G. Fidler and M. Mills. 1995. Harvest, catch and participation in Alaska sport fisheries during 1994. Alaska Department of Fish and Game. Fishery Data Series No. 95-24, Anchorage.

REFERENCES CITED (Continued)

- Howe, A. L., G. Fidler, A. E. Bingham, and M. J. Mills. 1996. Harvest, catch, and participation in Alaska sport fisheries during 1995. Alaska Department of Fish and Game, Fishery Data Series No. 96-32, Anchorage.
- Howe, A. L., R. J. Walker, C. Olnes, K. Sundet, and A. E. Bingham. 2001a. Revised Edition: Harvest, catch, and participation in Alaska sport fisheries during 1996. Alaska Department of Fish and Game, Fishery Data Series No. 97-29 (revised), Anchorage.
- Howe, A. L., R. J. Walker, C. Olnes, K. Sundet, and A. E. Bingham. 2001b. Revised Edition: Harvest, catch, and participation in Alaska sport fisheries during 1997. Alaska Department of Fish and Game, Fishery Data Series No. 98-25 (revised), Anchorage.
- Howe, A. L., R. J. Walker, C. Olnes, K. Sundet, and A. E. Bingham. 2001c. Revised Edition: Participation, catch, and harvest in Alaska sport fisheries during 1998. Alaska Department of Fish and Game, Fishery Data Series No. 99-41 (revised), Anchorage.
- Howe, A. L., G. Fidler, C. Olnes, A. E. Bingham, and M. J. Mills. 2001d. Participation, catch, and harvest in Alaska sport fisheries during 1999. Alaska Department of Fish and Game, Fishery Data Series No. 01-8, Anchorage.
- Jennings, G. B., K. Sundet, A. E. Bingham, and D. Sigurdsson. 2004. Participation, catch, and harvest in Alaska sport fisheries during 2001. Alaska Department of Fish and Game, Fishery Data Series No. 04-11, Anchorage.
- Jennings, G. B., K. Sundet, A. E. Bingham, and D. Sigurdsson. 2006a. Participation, catch, and harvest in Alaska sport fisheries during 2002. Alaska Department of Fish and Game, Fishery Data Series No. 06-34, Anchorage.
- Jennings, G. B., K. Sundet, A. E. Bingham, and D. Sigurdsson. 2006b. Participation, catch, and harvest in Alaska sport fisheries during 2003. Alaska Department of Fish and Game, Fishery Data Series No. 06-44, Anchorage.
- Jennings, G. B., K. Sundet, and A. E. Bingham. 2007. Participation, catch, and harvest in Alaska sport fisheries during 2004. Alaska Department of Fish and Game, Fishery Data Series No. 07-40, Anchorage.
- Jennings, G. B., K. Sundet, and A. E. Bingham. 2009a. Estimates of participation, catch, and harvest in Alaska sport fisheries during 2005. Alaska Department of Fish and Game, Fishery Data Series No. 09-47, Anchorage.
- Jennings, G. B., K. Sundet, and A. E. Bingham. 2009b. Estimates of participation, catch, and harvest in Alaska sport fisheries during 2006. Alaska Department of Fish and Game, Fishery Data Series No. 09-54, Anchorage.
- Jennings, G. B., K. Sundet, and A. E. Bingham. *In prep a.* Estimates of participation, catch, and harvest in Alaska sport fisheries during 2007. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.
- Jennings, G. B., K. Sundet, and A. E. Bingham. *In prep b.* Estimates of participation, catch, and harvest in Alaska sport fisheries during 2008. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.
- Mills, M. J. 1979. Alaska statewide sport fish harvest studies. 1977 data. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Report of Progress, 1978-1979. Project F-9-11, Volume 20 (SW-1-A), Juneau.
- Mills, M. J. 1980. Alaska statewide sport fish harvest studies. 1978 data. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Report of Progress, 1979-1980. Project F-9-12, 21 (SW-1-A) Juneau.
- Mills, M. J. 1981a. Alaska statewide sport fish harvest studies. 1979 data. Alaska Department of Fish and Game, Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report 1980-1981, Project F-9-13, Volume 22 (SW-1-A), Juneau.
- Mills, M. J. 1981b. Alaska statewide sport fish harvest studies. 1980 data. Alaska Department of Fish and Game, Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report 1980-1981, Project F-9-13, Volume 22 (SW-1-A), Juneau.
- Mills, M. J. 1982. Alaska statewide sport fish harvest studies. 1981 data. Alaska Department of Fish and Game, Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report 1981-1982, Project F-9-14, Volume 23 (SW-1-A), Juneau.

REFERENCES CITED (Continued)

- Mills, M. J. 1983. Alaska statewide sport fish harvest studies. 1982 data. Alaska Department of Fish and Game. Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report 1982-1983. Project F-9-15, Volume 24 (SW-I-A), Juneau.
- Mills, M. J. 1984. Alaska statewide sport fish harvest studies. 1983 data. Alaska Department of Fish and Game. Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report, 1983-1984. Project F-9-16, Volume 25 (SW-I-A), Juneau.
- Mills, M. J. 1985. Alaska statewide sport fish harvest studies. 1984 data. Alaska Department of Fish and Game. Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report, 1984-1985. Project F-9-17, Volume 26 (SW-I-A), Juneau.
- Mills, M. J. 1986. Alaska statewide sport fish harvest studies. 1985 data. Alaska Department of Fish and Game. Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report, 1985-1986. Project F-9-18, Volume 27 (RT-2), Juneau.
- Mills, M. J. 1987. Alaska statewide sport fisheries harvest report. 1986 data. Alaska Department of Fish and Game. Fishery Data Series No. 2, Juneau.
- Mills, M. J. 1988. Alaska statewide sport fisheries harvest report. 1987 data. Alaska Department of Fish and Game, Fishery Data Series No. 52, Juneau.
- Mills, M. J. 1989. Alaska statewide sport fisheries harvest report, 1988. Alaska Department of Fish and Game, Fishery Data Series No. 122, Juneau.
- Mills, M. J. 1990. Harvest and participation in Alaska sport fisheries during 1989. Alaska Department of Fish and Game, Fishery Data Series No. 90-44, Anchorage.
- Mills, M. J. 1991. Harvest, catch and participation in Alaska sport fisheries during 1990. Alaska Department of Fish and Game, Fishery Data Series No. 91-58, Anchorage.
- Mills, M. J. 1992. Harvest, catch, and participation in Alaska sport fisheries during 1991. Alaska Department of Fish and Game, Fishery Data Series No. 92-40, Anchorage.
- Mills, M. J. 1993. Harvest, catch, and participation in Alaska sport fisheries during 1992. Alaska Department of Fish and Game, Fishery Data Series No. 93-42, Anchorage.
- Mills, M. J. 1994. Harvest, catch, and participation in Alaska sport fisheries during 1993. Alaska Department of Fish and Game, Fishery Data Series No. 94-28, Anchorage.
- Mills, M. J. and A. L. Howe. 1992. An evaluation of estimates of sport fish harvest from the Alaska statewide mail survey. Alaska Department of Fish and Game, Special Publication No. 92-2, Anchorage.
- Parker, J. F. 2009. Fishery Management Report for sport fisheries in the upper Tanana River drainage in 2007. Alaska Department of Fish and Game, Fishery Management Report No. 09-38, Anchorage.
- Scanlon, B. 2009. Movements and fidelity of northern pike in the lower Innoko River drainage, 2002-2004. Alaska Department of Fish and Game, Fishery Data Series No. 09-45, Anchorage.
- Walker, R. J., C. Olnes, K. Sundet, A. L. Howe, and A. E. Bingham. 2003. Participation, catch, and harvest in Alaska sport fisheries during 2000. Alaska Department of Fish and Game, Fishery Data Series No. 03-05, Anchorage.

TABLES AND FIGURES

Table 1.—Fishing effort (angler-days) for the Yukon Management Area, Region III, and Alaska, 1977–2008.

Year	Yukon Angler-days	Percent of Region	Region III Angler-days	Percent of State	Statewide Angler-days
1977	4,729	4%	123,161	10%	1,197,590
1978	6,314	4%	145,492	11%	1,285,063
1979	7,714	6%	126,096	9%	1,364,739
1980	6,849	4%	160,266	11%	1,488,962
1981	6,679	4%	148,886	10%	1,420,172
1982	11,034	6%	198,791	12%	1,623,090
1983	11,070	6%	199,361	12%	1,732,528
1984	6,358	3%	199,041	11%	1,866,837
1985	8,670	5%	186,883	10%	1,943,069
1986	9,381	5%	194,713	9%	2,071,412
1987	7,017	3%	217,109	10%	2,152,886
1988	8,261	4%	233,559	10%	2,311,291
1989	10,712	4%	239,629	11%	2,264,079
1990	15,539	6%	245,629	10%	2,453,284
1991	10,749	5%	219,922	9%	2,456,328
1992	12,831	7%	181,852	7%	2,540,374
1993	14,011	6%	220,972	9%	2,559,408
1994	12,872	6%	209,987	8%	2,719,911
1995	18,677	7%	270,141	10%	2,787,670
1996	10,678	5%	201,166	10%	2,006,528
1997	12,725	5%	238,856	11%	2,079,514
1998	10,127	4%	227,841	12%	1,856,976
1999	12,906	4%	304,522	12%	2,499,152
2000	11,327	5%	241,574	9%	2,627,805
2001	10,531	5%	194,138	9%	2,261,941
2002	15,044	7%	220,276	10%	2,259,091
2003	9,117	4%	206,705	9%	2,219,398
2004	13,109	6%	217,041	9%	2,473,961
2005	8,965	5%	183,535	7%	2,463,929
2006	11,423	7%	175,274	8%	2,298,092
2007	11,394	6%	204,032	8%	2,543,674
2008	12,973	7%	183,084	8%	2,315,601
Averages					
1998–2007	11,394	5%	217,494	9%	2,350,402
2003–2007	10,802	5%	197,317	8%	2,399,811

Table 2.—Number of fish harvested and total catch by species by recreational anglers within the Yukon Management Area, 1993–2008.

Year	All Fish	Pacific Salmon					
	Total	Total	King	Coho	Sockeye	Pink	Chum
Harvest							
1993	8,128	934	122	619	0	0	193
1994	9,445	1,228	410	728	0	0	90
1995	7,311	388	37	162	0	0	189
1996	9,036	656	128	432	0	30	66
1997	7,328	606	221	179	0	0	206
1998	6,969	861	207	154	64	85	351
1999	7,434	272	22	158	11	0	81
2000	6,103	407	99	244	0	0	64
2001	7,308	191	12	126	0	0	53
2002	9,655	639	8	551	3	0	77
2003	6,205	311	99	160	0	24	28
2004	10,432	1,318	194	907	79	33	105
2005	7,954	729	0	360	78	0	291
2006	6,088	794	101	371	0	54	268
2007	5,627	873	411	258	0	0	204
2008	5,793	636	155	171	0	0	310
Averages							
1993–2007	7,668	680	138	361	16	15	151
1998–2007	7,378	640	115	329	24	20	152
2003–2007	7,261	805	161	411	31	22	179
Catch							
1993	45,034	2,896	640	1,023	9	0	1,224
1994	36,015	1,979	510	1,109	9	0	351
1995	32,282	1,453	177	542	0	0	734
1996	57,857	5,354	2,785	813	0	964	792
1997	41,491	1,633	673	386	30	28	516
1998	40,070	6,206	456	385	1,019	802	3,544
1999	45,136	1,503	56	804	343	0	300
2000	41,907	1,651	562	684	0	39	366
2001	41,269	1,834	315	822	0	0	697
2002	63,955	1,486	18	1,064	3	38	363
2003	56,760	9,240	850	3,386	21	53	4,930
2004	91,804	10,492	1,088	4,329	678	1,041	3,356
2005	47,429	4,188	455	504	151	848	2,230
2006	64,380	5,486	438	1,640	183	514	2,711
2007	49,572	6,725	2,681	1,887	0	0	2,157
2008	39,378	6,836	685	1,277	113	2,072	2,689
Averages							
1993–2007	50,331	4,142	780	1,292	163	288	1,618
1998–2007	54,228	4,881	692	1,551	240	334	2,065
2003–2007	61,989	7,226	1,102	2,349	207	491	3,077

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Table 2.–Page 2 of 2.

Year	Non-Salmon						
	Total	Lake Trout	Dolly Varden Arctic Char	Arctic Grayling	Sheefish	Northern Pike	Burbot
Harvest							
1993	7,194	101	528	3,330	436	2,347	279
1994	8,217	59	488	4,574	391	1,968	145
1995	6,923	66	122	3,421	476	1,937	216
1996	8,380	9	881	4,000	606	2,502	203
1997	6,722	0	344	3,456	231	1,870	415
1998	6,108	27	205	3,912	258	1,452	133
1999	7,162	545	203	3,164	133	2,418	168
2000	5,696	55	373	3,279	372	1,277	118
2001	7,117	56	368	3,193	492	1,772	50
2002	9,016	147	551	2,832	538	3,291	1,160
2003	5,894	57	358	3,131	238	1,507	594
2004	9,114	98	167	3,271	1,352	3,656	111
2005	7,225	171	130	2,883	1,348	1,899	534
2006	5,294	6	174	2,041	540	1,134	741
2007	4,754	40	181	2,824	177	1,281	60
2008	5,157	33	36	2,531	462	1,577	279
Averages							
1993–2007	6,988	96	338	3,287	506	2,021	328
1998–2007	6,739	120	271	3,053	545	1,969	367
2003–2007	6,458	74	202	2,830	731	1,895	408
Catch							
1993	42,138	196	4,249	21,420	2,127	13,502	342
1994	34,036	177	1,779	15,951	1,121	11,694	152
1995	30,829	155	751	11,454	1,335	15,828	288
1996	52,503	60	1,938	21,417	2,915	25,502	212
1997	39,858	70	1,448	23,318	453	13,367	687
1998	33,864	74	1,991	18,318	568	12,349	149
1999	43,633	1,330	2,104	18,432	812	20,213	168
2000	40,256	166	1,678	23,024	1,144	13,589	130
2001	39,435	56	1,619	16,000	1,531	18,788	57
2002	62,469	1,596	2,142	19,194	1,483	35,975	1,217
2003	47,520	296	2,837	24,465	769	18,392	648
2004	81,312	553	2,420	32,455	5,329	39,762	178
2005	43,241	540	407	20,940	1,999	18,332	534
2006	58,894	26	984	23,718	8,298	24,335	766
2007	41,257	79	1,590	25,458	318	15,021	75
2008	32,542	58	1,332	20,687	834	8,655	286
Averages							
1993–2007	46,189	358	1,862	21,038	2,013	19,777	374
1998–2007	49,348	472	1,777	22,200	2,225	21,676	392
2003–2007	54,766	299	1,648	25,407	3,343	23,168	440

Table 3.–Sport harvest of king salmon in the Yukon River drainage, 1998–2008.

Harvest	Year											Averages	
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	1998–2007	2003–2007
Yukon R. drainages (Ft. Yukon to Canadian Border)													
Subtotal^a	0	0	0	0	0	0	0	0	0	0	0	0	0
Fortymile River	0	0	0	0	0	0	0	0	0	0	0	0	0
Charley River	0	0	0	0	0	0	0	0	0	0	0	0	0
Yukon R. drainages (Koyukuk R. to Ft. Yukon)													
Subtotal^a	0	22	81	12	0	0	35	0	0	0	15	15	7
Porcupine River	0	0	0	0	0	0	0	0	0	0	0	0	0
Chandalar River	0	0	0	0	0	0	0	0	0	0	0	0	0
Beaver and Nome Creeks	0	0	0	0	0	0	0	0	0	0	0	0	0
Dall River	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road Streams	0	0	0	0	0	0	0	0	0	0	0	0	0
Nowitna River	0	0	12	12	0	0	35	0	0	0	0	5	7
Melozitna River	0	0	0	0	0	0	0	0	0	0	0	0	0
Koyukuk River	0	22	9	9	0	0	0	0	0	0	0	3	0
Yukon R. drainages (downstream from Koyukuk R.)													
Subtotal^a	207	0	18	0	0	99	159	0	101	411	140	100	154
Nulato River	0	0	0	0	0	0	0	0	0	0	0	0	0
Anvik River	45	0	0	0	0	60	147	0	48	250	140	55	101
Innoko River	0	0	0	0	0	0	0	0	0	0	0	0	0
Andreafsky River	6	0	18	0	0	39	11	0	53	161	0	29	53
Total	207	22	99	12	8	99	194	0	101	411	155	115	161

^a Water bodies listed below are the key systems included in the subtotal.

Table 4.—Sport harvest of chum salmon in the Yukon River drainage, 1998–2008.

Harvest	Year											Averages	
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	1998–2007	2003–2007
Yukon R. drainages (Ft. Yukon to Canadian Border)													
Subtotal^a	0	0	0	0	0	0	0	0	0	0	0	0	0
Fortymile River	0	0	0	0	0	0	0	0	0	0	0	0	0
Charley River	0	0	0	0	0	0	0	0	0	0	0	0	0
Yukon R. drainages (Koyukuk R. to Ft. Yukon)													
Subtotal^a	0	81	0	21	0	0	0	0	26	0	0	13	5
Porcupine River	0	0	0	0	0	0	0	0	0	0	0	0	0
Chandalar River	0	0	0	0	0	0	0	0	0	0	0	0	0
Beaver and Nome Creeks	0	0	0	0	0	0	0	0	0	0	0	0	0
Dall River	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road Streams	0	0	0	0	0	0	0	0	0	0	0	0	0
Nowitna River	0	0	0	0	0	0	0	0	0	0	0	0	0
Melozitna River	0	0	0	0	0	0	0	0	0	0	0	0	0
Koyukuk River	0	81	0	21	0	0	0	0	0	0	0	10	0
Yukon R. drainages (downstream from Koyukuk R.)													
Subtotal^a	351	0	64	32	77	28	105	291	242	204	310	139	174
Nulato River	0	0	0	0	53	0	0	26	33	0	0	11	12
Anvik River	216	0	64	32	9	28	49	90	0	197	310	100	91
Innoko River	58	0	0	0	0	0	0	0	0	0	0	7	0
Andreafsky River	15	0	0	0	15	0	56	175	209	0	0	47	88
Total	351	81	64	53	77	28	105	291	268	204	310	152	179

^a Water bodies listed below are the key systems included in the subtotal.

Table 5.—Sport harvest of coho salmon in the Yukon River drainage, 1998–2008.

Harvest	Year											Averages	
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	1998–2007	2003–2007
Yukon R. drainages (Ft. Yukon to Canadian Border)													
Subtotal^a	0	0	0	0	0	0	0	0	0	0	0	0	0
Fortymile River	0	0	0	0	0	0	0	0	0	0	0	0	0
Charley River	0	0	0	0	0	0	0	0	0	0	0	0	0
Yukon R. drainages (Koyukuk R. to Ft. Yukon)													
Subtotal^a	0	0	129	0	0	57	52	0	0	0	0	24	22
Porcupine River	0	0	0	0	0	0	0	0	0	0	0	0	0
Chandalar River	0	0	0	0	0	0	0	0	0	0	0	0	0
Beaver and Nome Creeks	0	0	0	0	0	12	0	0	0	0	0	1	2
Dall River	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road Streams	0	0	0	0	0	0	0	0	0	0	0	0	0
Nowitna River	0	0	25	0	0	0	0	0	0	0	0	3	0
Melozitna River	0	0	0	0	0	0	0	0	0	0	0	0	0
Koyukuk River	0	0	0	0	0	0	52	0	0	0	0	6	10
Yukon R. drainages (downstream from Koyukuk R.)													
Subtotal^a	154	85	115	80	551	103	855	360	371	258	171	293	389
Nulato River	0	0	0	0	0	0	0	0	0	0	0	0	0
Anvik River	93	85	53	23	56	69	457	0	136	29	123	100	138
Innoko River	61	0	61	0	0	0	0	0	0	0	0	6	0
Andreafsky River	0	0	37	0	412	0	45	360	208	210	0	127	165
Total	154	158	244	126	551	160	907	360	371	258	171	329	411

^a Water bodies listed below are the key systems included in the subtotal.

Table 6.—Sport harvest of northern pike in the Yukon River drainage, 1998–2008.

	Year											Averages	
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	1998–2007	2003–2007
Yukon R. drainages (Ft. Yukon to Canadian Border)													
Subtotal^a	39	19	102	0	259	12	60	0	160	68	74	72	60
Fortymile River	18	0	0	0	0	0	0	0	86	0	0	0	0
Charley River	0	0	0	0	0	0	0	0	0	0	0	0	0
Yukon R. drainages (Koyukuk R. to Ft. Yukon)													
Subtotal^a	959	2,032	1,108	333	1,899	992	2,428	724	834	831	1,351	1,214	1,162
Porcupine River	340	9	10	47	774	206	45	0	77	23	39	153	70
Chandalar River	0	0	10	0	0	0	0	0	0	0	7	0	0
Birch Creek	32	19	29	28	0	0	15	19	0	0	264	14	7
Beaver & Nome Crks	0	16	38	0	157	28	0	47	0	25	60	31	20
Dall River	182	862	257	13	115	246	1,252	268	146	306	13	365	444
Haul Road Streams	0	0	0	0	0	0	0	0	55	0	0	6	11
Nowitna River	218	286	201	0	114	12	181	0	197	172	130	138	112
Melozitna River	11	8	0	0	13	0	0	0	0	0	0	4	0
Koyukuk River	105	634	204	97	299	111	629	265	241	92	622	368	628
Yukon R. drainages (downstream from Koyukuk R.)													
Subtotal^a	433	358	102	0	1,122	549	1,002	1,127	140	133	152	497	590
Nulato River	0	0	0	10	41	36	0	9	0	0	0	11	11
Kaiyuh/Khotol River	8	28	34	0	103	0	60	0	0	15	0	25	15
Anvik River	34	0	41	0	40	22	13	48	0	38	43	24	24
Innoko River	93	145	10	28	40	120	249	59	0	0	6	74	86
Andreasfsky River	42	0	0	1,318	629	11	302	884	44	80	0	331	264
Total	1,452	2,418	1,277	1,772	3,291	1,507	3,656	1,899	1,134	1,281	1,577	1,969	1,895

^a Water bodies listed below are the key systems included in the subtotal.

Table 7.—Total fishing effort (angler-days), and northern pike catch and harvest from principal fisheries in the Yukon River area, 1990–2008.

Year	Yukon	Dall River			Nowitna River			Innoko River		
	Total ^a	Effort	Number	Percent ^b	Effort	Number	Percent	Effort	Number	Percent
Harvest										
1990	2,474	273	372	15%	652	118	5%	415	118	5%
1991	4,454	359	559	13%	1,238	1,617	36%	520	118	3%
1992	3,590	224	342	10%	491	196	6%	53	43	1%
1993	2,347	845	352	15%	446	63	3%	637	151	6%
1994	1,968	455	215	11%	733	161	8%	93	9	1%
1995	1,937	1,018	350	18%	1,977	302	16%	430	90	5%
1996	2,502	341	334	13%	834	651	26%	654	110	4%
1997	1,870	694	414	22%	605	148	8%	445	56	3%
1998	1,452	360	182	13%	645	218	15%	847	93	6%
1999	2,418	687	862	36%	862	286	12%	551	145	6%
2000	1,277	316	257	20%	843	201	16%	327	10	1%
2001	1,772	300	13	1%	434	0	0%	1,458	28	2%
2002	3,291	165	115	3%	525	114	3%	2,533	40	1%
2003	1,507	360	246	16%	180	12	0%	310	120	8%
2004	3,656	686	1,252	34%	664	181	5%	1,522	249	7%
2005	1,899	423	268	14%	414	0	0%	355	59	3%
2006	1,134	347	146	13%	1,078	197	17%	581	0	0%
2007	1,281	600	306	24%	1,006	172	13%	600	0	0%
2008	1,577	102	13	1%	723	130	8%	515	60	4%
Averages										
1998–2007	1,969	424	365	17%	665	138	8%	908	74	3%
2003–2007	1,895	483	444	20%	668	112	7%	674	86	4%
Catch										
1990 ^c	17,717	273	1,810	10%	652	694	4%	415	964	5%
1991	13,895	359	1,029	7%	1,238	2,749	20%	520	1,544	11%
1992	14,801	224	1,042	7%	491	1,426	10%	53	171	1%
1993	13,502	845	2,645	20%	446	1,362	10%	637	1,661	12%
1994	11,694	455	1,308	11%	733	2,868	25%	93	18	0%
1995	15,828	1,018	2,463	15%	1,977	3,049	19%	430	1,039	7%
1996	25,502	341	1,358	5%	834	9,493	37%	654	4,090	16%
1997	13,349	694	1,961	15%	605	1,154	9%	445	3,024	23%
1998	12,349	360	1,304	11%	645	1,290	10%	847	4,433	36%
1999	20,213	687	3,320	16%	862	1,357	7%	551	3,770	19%
2000	13,589	316	1,740	13%	843	4,509	33%	327	1,912	14%
2001	18,788	300	1,550	8%	434	478	3%	1,458	12,866	68%
2002	35,975	165	1,356	4%	525	5,488	15%	2,533	17,551	49%
2003	18,392	360	3,599	20%	180	1,309	7%	310	1,763	10%
2004	39,762	686	11,900	30%	664	2,429	6%	1,522	10,572	27%
2005	18,332	423	2,944	16%	414	348	2%	355	9,271	51%
2006	24,335	347	908	4%	1,078	4,040	18%	581	5,833	24%
2007	15,021	600	2,440	16%	1,006	5,216	35%	600	2,464	16%
2008	8,655	102	243	3%	723	917	11%	515	1,104	13%
Averages										
1998–2007	21,676	424	3,106	14%	665	2,651	13%	908	7,044	31%
2003–2007	23,168	483	4,358	17%	668	2,678	13%	674	5,981	26%

^a Harvest or total catch of northern pike in the Yukon area.

^b Percent of harvest or total catch of northern pike in the Yukon area.

^c Estimates of total catch are not available prior to 1990.

Table 8.—Sport harvest and catch of Arctic grayling in the Yukon River drainage, 1998–2008.

Harvest	Year											Averages	
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	1998–2007	2003–2007
Yukon R. drainages (Canadian Border to Ft. Yukon)													
Subtotal^a	677	833	569	318	308	916	371	129	235	474	86	483	425
Fortymile River	497	178	0	0	39	690	0	0	86	386	0	188	232
Charley River	149	289	20	65	61	70	272	0	121	11	70	106	95
Kandik River	0	34	239	172	0	128	0	0	0	0	0	57	26
Other	0	332	310	81	208	28	99	129	28	77	16	126	72
Yukon R. drainages (Ft. Yukon to Koyukuk R.)													
Subtotal^a	2,398	2,085	2,078	2,006	1,483	1,420	2,571	1,777	1,296	2,184	1,669	1,930	1,850
Porcupine River	270	83	0	601	251	141	227	226	91	128	865	202	163
Birch Creek	169	61	178	500	75	47	178	109	110	223	231	165	133
Beaver and Nome Cr	371	311	672	0	156	324	568	432	699	330	0	386	471
Haul Road Streams	230	497	88	249	75	70	188	328	91	1,213	285	196	378
Jim River	184	321	10	163	75	70	104	0	0	501	173	101	135
Koyukuk River	800	863	735	571	577	490	1,035	415	54	12	129	666	401
Other	788	767	493	334	424	418	563	595	342	1,491	444	622	682
Yukon R. drainages (downstream from Koyukuk R.)													
Subtotal^a	837	77	307	677	1,041	739	253	881	510	166	776	549	510
Nulato River	48	0	0	0	492	0	0	78	0	0	100	80	20
Anvik River	422	27	174	67	154	310	146	0	10	151	174	146	123
Innoko River	0	0	42	112	0	141	16	0	72	15	0	50	49
Andreafsky River	84	0	11	463	365	141	0	803	414	0	0	253	272
Other	283	50	80	35	30	147	91	0	14	0	502	73	50
Total Yukon Harvest	3,912	3,164	3,279	3,193	2,832	3,131	3,271	2,883	2,041	2,824	2,531	3,053	2,830

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Table 8.–Page 2 of 2.

Catch	Year											Averages	
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	1998–2007	2003–2007
Yukon R. drainages (Canadian Border to Ft. Yukon)													
Subtotal^a	1,335	2,883	2,428	1,869	2,026	3,815	981	452	745	1,030	1,773	1,756	1,405
Fortymile River	510	490	0	0	103	2,461	65	0	313	533	27	448	674
Charley River	615	1,151	249	377	61	256	692	0	259	238	0	390	289
Kandik River	0	373	1,167	601	0	618	0	0	35	0	0	279	131
Other	210	869	1,012	891	1,862	480	224	452	138	259	1,746	640	311
Yukon R. drainages (Ft. Yukon to Koyukuk R.)													
Subtotal^a	10,494	13,786	14,453	10,500	9,454	11,163	20,256	18,730	16,804	22,400	11,677	14,704	17,671
Porcupine River	1,094	1,327	1,626	3,521	607	197	707	705	472	198	1,742	1,045	456
Birch Creek	254	331	1,089	1,455	1,163	967	246	508	1,126	499	558	764	669
Beaver and Nome Cr	1,747	1,427	2,405	1,517	1,971	3,379	7,424	6,661	2,417	13,529	134	4,248	6,682
Haul Road Streams	1,656	5,293	756	919	705	1,786	3,258	2,184	9,703	5,520	7,503	3,178	4,490
Jim River	1,229	5,075	517	566	666	1,139	2,687	437	4,265	3,229	4,765	1,981	2,351
Koyukuk River	4,630	4,630	7,964	1,761	3,920	3,438	6,242	4,505	671	70	268	3,783	2,985
Other	2,769	6,071	1,369	2,246	1,793	3,182	5,637	6,351	12,118	7,104	8,975	4,864	6,878
Yukon R. drainages (downstream from Koyukuk R.)													
Subtotal^a	6,489	1,215	4,191	3,381	7,490	8,783	10,723	1,340	6,169	3,028	7,237	5,816	6,009
Nulato River	48	0	38	35	796	493	0	78	20	0	1,505	151	118
Anvik River	2,748	945	3,670	2,575	4,857	6,925	7,197	368	3,513	3,013	5,197	3,581	4,203
Innoko River	0	0	67	129	0	423	3,352	11	1,104	15	0	516	981
Andreafsky River	1,151	0	49	584	1,712	457	0	803	1,518	0	0	627	556
Other	2,542	270	367	58	125	485	174	80	14	0	535	412	151
Total Catch	18,318	18,432	23,024	16,000	19,194	24,465	32,455	20,940	23,718	25,458	20,687	22,200	25,407

^a Water bodies listed below are the key systems included in the subtotal.

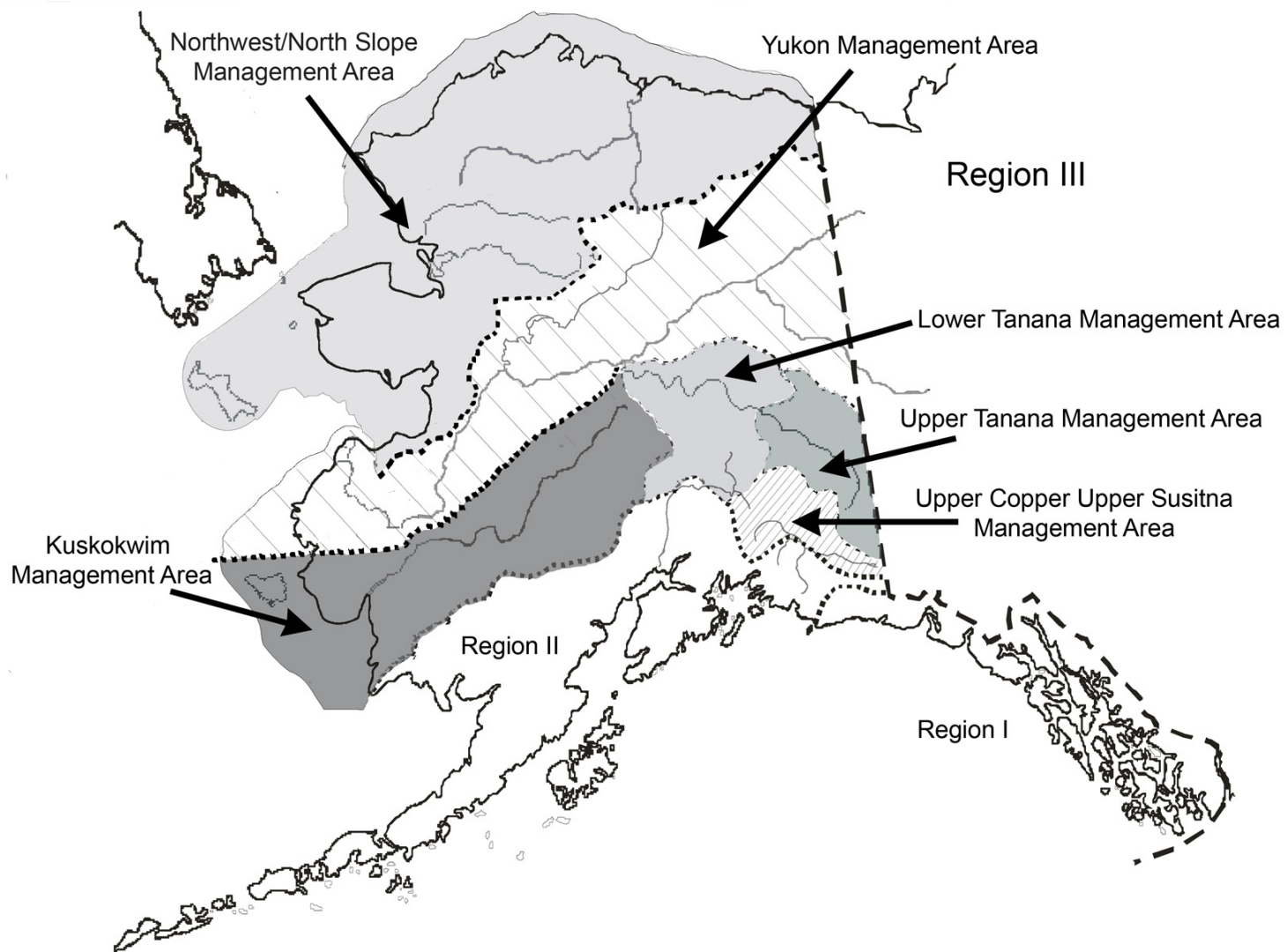


Figure 1.—Map of the sport fish regions in Alaska and the six management areas in Region III.

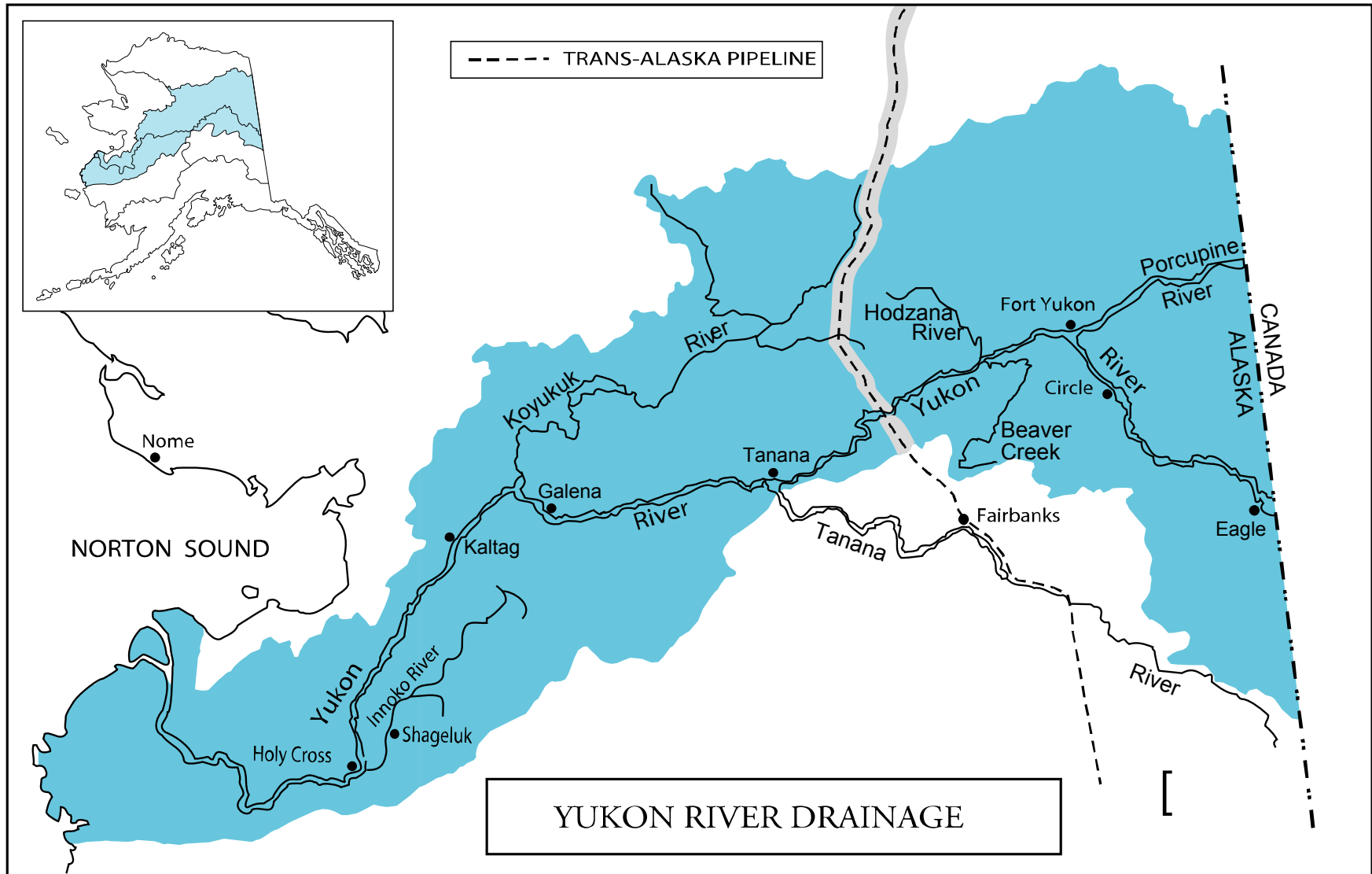


Figure 2.—Yukon area; the Tanana River drainage is excluded from the Yukon Management Area.

APPENDIX A

Appendix A1.–Changes to sport fishing regulations in the Yukon Management Area (YMA) by the Alaska Board of Fisheries in 2007.

During the January 2007 BOF meeting in Anchorage, two proposals were considered that would potentially change sport fishing regulations in the YMA. The BOF adopted both of these proposals, resulting in changes to some sport fishing regulations in the area. These regulations became effective about April 15, 2007 with the release of the 2007–2008 Regulation Summary. All changes in sport fishing regulations in the Yukon management Area following the adoption of these regulations are listed below.

Lake trout – bag, possession, and length limits – Regionwide.

The BOF adopted a *AYK Wild Lake Trout Management Plan*. The plan established a conservative management regime with the goal of maintaining harvest well below maximum sustained yield levels. The plan established a background daily limit of two lake trout. When needed for conservation purposes, the plan prescribes appropriate application of daily limits, length limits, seasonal closures and gear restrictions. The plan also recognizes special management waters to meet other management objectives if sustained yield is also maintained.

In the YMA, all lake trout waters remain under the background daily bag limit of two fish without size limit.

Water	Previous Regulation	New Regulation
Yukon River Drainage	2/day, no size limit	2/day, no size limit

Northern Pike – bag, possession, and size limits – Nowitna River Drainage

Species	Previous Regulation/Lakes	New Regulation/Lakes
Northern Pike	10/day, no size limit	5/day, only one 30” or longer in length.

Appendix A2.–Changes to sport fishing regulations in the Arctic-Yukon Management Area by the Alaska Board of Fisheries in 2004.

During the January 2004 BOF meeting in Fairbanks, eight proposals were considered that would potentially change sport fishing regulations in the Arctic-Yukon Management Area. The BOF adopted five of these proposals, resulting in changes to some sport fishing regulations in the area. These regulations became effective about April 15, 2004 with the release of the 2004–2005 Regulation Summary. Changes are listed below by area, and then by species.

Arctic grayling – bag, possession, and length limits – Regionwide

The BOF adopted a *AYK Wild Arctic Grayling Management Plan*. The plan created three management categories with associated regulatory options; regional regulations, conservative harvest regulations, and special management regulations.

The plan categorized the following waters as **Conservative management** with a daily and possession limit of two fish, with size limits specific to the water bodies: Snake River (Nome), Pilgrim River (Nome); 5-mile Clearwater (Fairbanks), Mendeltna Creek (Glennallen); Aniak, Holitna, Kanektok, and Goodnews Rivers (Kuskokwim)

Wild Arctic grayling waters classified as **Special Management** are: Nome and Solomon rivers (Nome); **Nome Creek (Yukon)**, Chena River (Fairbanks); Piledriver Slough (Fairbanks); and the Delta Clearwater River (Delta Junction).

The regulations adopted under the plan as **Regional Management** changed the general Arctic grayling regulations in the Yukon area. The BOF also adopted proposals removing the length limit in the Dalton Highway Corridor. Specific changes from previous regulations are listed in the table below.

Water	Previous Regulation	New Regulation
Yukon River Drainage	10/day, no size limit	5/day, no size limit
Dalton Hwy Corridor/Yukon	5/day, 12 inch minimum	5/day, no size limit
Nome Creek (Beaver Creek drainage)	Catch-and-Release only	Catch-and-Release only

Wild Lake Trout and Arctic char/Dolly Varden – daily and possession limits.

The general daily and possession limit for these species changed for all lakes in the Yukon Area

Species	Previous Regulation/Lakes	New Regulation/Lakes
Lake trout	4/day, no size limit	2/day in combination, no size limit.
Arctic char/Dolly Varden	2/day, no size limit	

APPENDIX B

Appendix B1.—Contact information for agencies providing information concerning fishing sites within the Yukon Management Area.

Gates of the Arctic National Park and Preserve

<http://www.nps.gov/gaar/>

P.O. Box 30
Bettles, AK 99726
(907) 692-5494

Wild and Scenic Rivers Associated with Gates of the Arctic NP&P

<http://www.nps.gov/gaar/wildandscenicrivers.htm>

Alatna River, <http://www.nps.gov/gaar/alatna.htm>

John River, <http://www.nps.gov/gaar/johnriver.htm>

North Fork Koyukuk River, <http://www.nps.gov/gaar/koyukukriver.htm>

Tinayguk River, <http://www.nps.gov/gaar/tinaygukriver.htm>

Yukon-Charlie Rivers National Preserve

<http://www.nps.gov/yuch/>

Eagle Visitor Center
P.O. Box 167
Eagle, AK 99738
(907) 547-2233

Steese National Conservation Area

http://www.blm.gov/ak/st/en/prog/sa/steese_conserv.html

Bureau of Land Management
Fairbanks District Office
1150 University Avenue
Fairbanks, Alaska 99709-3844
(907) 474-2200 or 1-800-437-7021

Birch Creek National Wild River

http://www.blm.gov/ak/st/en/prog/sa/beavercrk_nwsr.html

-continued-

White Mountain National Recreation Area

http://www.blm.gov/ak/st/en/prog/sa/white_mtns.html

Bureau of Land Management
Fairbanks District Office
1150 University Avenue
Fairbanks, Alaska 99709
(907) 474-2200 or 1-800-437-7021

Beaver Creek National Wild River

http://www.blm.gov/ak/st/en/prog/sa/beavercrk_nwsr.html

Arctic National Wildlife Refuge

<http://arctic.fws.gov/>

101 12th Avenue, Room 236
Fairbanks, Alaska 99701
(907) 456-0250 or 1-800-362-4546

Wild and Scenic Rivers Associated with Arctic National Wildlife Refuge

Sheenjek National Wild and Scenic River, <http://arctic.fws.gov/>
<http://www.dnr.state.ak.us/parks/aktrails/ats/ne/sheenjek.htm>

Wind National Wild and Scenic River, <http://arctic.fws.gov/>

Innoko National Wildlife Refuge

<http://innoko.fws.gov>

Tonzona Avenue
P.O. Box 69
McGrath, AK 99627
E-mail: Innoko@fws.gov
(907) 524-3251

Kanuti National Wildlife Refuge

<http://kanuti.fws.gov/>

101 12th Ave.
Fairbanks, AK 99701
E-mail: kanuti_refuge@fws.gov
(907) 456-0329

Koyukuk National Wildlife Refuge

<http://koyukuk.fws.gov/>

101 Front Street

P.O. Box 287 MS 525

Galena, Alaska 99741-0287

(907) 656-1231 or 1-800-656-1231

E-Mail: r7kynwr@fws.gov

Nowitna National Wildlife Refuge

<http://nowitna.fws.gov/>

101 Front Street

P.O. Box 287 MS 525

Galena, Alaska 99741-0287

(907) 656-1231 or 1-800-656-1231

E-Mail: r7kynwr@fws.gov

Yukon Flats National Wildlife Refuge

<http://yukonflats.fws.gov/>

101 12th Avenue, Room 264 MS 575

Fairbanks, Alaska 99701

(907) 456-0440 or 1-800-531-0676

E-Mail: yukonflats_refuge@fws.gov

Yukon Delta National Wildlife Refuge

<http://yukondelta.fws.gov/>

807 Chief Eddie Hoffman Road

P. O. Box 346 MS 535

Bethel, Alaska 99559

(907) 543-3151

E-Mail: yukondelta@fws.gov

APPENDIX C

Appendix C1.—Sport harvest and catch from the Yukon Management Area (SWHS Area Y), 1977–2008.

Year	All Fish Total	Salmon					Non-Salmon							
		King	Coho	Sockeye	Pink	Chum	Lake Trout	Arctic AC/DV Grayling	Whitefish	Sheefish	Northern Pike	Burbot	Other Fish	
Harvest														
1977	4,168	56	31	0	6	16	308	88	2,486	55	180	899	43	0
1978	9,814	360	163	0	93	293	262	823	3,976	511	388	2,583	362	0
1979	10,993	39	25	0	16	109	173	531	8,273	92	271	1,446	18	0
1980	13,291	15	0	0	19	0	293	506	9,640	9	251	2,498	60	0
1981	10,173	6	0	0	11	17	302	197	6,176	18	509	2,718	219	0
1982	13,580	22	139	0	41	82	720	470	7,171	568	372	3,551	444	0
1983	13,225	0	52	0	0	349	305	856	8,014	52	259	3,318	10	10
1984	10,531	13	0	0	78	0	143	143	6,856	182	104	2,960	52	0
1985	7,985	12	12	0	0	12	485	382	4,180	315	245	2,132	210	0
1986	10,775	15	161	0	98	202	508	91	5,566	328	214	3,470	122	0
1987	12,740	0	61	0	0	226	0	541	9,054	206	128	2,492	32	0
1988	12,363	91	183	0	0	546	0	618	6,115	610	656	3,526	18	0
1989	14,720	100	215	0	0	997	272	726	7,491	245	757	3,516	367	34
1990	9,948	105	228	0	0	417	220	391	4,961	322	323	2,474	507	0
1991	14,258	143	430	180	0	449	434	675	5,570	422	1,341	4,454	160	0
1992	11,416	313	551	58	27	618	193	672	4,171	248	553	3,590	422	0
1993	8,128	122	619	0	0	193	101	528	3,330	173	436	2,347	279	0
1994	9,445	410	728	0	0	90	59	488	4,574	89	391	1,968	145	503
1995	7,311	37	162	0	0	189	66	122	3,421	82	476	1,937	216	603
1996	9,036	128	432	0	30	66	9	881	4,000	160	606	2,502	203	19
1997	7,328	221	179	0	0	206	0	344	3,456	398	231	1,870	415	8
1998	6,969	207	154	64	85	351	27	205	3,912	121	258	1,452	133	0
1999	7,434	22	158	11	0	81	545	203	3,164	511	133	2,418	168	0
2000	6,103	99	244	0	0	64	55	373	3,279	222	372	1,277	118	0
2001	7,308	12	126	0	0	53	56	368	3,193	928	492	1,772	50	258
2002	9,655	8	551	3	0	77	147	551	2,832	497	538	3,291	1,160	0
2003	6,205	99	160	0	24	28	57	358	3,131	0	238	1,507	594	9
2004	10,432	194	907	79	33	105	98	167	3,271	284	1,352	3,656	111	147
2005	7,954	0	360	78	0	291	171	130	2,883	79	1,348	1,899	534	181
2006	6,088	101	371	0	54	268	6	174	2,041	631	540	1,134	741	27
2007	5,627	411	258	0	0	204	40	181	2,824	74	177	1,281	60	117
2008	5,793	155	171	0	0	310	33	36	2,532	230	462	1,577	279	9

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Appendix C1.-Page 2 of 2.

Year	All Fish Total	Salmon					Non-Salmon							
		King	Coho	Sockeye	Pink	Chum	Lake Trout	AC/DV	Arctic Grayling	Whitefish	Sheefish	Northern Pike	Burbot	Other Fish
Catch														
1990	62,327	199	533	0	0	2,149	914	2,842	34,299	914	2,251	17,717	509	0
1991	48,722	316	859	205	77	1,839	757	5,202	23,458	459	1,495	13,895	160	0
1992	43,322	1,242	1,329	107	155	1,960	741	3,744	17,300	349	1,569	14,801	25	0
1993	45,034	640	1,023	9	0	1,224	196	4,249	21,420	302	2,127	13,502	342	0
1994	36,015	510	1,109	9	0	351	177	1,779	15,951	301	1,121	11,694	152	2,861
1995	32,282	177	542	0	0	734	155	751	11,454	109	1,335	15,828	288	909
1996	57,857	2,785	813	0	964	792	60	1,938	21,417	434	2,915	25,502	212	25
1997	41,491	673	386	30	28	516	70	1,448	23,318	430	453	13,367	687	85
1998	40,070	456	385	1,019	802	3,544	74	1,991	18,318	415	568	12,349	149	0
1999	45,136	56	804	343	0	300	1,330	2,104	18,432	554	812	20,213	168	0
2000	41,907	562	684	0	39	366	166	1,678	23,024	524	1,144	13,589	130	0
2001	41,269	315	822	0	0	697	56	1,619	16,000	1,037	1,531	18,788	57	347
2002	63,955	18	1,064	3	38	363	1,596	2,142	19,194	862	1,483	35,975	1,217	0
2003	56,760	850	3,386	21	53	4,930	296	2,837	24,465	45	769	18,392	648	68
2004	91,804	1,088	4,329	678	1,041	3,356	553	2,420	32,455	371	5,329	39,762	178	187
2005	47,429	455	504	151	848	2,230	540	407	20,940	260	1,999	18,332	534	229
2006	64,380	438	1,640	183	514	2,711	26	984	23,718	631	8,298	24,335	766	136
2007	49,572	2,681	1,887	0	0	2,157	79	1,590	25,458	139	318	15,021	75	167
2008	39,378	685	1,277	113	2,072	2,689	58	1,332	20,687	471	834	8,655	286	219

APPENDIX D

Appendix D1.—Commercial, subsistence, and sport harvest of king salmon in the Yukon River drainage.

Year	Tanana River			Yukon River without Tanana			All Yukon River		
	Commercial	Subsistence	Sport	Commercial	Subsistence	Sport	Commercial	Subsistence	Sport
1985	1,142	7,375	1,356	145,046	32,396	12	146,188	39,771	1,368
1986	950	3,701	781	99,020	41,537	15	99,970	45,238	796
1987	3,338	4,096	502	131,422	49,028	0	134,760	53,124	502
1988	762	5,507	853	99,602	40,525	91	101,445	46,032	944
1989	1,741	2,999	963	102,457	48,063	100	105,491	51,062	1,063
1990	2,156	3,069	439	93,504	48,112	105	97,708	51,181	544
1991	1,072	2,515	630	105,344	44,258	143	107,105	46,773	773
1992	753	2,438	118	120,419	43,188	313	122,134	45,626	431
1993	1,445	2,098	1,573	92,665	60,814	122	95,682	65,701	1,695
1994	2,606	2,370	1,871	111,234	50,707	410	115,471	54,563	2,281
1995	2,747	2,178	2,488	121,305	46,756	37	126,204	48,934	2,525
1996	447	1,392	3,102	89,745	42,435	128	91,890	43,521	3,230
1997	2,728	3,025	1,953	110,882	53,266	221	116,421	56,291	2,174
1998	963	2,276	447	42,736	51,814	207	44,625	54,090	654
1999	690	1,955	1,001	68,873	50,570	22	70,767	52,525	1,023
2000	0	1,058	178	8,518	34,858	99	9,115	35,916	277
2001	0	2,449	667	0	50,610	12	0	53,059	679
2002	836	1,193	478	23,820	41,553	8	24,656	42,746	486
2003	1,813	2,349	2,153	39,305	52,964	99	41,118	55,313	2,719
2004	2,057	1,589	1,319	54,886	52,287	194	56,943	53,876	1,513
2005	453	1,966	485	31,872	50,733	0	32,325	52,699	485
2006	84	1,229	638	46,562	46,570	101	46,646	47,799	739
2007	281	1,853	549	33,067	53,439	411	33,348	55,292	960
2008	0	731	254	4,641	44,581	155	4,641	45,312	409
2009	0	na	na	319	na	na	319	na	na
				Average					
1977–2007	1,213	2,530	1,001	89,456	44,172	107	91,677	46,834	1,102
1998–2007	741	1,792	791	33,783	48,552	115	35,954	50,344	954
2003–2007	938	1,797	1,029	39,022	51,199	161	42,076	52,996	1,283

Appendix D2.–Commercial, subsistence, and sport harvest of summer and fall chum salmon in the Yukon River.

Year	Tanana River			Yukon River without Tanana			All Yukon River		
	Commercial	Subsistence	Sport	Commercial	Subsistence	Sport	Commercial	Subsistence	Sport
1985	110,805	60,041	1,255	1,093,477	301,650	12	1,204,282	361,691	1,267
1986	54,703	39,869	693	1,274,166	305,934	202	1,328,869	345,803	895
1987	11,060	153,056	620	611,481	383,547	226	622,541	536,603	846
1988	65,425	48,639	491	1,687,804	305,652	546	1,753,229	354,291	1,037
1989	103,429	69,507	1,135	1,630,266	315,768	997	1,733,695	385,275	2,132
1990	65,808	51,176	55	585,547	239,336	417	651,355	290,512	472
1991	68,340	45,538	588	843,980	218,526	449	912,320	264,064	1,037
1992	26,250	35,217	690	536,349	197,882	618	562,599	233,099	1,308
1993	3,705	17,320	371	136,411	165,055	193	140,116	182,375	564
1994	35,803	40,623	260	230,937	192,499	90	266,740	233,122	350
1995	111,545	62,472	985	997,120	188,400	189	1,108,665	250,872	1,174
1996	64,464	45,223	1,880	732,425	187,407	66	767,889	232,630	1,946
1997	25,287	24,049	456	264,609	168,876	206	286,896	192,925	662
1998	570	20,460	70	31,247	128,497	351	318,917	148,957	421
1999	148	18,769	474	49,635	141,934	81	49,783	160,703	555
2000	0	1,452	97	7,272	82,780	64	7,272	84,232	161
2001	0	4,094	29	0	89,445	53	0	93,539	82
2002	3217	3,892	307	10,587	87,936	77	13,785	91,828	384
2003	8,556	16,442	63	13,125	109,188	1,575	21,681	125,630	1,603
2004	10,060	11,207	98	20,079	121,132	105	30,139	132,339	203
2005	58,623	25,245	144	161,921	159,833	291	220,385	185,078	435
2006	67,980	18,530	315	199,180	156,487	268	267,160	175,017	583
2007	30,246	32,146	41	258,632	160,049	204	288,878	192,195	245
2008	7,698	17,765	61	263,474	158,419	310	271,172	176,184	371
2009	7,810	na	na	187,340	na	na	195,150	na	na
				Average					
1977–2007	44,705	37,872	483	666,580	210,230	271	711,284	248,102	754
1998–2007	17,940	15,239	164	75,164	122,185	307	93,104	137,424	417
2003–2007	35,093	20,714	132	130,757	138,452	489	165,850	159,166	621

Appendix D3.–Commercial, subsistence and sport harvest of coho salmon in the Yukon River drainage.

Year	Tanana River			Yukon River without Tanana			All Yukon River		
	Commercial	Subsistence	Sport	Commercial	Subsistence	Sport	Commercial	Subsistence	Sport
1985	11,762	11,761	796	45,910	20,503	12	57,672	32,264	808
1986	441	13,321	1,374	46,814	21,147	161	47,255	34,468	1,535
1987	0	55,471	1,231	0	29,423	61	0	46,213	1,292
1988	13,972	31,348	2,237	85,935	37,732	183	99,907	69,679	2,420
1989	16,084	19,572	1,596	69,409	22,011	215	85,493	40,924	1,811
1990	14,804	18,768	1,719	29,483	25,873	228	46,937	43,460	1,947
1991	9,775	21,561	2,345	96,839	15,827	430	109,657	37,388	2,775
1992	7,979	17,554	1,115	0	34,367	551	9,608	51,980	1,666
1993	0	4,304	278	0	11,418	619	0	15,812	897
1994	4,451	26,489	1,165	0	15,205	728	4,451	41,775	1,893
1995	6,900	19,219	1,116	40,113	9,423	162	47,013	28,642	1,278
1996	7,142	15,091	1,354	48,840	15,419	432	55,982	30,510	1,786
1997	0	11,945	1,229	35,320	12,350	179	35,320	24,295	1,408
1998	0	7,481	604	1	10,300	154	1	17,781	758
1999	0	9,547	451	1,601	11,423	158	1,601	20,970	609
2000	0	5,150	310	0	9,567	244	0	14,717	554
2001	0	9,000	1,122	0	13,156	126	0	21,688	1,248
2002	0	9,519	541	0	5,990	551	0	15,261	1,092
2003	15,119	10,912	1,317	10,124	13,217	160	25,243	24,129	1,477
2004	18,649	11,817	716	1,583	9,148	907	20,232	20,965	1,623
2005	21,831	19,667	267	36,533	7,433	360	58,311	27,078	627
2006	11,137	10,868	629	53,805	8,782	371	64,942	19,650	1,000
2007	1,368	7,341	339	43,207	14,033	258	44,575	21,374	597
2008	3,177	8,478	170	33,283	8,427	171	36,460	16,905	341
2009	0	na	na	6,605	na	na	6,605	na	na
				Average					
1977–2007	6,466	14,020	839	27,423	16,288	254	34,160	30,402	1,093
1998–2007	6,805	10,131	630	14,685	10,305	329	21,491	20,361	959
2003–2007	13,610	12,117	654	29,050	10,523	411	42,661	22,639	10,65

Appendix D4.—Guideline harvest ranges and midpoints for commercial harvest of king, summer chum, and fall chum salmon, Yukon area, Alaska.

King Salmon						
District	Guideline Harvest Range ^a					
or	Lower		Midpoint		Upper	
Subdistrict	Numbers	Percent	Numbers	Percent	Numbers	Percent
1 and 2	0 to 60,000	89.1	90,000	91.6	120,000	92.9
3	0 to 1,800	2.7	2,000	2.0	2,200	1.7
4	0 to 2,250	3.3	2,550	2.6	2,850	2.2
5B and C	0 to 2,400	3.6	2,600	2.6	2,800	2.2
5D	0 to 300	0.4	400	0.4	500	0.4
6	0 to 600	0.9	700	0.7	800	0.6
Total	67,350	100.0	98,250	100.0	129,150	100.0

Summer Chum Salmon						
District	Guideline Harvest Range ^b					
or	Lower		Midpoint		Upper	
Subdistrict	Numbers	Percent	Numbers	Percent	Numbers	Percent
1 and 2	0 to 251,000	62.8	503,000	62.9	755,000	62.9
3	0 to 6,000	1.5	12,500	1.6	19,000	1.6
4A ^c	0 to 113,000	28.3	225,500	28.2	338,000	28.2
4B, C	0 to 16,000	4.0	31,500	3.9	47,000	3.9
5B, C, D	0 to 1,000	0.3	2,000	0.3	3,000	0.3
6	0 to 13,000	3.3	25,500	3.2	38,000	3.2
Total	400,000	100.0	800,000	100.0	1,200,000	100.0

Anvik River Management Area roe cap of 100,000 pounds^d

Fall Chum Salmon						
District	Guideline Harvest Range ^e					
or	Lower		Midpoint		Upper	
Subdistrict	Numbers	Percent	Numbers	Percent	Numbers	Percent
1, 2 and 3	0 to 60,000	82.5	140,000	71.2	220,000	68.6
4B, C	0 to 5,000	6.9	22,500	11.4	40,000	12.5
5B, C	0 to 4,000	5.5	20,000	10.2	36,000	11.2
5D	0 to 1,000	1.4	2,500	1.3	4,000	1.2
6	0 to 2,750	3.8	11,625	5.9	20,500	6.4
Total	72,750	100.0	196,625	100.0	320,500	100.0

Subdistrict 5A range of 0 to 4,000 pounds of roe^f

^a King salmon guideline harvest ranges have been in effect since 1981 (5 AAC 05.360).

^b Summer chum salmon guideline harvest ranges were established in February 1990 based on the average harvest shares from 1975–1989 (5 AAC 05.362).

^c Or the equivalent roe poundage of 61,000 to 183,000 pounds or some combination of fish and pounds of roe.

^d The current Anvik River Management Area roe cap was established in March 1996.

^e The current fall chum salmon guideline harvest ranges were established in 1990 (5 AAC 05.365).

^f Subdistrict 5A was removed from the guideline harvest ranges for king and summer chum and a separate guideline harvest range of 0–4,000 pounds of fall chum salmon roe was established in November 1998.

Appendix D5.–Yukon River Drainage Fall Chum Salmon Management Plan Overview.

Fall Chum Salmon Management Plan Overview					
Projected Run Size ^a	Recommended Management Action				Targeted Drainagewide Escapement
	Commercial	Personal Use	Sport	Subsistence	
300,000 or less	Closure	Closure	Closure	Closure ^b	
300,000 to 500,000	Closure	Closure ^b	Closure ^b	Possible Restrictions ^{b, c}	300,000 to 600,000
500,000 to 600,000	Restrictions ^b	Open	Open	Pre-2001 Fishing Schedules	
Greater than 600,000	Open ^d	Open	Open	Pre-2001 Fishing Schedules	

^a PROJECTED RUN SIZES use the best available data (including preseason projections, mainstem river sonar passage estimates, test fisheries indices, subsistence and commercial fishing reports, and passage estimates from escapement monitoring projects).

^b The fishery may be opened or less restrictive in areas that indicator(s) suggest the escapement goal(s) in that area will be achieved.

^c Subsistence fishing will be managed to achieve a minimum drainagewide escapement goal of 300,000.

^d DRAINAGEWIDE COMMERCIAL FISHERIES may be open and the harvestable surplus above 600,000 will be distributed by district or subdistrict (in proportion to the guidelines harvest levels established in 5 AAC 05.365 and 5 AAC 05.367).

Appendix D6.–Yukon River Summer Chum Salmon Management Plan overview.

Summer Chum Salmon Management Plan Overview					
Projected Run Size ^a	Recommended Management Action				Targeted Drainage-wide Escapement
	Commercial	Personal Use	Sport	Subsistence	
600,000 or less	Closure	Closure	Closure	Closure ^b	≤600,000
600,001 to 700,000	Closure	Closure	Closure	Possible Restrictions ^b	
700,001 to 1,000,000	Restrictions ^b	Restrictions ^b	Restrictions ^b	Normal Fishing Schedules	
Greater than 1,000,000	Open ^c	Open	Open	Normal Fishing Schedules	≥800,000

^a PROJECTED RUN SIZE: Mainstem river sonar passage estimate plus estimated harvests below the sonar site and Andrafsky River escapement.

^b The fishery may be opened or less restrictive in areas that indicator(s) suggest the escapement goal(s) in that area will be achieved.

^c DRAINAGEWIDE COMMERCIAL FISHERIES: Harvestable surplus will be distributed by district or subdistrict in proportion to the guidelines harvest levels established in 5 AAC 05.362 (f) and (g) and 5 AAC 05.36 5 if buying capacity allows.

5 AAC 05.369. YUKON RIVER COHO SALMON MANAGEMENT PLAN.

(a) The goal of this plan is to provide for the management of directed commercial coho salmon fishing in the Yukon River. The majority of Yukon River coho salmon spawn in tributaries that flow into the Yukon River from the mouth of the Yukon River up to and including the Tanana River drainage. The management of directed coho salmon fishing during the fall season is complicated by an overlapping run of more abundant fall chum salmon stocks.

(b) For the purpose of (c) of this section, the department shall use the best available information to assess coho salmon abundance including mainstem river sonar passage estimates, test fisheries indices, subsistence and commercial fishing reports, and estimates from escapement monitoring projects.

(c) The department may allow a directed coho salmon fishery under this section in years when

(1) the return of coho salmon measured under (b) of this section is projected to provide for a harvestable surplus;

(2) the fall chum salmon return is assessed by the department to be more than 550,000 fish.

(d) Fall chum salmon harvested during a directed commercial coho salmon fishery under this section will be considered incidental any may only occur on the harvestable surplus of fall chum salmon above 550,000 fish.

(e) In a year when a directed commercial coho salmon fishery is opened under this section in

(1) Districts 1, 2, and 3, the commissioner shall close, by emergency order, the coho salmon fall season no later than September 10;

(2) Subdistricts 5-A, and District 4 and 6, the commissioner shall close, by emergency order, the coho salmon fall season no later than October 5; and,

(f) In Subdistrict 5-B, 5-C, and 5-D there will be no directed commercial coho salmon fishery unless the department determines that there will be a harvestable surplus of coho salmon.

(g) The department shall distribute, to the extent practicable, the harvest opportunity in the directed coho salmon fishery between districts and subdistricts as follows:

(1) 24 hours of combined fishing time in Districts 1, 2, and 3 will be considered equal to 32 hours of fishing time in:

(A) Subdistrict 4-A;

(B) Subdistricts 4-B and 4-C combined;

(C) Subdistrict 5-A; and,

(D) District 6;

(2) to ensure an orderly and conservative fishery, coho salmon fishing will be managed as follows:

(A) in Districts 1, 2, and 3 combined, fishing time shall not exceed 24 hours in a seven-day period;

(B) in District 4-A, fishing time shall not exceed 32 hours in a seven-day period;

(C) in Subdistricts 4-B and 4-C combined, fishing time shall not exceed 32 hours in a seven-day period;

(D) in Subdistrict 5-A, fishing time shall not exceed 32 hours in a seven day period; and,

(E) in District 6, fishing time shall not exceed 32 hours in a seven-day period.



2008 Yukon River Salmon Fisheries Outlook



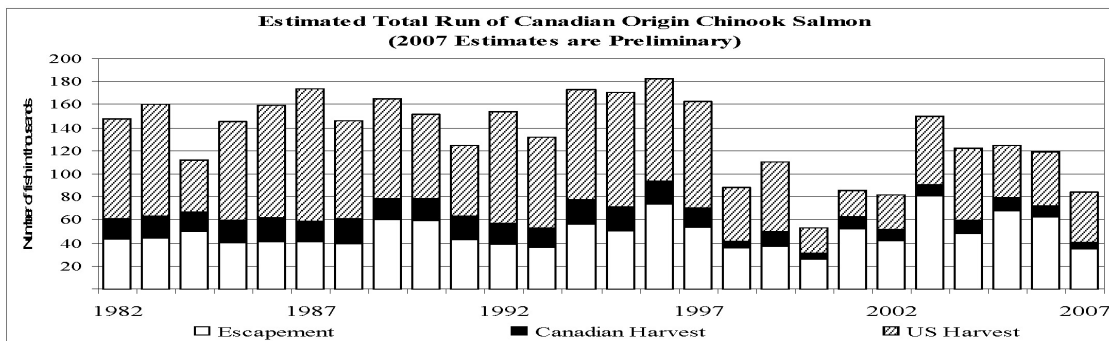
This information sheet describes the anticipated management strategies of the 2008 season. State and Federal fishery managers will coordinate management of the Yukon River subsistence salmon fishery.

RUN AND HARVEST OUTLOOK

Chinook Salmon	Chum Salmon	Coho Salmon
Below average run is projected to provide for escapement and subsistence uses.	Average run is projected to provide for escapement and subsistence uses.	Average to above average run is projected to provide for escapement and subsistence uses.
2008 Chinook salmon run is anticipated to be similar to 2007.	Summer chum commercial harvest is anticipated to be between 500,000 and 900,000 fish.	Runs have been increasing due to improved production.
Commercial harvest is anticipated to be between 5,000 and 30,000 fish.	Fall chum commercial harvest is anticipated to be between 50,000 and 400,000 fish.	Commercial harvest is anticipated to be between 50,000 and 70,000 fish.

MANAGEMENT STRATEGIES

- Initial management will be based on preseason projections and shifted to inseason project information as the runs develop.
- Continue the regulatory subsistence salmon fishing schedule until run assessment indicates there is a harvestable surplus for additional subsistence opportunity and other uses.
- Because of the unexpected weak Chinook run in 2007, the department will be delaying Chinook directed commercial fishing in 2008 until the midpoint of the run to ensure that escapement and subsistence needs and Canadian border obligations will be met. At that time, Chinook directed openings may occur if a surplus is identified beyond escapement and subsistence needs.
- If a surplus of summer chum salmon is identified above escapement and subsistence needs, there may be directed chum commercial fishing with gillnets restricted to 6 inch maximum mesh size. The actual commercial harvest of summer chum will likely be dependent on market conditions and may be affected by a potentially poor Chinook run.
- The US/Canada Yukon River Panel agreed to a one year Canadian Interim Management Escapement Goal (IMEG) of >45,000 Chinook salmon based on the Eagle sonar program and set a 3 year IMEG for the Fishing Branch River of 22,000 to 49,000 fall chum salmon based on the Fishing Branch River weir count.
- The US/Canada Yukon River Panel agreed to a Canadian Yukon River fall chum salmon mainstem escapement objective of >80,000 fish based on the Eagle sonar program.



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2008 Subsistence Fishing Schedule

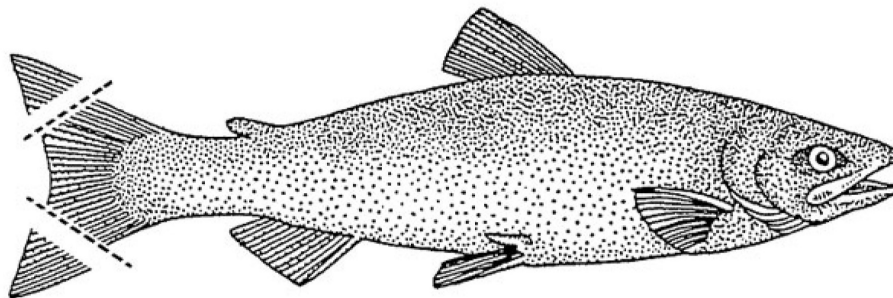


The subsistence salmon fishing schedule will be used early in the season until the salmon run size is projected to be of sufficient strength to warrant discontinuing the schedule. The schedule is intended to reduce harvest impacts during years of low salmon runs on any particular run component and to spread subsistence harvest opportunity among users. The schedule is based on current, or past, fishing schedules and should provide reasonable opportunity for subsistence users to meet their needs. Please Note: this schedule is subject to change depending on run strength.

Area	Regulatory Subsistence Fishing Periods	Schedule to Begin	Days of the Week
Coastal District	7 days/week	By Regulation	M/T/W/TH/F/SA/SU – 24 hours
District 1	Two 36-hour periods/week	May 26, 2008	Mon. 8 pm to Wed. 8 am /Thu. 8 pm to Sat. 8 am
District 2	Two 36-hour periods/week	May 28, 2008	Wed. 8 pm to Fri. 8 am / Sun. 8 pm to Tue. 8 am
District 3	Two 36-hour periods/week	May 30, 2008	Fri. 8 am to Sat. 8 pm / Tue. 8 am to Wed. 8 pm
District 4	Two 48-hour periods/week	June 8, 2008	Sun. 6 pm to Tue. 6 pm / Wed. 6 pm to Fri. 6 pm
Koyukuk River	7 days/week	By Regulation	M/T/W/TH/F/SA/SU – 24 hours
Subdistricts 5-A, B, C	Two 48-hour periods/week	June 17, 2008	Tue. 6 pm to Thu. 6 pm /Fri. 6 pm to Sun. 6 pm
Subdistrict 5-D	7 days/week	By Regulation	M/T/W/TH/F/SA/SU – 24 hours
District 6	Two 42-hour periods/week	By Regulation	Mon. 6 pm to Wed. Noon /Fri. 6 pm to Sun. Noon
Old Minto Area	5 days/week	By Regulation	Friday 6 pm to Wednesday 6 pm

All subsistence salmon fishing with gillnets and fish wheels must be stopped during subsistence salmon fishing closures.

NOTICE: In **Districts 1-3**, from **June 1 to July 15** a person may not possess king salmon taken for subsistence uses unless **both tips (lobes) of the tail fin** have been removed. Marking must be done before the person conceals the salmon from plain view or transfers the salmon from the fishing site. A person may not sell or purchase salmon from which both lobes of the tail fin have been removed.



For additional information:

ADF&G Steve Hayes in Anchorage 907-267-2383; Fred Bue, Fairbanks 907-459-7274; or Emmonak 907-949-1320
Subsistence Fishing Schedule-1-866-479-7387 (toll free outside of Fairbanks); in Fairbanks, call 459-7387
 USFWS: Russ Holder in Fairbanks 907-455-1849 or 1-800-801-5108; or in Emmonak 907-949-1798

APPENDIX E

DALL RIVER FISHERIES MANAGEMENT PLAN

Purpose of Plan

- To provide the public, state and federal agencies, the Stevens Village Natural Resource agency and the Alaska BOF with a clear understanding of the underlying principles by which northern pike inhabiting the Dall River Area will be managed and provide guidance in developing future regulations.

Philosophy of Plan

- Conservative Wild Stock Management.
- Protect biological integrity of the wild stock while maximizing the benefits to various users of the stock consistent with the subsistence priority.

Goal

- Ensure the long term quality of the northern pike fishery in Dall River Area.

Principles/Policies

- Native northern pike population(s) to be managed for maintenance of historic age and size composition (avoid enhancement or supplementing the wild stocks).
- Maintain opportunities for traditional (subsistence) and recreational use of the northern pike stock.

Objective

- Proportion of northern pike 30 inches and longer to be greater than 0.30 in the assessed population.

Issues / Action Items

- Establish a special management area for the protection of large size northern pike.
- Evaluate the effective size of the special management area.
- Control fishing mortality within special management area; minimize fishing mortality for northern pike > 30 inches.
- Evaluate and establish sport fishing regulations that will promote survival of large size northern pike.
- Encourage local efforts to minimize mortality of large size northern pike in the subsistence fishery.
- Educate prospective anglers concerning proper fish handling techniques.
- Educate prospective anglers concerning proper fishing gear.
- Reduce friction between local traditional users and non-local recreational users.
- Educate non-locals on the extent of private/public land.
- Incorporate local knowledge with scientific information to a greater degree in management decisions.
- Encourage greater local acceptance of non-local recreational angling as a legitimate use of the Dall River northern pike resource.
- Encourage local economic opportunities associated with recreational use.

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Definitions

Dall River Area The Dall River Area includes the Dall and Little Dall River drainages.

Benefits The concept of benefit varies with users. Traditional subsistence users seek fish resources for traditional purposes including human food. Village residents have recognized the potential for economic opportunities in providing services to recreational users of the fish and land resources. Urban anglers seek continued opportunity to participate in the fishery; both consumptive and non-consumptive uses are desired.

Quality All groups stress the importance of a quality fishery. In the present context quality is defined as a stock with historic size and age composition. The presence of fish in large size and old age categories is recognized by all groups as an appropriate indicator of stock health.

Assessed Population The assessed population includes the portion of the population that is accessible to the sampling gear used in stock assessment efforts. For northern pike in the Dall River area, this includes fish larger than 450 mm FL (19 inches Total Length).

APPENDIX F

Appendix F1.—Number of visitors registered at the Coldfoot Visitor’s Center^a, estimated fishing effort (angler-days, all species), and total catch of Arctic grayling for the Dalton Highway corridor (Yukon River to Atigun Pass).

Year	Visitors	Fishing Effort	Grayling Catch
1996	4,742	423	936
1997	5,399	843	3,025
1998	5,124	617	1,656
1999	5,248	577	5,293
2000	5,002	363	759
2001	4,629	445	919
2002	4,714	152	705
2003	7,067	396	1,786
2004	8,597	503	3,258
2005	8,051	270	2,184
2006	8,378	2,590	9,703
2007	9,439	1,975	5,779
2008	9,657	987	7,503
2009	8,574	na	na

^a A multiagency visitor center operated by the US Department of Interior: Bureau of Land Management, US Fish and Wildlife Service and National Park Service.

APPENDIX G

Appendix G1.–Reference information specific to 2010 Alaska Board of Fisheries proposals.

Proposal	Proposal Subject	Text (page number)	Table #	Figure #	Appendix
50	Align Wild Arctic Grayling Management Plan with area regulations	29	8		
87	Review triggers, GHR, fishing schedule in king salmon management plan	11-13	3		D1