

Fishery Management Report No. 07-66

**2007 Recreational Fisheries Overview and
Historic Information for North Kenai Peninsula:
Fisheries under Consideration by the Alaska
Board of Fisheries, February 2008**

by

Robert N. Begich

and

Jason A. Pawluk

December 2007

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the *Système International d'Unités* (SI), are used in Division of Sport Fish Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications without definition. All others must be defined in the text at first mention, as well as in the titles or footnotes of tables and in figures or figure captions.

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

FISHERY MANAGEMENT REPORT NO. 07-66

**2007 RECREATIONAL FISHERIES OVERVIEW AND HISTORIC
INFORMATION FOR NORTH KENAI PENINSULA:
FISHERIES UNDER CONSIDERATION BY THE ALASKA BOARD OF
FISHERIES, FEBRUARY 2008**

by

Robert N. Begich,

and

Jason A. Pawluk

Division of Sport Fish, Soldotna

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1599

December 2007

The Division of Sport Fish Fishery Management Reports series was established in 1989 for the publication of an overview of Division of Sport Fish management activities and goals in a specific geographic area. Since 2004, the Division of Commercial Fisheries has also used the Fishery Management Report series. 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.

*Robert N. Begich and Jason A. Pawluk
Alaska Department of Fish and Game, Division of Sport Fish
43961 K-Beach Road Suite B, Soldotna AK, USA*

This document should be cited as:

Begich, R. N., and J. A. Pawluk. 2007. 2007 Recreational fisheries overview and historic information for North Kenai Peninsula: fisheries under consideration by the Alaska Board of Fisheries, February 2008. Alaska Department of Fish and Game, Fishery Management Report No. 07-66, Anchorage.

The Alaska Department of Fish and Game (ADF&G) administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act (ADA) of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility please write:

ADF&G ADA Coordinator, P.O. Box 115526, Juneau, AK 99811-5526

U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, MS 2042, Arlington, VA 22203

Office of Equal Opportunity, U.S. Department of the Interior, 1849 C Street NW MS 5230, Washington DC 20240

The department's ADA Coordinator can be reached via phone at the following numbers:

(VOICE) 907-465-6077, (Statewide Telecommunication Device for the Deaf) 1-800-478-3648, (Juneau TDD) 907-465-3646,
or (FAX) 907-465-6078

For information on alternative formats and questions on this publication, please contact:

ADF&G, Sport Fish Division, Research and Technical Services, 333 Raspberry Road, Anchorage AK 99518 (907)267-2375.

TABLE OF CONTENTS

	Page
LIST OF TABLES.....	iv
LIST OF FIGURES.....	v
LIST OF APPENDICES.....	v
ABSTRACT.....	1
MANAGEMENT OVERVIEW.....	1
Management Area Description.....	1
Management Plans Affecting Fisheries.....	2
Fisheries Resources.....	2
Recent Recreational Angler Effort.....	4
2007 KENAI RIVER CHINOOK SALMON RECREATIONAL FISHERIES.....	5
2008 Proposals to the Alaska Board of Fisheries Concerning Kenai River Chinook Salmon Sport Fishery Issues.....	5
Background and Historical Perspective.....	5
Kenai River Chinook Salmon Early Run.....	7
Fishery Management Objectives.....	7
2007 Inseason Management Approach.....	7
2007 Fishery Performance.....	8
Kenai River Chinook Salmon Late Run.....	9
Fishery Management Objectives.....	9
2007 Inseason Management Approach.....	9
2007 Fishery Performance.....	10
2007 KASILOF RIVER CHINOOK SALMON RECREATIONAL FISHERY.....	11
2008 Proposals to the Alaska Board of Fisheries Concerning Kasilof River Chinook Salmon Sport Fishery Issues.....	11
Background and Historical Perspective.....	11
Kasilof River Chinook Salmon Early Run.....	12
Fishery Management Objectives.....	12
2007 Inseason Management Approach.....	12
2007 Fishery Performance.....	12
Kasilof River Chinook Salmon Late Run.....	13
Fishery Management Objectives.....	13
2007 Inseason Management Approach.....	13
2007 Fishery Performance.....	13
2007 RUSSIAN RIVER SOCKEYE SALMON RECREATIONAL FISHERIES.....	14
2008 Proposals to the Alaska Board of Fisheries Concerning Russian River Sockeye Salmon Sport Fishery Issues.....	14
Background and Historical Perspective.....	14
Russian River Sockeye Salmon Management Objectives.....	15
2007 Inseason Management Approach.....	16
2007 Russian River Sockeye Salmon Early Run Fishery Performance.....	17
2007 Russian River Sockeye Salmon Late Run Fishery Performance.....	17

TABLE OF CONTENTS (Continued)

	Page
2007 KENAI RIVER LATE-RUN SOCKEYE SALMON RECREATIONAL FISHERIES	18
2008 Proposals to the Alaska Board of Fisheries Concerning Kenai River Late-Run Sockeye Salmon Sport Fishery Issues	18
Background and Historical Perspective	18
Kenai River Sockeye Salmon Late-Run Management Objectives	19
2007 Inseason Management Approach	20
2007 Kenai River Sockeye Salmon Late Run Fishery Performance	21
2007 KENAI RIVER COHO SALMON RECREATIONAL FISHERIES	22
2008 Proposals to the Alaska Board of Fisheries Concerning Kenai River Coho Salmon Sport Fishery Issues.....	22
Background and Historical Perspective	22
Kenai River Coho Salmon Management Objectives	24
2007 Inseason Management Approach	25
2007 Kenai River Coho Salmon Fishery Performance	25
2007 NORTH KENAI PENINSULA MANAGEMENT AREA RESIDENT SPECIES RECREATIONAL FISHERIES	26
2007 Kenai River Rainbow Trout Recreational Fishery	26
2008 Proposals to the Alaska Board of Fisheries Concerning Kenai River Rainbow Trout Sport Fishery Issues	26
Background and Historical Perspective	26
Kenai River Rainbow Trout Management Objectives	29
2007 Inseason Management Approach	30
2007 Fishery Performance	30
2007 Kenai River Dolly Varden/Arctic Char Recreational Fisheries	31
2008 Proposals to the Alaska Board of Fisheries Concerning Kenai River Dolly Varden/Arctic Char Sport Fishery Issues.....	31
Background and Historical Perspective	31
Kenai River Dolly Varden Management Objectives.....	32
2007 Inseason Management Approach	33
2007 Fishery Performance	33
2007 Hidden Lake Lake Trout Recreational Fisheries	33
2008 Proposals to the Alaska Board of Fisheries Concerning Hidden Lake Lake Trout Sport Fishery Issues.....	33
Background and Historical Perspective	33
Hidden Lake Lake Trout Management Objectives	34
2007 Inseason Management Approach	34
2007 Fishery Performance	35
2007 NORTH KENAI PENINSULA MANAGEMENT AREA PERSONAL USE FISHERIES	35
2008 Proposals to the Alaska Board of Fisheries Concerning North Kenai Peninsula Personal Use Dip Net Fisheries Issues	35
Kenai River Sockeye Salmon Dip Net Fishery.....	35

TABLE OF CONTENTS (Continued)

	Page
Background and Historical Perspective	35
Kenai River Personal Use Dip Net Fishery Management Objectives	38
2007 Inseason Management Approach	38
2007 Fishery Performance	38
2007 Kasilof River Personal Use Dip Net Fishery	39
Background and Historical Perspective	39
Kasilof River Personal Use Dip Net Fishery Management Objectives	43
2007 Inseason Management Approach	43
2007 and Recent Fishery Performance	44
2007 NORTH KENAI PENINSULA MANAGMENT AREA NORTHERN PIKE RECREATIONAL FISHERY	44
2008 Proposals to the Alaska Board of Fisheries Concerning Northern Pike in the North Kenai Peninsula Management Area Sport Fishery Issues	44
Background and Historical Perspective	44
North Kenai Peninsula Management Area Northern Pike Fishery Objectives	45
2007 Inseason Management Approach	45
2007 Recent Fishery Performance	46
REFERENCES CITED	46
TABLES AND FIGURES	53
APPENDIX A. EMERGENCY ORDERS	101

LIST OF TABLES

Table	Page
1. Angler-days of effort expended by recreational anglers fishing Kenai Peninsula Management Area waters, 1977-2006.	54
2. Angler-days of sport fishing effort for the Kenai River by section, 1977-2006.	55
3. Kenai River sport fish harvest by species, 1977-2006.	56
4. Angler-days of sport fishing effort for other Northern Kenai Peninsula Area drainages by fishery, 1979-2006.	57
5. Sport fish harvest from other Northern Kenai Peninsula Management Area drainages, 1977-2006.	58
6. Anglers-days of effort for Kenai River and Kasilof River personal use dip net fisheries, 1982-2006.	59
7. Kenai Peninsula personal use dip net harvest by species, 1983-2006.	60
8. Estimated harvest, spawning escapement, and return for early-run Kenai River Chinook salmon, 1986-2007.	61
9. Estimated harvest, spawning escapement, and return for late-run Kenai River Chinook salmon, 1986-2007.	62
10. Guided versus unguided angler harvest, effort, and success rate, estimated by onsite creel survey downstream of the Soldotna bridge, late-run Kenai River Chinook salmon fishery, 1981-2007.	63
11. Kasilof River personal use and subsistence gillnet harvest of Chinook salmon, 1984-2006.	64
12. Estimated harvest, spawning escapement, and return for early-run Kasilof River/Crooked Creek Chinook salmon, 1996-2007.	65
13. Late-run Kasilof River Chinook salmon sport fish harvest, 1996-2006.	66
14. Angler effort, harvest rate, harvest, and spawning escapement for Russian River early-run sockeye salmon, 1965-2007.	67
15. Angler effort, harvest rate, harvest, and spawning escapement for Russian River late-run sockeye salmon, 1963-2007.	68
16. Daily escapement of early-run sockeye salmon at Russian River weir in 2007 compared to the historical cumulative proportion by day.	69
17. Daily escapement of late-run sockeye salmon at Russian River weir in 2007 compared to the historical cumulative proportion by day.	70
18. Inriver harvest and spawning escapement for Kenai River drainage sockeye salmon, 1981-2006.	72
19. Sport fish harvest of Kenai River sockeye salmon by river section and total angler effort for all species, 1981-2006.	73
20. Coho salmon harvest in Cook Inlet and Kenai River, 1993-2006.	74
21. Estimated sport fish harvest of Kenai River coho salmon by river section, 1977-2006.	75
22. Kenai River rainbow trout, number caught and number retained by river section, 1984-2006.	76
23. Kenai River Dolly Varden harvest and catch by river section, 1984-2006.	77
24. Fishing effort, catch, and harvest for Hidden Lake lake trout, 1977-2006.	78
25. Kenai River sockeye salmon personal use dip net fishery, 1981-2006.	79
26. Kenai River personal use dip net fishery effort and salmon harvest, 1996-2006.	80
27. Kasilof River sockeye salmon personal use dip net fishery, 1981-2006.	81
28. Kasilof River personal use dip net fishery effort and salmon harvest, 1996-2006.	82
29. Kenai Peninsula northern pike harvest, 1981-2006.	83

LIST OF FIGURES

Figure	Page
1. The Northern Kenai Peninsula Management Area (shaded) includes all freshwater drainages and saltwater fisheries from the Kasilof River north to Turnagain Arm on the Kenai Peninsula.	84
2. Recreational angler participation in the Kenai Peninsula Management Area, 1977-2006.	85
3. Kenai River Chinook salmon fishery.	86
4. Kasilof River Chinook salmon fishery.	87
5. Location of Russian River on the Kenai Peninsula, Alaska.	88
6. Map of Russian River drainage.	89
7. Late-run Russian River sockeye salmon harvest and total spawning escapement, including lower river spawners, 1968-2006.	90
8. Map of the Kenai River drainage. Late-run sockeye salmon fishery occurs from Cook Inlet to Kenai Lake.	91
9. Total harvest of sockeye salmon and angler effort directed toward all species, Kenai River, 1981-2006.	92
10. Map of Kenai River drainage.	93
11. Harvest of Kenai River coho salmon stocks, 1993-2006.	94
12. Total number of rainbow trout caught, showing number released and number retained, Kenai River sport fishery, 1984-2006.	95
13. Map of rainbow trout study areas in Kenai River drainage.	96
14. Number of rainbow trout retained by river section, Kenai River sport fishery, 1984-2006.	97
15. Dolly Varden harvest by river section, Kenai River sport fishery, 1984-2006.	98
16. Map of the Kenai River sockeye salmon dip net fishery.	99
17. Map of the Kasilof River personal use sockeye salmon dip net fishery.	100

LIST OF APPENDICES

Appendix	Page
A1. Emergency orders issued for Northern Kenai Peninsula Management Area waters in 2005.	102
A2. Emergency orders issued for Northern Kenai Peninsula Management Area waters in 2006.	103
A3. Emergency orders issued for Northern Kenai Peninsula Management Area waters in 2007.	104

ABSTRACT

This report provides information on fisheries in the North Kenai Peninsula Management Area under consideration by the Alaska Board of Fisheries in February 2008. An overview of the sport and personal use fisheries with a summary for estimates of effort, catch, and harvest through 2006 is provided. We have also included 2007 recreational fishery summary information, when available, that provides updated fishery statistics with inseason assessment data from 2007. The following recreational fisheries are included: Kenai River Chinook salmon early and late runs, Kasilof River Chinook salmon early and late runs, Russian River sockeye salmon early and late runs, Kenai River sockeye salmon late run, Kenai River coho salmon, Kenai River resident species (rainbow trout and Dolly Varden), Hidden Lake lake trout, and areawide northern pike. The Kenai and Kasilof Rivers sockeye salmon personal use fisheries are also discussed.

Key words: North Kenai Peninsula Management Area, 2007 season overview, Kenai River, Kasilof River, Russian River, Chinook salmon, sockeye salmon, coho salmon, rainbow trout, Dolly Varden, northern pike, personal use, dip net, Alaska Board of Fisheries.

MANAGEMENT OVERVIEW

This report provides information on fisheries under consideration by the Alaska Board of Fisheries (BOF) in February 2008:

- (1) Kenai River Chinook salmon early-run recreational fisheries
- (2) Kenai River Chinook salmon late-run recreational fisheries
- (3) Kasilof River Chinook salmon early-run recreational fisheries
- (4) Kasilof River Chinook salmon late-run recreational fisheries
- (5) Russian River sockeye salmon early-run recreational fisheries
- (6) Russian River sockeye salmon late-run recreational fisheries
- (7) Kenai River sockeye salmon late run recreational fisheries
- (8) Kenai River coho salmon recreational fisheries
- (9) NKPMA resident species recreational fisheries
- (10) Hidden Lake lake trout fishery
- (11) NKPMA sockeye salmon personal use dip net fishery
- (12) NKPMA northern pike fishery

An overview of the area, sport and personal use fisheries, as well as a season summary of the 2007 North Kenai Peninsula Management Area recreational fisheries are incorporated into this document.

MANAGEMENT AREA DESCRIPTION

The Northern Kenai Peninsula Management Area (NKPMA) includes all Kenai Peninsula freshwater drainages from the north bank of Ingram Creek south to the south bank of Kasilof River (Figure 1). On the west side of Cook Inlet, the management area comprises freshwater drainages from West Forelands south to Spring Point, which is just north of Chinitna Bay. Marine waters of NKPMA are all waters from the latitude of East Forelands south to the latitude of Kasilof River; all marine waters in close proximity (several miles) to the west side of Cook Inlet from West Forelands south to Spring Point. This area is administered from the Soldotna office of the Alaska Department of Fish and Game (ADF&G).

Larger communities located within the KPMA include Kenai and Soldotna. Smaller communities are Cooper Landing, Hope, Moose Pass, Nikiski, and Sterling. This management area is linked to the state's highway system via the Sterling and Seward highways, which provide sport anglers access to many of the area's major fisheries. Remote areas of the KPMA (west side of Cook Inlet) can be accessed via wheel or float equipped aircraft, or boat.

MANAGEMENT PLANS AFFECTING FISHERIES

Upper Cook Inlet fisheries (commercial, sport, personal use, and subsistence) have been the focus of intensive, allocative debates for many years. These controversial issues have prompted the Alaska Board of Fisheries to establish management plans and regulatory policies that allocate the area's fisheries resources among various user groups. These plans provide for the sustained yield of fishery resources and establish management actions (in specific situations), and guidelines for department fisheries managers.

Management plans germane to NKPMA fisheries are:

1. *Upper Cook Inlet Salmon Management Plan* (5 AAC 21.363)
2. *Kenai River and Kasilof River Early-run King Salmon Management Plan* (5 AAC 57.160)
3. *Kenai River Late-run King Salmon Management Plan* (5 AAC 21.359)
4. *Kenai River Late-run Sockeye Salmon Management Plan* (5 AAC 21.360)
5. *Russian River Sockeye Salmon Management Plan* (5 AAC 57.150)
6. *Kasilof River Salmon Management Plan* (5 AAC 21.365)
7. *Big River Sockeye Salmon Management Plan* (5 AAC 21.368)
8. *Upper Cook Inlet Personal Use Salmon Fishery Management Plan* (5 AAC 77.540)
9. *Riparian Habitat Fishery Management Plan for the Kenai Peninsula Area* (5 AAC 56.180)
10. *Riparian Habitat Fishery Management Plan for the Kenai River Drainage Area* (5 AAC 57.180)
11. *Kenai River Coho Salmon Management Plan* (5 AAC 57.170)

Management and research functions for the NKPMA recreational and personal use fisheries are the responsibility of the Soldotna area office of the Alaska Department of Fish and Game, Division of Sport Fish (SFD). The Division of Sport Fish management staff stationed at Soldotna is composed of one Area Management Biologist and one Assistant Area Management Biologist who manage all freshwater finfish. One Fishery Biologist and two seasonal Fish & Wildlife Technicians whose employment ranges from 3 to 6 months assist these staff. A Program Technician and one seasonal Clerk also support the Soldotna management staff.

FISHERIES RESOURCES

The NKPMA offers diverse fishing opportunities for recreational and personal use anglers. Anglers can target four species of Pacific salmon (Chinook *O. tshawytscha*, sockeye *O. nerka*, coho *O. kisutch*, and pink *Oncorhynchus gorbuscha*). Fisheries for these species occur primarily in freshwater and, to a lesser degree, in the salt waters of Cook Inlet. Anglers can also target salmon and trout stocked by the SFD into various landlocked lakes. Popular fisheries for

resident stocks of rainbow trout *O. mykiss*, Dolly Varden *Salvelinus malma*, and lake trout *Salvelinus namaycush* also occur. Fisheries target resident stocks of Arctic grayling *Thymallus arcticus* and introduced stocks of northern pike *Esox lucius* as well. The area's anadromous stocks of Dolly Varden *Salvelinus malma*, steelhead trout *O. mykiss*, and eulachon *Thaleichthys pacificus* also provide NKPMA sport fishing opportunities.

Marine sport fisheries offer limited opportunities. Adjacent to the mouths of the Kenai and Kasilof Rivers and the waters of Cook Inlet within the management area, small numbers of anglers target halibut *Hippoglossus stenolepis*, razor clams *Siliqua patula*, and several species of hardshell clams.

Two runs of wild Kenai River Chinook salmon combine to support the largest recreational fishery for this species in Alaska. Stocked and naturally produced Chinook salmon returns to Crooked Creek support an early-run fishery in Kasilof River. A late run comprised of wild Chinook salmon also provides sport fishing opportunity at the Kasilof River.

The Russian River supports an early and late sockeye salmon return. These wild stocks maintain the second largest recreational sockeye salmon fishery in the state. As a result of changes to the management of Kenai River sockeye salmon and increased escapement goals, the Kenai River recreational sport fishery for sockeye salmon has grown into the largest recreational fishery for this species in Alaska.

The NKPMA also supports personal use sockeye salmon dip net fisheries at the mouths of the Kenai and Kasilof rivers and a personal use gillnet fishery at the mouth of the Kasilof River. The personal use fisheries on both the Kenai and Kasilof rivers are managed with established seasons and provide significant sockeye salmon harvest opportunities for statewide participants.

Wild coho salmon returns to Kenai River support the largest recreational freshwater coho salmon fishery in Alaska. The Kasilof River and numerous smaller streams also support smaller coho salmon sport fisheries. Additional fishing opportunity for coho salmon is provided through a program of stocking landlocked lakes on the Kenai Peninsula.

Pink salmon return in large numbers to NKPMA drainages during even-numbered years. A significant recreational fishery for this species occurs on the Kenai River. Harvests in the Kenai River have increased during even years because of liberalized bag and possession limits (6 pink salmon daily). Chum salmon *O. keta* returns to NKPMA streams on the east side of Cook Inlet are quite small and do not support a significant sport fishery.

Rainbow trout occur in numerous lakes and streams throughout the NKPMA. Flowing waters that support major rainbow trout fisheries include the Kenai River, Russian River, and the streams and lakes of the Swanson and Moose river drainages. To provide alternative fishing opportunities, several landlocked lakes are also stocked with rainbow trout.

Steelhead trout currently provide recreational fishing opportunity in Kasilof River. Steelhead production is thought to originate from two primary sources. A stocked return of this species was developed in the 1980s using wild stocks indigenous to Crooked Creek. The stocking program was discontinued in 1995 due to excessive straying of hatchery trout into the Kenai River system. Since 1995, steelhead trout production in Crooked Creek has resulted from natural production. Tributaries of Tustumena Lake (Nikolai and Shantalilik creeks) also maintain wild production.

Dolly Varden are found in most freshwater drainages of the NKPMA. This species supports a major fishery in the Kenai River drainage. Numerous smaller streams and lakes also support

Dolly Varden, thus providing additional recreational angling opportunity at roadside as well as more remote locations.

Lake trout are found primarily in four lakes within the NKPMA. Hidden, Kenai, Skilak, and Tustumena lakes support a modest fishery for lake trout, with Hidden Lake receiving most of the fishing effort.

RECENT RECREATIONAL ANGLER EFFORT

This section provides generalized participation trends in the NKPMA. Angler effort and harvest data for the sport fisheries in the NPKMA are available through 2006 (Tables 1-5). Statewide Harvest Survey (SWHS) data for the 2007 season will be available in mid-2008.

Since 1977, recreational angler effort has been estimated using the SWHS, a mail survey (Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, In prep.; Jennings et al. 2004; 2006 a-b).

Additionally, creel surveys have been selectively implemented for fisheries that require inseason or hatchery stock composition information for management purposes. The following historical summaries of recreational angler effort in the NKPMA are based on estimates produced from the SWHS mail surveys (Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, In prep.; Jennings et al. 2004; 2006 a-b).

From 2004 through 2006, the NKPMA accounted for 21 to 24% of the total statewide recreational effort (Table 1). In 2006, participation approximated 553,884 angler-days in NKPMA waters. Angler participation between 2003 and 2004 increased significantly from 460,599 to 527,776 angler-days and from 2004 to 2006 it has steadily increased from 527,776 to 553,884 angler-days (Table 1; Figure 2).

The Kenai River accounts for the largest recreational fishery in the NKPMA. From 2004 to 2006, this river accounted for 59 to 72% of the area's total recreational angling effort, or 329,122 to 388,677 angler-days annually (Table 1). Historically, most of this effort occurs downstream from the Soldotna Bridge (i.e., Sterling Highway Bridge) to Cook Inlet with salmon, Dolly Varden, and rainbow trout being some of the most abundant species harvested (Tables 2-3).

Other fresh waters of the Kenai Peninsula support major recreational fisheries (Tables 4-5) as well. Of these, Russian River supports the largest fishery, with the most participation directed towards early- and late-run sockeye salmon. The Kasilof River supports a major fishery directed at early-run Chinook salmon. Also of significance is the Swanson River sport fishery which is primarily directed at coho salmon and rainbow trout.

Personal use salmon dip net fisheries at the mouths of the Kenai and Kasilof rivers have become extremely popular with the public. From 2004 to 2006, an average of 17,392 and 4,898 angler-days of effort were expended in the Kenai and Kasilof rivers personal use fisheries, respectively (Table 6). The mean harvest for all species of salmon by the NKPMA personal use dip net fisheries from 2004 to 2006 was 288,271 fish with sockeye salmon being the predominate species harvested (Table 7). Effort and harvest in the 2006 Kenai River personal use dip net fishery was atypical due to a later than expected late return of sockeye salmon to Kenai River. This resulted in closure and subsequent late season liberalization of the dip net fishery.

2007 KENAI RIVER CHINOOK SALMON RECREATIONAL FISHERIES

2008 PROPOSALS TO THE ALASKA BOARD OF FISHERIES CONCERNING KENAI RIVER CHINOOK SALMON SPORT FISHERY ISSUES

The following proposals published in "The Alaska Board of Fisheries 2007/2008 Proposed Changes in the Cook Inlet, Kodiak, and Chignik Areas Finfish Regulations; King and Tanner Regulations (Statewide Except Southeast/Yakutat); and Supplemental Issues" booklet (ADF&G 2007b). will likely have some impact on the sport fisheries targeting Chinook salmon in the Kenai River:

Proposal Numbers: 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 297, 298, 299, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 321, 322, 323, 324, 325, 326, 328, and 329.

BACKGROUND AND HISTORICAL PERSPECTIVE

Information about harvest, catch, and fishing effort is available from the SWHS and creel surveys conducted in the lower portion of Kenai River (Hammarstrom 1974-1981; Hammarstrom and Larson 1986-1984, 1986; Hammarstrom et al. 1985; Hammarstrom 1988-1994; King 1995-1997; Marsh 1999, 2000; Reimer et al. 2002; Reimer 2003, 2004a-b, In prep; Eskelin *In prep* a-c). The 2007 SWHS survey results will not be available until the fall of 2008. Chinook salmon catch and harvest data provided for the 2007 season contained in this document were estimated inseason and are considered preliminary until the SWHS results are available.

Chinook salmon return to Kenai River in two distinct runs, early and late. The first run usually has "fishable" numbers by mid-May and it peaks in mid-June. The majority of the stocks have passed through the fishery by late June. Late-run fish are present in July and early August. Early-run Chinook salmon primarily spawn in tributaries with most of the fish in two primary tributaries, the Killey and Funny Rivers. Late-run fish are primarily mainstem Kenai River spawners.

The recreational fishery for Chinook salmon in the Kenai River is internationally recognized due to its proximity to major population centers, relative ease to access, and large sized Chinook salmon. Consequently, large numbers of anglers participate in this recreational fishery every year. Because of the high level of participation in relation to the total number of Chinook salmon in the return, the fishery is strictly regulated. Chinook salmon fishing is limited to a 50-mile area downstream from Skilak Lake (Figure 3). The season is January 1 through July 31. By regulation, the early-run Kenai River Chinook salmon fishery ends on June 30. The daily bag and possession limit is one Chinook salmon, 20 inches or greater in length. The annual (January 1-December 31) limit is two fish. The majority of the harvest is taken by anglers in boats. After retaining a Chinook salmon, an angler is prohibited from fishing from a boat in the Kenai River downstream from Skilak Lake for the remainder of that day.

The Kenai River Chinook salmon fishery supports a commercial guiding industry. Since 1982, guides have been required to register with the State of Alaska. Guided anglers are more intensively regulated than nonguided anglers. This is due, in part, to the guided fishermen's

greater harvest efficiency and the general concern regarding harvest parity between guided and nonguided anglers.

Most of the river area available to Chinook salmon fishing is managed as a state park by the Department of Natural Resources, Division of Parks and Outdoor Recreation (DPOR). In 1986, DPOR reduced the maximum size of outboard motors that could be legally used on the river to 50 horsepower. In 1987, the maximum, legal horsepower was further reduced to 35 horsepower. The public has generally favored the restriction to smaller outboards. There is no evidence to indicate that the use of smaller motors has reduced angler efficiency. A proposed DPOR regulation is currently scheduled to become effective in 2008 that will raise the maximum size of outboard motors that can be legally used on the river to 50 horsepower.

Under current Alaska Board of Fisheries policy, the early-run is managed for the inriver sport and guided sport fishery. Although known to be relatively minor, early-run fish are intercepted in the mixed-stock Cook Inlet marine sport fishery prior to their entry into the Kenai River. In addition, there are small numbers of early-run Chinook salmon harvested in the Kenaitze Indian Tribal Association's educational fishery (Table 8). Commercial harvests of early-run Chinook salmon are considered insignificant. By regulation, drift gillnetting in the Central District does not commence until the third Monday in June or June 19, whichever is later, and the eastside setnet fishery does not commence until June 25 or, if 50,000 sockeye have been estimated to have passed the Kasilof sonar, by June 20 in the Kasilof section.

In 1984, ADF&G implemented an experimental sonar program to determine the number of Chinook salmon that return to Kenai River. From 1984 to 1994, the sonar counter used dual-beam transducer technology. Beginning in 1995 to the present, the sonar program adopted split-beam technology to improve the estimation of Chinook salmon returning to the Kenai River. Estimation uncertainty, due to the problem of differentiating between the various salmon species migrating together into the Kenai River has necessitated that the sonar program employ several different methods to better separate Chinook salmon from the more numerous sockeye salmon in the final estimates (Bosch and Burwen 2000). Since inception, the sonar program has been in a continuous evolution. Annual experiments to assess the utility of new sonar technology such as Dual Frequency Identification Sonar (DIDSON) as well as reevaluation of split-beam technology have been undertaken.

A Kenai River Chinook salmon genetic stock identification research program was initiated in 2005. This study establishes baseline genetic structure for Kenai River Chinook salmon. Populations of various tributary and mainstem spawning fish appear to be sufficiently unique to enable genetic stock identification. The next phase of this research will collect and analyze mixed-stock samples and try to identify stock-specific run timing and stock composition of harvests. This information will improve escapement calculations for early- and late-run stocks. In addition, information on return timing for specific stocks or sub-stocks would help managers refine present and future regulations. Combined with information from the Pacific coast-wide Chinook salmon genetic database, this information may enable estimating harvest of Kenai River fish in mixed-stock marine fisheries.

Chinook salmon sport fish harvest declined steadily from 1993 through 1998 but has rebounded somewhat since (Table 3). The most recent 10-year (1997-2006) average Kenai River Chinook salmon sport fish harvest was 15,972 fish. The 2004-2006 average Kenai River Chinook salmon sport fish harvest was 19,962 fish.

KENAI RIVER CHINOOK SALMON EARLY RUN

Fishery Management Objectives

In 1988, the Board of Fisheries adopted the management plan for early-run Kenai River Chinook salmon. This plan, amended many times since then, has since 2005 mandated an optimum escapement goal (OEG) of a minimum (5,300 fish) and optimum (9,000 fish) escapement. Currently the *Kenai River and Kasilof River Early-Run King Salmon Management Plan* (5 AAC 57.160) also identifies the possible management actions that can be implemented at given escapement levels. The original and current plan, direct the fishery to be prosecuted without bait to reduce angler efficiency. Bait is permitted, by emergency order, when the optimum escapement goal can be projected. The strategy of restricting bait in the fishery until a given escapement level can be projected has remained an integral component to the management of this fishery. The plan outlines management options and allowable alternatives to assure achievement of the escapement objective.

The fishery begins without the use of bait and is limited to the use of only one, single hook artificial lure. Fishing from guide vessels is not allowed on Sundays and Mondays, and fishing from motorized vessels is not allowed on Mondays, with the exception of Memorial Day. If the escapement is projected to be greater than 9,000 fish, ADF&G shall establish a period in time and area of Kenai River from Skilak Lake downstream to Cook Inlet, by emergency order, in which bait may be used. If the spawning escapement is projected to be less than 5,300 fish, ADF&G can implement trophy fishing provisions that prohibit the retention of Chinook salmon less than 55 inches in total length, or close the Kenai River to retention of all Chinook salmon. Additionally, there are options with the plan that enable fishery managers to protect early-run Chinook salmon in the mainstem of the Kenai River.

2007 Inseason Management Approach

The primary objective of inseason management is to achieve a spawning escapement within the OEG range of 5,300 to 9,000 early-run Chinook salmon. Achievement of this escapement objective requires information on the number of early-run Chinook salmon entering the river; the ability to project the total inriver return, and an estimate of the harvest and final spawning escapement.

The number of fish entering the river is estimated by the ADF&G, Sport Fish Division, Chinook salmon sonar in the lower, mainstem Kenai River near river mile (rm) 8.5 (Figure 3). The sonar is usually operational on May 16 and the early-run Chinook salmon passage is estimated daily through June 30. The early-run Kenai River Chinook salmon fishery ends by regulation on June 30. The estimated Chinook passage into the Kenai River for a given day is typically available to fishery managers by noon the following day.

Harvest is estimated inseason by an onsite creel survey. This survey begins on or about mid-May, as soon as water levels rise sufficiently to permit anglers and ADF&G staff to safely use boats on the river downstream from Soldotna. Harvest estimates are typically generated on a weekly basis, but daily estimates can be calculated if required for management actions.

A preliminary estimate of spawning escapement is projected inseason using a mean run timing model. This estimate is based upon the projected inriver return minus the projected harvest (including Chinook salmon mortality associated with catch-and-release fishing).

In order to expedite the dissemination of information regarding the fishery to the public, the Soldotna ADF&G office has two recorded message phone lines. One phone line provides a general weekly fishing forecast and the other offers a brief summary of the weir and sonar counts for major Kenai Peninsula fisheries. A brief summary of the early-run fishery status is provided daily on the message phone as well. The message phone lines may receive several hundred calls daily during the peak of the fishery. The message phone gives the public reliable access to fishery information, and increases the efficiency of the Soldotna ADF&G staff.

The public is also kept informed about the fishery via frequent news releases to newspaper, radio, and TV news media. News releases and requests from the broadcast media are given a priority because they distribute relevant information quickly regarding the status of the fishery and pending management actions.

Restrictive management actions in this fishery are socially and economically disruptive. Informing the public in a timely and efficient manner help minimize these disruptions. Continuous updates regarding the status of the fishery are provided in all available forums prior to the likely date of any specific management action. Whenever possible, ADF&G staff strive to issue formal announcements (news releases) regarding emergency orders that change the management of the fishery at least 24 hours before a given action becomes effective.

2007 Fishery Performance

The 2007 preseason forecast of the inriver early-run Chinook salmon return was approximately 18,000 fish, slightly above the long-term average of 16,500 fish. The cumulative sonar passage estimate for the early run was 15,904 fish through June 30 (Table 8). Of 22 years on record, 12 years were higher and 9 years were lower than the 2007 run. After subtracting a preliminary harvest of approximately 4,206 fish for the entire river, the preliminary inseason estimate of escapement was about 11,698 Kenai River early-run Chinook salmon for the 2007 season, above the upper goal range of 5,300 to 9,000 fish. This estimate will be refined in 2008.

Generally poor water conditions with average numbers of Chinook salmon entering the Kenai River resulted in relatively poor catch rates early in the fishery. The fishery was liberalized to allow fishing with bait on June 12 from the mouth of the Kenai River upstream to a point 100 yards downstream of the confluence of the Moose and Kenai rivers. Allowance of bait improved catch rates markedly to above-average levels for guided anglers and to slightly below average for unguided anglers however the resulting harvest was not large enough to contain the estimated escapement within the goal range.

The 2007 season was the fifth year of the 44 to 55 inch total length protected slot limit for early-run Kenai River Chinook salmon. From the creel survey data collected in the lower river below the Soldotna Bridge anglers released approximately 33% (1,300 fish) of the total catch. About 30% (390 fish) of those released were between 44 and 55 inches in total length, the majority (70%) were less than 44 inches. The 2007 season was the fifth year regulations existed requiring all retained trophy Chinook salmon (greater than 55 inch length) be sealed by ADF&G within three days of harvest. One trophy Chinook salmon (caught in 2005) was sealed in May or June during the early-run Chinook salmon fishing seasons between 2003 and 2007.

KENAI RIVER CHINOOK SALMON LATE RUN

Fishery Management Objectives

This fishery is managed according to provisions of the *Kenai River Late-Run King Salmon Management Plan* (5 AAC 21.359). Late-run stocks of Kenai River Chinook salmon are caught by the commercial drift gillnet fishery and the commercial set gillnet fishery along the east side of Cook Inlet, both of which target sockeye salmon. Commercial fisheries that intercept late-run Kenai River Chinook salmon are managed under provisions of the *Kenai River Late-Run Sockeye Salmon Management Plan* (5 AAC 21.360). Incidental commercial harvests of these stocks have been the subject of intense allocation debates among recreational and commercial user groups since the early 1980s. As a result, the Kenai River Late-run Sockeye Salmon Management Plan contains provisions to reduce incidental harvests of Kenai River-bound Chinook salmon.

During the spring of 1999, the Alaska Board of Fisheries amended both of these plans. The most significant change was the revision of the biological escapement goal (BEG) and the management actions associated with these objectives. Under the previous Late-Run Kenai River King Salmon Management Plan, the BEG was established as an optimum goal of 22,300 Chinook salmon with management directives centered around projected escapement levels of less than 15,500 fish, 15,500 to 19,000 fish, and greater than 22,300 fish. Under the revised management plan the BEG was established as a range of 17,800 to 35,700 Chinook salmon. Management directives were also established to linked inseason regulatory actions with abundance of sockeye salmon. The current management objective, as outlined in the plan, is to achieve a biological escapement goal from 17,800 to 35,700 Chinook salmon.

2007 Inseason Management Approach

The primary objective of inseason management is to attain an overall escapement that falls within the BEG range of 17,800 to 35,700 late-run Chinook salmon. Achieving this objective requires an estimate of the number of late-run Chinook salmon entering the river; an estimate of the harvest; the ability to project the total inriver return, and an estimate of the total harvest and the final spawning escapement.

The inriver return of late-run Chinook salmon is estimated by sonar at rm 8.5. Late-run sonar estimates begin when the late-run fishery opens by regulation (July 1) and concludes on approximately August 10. Estimates of inriver return are generated daily and the estimate for any given day is typically available to management staff by the afternoon of the following day. If estimates are required earlier, this request is conveyed to the sonar staff that can, by adjusting schedules, provide counts by the morning of the following day.

Harvest is estimated by onsite creel survey. The late-run creel survey begins July 1 and continues until the end of the fishery. The fishery is closed by regulation on July 31. However, the duration of the fishery may be adjusted by emergency order predicated on the magnitude of the inriver return. Harvest estimates are usually generated weekly. Daily estimates are calculated when needed to aid fishery managers.

The final spawning escapement is projected inseason using a historical, run-timing model. Final spawning escapement is the inriver return (from sonar) less the projected sport harvest (from creel survey). The projected sport harvest includes estimated mortality associated with catch-

and-release fishing practices (Bendock and Alexandersdottir 1992). During most years, the spawning escapement can be projected with reasonable accuracy by July 20.

The large numbers of sockeye salmon migrating during the late run complicate estimation of Chinook salmon passage with the sonar. Consequently, alternative techniques for estimating escapement are also used. Such techniques include estimates based on historical exploitation rates in the recreational fishery and historical exploitation rates in the commercial set gillnet fishery.

The recreational fishery for late-run Chinook salmon in the Kenai River is one of the largest and quite possibly the most controversial fishery in Alaska. Interaction with the user groups affected by management decisions is critical to the successful implementation of any inseason management action.

The Soldotna Sport Fish Division office has two recorded message phones. One phone provides a general weekly fishing forecast, the other a brief summary of spawning escapements, weir counts, and sonar estimates for major Kenai Peninsula fisheries. The latter message phone also provides a brief daily summary of this sport fishery's status. This message phone may receive over several hundred calls daily during the peak of the fishery. These recorded message phones provide the public with reliable access to information, and they also increase the efficiency of the Soldotna ADF&G staff.

Information about the fishery is also communicated to the public through formal news releases and by promptly responding to requests for information from the news media. News releases and requests from the news media are given a priority because they are a quick and efficient way to disseminate information regarding the fishery's status, the management plan which regulates the fishery, and pending management actions.

Restrictive management actions in this fishery are socially disruptive. Informing the public of potential restrictions to the fishery via the recorded message phone and news media contacts can mitigate disruption. Whenever possible, fishery managers try to issue formal announcements pertaining to emergency regulation of the fishery at least 24 hours prior to any management action.

2007 Fishery Performance

The pre-season forecast of 51,000 late run Kenai River Chinook salmon was above the average in-river return of approximately 42,000. The cumulative in-river return estimate was 42,979 fish through August 4 when the sonar site was closed for the season. (Table 9).

The preliminary inseason estimated late-run Chinook salmon sport fish harvest of 9,258 fish provided for a spawner escapement estimate of approximately 33,300 fish, which is near the upper range of 17,800-35,700 late run Chinook salmon goal. This escapement estimate will be updated in 2008. The 2007 fishery experienced an overall low harvest relative to the numbers of fish in the return. Overall angler success was considered below average. The harvest rate for guided anglers was about 17 hours per fish and unguided anglers had a harvest rate of 39 hours per fish (Table 10).

A total of five late-run Chinook salmon were brought to ADF&G personnel to be sealed as required for sport caught Chinook salmon over 55" in total length during 2007. Of these five fish, only three were actually over 55" in total length and the remainder of the fish were less than 55" in total length.

The commercial fisheries in the Central District of the Upper Cook Inlet Management Area harvested approximately 12,861 Chinook salmon. Of this commercial harvest, the preliminary data from the fish ticket database indicates that approximately 11,996 were harvested in the eastside setnet (ESSN) fishery (Table 9). The preliminary data from the fish ticket database indicates 2007 ESSN harvest compared closely to the average harvest of approximately 11,909 Chinook salmon since 1986. The 2007 Chinook salmon harvest information will be updated in 2008.

2007 KASILOF RIVER CHINOOK SALMON RECREATIONAL FISHERY

2008 PROPOSALS TO THE ALASKA BOARD OF FISHERIES CONCERNING KASILOF RIVER CHINOOK SALMON SPORT FISHERY ISSUES

The following proposals published in "The Alaska Board of Fisheries 2007/2008 Proposed Changes in the Cook Inlet, Kodiak, and Chignik Areas Finfish Regulations; King and Tanner Regulations (Statewide Except Southeast/Yakutat); and Supplemental Issues" booklet (ADF&G 2007b) will likely have some impact on the sport fisheries targeting Chinook salmon in the Kasilof River:

Proposal Numbers: 225, 226, 227, 228, 229, 230, 231, 232, and 233.

BACKGROUND AND HISTORICAL PERSPECTIVE

The hatchery stocks of early-run Chinook salmon that return to Kasilof River were originally developed from wild fish in Crooked Creek, a tributary to Kasilof River, approximately 6 miles upstream from Cook Inlet (Figure 4). Currently, research is being done on both returns. For the early-run ADF&G began evaluating escapement numbers and to estimate naturally produced and hatchery stock returns to a weir located at the former Crooked Creek hatchery facility in 2002. In addition, a creel survey has been conducted since 2004 to estimate the catch and harvest of naturally and hatchery produced early-run Chinook salmon. Current research for late-run Kasilof River Chinook salmon is directed to determine a population estimate of this stock as well as spawning distribution and run timing. This research project started in 2005 with a pilot study, and it was continued in 2006 and 2007.

The recreational fishery for early-run Chinook salmon in the Kasilof River occurs from late May through June. The growth of drift boat fishing has increased in this fishery and now the angler effort from drift boats exceeds the shore based angler effort.

The timing of the early-run precedes the commercial set gillnet fishery on the eastside beaches of Cook Inlet. There is, however, a personal use gillnet fishery that occurs from June 15 through June 24 at the mouth of the Kasilof River. This personal use gillnet fishery harvests primarily sockeye salmon returning to Tustumena Lake and small numbers of Chinook salmon which originate from Crooked Creek (Table 11).

The Kasilof River Chinook salmon sport fishery is limited by regulation to January 1 through July 31. During the early run (late May through June 30), the river is open in its entirety to Chinook salmon fishing. During the July late-run fishery, the area upstream from the Sterling Highway Bridge is closed to Chinook salmon fishing to protect spawning fish. The early-run is harvested by relatively large numbers of both shore and boat anglers, whereas the late-run is harvested primarily by boat anglers because discharge of the Kasilof River during July makes it difficult for anglers to effectively fish for Chinook salmon from shore. Participation and harvest is greater for the early-run.

Harvest estimates for early-run and late-run Kasilof River Chinook salmon have been estimated by the Statewide Harvest Survey since 1996. Since 2004, ADF&G has conducted a creel survey to determine the early run harvest and to separate the harvests by hatchery and naturally-produced stock composition. From 2004 to 2007, annual angler harvests leveled off for the early and late-run Kasilof River Chinook salmon sport fisheries (Tables 12-13). From 2002 to 2006 the average angler harvest for early-run Kasilof River Chinook salmon was 3,077 fish (Table 12) and the average angler harvest for late-run Kasilof River Chinook salmon was 914 fish (Table 13).

KASILOF RIVER CHINOOK SALMON EARLY RUN

Fishery Management Objectives

The Kasilof River early-run Chinook salmon fishery is supported primarily by stocked Chinook salmon of Crooked Creek origin and supplemented by natural production in Crooked Creek. The Kasilof River early-run Chinook salmon return is managed to ensure that a sustainable escapement goal (SEG) of 650 to 1,700 naturally produced Chinook salmon reach the spawning grounds above Crooked Creek weir and to harvest hatchery produced Chinook salmon. Another objective for this fishery is to generate approximately 35,000 angler-days of annual sport fishing opportunity directed at Chinook salmon in the Kasilof River. The final objective is to stock Crooked Creek with approximately 105,000 Chinook salmon smolt annually.

During 2003, regulations were adopted which prohibited the retention of naturally produced early-run Chinook salmon, and anglers were prohibited from using multiple hooks. Beginning in 2005, retention of naturally produced fish was allowed two days each week; on Tuesday and Saturday. In addition, the Alaska Board of Fisheries granted ADF&G emergency order authority to allow retention of naturally produced early-run Chinook on a third day each week when returns are strong. Thursday was added as the third day each week anglers could retain naturally produced Chinook salmon from the Kasilof River in 2006 and 2007.

2007 Inseason Management Approach

Historically no inseason regulation of the Kasilof River early-run Chinook salmon fishery has been required. By regulation, hatchery produced fish are allowed to be harvested seven days each week and either hatchery or naturally produced fish are allowed to be harvested two days per week (e.g., Tuesday and Saturday). In 2006 and 2007, Thursday was added as a third day each week that anglers could retain naturally produced Chinook salmon from the Kasilof River. This emergency order was issued each year during mid-May prior to the peak of the return. Other inseason management activity involved determination of angler success from creel surveys from 2003 through 2007 and then sharing this information with the news media and the public.

2007 Fishery Performance

The first management objective, ensuring a sustainable escapement goal of 650 to 1,700 naturally produced Chinook salmon reach the spawning grounds, was met in 2007. A total of 964 naturally produced Chinook salmon and 483 hatchery produced Chinook salmon passed upstream of the weir to spawn (Table 12) for a total spawning escapement of 1,447 fish. The number of angler-days will not be evaluated until the 2007 SWHS estimates become available during the fall of 2008 however the preliminary estimate of angler hours from the creel survey was 56,626 hours of fishing effort. The final management objective, stocking Crooked Creek with 105,000 Chinook salmon smolt annually, was also achieved in 2007.

Since Chinook salmon do not reach the weir at Crooked Creek until the later part of June and early July, run-strength is evaluated from creel survey data. In past years, typically the highest catch rates are observed prior to June 10. In 2007, catch rates were highest from June 6 through June 10 and they declined thereafter. The preliminary estimate of harvest from the onsite creel survey was 2,497 Chinook salmon of which 1,072 fish (43%) were naturally produced (Table 12). The estimated 2007 total return was 4,020 Chinook salmon.

KASILOF RIVER CHINOOK SALMON LATE RUN

Fishery Management Objectives

This sport fishery is not specifically addressed in a Board-adopted management plan. ADF&G objectives adopted for this fishery include providing an opportunity for angler participation at a level that can be supported by the fisheries resource and associated habitat. Also, to ensure through appropriate management and research programs, that the Chinook salmon population does not decline below the levels necessary to ensure sustained yield. Harvest has been monitored via the SWHS since 1996 and has averaged 933 Chinook salmon (Table 13).

2007 Inseason Management Approach

There has been no inseason management in the history of this fishery. The fishery is managed through existing regulations. These regulations are conservative, permitting a harvest of late-run Kasilof River Chinook salmon downstream from the Sterling Highway Bridge only through July 31. For Chinook salmon 20 inches or more in length, the daily bag and possession limit is one fish and the annual limit for Kasilof River Chinook salmon is five fish.

2007 Fishery Performance

There has been no inseason data collected for the management of the Kasilof River Chinook salmon late run. Since 2005, ADF&G research projects have collected information on run timing, spawning distribution, and inriver abundance of late-run Kasilof River Chinook salmon. Catches of Chinook salmon for the research program have been relatively stable from 2005 to 2007. Anecdotal information on run strength or sport fishery performance is also collected inseason. In 2007, anecdotal information from anglers suggests that the 2007 Kasilof River Chinook salmon late run performance was similar to 2006. There have been changes in the commercial fisheries targeting Kasilof bound sockeye salmon in recent years due to large numbers of sockeye salmon passage the ADF&G sonar in excess of escapement needs. These commercial fishery changes included the implementation of terminal commercial fishing periods at the mouth of the Kasilof River annually from 2005 to 2007. These terminal commercial fishing periods are designed to reduce sockeye salmon escapement, however Chinook salmon are also harvested. The total number of commercially harvested Kasilof River bound Chinook salmon during these terminal fishery periods has not been estimated at the time of this publication.

Occasionally, anglers bring in harvested Kasilof River late-run Chinook salmon, over 50 pounds in total weight, to ADF&G to participate in the trophy fish program. The trophy fish program is voluntary and participating anglers receive a "Trophy Fish" certificate for taking fish that meet minimum weight or length standards. In 2007, one "Trophy Fish" certificate was issued to an angler for a late-run Chinook salmon harvested in the Kasilof River.

2007 RUSSIAN RIVER SOCKEYE SALMON RECREATIONAL FISHERIES

2008 PROPOSALS TO THE ALASKA BOARD OF FISHERIES CONCERNING RUSSIAN RIVER SOCKEYE SALMON SPORT FISHERY ISSUES

The following proposals published in "The Alaska Board of Fisheries 2007/2008 Proposed Changes in the Cook Inlet, Kodiak, and Chignik Areas Finfish Regulations; King and Tanner Regulations (Statewide Except Southeast/Yakutat); and Supplemental Issues" booklet (ADF&G 2007b) will likely have some impact on the sport fisheries targeting sockeye salmon in the Russian River and Russian River sanctuary:

Proposal Numbers: 253, and 254.

BACKGROUND AND HISTORICAL PERSPECTIVE

The Russian River is a clearwater tributary to the Kenai River located near the community of Cooper Landing approximately 100 miles south of Anchorage (Figure 5). Lands bordering this river are federally managed. The public can access the Russian River via the Kenai-Russian River ferry operated by a private concessionaire. The ferry is located at the Kenai National Wildlife Refuge parking area on the north shore of Kenai River just downstream from the confluence with Russian River. Additional access is provided at the Chugach National Forest campground on Russian River (Figure 6).

The drainage supports one of the largest returns of sockeye salmon to upper Cook Inlet and provides one of the largest freshwater recreational fisheries for sockeye salmon in Alaska. In addition, coho, Chinook, and pink salmon also spawn in Russian River drainage as well as resident populations of rainbow trout and Dolly Varden. The drainage is closed to fishing for Chinook salmon but supports recreational fisheries for the other species.

Sockeye salmon return to Russian River during two distinct time periods. An early-run arrives at the confluence of the Kenai and Russian rivers in early June. Because of this early run timing, these fish are not harvested in the upper Cook Inlet commercial salmon fisheries. The primary harvest of these fish occurs in the inriver recreational fishery at the Russian River. Early-run fish typically congregate at the confluence of the Russian and Kenai rivers for several days prior to moving into the clear waters of Russian River. A late-run, part of the larger late-run of upper Cook Inlet sockeye salmon, arrives at the confluence in mid-July and typically migrates directly into Russian River. This run has two discrete components, one that spawns in the upper reaches of the drainage (upstream of the weir) and one that spawns in the lower river reaches (downstream of the weir). The population component that spawns in the lower river reaches are more closely related (genetically) to the mainstem Kenai River sockeye salmon stocks than to the population component spawning upstream of the weir (Seeb et al. 1996). Typically, the spawning escapement of the late-run exceeds that of the early-run. For the most part, spawning locations used by the late-run are distinct from locations used by the early-run. Because of their run timing, late-run sockeye salmon are harvested by a combination of commercial, recreational, and personal use user groups.

The recreational fishery for both early- and late-run sockeye salmon occurs primarily in the lower 3 miles of Russian River and in a 1 mile stretch of Kenai River below its confluence with Russian River. Both runs support intense fisheries. The most recent 10-year (1997-2006)

average harvest of early and late-run sockeye salmon is approximately 38,610 and 24,980 fish respectively (Tables 14-15; Figure 7)

The most recent 10 year average (1997-2006) of combined early and late-run angler effort has averaged 59,133 angler-days per year (Table 4). At times, more than 1,000 anglers simultaneously fish this 4-mile area. The two public campgrounds managed by federal agencies are routinely filled to capacity and are not able to completely meet public demand for access to the fishery. Often long waiting periods and/or reservations are required for parking and camping areas.

In 1993, the Alaska Department of Fish and Game, Sport Fish Division purchased property that adjoins U.S. Fish and Wildlife Service (USFWS) lands along the north shore of the Kenai River directly across from the confluence of Kenai and Russian rivers. The 4.4-acre property, formerly the site of the privately owned Sportsman's Lodge, was purchased for \$375,000. This purchase was made with Federal Dingell-Johnson (D-J) funds to provide a launch and take-out area for boat anglers fishing the Kenai River and to provide an additional 50 to 75 parking places for anglers. Purchase of this property and subsequent improvements in 2000 have partially alleviated parking issues in this area during peak days of the fishery.

Historically, as angler effort has increased in this fishery, the regulations governing the recreational fishery have become more restrictive to ensure sustainability of the stock. In 1965, the use of treble hooks was prohibited in an effort to reduce snagging. In 1966, terminal gear was limited to flies and a fly-fishing-only area was designated. In 1967, the Board of Fisheries required that only fish hooked in the head, mouth, or gills could be retained and in 1969, this regulation was amended to include all fresh waters of the Kenai Peninsula. In 1973, the regulation was further amended to require that fish hooked elsewhere than in the mouth be released immediately.

Currently, the sport fishery is restricted to terminal tackle consisting of a single-hook, unweighted fly, with a maximum hook gap of 3/8 inches or less. This measure was implemented to reduce angler efficiency and lessen the angler's ability to snag fish illegally. This affords an increased measure of protection to fish as they near their spawning destinations. In order to protect "schooled" fish that hold in the confluence area of the Kenai and Russian rivers (termed the "sanctuary"), the sanctuary is closed to recreational fishing until the lower end of the early-run escapement range is projected. Only the lower 3 miles of the Russian River drainage, from 100 yards upstream of its mouth to an ADF&G marker 600 yards downstream of the falls, are open to salmon fishing. The upstream portion of Russian River (e.g., above the ADF&G marker below the falls) is permanently closed to all salmon fishing to allow fish to migrate and spawn in the remainder of the drainage.

RUSSIAN RIVER SOCKEYE SALMON MANAGEMENT OBJECTIVES

Management of this fishery is governed by the *Russian River Sockeye Salmon Management Plan* (5 AAC 57.150). The primary management objective, as directed in the plan, is to achieve an escapement goal of 14,000 to 37,000 early-run sockeye salmon and 30,000 to 110,000 late-run sockeye salmon in the Russian River system. The escapement goal range for both runs have been achieved or exceeded in all years since 1977, based upon the management plan in effect at that time (Tables 14-15; Figure 7).

The Russian River Sockeye Salmon Management Plan recognizes that commercial users as well as mainstem Kenai and Russian River recreational anglers harvest late-run sockeye salmon stocks bound for the Russian River drainage. It stipulates how the burden of conservation shall be distributed between commercial and recreational users. In the event that conservation measures are required to achieve the minimum escapement goal, ADF&G shall restrict Kenai River drainage recreational fisheries. Restrictions to the commercial fishery shall be limited to meeting the inriver escapement goal for Kenai River late-run sockeye salmon as outlined in the *Kenai River Late-Run Sockeye Salmon Management Plan* (5 AAC 21.360).

The SEG ranges for both runs are based on weir counts that have sustained the fishery. Although precise biological data is collected annually at the weir it is not sufficient to devise BEGs. Since the Russian River late-run is a component of the larger late-run returning to the Kenai River drainage, the total returns for late-run Russian River sockeye are not known. To that end ADF&G began an upper Russian River late-run run reconstruction research project in 2006 which uses genetic stock identification. The various mixed-stock marine commercial, personal use and sport fisheries where late-run Russian River fish are potentially harvested are sampled for genetic information. Results of this study should enable ADF&G to estimate harvests of late-run Russian River fish from various fisheries. This new information combined with the weir count data will enable fishery researchers to reconstruct the total return of late-run Russian River sockeye. This will enable ADF&G to better assess sockeye production in the Russian River drainage and ultimately develop a BEG for the late-run.

2007 INSEASON MANAGEMENT APPROACH

The early- and late-run fisheries are managed by escapement counted at a weir at the outlet of Lower Russian Lake. In years of low abundance, the escapement is achieved through inseason restrictions to the recreational fishery. In years of high abundance, fishery restrictions are liberalized to provide additional fishing opportunity.

Run strength is determined by examining three indicators: weir counts, instream fish counts, and observed fishery performance. Weir counts are the primary indicator of run strength. Historical sockeye salmon weir counts provide the mean migratory run timing statistics to project inseason abundance and escapement (Tables 16-17). An estimation of run strength can generally be made several days prior to the historic mid-point of the run (June 29 or 30 for the early run and August 5 for the late run). In some years, fish have been late or have held in the Kenai River. Weir counts are supplemented by onsite enumeration of the fish present downstream from the weir, including the area between the weir and the falls, the falls area, lower Russian River, and the sanctuary area (Figure 6). In addition, observed fishery performance in the Kenai River downstream from the sanctuary area for the early-run and throughout the entire fishery in the late-run are used as an indicator of run strength. If inseason restrictions become necessary in order to achieve the escapement goal, the Russian River Sockeye Salmon Management Plan specifies several options to ensure adequate escapement which include: bag limit reductions and closures by area and time in the Russian River as well as the mainstem Kenai River downstream to and including Skilak Lake. When inseason restrictions are implemented, they remain in place until the lower end of the escapement range is projected.

Early-run sockeye salmon returns have been high in recent years and the recreational fishery has often been liberalized inseason. The liberalization of the fishery is generally implemented by opening the 700-yard sanctuary area at the confluence of the Kenai and Russian rivers to fishing.

This area is opened when information indicates the lower end of the escapement range (14,000) will be achieved. The sanctuary area is opened by emergency order for the remainder of the salmon fishing season. Experience has proven that a daytime opening facilitates an orderly expansion of fishing opportunity in the fishery. Late evening and midnight openings are avoided.

During the 2007 season, the early-run Russian River Area sockeye salmon sport fishery was liberalized with the issuance of one Emergency Order (EO; Appendix A3). The liberalization took place on June 18 through the issuance of EO number 2-RS-1-15-07. This EO opened the Russian River Sanctuary Area to fishing for sockeye salmon because ADF&G had determined that the minimum early-run sockeye salmon spawning escapement goal of 14,000 fish would be achieved. No management actions were taken during the late-run fishery.

2007 RUSSIAN RIVER SOCKEYE SALMON EARLY RUN FISHERY PERFORMANCE

The weir was operational on June 9, 2007 and the Russian River early-run sockeye salmon recreational fishery opened by regulation on June 11. Sockeye salmon classified as early-run fish are enumerated at Russian River weir through July 14. The lower SEG goal range of 14,000 to 37,000 fish was achieved on June 23. The 2007 final early-run sockeye salmon escapement through the Russian River weir was 27,298 fish (Table 16). Opening of the Russian River sanctuary area at 8:00 a.m., Monday, June 18 provided excellent sockeye salmon fishing opportunity for several days. Overall, sport fishing catch rates were good to excellent from June 11 through about June 25. Thereafter, catch rates declined with the numbers of sockeye salmon returning to the Russian River. The 2007 estimates of fishing effort and harvest estimates will be available when the SWHS is published in mid-2008.

2007 RUSSIAN RIVER SOCKEYE SALMON LATE RUN FISHERY PERFORMANCE

Sockeye salmon classified as late-run fish are enumerated at Russian River weir from July 15 through September 13. The 2007 late-run sockeye salmon escapement through the Russian River weir was 53,068 fish and was within the SEG range of 30,000 to 110,000 fish. This was about 43% below the most recent 10-year (1997-2006) average of 92,930 fish (Table 15). The lower goal range of 30,000 fish was achieved on August 15, 2007. This was 8-days later than anticipated (Table 17) and the lowest late-run escapement count through the weir since 1996 (Pappas and Marsh 2004).

The 2007 Russian River late-run sockeye salmon recreational fishery was a continuation of the early-run fishery beginning on July 15. The fishery was prosecuted without restriction. Sport fishing catch rates were only fair in the Russian River however catch rates were generally better in the Kenai River below Russian River. Unseasonably low water conditions in the Russian River from late-July through August may have caused sockeye salmon to stage in the Russian – Kenai rivers confluence area longer than usual prior to continuing upstream past the weir. The 2007 estimates of fishing effort and harvest estimates will be available when the SWHS is published in mid-2008.

2007 KENAI RIVER LATE-RUN SOCKEYE SALMON RECREATIONAL FISHERIES

2008 PROPOSALS TO THE ALASKA BOARD OF FISHERIES CONCERNING KENAI RIVER LATE-RUN SOCKEYE SALMON SPORT FISHERY ISSUES

The following proposal published in "The Alaska Board of Fisheries 2007/2008 Proposed Changes in the Cook Inlet, Kodiak, and Chignik Areas Finfish Regulations; King and Tanner Regulations (Statewide Except Southeast/Yakutat); and Supplemental Issues" booklet (ADF&G 2007b) will likely have some impact on the sport fisheries targeting late-run sockeye salmon in the Kenai River:

Proposal Number: 278.

BACKGROUND AND HISTORICAL PERSPECTIVE

The Kenai River originates at Kenai Lake near the community of Cooper Landing and terminates in Cook Inlet adjacent to the city of Kenai. The river is glacial and approximately 82 miles in length. It is paralleled for much of its length by the highway road system making it the most accessible of Alaska's major salmon producing rivers (Figure 8).

Historically, snagging was the traditional harvest method for taking sockeye (red) salmon in the Kenai River. It was generally believed that this species would not strike a lure or accept bait and that conventional (non-snagging) techniques could not be used to harvest these fish. When the number of sport anglers was relatively small, snagging posed neither a biological nor a social problem. However, as the population of Southcentral Alaska expanded and the Kenai River sport fishery increased in popularity, anglers began to oppose the practice as an unethical harvest method. Anti-snagging measures, first adopted at the Russian River, culminated in 1975 with the Board promulgating Alaska's present freshwater anti-snagging regulation. In 1979, snagging was prohibited in salt water within a 1-mile radius of the Kenai River mouth and in 1984 all snagging in salt water north of Anchor Point was similarly prohibited.

Because snagging was no longer a legal harvest method in either fresh or salt water, anglers began to experiment with alternative terminal tackle in an attempt to legally harvest sockeye salmon in the Kenai River. Initial efforts were moderately successful with annual harvests averaging 23,584 sockeye salmon from 1977 through 1981 (Mills 1979-1980, 1981a-b, 1982).

Between 1982 and 1985, the average harvest increased to 48,570. This dramatic increase is attributed to the use of coho flies as terminal gear. The coho flies are drifted along the bank similar to the technique used for a number of years at the Russian River. The belief that sockeye salmon could not be harvested with conventional tackle was gradually dispelled and this innovative technique prompted additional anglers to seek these fish. The change in fishing technique, coupled with relatively clear water in 1982 and 1983, played a large role in the increased harvests. The larger harvests were further influenced by the magnitude of the returns, which exceeded 600,000 sockeye in both 1982 and 1983 (Table 18). A return of only 344,571 fish resulted in a reduced 1984 sport harvest (15,702). Kenai River late run sockeye salmon sport fish harvests from 1985 to 2006 have ranged from 57,213 to 294,287 fish, with a 10-year average (1997-2006) of 224,760 fish (Table 19; Figure 9).

The recreational fishery for sockeye salmon in the Kenai River is characterized by:

1. Large numbers of sockeye salmon must be present to provide acceptable harvest rates.
2. The fishery is short in duration, usually from July 16 to August 5, or approximately 20 days.
3. The fishery is affected by water clarity, i.e. turbid water generally decreases angler efficiency and clear water increases catch rates.
4. Only a percentage of the total angler effort is directed toward sockeye salmon, irrespective of run strength or fishing conditions. This is a result of the Kenai River being a multi-species fishery in July and August, with only a percentage of the total angler effort directed toward sockeye salmon. ADF&G expects a steady increase in angler effort as the population of Alaska increases. Angler participation in the Chinook salmon sport fishery, coho salmon sport fishery, and during even years, the sport fishery for pink salmon, as well as fishing effort for resident rainbow trout and Dolly Varden, account for the remainder of total angler participation.

KENAI RIVER SOCKEYE SALMON LATE-RUN MANAGEMENT OBJECTIVES

Kenai River late-run sockeye salmon are managed under provisions of the *Kenai River Late-Run Sockeye Salmon Management Plan* (5 AAC 21.360). The Division of Sport Fish manages the inriver sport fishery. Late-run Kenai River sockeye salmon are a component of the harvest of the Upper Cook Inlet commercial fishery managed by the Division of Commercial Fisheries. Since 1999, the Kenai River has been managed to achieve an optimum escapement goal (OEG) of 500,000 to 1,000,000 sockeye salmon. The OEG represents the actual spawning escapement, defined as the inriver sonar estimate less inriver sport harvest above the Soldotna Bridge. The plan also directs ADF&G:

1. to manage Kenai River late-run sockeye salmon primarily for commercial uses;
2. to minimize commercial harvests of Northern District coho salmon, late-run Kenai River Chinook salmon, and Kenai River coho salmon; and provide reasonable opportunity to harvest salmon in those sport and guided sport fisheries; and
3. to manage all fisheries to meet the OEG, achieve inriver goals, and distribute escapements evenly within the OEG range and in proportion to run size.

Inriver goals set in the plan are ranges of sockeye salmon passing the sonar at rm 19 (Figure 8) of the Kenai River, and are derived from three levels of projected run strength. Ranges of projected run strength and corresponding inriver (sonar) goals outlined in the plan are:

<u>Projected Run Strength</u>	<u>Inriver (Sonar) Goal</u>
1. less than 2 million fish	650,000-850,000 fish
2. 2-4 million fish	750,000-950,000 fish
3. greater than 4 million fish	850,000-1,100,000 fish

The ADF&G, Division of Commercial Fisheries operates the rm 19 sonar and is responsible for managing UCI commercial fisheries to achieve the inriver (sonar) goals. It is the responsibility of the ADF&G, Division of Sport Fish to assess inriver harvests and take steps to ensure that the OEG range is achieved by issuing Emergency Orders to restrict or liberalize the sport harvest if necessary.

2007 INSEASON MANAGEMENT APPROACH

Historically, management of this fishery has changed in concert with changes in the Kenai River Late-Run Sockeye Salmon Management Plan. Prior to the late 1980s, management of the sockeye salmon recreational fishery was accomplished through changes to bag and possession limits. Sport harvests were not large enough to significantly impact spawning escapements. Growth in this fishery during the late 1980s and early 1990s witnessed significantly greater inriver harvests. Because of this expansion of the sport fishery, allocative limits were placed on recreational harvests of sockeye salmon by the Alaska Board of Fisheries.

In 1993, changes were adopted to the management plan by the Alaska Board of Fisheries that restricted the total sport harvest to less than 10% of the sonar estimate when the inriver sonar estimate was within the range of 400,000 to 700,000 sockeye salmon. Based upon the pre-season forecast in 1993, the bag and possession limits were reduced to 2 sockeye salmon per day and sport fishing was prohibited each day from 11:00 p.m. to 6:00 a.m.

In 1994, Commissioner Carl Rosier determined that the provision limiting sport harvests to less than 10% of the sonar estimate, within the range of 400,000 to 700,000 fish, was a guideline harvest level rather than a harvest cap. Based upon this decision, the 1994 season commenced with bag and possession limits of 3 sockeye salmon per day and was prosecuted in a normal manner. On August 3, it was projected the sonar count would exceed 700,000. In accordance with the management plan, the bag and possession limits were increased to 6 sockeye salmon. The 1995 recreational fishery was prosecuted without management intervention. The bag and possession limits were not increased, as the sonar count did not exceed 700,000 fish.

In 1996, the Alaska Board of Fisheries amended the management plan to incrementally increase the inriver escapement goals for late-run Kenai River sockeye salmon. The inriver goal during the 1996 season was established at 550,000 to 800,000 fish. The inriver goal was subsequently increased to 550,000 to 825,000 fish in 1997 and 550,000 to 850,000 fish in 1998. The 1996 and 1997 recreational fisheries were prosecuted in a normal manner with no inseason management actions implemented.

Throughout this time period, management of the inriver recreational fishery relied on sonar estimates of inriver escapement and postseason assessment of the sport harvest from the SWHS. There was no need to assess the recreational harvest of sockeye salmon inseason, provided that the inriver escapement goal could be met. This situation continued because of the buffer or escapement gap between the inriver escapement goal (sonar estimate) and the lower limit of the BEG range. This gap between the lower limit of the BEG and the inriver sonar goal was intended to provide for inriver recreational harvests. If the inriver escapement goal (sonar estimate) is achieved, the recreational fishery could be prosecuted without restriction. This management strategy for the Kenai River recreational sockeye salmon fishery depended heavily upon the successful management of the commercial salmon fishery in UCI to achieve the inriver sonar goal.

In 1998, inseason assessment of the sport harvest in Kenai River and Russian River was necessitated by a poorer than expected return and later run-timing of sockeye salmon stocks into Kenai River. Inseason assessment of sockeye salmon harvest consisted of estimating the contribution of Russian River and Hidden Lake stocks to the total inriver return and applying historical exploitation rates from the mainstem Kenai River and Russian River to estimate harvest. Emergency regulation of the sport, personal use, and commercial fisheries during 1998

was based, in part, upon this analysis. Reliance upon postseason assessment of recreational harvests using the available version of the SWHS was recognized as insufficient by management staff from both fishery divisions. Consequently, during the winter and spring of 1998-1999, a model was developed by the Division of Sport Fish to provide inseason estimates of personal use and sport harvests of late-run sockeye salmon. This model is based upon the average historic exploitation rates derived from the SWHS. Management staff employed this model (mean exploitation rate) during the 1999-2003 seasons. Due to the information gained from those years, management actions for the years 2004-2007 were based on the inseason projected return of Kenai River sockeye salmon to Cook Inlet and the daily sonar passage estimates.

In 2004 and 2005, Kenai River late-run escapements were consistently above established goals because of the timing and patterns of sockeye salmon entering into the Kenai River. The magnitude of the late-run sockeye salmon run during these years enabled the inriver sport fishery to be liberalized (e.g., increasing the daily bag limit for salmon 16 inches or greater in length, other than Chinook salmon, from three fish per day to six fish per day of which only two could be coho salmon). The possession limit was also raised from three to six fish in possession. This liberalization was for all waters of the Kenai River except for the fly-fishing-only waters of the Russian and Kenai rivers.

During 2006, several management actions were implemented for the Kenai River late-run sockeye salmon sport fishery as the result of the later than normal run-timing and pattern of sockeye salmon entry into Kenai River. The sockeye salmon bag and possession limit was reduced from three to one fish per day on July 22, then closed to sport fishing for sockeye salmon on July 25, in all portions of the Kenai River except the Upper Kenai River "fly-fishing only" area. Due to the unanticipated increase in sockeye salmon entering the river, the fishery was subsequently reopened on July 31 with a bag and possession limit of three sockeye salmon per day. The continuing influx of sockeye salmon into the river necessitated further management action to contain the escapement and on August 3, the bag and possession limit was increased to six fish per day.

2007 KENAI RIVER SOCKEYE SALMON LATE RUN FISHERY PERFORMANCE

The 2007 preseason forecast for Kenai River late-run sockeye salmon was for a run of approximately 2.4 million fish. This forecasted run size was below the long-term average run-size of just over 3.0 million. In season, the run size was estimated to be in the range of 2.85 to 3.25 million fish. Due to the strength of the 2007 Kenai River sockeye salmon run, the Kenai River sockeye sport fishery bag and possession limits were liberalized.

The actual run initially lagged behind the historic average but increased during the week of July 19-25, when nearly 250,000 sockeye salmon passed the sonar counter. By July 25, the run was projected to exceed 2.0 million fish. Emergency Orders were issued increasing the sport bag and possession limits to six per day and allowing the personal use fishery to operate 24 hours per day. Sport fishery success rates were good to excellent throughout July into the first week of August. Harvest rates in the personal use fishery were also excellent.

Although final estimates for the 2007 sockeye run are not available, preliminary results indicate a total run of about 3.1 million. The number of sockeye salmon past the sonar counter was 867,572 fish. When sport harvest estimates become available in mid-2008, the 2007 Kenai River sockeye salmon spawning escapement is expected to be within the OEG range (500,000-1,000,000).

2007 KENAI RIVER COHO SALMON RECREATIONAL FISHERIES

2008 PROPOSALS TO THE ALASKA BOARD OF FISHERIES CONCERNING KENAI RIVER COHO SALMON SPORT FISHERY ISSUES

The following proposals published in "The Alaska Board of Fisheries 2007/2008 Proposed Changes in the Cook Inlet, Kodiak, and Chignik Areas Finfish Regulations; King and Tanner Regulations (Statewide Except Southeast/Yakutat); and Supplemental Issues" booklet (ADF&G 2007b) will likely have some impact on the sport fisheries targeting coho salmon in the Kenai River:

Proposal Numbers: 279, 280, 281, and 282.

BACKGROUND AND HISTORICAL PERSPECTIVE

Run timing of coho salmon bound for Kenai River and other Kenai Peninsula systems is slightly later than many Northern District systems. Anecdotal evidence suggests that two runs of coho salmon migrate into Kenai River. Creel surveys conducted from 1991 to 1993 and in 1998 indicate that two distinct runs are not readily discernable from harvest rate data (Clark et al. *Unpublished*). Recoveries of returning adult coho salmon, marked as smolt, in the Kenai River indicate that time of entry and time of spawning are independent of time of marking as smolt (Clark et al. *Unpublished*). As a result, coho salmon in the Kenai River are managed with harvest information and smolt abundance as a single stock.

Coho salmon typically begin entering Kenai River in late July and continue through mid-September, and at much reduced levels into late-November. It is assumed that the Kenai River has the only significant late-season coho salmon run in Cook Inlet. Recreational effort shifts to coho salmon almost immediately after the termination of the Chinook salmon season at the end of July or during the first week in August. The inriver sport fishery occurs downstream from Kenai Lake to the river's terminus at Cook Inlet (Figure 10). Unlike the highly mobile Chinook salmon fishery, the coho salmon fishery is conducted from anchored boats as well as from shore. Beginning in the year 2000, bag and possession limits were reduced to 2 fish per day. Additionally, a 3-day closure was adopted to provide a temporal break between the intensely targeted Chinook salmon fishery at the end of July and the traditional start of coho salmon fishing during the first week in August. In 2002, the Alaska Board of Fisheries adopted the closure as an allocative means to reduce overall harvest of coho salmon by sport anglers as part of the Kenai River Coho Salmon Conservation Management Plan. The plan established a coho salmon fishing season end date of September 30 and also included various restrictions on the use of bait as well as restrictions to guided anglers. Coho salmon fishing regulations were liberalized for the Kenai River by the Alaska Board of Fisheries in 2005. Changes resulted in a net gain in fishing time and area and also incorporated less restrictive fishing methods.

Several liberalizations allowed for the Kenai River coho salmon sport fishery included:

1. A 31 day season extension for coho salmon fishing within the Kenai River drainage: from September 30 to October 31.
2. Bait was allowed through the entire season downstream of the Upper Killey River.
3. The August 1-3 coho salmon fishing closure downstream of Skilak Lake was repealed allowing a continuous season from July 1 through October 31.

4. The regulation prohibiting fishing after a person takes a bag limit of two coho salmon below Upper Killey River was reduced to below the Soldotna bridge allowing a person to continue to fish upstream of the Soldotna bridge.
5. Fishing from a guide vessel was allowed on Monday for species other than coho salmon upstream of the confluence of the Moose and Kenai rivers.

Kenai River coho salmon stocks are subject to commercial exploitation in Upper Cook Inlet (Table 20, Figure 11). Data from a comprehensive coded wire tagging (CWT) program indicated that Kenai River coho salmon stocks were principally harvested in the Central District Eastside Setnet (ESSN) fishery along the entire coastline of the Kenai Peninsula, most of this harvest was taken from the setnet fisheries on Coho and Niniilchik beaches (south of the Kasilof River) (Carlson and Hasbrouck 1996-1998; Massengill and Carlson 2004a-b, 2007a-b; Massengill *In prep*). The majority of the harvest of Kenai River coho salmon occurs in the Kenai River recreational fisheries (Table 20, Figure 11).

Kenai River coho salmon are also harvested in personal use and subsistence fisheries. In 1981 and 1983 through 1993, there was a fall personal use or subsistence set gillnet fishery for coho salmon on the eastside beaches of Central District in Cook Inlet that were open to commercial setnetting (Table 20). This fishery was open in September, and therefore harvested late-running coho salmon. In 1985 and 1991 through 1994 there was also a subsistence set gillnet fishery on Central and Northern District beaches that were open to commercial setnetting. This fishery was generally open on scheduled days from May through September, with the open periods concentrated in July (Brannian and Fox 1996).

Kenai River coho salmon are also harvested in the Kenai river personal use dip net fishery (Table 20). This fishery has existed in various forms in most years since 1981 and targets Kenai River sockeye salmon in late July and early August. It is described in more detail in the Kenai River Sockeye Salmon Dip Net Fishery section of this report. In March 1997, the Alaska Board of Fisheries changed the closing date of this fishery from August 5 to July 31, to reduce the harvest of coho salmon. The personal use fishery was extended from August 3-10 during 2006 due to a late return of sockeye salmon to Kenai River.

A creel survey was conducted in Kenai River downstream from Soldotna from 1976 to 1993. The survey provided inseason harvest, harvest per unit effort, and angler participation estimates for this area of the river. These data were used postseason to track the relative status of the fishery and were not intended for inseason management of the fishery. Assuming that harvest is positively related to coho salmon abundance, numbers of late-run Kenai River coho salmon (with allowances for annual variation) appeared relatively stable through 1992. In 1993, budget managers determined that the creel survey would not be funded after the 1993 field season. Consequently, no onsite creel surveys were conducted from 1994 to 1996. The survey was reinstated in 1997 and 1998. Creel survey estimates for both years were similar to estimates from the SWHS. Therefore, the SWHS estimates were reported as the final estimates.

Despite relatively stable harvests in the recreational fishery through the early 1990s, fisheries managers became increasingly concerned that the current harvest levels could not be sustained.

The Division of Sport Fish began a stock assessment program in 1992 which focused upon the estimation of annual smolt production as an indicator of future abundance (Carlson 2000, 2003; Carlson and Hasbrouck 1997-1998). Data from this program indicated a decline in smolt

abundance from approximately 1,000,000 from 1992 to 1993 to less than 500,000 in 1995. Because this decline in smolt abundance was likely to result in reduced adult returns to the Kenai River, the Alaska Board of Fisheries addressed this fishery in March 1997.

In 1998, the Division of Sport Fish began an adult coho salmon tagging program to estimate the number of adult coho salmon returning to Kenai River. This program provided data to estimate the number of adult coho salmon returning to the Soldotna Bridge with acceptable levels of accuracy and precision from 1999 through 2004. In addition, this inriver estimate in combination with the sport harvest data from the SWHS enabled ADF&G to estimate total returns, spawning escapement, and exploitation of Kenai River coho salmon. These estimates, combined with the smolt abundance estimates, also provided estimates of smolt to adult survival.

From 1999 to 2004 the coho salmon returns averaged about 140,000 fish with harvests averaging just over 62,000 fish. From 2000 to 2004 exploitation rates ranged from about 35% to 47%. Smolt abundance ranged from nearly 580,000 to 1,200,000 with marine survival ranging from 6 to 32% (Carlson and Evans *In prep.*; Massengill and Evans *In prep.*).

Since 2005, the focus of the coho salmon stock assessment program was to estimate smolt abundance through a mark-recapture project. In this project, smolt were tagged in the spring and early summer at Moose River. Fish wheels operated upstream of the Soldotna Bridge at river mile 28 captured returning adults to enable an estimate of the number of smolt leaving the system. Smolt tagging was discontinued in 2007 and returning adults will be sampled for tags through 2008.

Annual sport harvests of Kenai River coho salmon have increased from 9,537 fish in 1977 to a record high of 86,711 fish in 1994 (Table 21). The most recent 10 year average sport harvest (1997-2006) of Kenai River coho salmon is 43,331 fish.

KENAI RIVER COHO SALMON MANAGEMENT OBJECTIVES

In March 1997, the Alaska Board of Fisheries (BOF) adopted the *Kenai River Coho Salmon Management Plan* (5 AAC 21.357). This plan contained regulations that reduced the total (combined sport and commercial) harvest by approximately 20%. In the spring of 2000, the BOF amended this plan again and adopted it as the Kenai River Coho Salmon Conservation Management Plan. It contains management directives and outlines the burden of conservation between various user groups in the NKPMA. It directs ADF&G to minimize the incidental take of Kenai River coho salmon stocks in the commercial fishery. It also directs ADF&G to manage Kenai River coho salmon stocks primarily for sport and guided sport uses in order to provide fishermen with reasonable opportunity to harvest these stocks over the entire run, as measured by the frequency of restrictions.

Prior to the February-March meeting of the Alaska Board of Fisheries in 1999, early-run Kenai River coho salmon were addressed in the *Upper Cook Inlet Salmon Management Plan* (5 AAC 21.363). This Board-adopted management plan directed ADF&G to minimize the harvest of this species in the Cook Inlet commercial salmon fishery. In 1999, the Board amended this plan. All instructions pertaining to the allocation of Upper Cook Inlet salmon stocks were removed from this plan and placed into the respective, individual management plans covering specific stocks or species. The provisions the Board must consider when adopting management plans for the Upper Cook Inlet area were incorporated into this plan as well. Provisions included are; the need

for sustainable fisheries, habitat protection, and recognition of the needs and demands of various user groups.

In 2005 the Kenai River Coho Salmon Conservation Management Plan was repealed. The resulting plan, *Kenai River Coho Salmon Management Plan (5AAC 57.170)* provides the current regulatory framework and guidelines for management to ensure an adequate escapement of coho salmon into Kenai River.

In addition to the aforementioned management plan, department objectives are:

- 1) To provide opportunity for angler participation at a level that can be supported by the fisheries resource and associated habitat.
- 2) To ensure, through appropriate management and research programs, that the spawning escapement does not decline below levels necessary to ensure sustained yield.

2007 INSEASON MANAGEMENT APPROACH

Currently, there are no cost effective methods available to accurately estimate the inriver coho salmon return inseason. Because of the lack of quantitative data to assess coho stock status, an escapement goal has not been established. With the exception of 1997, there has been no inseason management of this fishery.

Inseason fishery performance was gauged by fish wheel catches from the coho salmon stock assessment program, through direct observation by research and management staff, and by information provided by anglers. Escapement is not estimated from ADF&G fish wheels inseason. In 2007, the capture rates from this project indicated that the Kenai River coho salmon run size as estimated by the index was low in magnitude. The number of coho salmon captured in the fish wheels was the lowest since the project's inception in 1999.

The Statewide Harvest Survey is currently used to assess the Kenai River coho salmon fishery performance postseason (Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, In prep.; Jennings et al. 2004; 2006 a-b). Results from this survey are typically available during the year following the season. A comprehensive CWT project in Cook Inlet has estimated the annual smolt outmigration from the Moose River drainage. These estimates were previously thought to be a useful management tool, under the assumption that there is a correlation between the magnitude of smolt outmigration and the magnitude of total return. However research results indicate that the correlation is weak due to variation in smolt to adult survival. The Moose River smolt abundance data is not used as an indicator of potential returns of coho salmon stocks to Kenai River rather they define coho salmon production for one tributary of the Kenai River drainage.

2007 KENAI RIVER COHO SALMON FISHERY PERFORMANCE

The Kenai River coho salmon creel census program was discontinued prior to the 1999 season. No inseason catch, harvest, effort, or escapement creel census data were collected from 2004 through 2007. Inseason run strength and fishing success were gauged by reports volunteered by guides and individual anglers. Final harvest estimates are provided by the SWHS. This information typically becomes available during the spring of the following year.

ADF&G's inseason coho salmon monitoring project is not designed to determine escapement of coho salmon into Kenai River, however the data collected annually can be compared to other years. The fish wheel catches of coho salmon have been used to index the coho salmon run

strength. The index was derived from years when abundance was available (1999-2004) and uses the functional relation between fish wheel coho salmon catch rates and the inriver abundance of coho salmon to describe the magnitude of the return as high (>120,000 fish), medium (50,000–120,000 fish) or low (<50,000 fish) inseason. The Kenai River Coho Salmon Management Plan was established to prevent the over exploitation of the stock in times of average or below average returns. Although no estimate for the total return of coho salmon to Kenai River is available for 2007, the fish wheel index suggests the return was below average (50,000 fish).

Based on reports from anglers the 2007 Kenai River coho salmon fishery started out very slow but improved throughout the season. Poor to fair coho salmon catches were reported in early to mid-August, though catch rates steadily improved and were considered good by mid- September. Coho were caught throughout the drainage and the run timing appeared to be normal with bright fish present throughout the run.

2007 NORTH KENAI PENINSULA MANAGEMENT AREA RESIDENT SPECIES RECREATIONAL FISHERIES

2007 KENAI RIVER RAINBOW TROUT RECREATIONAL FISHERY

2008 Proposals to the Alaska Board of Fisheries Concerning Kenai River Rainbow Trout Sport Fishery Issues

The following proposals published in “The Alaska Board of Fisheries 2007/2008 Proposed Changes in the Cook Inlet, Kodiak, and Chignik Areas Finfish Regulations; King and Tanner Regulations (Statewide Except Southeast/Yakutat); and Supplemental Issues” booklet (ADF&G 2007b) will likely have some impact on the sport fisheries targeting rainbow trout in the Kenai River:

Proposal Numbers: 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, and 246.

Background and Historical Perspective

The Kenai River is the most heavily utilized river for freshwater sport fishing in Alaska and one of the largest rainbow trout fisheries in the United States. Although most of the anglers participate in the river's salmon fisheries, the Kenai River drainage also supports a major rainbow trout fishery with catches ranging from 8,720 to 159,510 fish, annually (Table 22, Figure 12).

Increasing public concern for the rainbow trout resource and a scarcity of biological and fishery data from the early years of the fishery prompted the Alaska Board of Fisheries to adopt increasingly restrictive regulations, implemented in the years outlined below:

- 1959-1964 Season: Areawide spring closure from April 1 to about May 26.
Daily bag limit: Combined trout/char/grayling/salmon under 16 inches: 10/day, only 2 over 20 inches.
- 1965-1977 Season: Kenai River changes to no closed season.
- 1978 Daily bag limit: (Areawide) Combined trout/char/grayling/salmon under 16 inches: 10/day, only 1 over 20 inches.

- 1979 Yearly bag limit: (Areawide) Harvest record required for rainbow/steelhead trout over 20 inches - 2/year.
- 1980-1981 Yearly bag limit: (Areawide) Increased to 5 rainbow/steelhead trout over 20 inches.
 Gear restriction: (Kenai River) In flowing waters upstream from the Moose River to Kenai Lake only single-hook, artificial lures allowed from January 1 to May 31.
- 1982-1983 Season: (Kenai River) Spring closure from January 1 to June 14 (excludes Skilak Lake).
 Daily bag limit: (Areawide) Changed to 5 rainbow trout with only 1 over 20 inches.
- 1984-1986 Season: (Kenai River) Spring and fall closure from November 1 to June 14 (includes Skilak Lake).
 Daily bag limit: (Kenai River) Changed to 3/day, only 1 over 20 inches.
 Yearly bag limit: (Areawide) Rainbow/steelhead trout over 20 inches - changed to 2/year.
 Gear restriction: (Kenai River) In addition to spring single-hook, artificial lure restriction, only artificial lures may be used between Skilak and Kenai lakes from January 1 to December 31.
- 1987-1988 Season: (Kenai River) Spring and fall closure from November 1 through June 14 (includes Skilak Lake).
 Daily bag limit: (Kenai River) Reduced to 2/day; 1 daily over 20 inches.
 Yearly bag limit: (Areawide) Rainbow/steelhead trout over 20 inches - remained at 2/year.
 Gear restriction: (Kenai River) Artificial lures only upstream from Skilak to Kenai Lake. Single hook restriction repealed. No bait permitted in Skilak Lake and in the Kenai River downstream to Moose River from November 1 through May 31.
- 1989-1990 Area between Skilak and Kenai lakes designated a Trophy Trout Area. Only trout 20 inches or larger could be retained. Susitna-West Cook Inlet seasonal limit remained at two trout over 20 inches. Terminal tackle in upper Kenai River limited to single-hook artificial lures.
- 1991 Trophy Trout Area extended to include half-mile radius of Skilak Lake inlet. Minimum length of trophy trout increased to 24 inches.
- 1993 Length at which a trout in the Trophy Trout Area could be retained increased to 30 inches. The bag and possession limits for trout in Skilak Lake and the Kenai River downstream from Skilak Lake were reduced to one fish. The Trophy Trout Area was closed to all fishing from April 15 through June 10.
- 1997 Former Trophy Trout Area becomes Catch-and-Release Area. Area extended 1/4 mile into Kenai Lake. No retention of trout permitted in this area and no retention

permitted in the flowing waters upstream of Kenai Lake. Trout season in all waters of the Kenai River drainage is now June 15 through April 15. All flowing waters upstream of the Upper Killey River closed to all fishing from April 15 through June 14. From June 15 through October 31 in all lakes tributary to Kenai Lake supporting wild trout the daily bag and possession limits are 2 trout only 1 of which may be 20 inches or greater.

From November 1 through April 14 the bag and possession limits in lakes supporting wild trout are five; only one may be 20 inches or greater. The bag and possession limits were not changed in stocked lakes.

1998 The use and placement of beads was regulated in all flowing waters of the Kenai River drainage. Beads must be either fixed to the line, or hook or be free moving on the line or leader. A bead not attached to the hook has been defined as an attractor, not a fly.

In Slikok Creek a tributary of the lower Kenai River, the fishing season for rainbow trout was established as August 16 through April 14.

2002 Established a maximum size limit of <18 inches in all waters of the Kenai River from the mouth of the Moose River upstream to Skilak Lake with a limit of 1 daily/1 in possession. Allow the use of beads fixed on the line within 2 inches of fly, lure, or hook throughout the drainage and clarified the single-hook regulation to mean one single hook.

2005 Rescinded the catch-and-release only regulation for rainbow trout in the upper Kenai River area by establishing a harvest limit for rainbow trout of 1 daily/1 in possession under a maximum size limit of <16 inches in flowing waters of the Kenai River drainage above Skilak Lake (upper river) and established a harvest of rainbow trout 1 daily/1 in possession under a maximum size limit of <18 inches in all waters of the Kenai River downstream of and including Skilak Lake. The spring spawning seasonal closure was aligned throughout the drainage, designated from May 2 through June 10. Reduced the limit in the Moose River drainage lakes and ponds from 5 daily/5 in possession to 2 daily/2 in possession and in flowing waters of the Moose River drainage from 2 daily/2 in possession to 1 daily/1 in possession under a maximum size limit of <18 inches.

In 1986, ADF&G, in conjunction with the University of Alaska, School of Fisheries and Ocean Sciences in Juneau, initiated a study of Kenai River rainbow trout. The long-term goal of the study was to compile population and fishery databases for use in formulation of a drainage-wide management strategy for Kenai River rainbow trout.

The 1986 pilot study (Lafferty 1989) had two major components: (1) a creel survey, and (2) a mark-recapture program designed to estimate the trout population in section 004 from Jim's Landing upstream to the powerline near Russian River (Figure 13). The rainbow trout population estimates for section 004 were 3,663 fish in 1986 and 4,947 fish in 1987. In 1987, the study was expanded to include two sections of the river below Skilak Lake in the middle river (Lafferty 1989; Figure 13 – sections 002 and 003).

Lafferty (1989) concluded that the best estimates of rainbow trout, 150 mm (6 inches) or greater in length, for the two river sections was 610 and 1,750 fish, respectively. This study also concluded that these estimates were likely biased low.

In 1995, the population estimate was repeated in section 004 (Hayes and Hasbrouck 1996). Data analysis in 1995 included a reevaluation of the 1986 and 1987 data to provide comparable estimates. Estimates of abundance of rainbow trout, 300 mm (12 inches) or greater in length, in section 004 in 1986, 1987, and 1995 were 2,520, 3,472, and 5,598 fish, respectively. This study concluded that the rainbow trout population in the upper Kenai River had increased and that there was an increased number of rainbow trout in each segment of the population from 12 to 22 inches in length divided into 2-inch intervals. The proportion of rainbow trout at least 20 inches in length remained constant at 11%-13% all 3 years estimates were made but the proportion of fish from 18-20 inches in length was much greater in 1995. It was further concluded the upper Kenai River rainbow trout population was maintaining itself at a high level and that section 004 could serve as an index of abundance of the upper Kenai River rainbow trout population.

In 1998, additional research was instituted to reassess the population of rainbow trout in the Kenai River drainage. This study was a multi-year study that addressed multiple sections of the river. Primary aspects of this work were to repeat the mark-recapture programs in the area below Skilak Lake and in the upper river section to compare population estimates among years (Larson and Hansen 2000; King and Breakfield 2007). Radio telemetry procedures were used to identify life history and population characteristics such as seasonal movements, distribution, mortality, and abundance of upper river rainbow trout. Lastly, maturity samples were collected from upper river rainbow trout to define the time of spawning and to identify important spawning locations.

The middle river estimate of abundance in 1999 was 7,882 fish, compared to 1,750 fish during 1987 (Larson and Hansen 2000). The estimated number of rainbow trout had increased by 400% in the 12 year between studies. Final conclusions were that the population was increasing and the numbers of fish in each size class were increasing, with the exception of large fish (those over 24 inches in length). Over this same period, rainbow trout catches in the middle river increased from 6,430 fish in 1987 to 32,050 fish in 1999 (Table 22). Harvest remained relatively stable and averaged about 802 fish from 1987 to 1999.

In 2001 the fourth rainbow trout population estimate in 16 years was derived for the upper river index area (King and Breakfield 2007). The estimated number of rainbow trout, 12 or more inches in length, increased from 5,598 fish in 1995 to 6,826 fish in 2001 and was nearly 300% higher than the population size estimated in the mid-1980s. The increase was attributed to higher numbers of fish in each length class less than 22 inches. The number of large fish was less than the numbers previously estimated during the mid-1980s as well as 1995. The reported catch of rainbow trout in the upper river from 1986 to 1987 averaged 2,945 fish. The upper river catch increased to 33,475 fish in 1995 and 78,836 fish in 2000 (Table 22).

Based on these positive findings about the status of the upper and middle Kenai River rainbow trout stocks, ADF&G did not have a concern for the health of the stocks.

Kenai River Rainbow Trout Management Objectives

Management objectives for this fishery were first developed from and were contained in the Cook Inlet and Copper River Basin Rainbow/Steelhead Trout Management Policy (CIRTMP; ADF&G 1987). This policy was adopted by the Alaska Board of Fisheries in 1986 for Cook

Inlet waters, and was amended in 1988 to include the Copper River Basin. This plan was replaced in 1998 by the *Criteria for establishing management areas for trout* (5 AAC 75.013). This plan was replaced by the *Special management areas and liberal harvest opportunities for trout* (5 AAC 75.210) in 2003. This plan establishes the criteria for considering proposed regulatory changes for bodies of water that would diversify sport fishing opportunity through the liberalization of harvest opportunities for rainbow trout.

As specified in the plan, the Kenai River rainbow trout fishery is managed for sustained yield. The fishery provides a diversity of sport fishing opportunities for wild rainbow trout through establishment of special management areas by regulation. These management areas provide for diverse fishing practices as well as modest harvest opportunity.

Fishery objectives for the Kenai River rainbow trout fishery are:

- 1) To provide the opportunity for angler participation at a level that can be supported by the fisheries resource and associated habitat.
- 2) To ensure, through appropriate management and research programs, that the trout population does not decline below levels necessary to ensure sustained yield.

2007 Inseason Management Approach

The Kenai River rainbow trout fishery is highly restricted and inseason management is directed largely by regulation. The adoption of the rainbow trout spring spawning season fishing closure in 2005 resulted in a net gain in fishing time and fishing area for rainbow trout anglers in the Kenai River drainage because anglers are still allowed to fish for Dolly Varden in the middle and lower Kenai River below Skilak Lake during the spring closure. A growing segment of the sport fishing public has participated in the middle river Dolly Varden fishery each year during the closure (May 2 – June 10). Few Dolly Varden are present in this area of the river and relatively few are caught, whereas many rainbow trout are caught and released during the rainbow trout spring spawning season closure. Consequently, an emergency order was issued during 2006 and 2007 to prohibit removal of rainbow trout from the water prior to their release. This emergency order was issued to discourage illegal fishing activities and to protect spawning rainbow trout. Currently, the rainbow trout populations in the Kenai River watershed are considered to be relatively robust. ADF&G received anecdotal information that suggests the sport fishing effort for rainbow trout in the Kenai River is increasing, especially below Skilak Lake. SWHS data for 2007 may help verify this perceived trend of increased catches and harvests when it becomes available in mid-2008. At that time, ADF&G will be able to determine if additional restrictions are needed.

2007 Fishery Performance

Sport harvest and catch for the Kenai River rainbow trout fishery is determined by the Statewide Harvest Survey (Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, In prep.; Jennings et al. 2004; 2006 a-b). Total catches of Kenai River rainbow trout have been increasing steadily since the mid-1980s (Figure 12). The most recent 10-year (1997-2006) average catch and harvest, as determined from the SWHS and creel surveys, is 113,320 and 2,720 fish respectively (Table 22). The most recent 10-year (1997-2006) average percent of rainbow trout retained of fish caught in the flowing waters of the Kenai River is only 2.5%. ADF&G estimates that the 2007 total catch and harvest of rainbow trout will be above the most recent average.

Retention of rainbow trout by anglers has increased slightly since the mid to late 1990s (Table 22; Figure 14). Retention of fish in the former catch-and-release fishery between Kenai and Skilak lakes has been allowed since the 2005 season for trout that are 16" or less. As numbers of retained rainbow trout increased, the overall percentage of retention has declined due to more anglers participating in the fishery. These lower rates of retention may indicate that more anglers have adapted a catch-and-release philosophy. The percentage of the total number of rainbow trout caught in the Kenai River in 2006 that were retained dropped to 1.9% (Table 22). This is the lowest percentage on record for fish retention. ADF&G predicts that this trend will continue and the 2007 catch and harvest data will be similar to 2006 data. This data will be available in the 2007 SWHS release in mid-2008.

Anglers reported fair to good rainbow trout fishing in the Upper Kenai River in June and July. Fish size was reported to be average when compared with previous years. Late summer and fall fishing was reported to be very good. Anecdotal information suggests that the rainbow trout and Dolly Varden fishing was considered slightly below average through the spring and early summer, but picked up in August when the sockeye salmon started spawning. In both the middle river (between Skilak Lake and Moose River) and the lower river, incidental catches of rainbow trout and Dolly Varden were reported to be similar to recent years. ADF&G did not receive anecdotal reports during the season that indicated that the rainbow trout stocks in the Kenai River were declining, failing, weak, or that fish size had changed appreciably.

2007 KENAI RIVER DOLLY VARDEN/ARCTIC CHAR RECREATIONAL FISHERIES

2008 Proposals to the Alaska Board of Fisheries Concerning Kenai River Dolly Varden/Arctic Char Sport Fishery Issues

The following proposals published in "The Alaska Board of Fisheries 2007/2008 Proposed Changes in the Cook Inlet, Kodiak, and Chignik Areas Finfish Regulations; King and Tanner Regulations (Statewide Except Southeast/Yakutat); and Supplemental Issues" booklet (ADF&G 2007b) will likely have some impact on the sport fisheries targeting Dolly Varden/Arctic Char in the Kenai River drainage:

Proposal Numbers: 238, 239, 240, 242, 243, 244, 245, 246, 247, and 248.

Background and Historical Perspective

Dolly Varden are harvested in all areas of Kenai River. Harvest and catch of this species is determined by the Statewide Harvest Survey (Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, In prep.; Jennings et al. 2004; 2006 a-b). The open season for Dolly Varden fishing is January 1 through December 31, except in those areas of the river upstream of Skilak Lake, where more restrictive seasons apply. Prior to 1984, the bag and possession limit was 10 Dolly Varden of any size. Beginning in 1984, this limit was reduced to five Dolly Varden of any size. In 1990, the Alaska Board of Fisheries chose a more conservative management approach and reduced the daily bag and possession limit for the upper Kenai River to 2 fish, only 1 of which could be 24 inches or larger. The bag and possession limit for the remainder of the drainage was unchanged until 1992 when the Alaska Board of Fisheries reduced the limit from 5 to 2 fish of any size. In 1996, the limit for all Kenai Peninsula flowing waters was reduced to 2 fish. A season from June 15 through April 14 was also established as was a bag and possession limit of 2 fish that included a protected slot limit prohibiting retention of fish between 12 and 24 inches. In 1998 spawning season closures were

established in three upper Kenai River tributaries that were identified as important for Dolly Varden production. Fishing was prohibited from September 15 through October 31 in Cooper Creek, Quartz Creek, and Snow River.

The Kenai River is assumed to support both a resident and an anadromous Dolly Varden population. Only limited biological information is available regarding both populations. Resident fish are believed to inhabit the entire river, including both Skilak and Kenai lakes. Seasonal movements of these resident fish are not known, but it is assumed that a percentage of the stream-residing fish overwinter in Skilak and Kenai Lakes. The anadromous population is believed to enter Kenai River in July and it is assumed that some of these fish also overwinter in Skilak Lake and probably Kenai Lake. Dolly Varden outmigrate from both of these lakes in April and May. Harvest estimates presented in Table 23 do not differentiate between resident and anadromous populations of Dolly Varden.

A Kenai River Dolly Varden study was initiated in 1996. The primary objective of this study was to locate major staging areas of Dolly Varden within the Kenai River watershed upstream of Skilak Lake. Future Dolly Varden studies will investigate the age, maturity and availability of Dolly Varden in these locations.

A number of staging areas, where Dolly Varden congregate, have been located by deploying various trapping devices and conducting visual observations. The United States Fish and Wildlife Service conducted a Dolly Varden radio-telemetry study. During 1998 and 1999, radio transmitters were placed in Dolly Varden in the Kenai River, selected tributaries, and Skilak and Kenai lakes. The radio-telemetry study provided information on major staging areas, seasonal fish movements, and overwintering areas.

Research findings indicate Dolly Varden occupy most tributary streams to Kenai Lake and the Kenai River. Staging areas containing spawning fish were identified in Quartz, Summit, and Cooper creeks and the Snow River; Quartz Creek and its associated tributaries was also suspected of being one of the major spawning populations upstream of Skilak Lake. To date, no major Dolly Varden staging areas have been located within Kenai Lake during summer or fall. Radio-telemetry data indicate Dolly Varden prefer traveling throughout the pelagic zone of Kenai Lake during the summer and fall rather than the shoreline. During winter, may frequent the area around Porcupine Island. Porcupine Island is one of the few areas within Kenai Lake having a shallow gravel bottom, and may be preferred overwintering habitat for Dolly Varden.

During the 2002 Alaska Board of Fisheries meeting, changes were made pertaining to size retention and bag and possession limit of Dolly Varden. In the Kenai River drainage upstream of the Upper Killey River, the protected slot limit was removed and the daily limit was changed to 1 per day and 1 in possession less than 18 inches in length. In 2005, the Alaska Board of Fisheries aligned the Dolly Varden regulations in the Kenai River to be the same or similar to those for rainbow trout. The daily and possession limit remained 1 fish however the maximum length of a Dolly Varden was restricted to < 16 inches in waters above Skilak Lake with a season of June 11 through May 1. In the Kenai River below Skilak Lake the bag and possession limit was reduced to 1 fish < 18 inches and the season was open the entire year.

Kenai River Dolly Varden Management Objectives

This Dolly Varden fishery is not directly addressed in a management plan adopted by the Alaska Board of Fisheries.

Department objectives for this fishery are:

- 1) To provide the opportunity for angler participation at a level that can be supported by the fisheries resource and associated habitat.
- 2) To ensure, through appropriate management and research programs that the Kenai River Dolly Varden population does not decline below the level necessary to ensure sustained yield.

2007 Inseason Management Approach

Inseason management has not been required in this fishery. The fishery is managed by existing regulations. Populations of Dolly Varden currently appear to be robust.

2007 Fishery Performance

This fishery is not creel surveyed or monitored inseason. Harvest estimates are derived from the Statewide Harvest Survey (SWHS; Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, In prep.; Jennings et al. 2004; 2006 a-b). Catch for this species was first estimated by the SWHS in 1990. Estimates reflect a fishery with a peak harvest in 1984 of 31,407 fish (Table 23; Figure 15). The significant decline for 1986 and 1987 harvests is attributed to the more restrictive bag limit (5 fish) and adoption of a voluntary catch-and-release philosophy. Harvests from 1988 through 1993 stabilized at 10,000 to 15,000 fish. The most recent 10-year average (1997-2006) Dolly Varden harvest from the Kenai River is 5,980 fish (Table 23). This decline is likely due to more conservative regulations.

The 2006 SWHS estimate of the total Dolly Varden catch in Kenai River is the sixth highest on record, but the total harvest is the lowest on record, indicating that more anglers are practicing catch-and-release (Table 23). The 2006 percentage of Dolly Varden retained per fish caught of 3.3% is the lowest percentage of retained fish on record and this percentage is slightly above half of the total percentage of the most recent 10 year average (1997-2006) of 6.5%. The trend of anglers retaining low percentages of Dolly Varden caught in the Kenai River sport fisheries is expected to continue. ADF&G projects that the 2007 season's sport fishing effort and harvest should be similar to the 2006 season. The SWHS will provide 2007 season data when it is released in mid-2008.

2007 HIDDEN LAKE LAKE TROUT RECREATIONAL FISHERIES

2008 Proposals to the Alaska Board of Fisheries Concerning Hidden Lake Lake Trout Sport Fishery Issues

The following proposal published in "The Alaska Board of Fisheries 2007/2008 Proposed Changes in the Cook Inlet, Kodiak, and Chignik Areas Finfish Regulations; King and Tanner Regulations (Statewide Except Southeast/Yakutat); and Supplemental Issues" booklet (ADF&G 2007b) will likely have some impact on the sport fisheries targeting lake trout in Hidden Lake:

Proposal Number: 249.

Background and Historical Perspective

Lake trout harvest at Hidden Lake is estimated through the SWHS (Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, In prep.; Jennings et al. 2004; 2006 a-b). Catches and harvests in this fishery have been variable however,

and both have declined over the past decade (Table 24). Historically, lake trout harvest regulations were liberal. The bag limit was 10 lake trout per day between 1948 and 1968. In 1969, the bag limit remained at 10, of which only 2 were allowed to be over 20 inches. In 1983 the fishery was liberalized to allow a bag limit of 12 lake trout: 2 over 20 inches and 10 under 20 inches. The fishery was prosecuted under these regulations through 1996. In 1997, the regulations changed to 2 fish per daily and 2 fish in possession regardless of size.

The regulation changes are reflected in the SWHS estimates as the harvest dropped sharply from 1,131 fish in 1996 to 524 fish in 1997 (Table 24). Prior to 1997, the average harvest was about 1,350 fish and dropped to an average of approximately 400 fish following the regulation change. Although harvests estimated in 1994 and 1995 are lower than some of the earlier estimates, they are still within the range of historic harvests (619 to 3,761 fish). The regulation change likely contributed to the change in harvest. The relation between lake trout abundance and harvest is unclear and cannot be identified from this data. Based on comparisons of harvests from lake trout fisheries elsewhere in Alaska as well as analysis of available data from Hidden Lake, historic harvests of lake trout were relatively high indicating the stock may have been overexploited.

Lake trout catch has been estimated by the SWHS since 1990. The estimates for fishing effort (reported in angler-days) have declined considerably since 1997 over those observed historically. Fishing effort in this survey is the total fishing effort for Hidden Lake and includes effort directed at other species (sockeye salmon, kokanee, and rainbow trout). No relation between the number of lake trout caught and effort can be discerned. Lake trout harvest and catch have been variable since 1997, while effort has been relatively stable (Table 24). Reasons for the decline in participation in the Hidden Lake sport fishery are unknown.

Historical data about the size composition of the lake trout of Hidden Lake was collected by ADF&G in 1960, 1961, 1965 to 1967, 1975, and 1987. A creel survey to estimate harvest was conducted by the USFWS from 1992 to 1994. Comparison of the length of lake trout in these samples across years indicated the sizes were similar. Therefore, the length distribution of lake trout in Hidden Lake did not change during these years.

Hidden Lake Lake Trout Management Objectives

This fishery is not specifically addressed in any management plan adopted by the Alaska Board of Fisheries. ADF&G objectives for this fishery are:

- 1) To provide the opportunity for angler participation at a level that can be supported by the fisheries resource and associated habitat.
- 2) To ensure, through appropriate management and research programs that the Hidden Lake lake trout population does not decline below the level necessary to ensure sustained harvest.

2007 Inseason Management Approach

Inseason management has not been required in this fishery. The fishery is managed by existing regulations. Populations of lake trout however currently appear to be declining as indicated from catch and harvest data obtained from the 2006 SWHS (G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication).

2007 Fishery Performance

This fishery is not creel surveyed or monitored inseason. Participation in this fishery is primarily in the winter and early spring. Lake trout harvest estimates are derived from the SWHS (Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, In prep.; Jennings et al. 2004; 2006 a-b). Catch for this species was first estimated by SWHS in 1990. Estimates reflect a peak lake trout harvest of 3,761 fish in 1986 (Table 24). The significant decline in 1997-2006 harvests is attributed to the more restrictive bag limit (2 fish), however several years of high harvests may have negatively impacted the stock. Harvests from 1997 through 2006 stabilized at 200-500 fish. The 1997-2006 average lake trout harvest from Hidden Lake was 367 fish (Table 24).

The 2006 SWHS estimates that both total catch and harvest of lake trout in Hidden Lake was the third lowest on record (Table 24). ADF&G projects that the 2007 season's sport fishing effort and harvest should be similar to the 2006 season. The SWHS will provide data for the 2007 season in mid-2008.

2007 NORTH KENAI PENINSULA MANAGEMENT AREA PERSONAL USE FISHERIES

2008 PROPOSALS TO THE ALASKA BOARD OF FISHERIES CONCERNING NORTH KENAI PENINSULA PERSONAL USE DIP NET FISHERIES ISSUES

The following proposals published in "The Alaska Board of Fisheries 2007/2008 Proposed Changes in the Cook Inlet, Kodiak, and Chignik Areas Finfish Regulations; King and Tanner Regulations (Statewide Except Southeast/Yakutat); and Supplemental Issues" booklet (ADF&G 2007b) will likely have some impact on the personal use dip net fisheries targeting sockeye salmon in the Kenai and Kasilof rivers:

Proposal Numbers: 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, and 224.

KENAI RIVER SOCKEYE SALMON DIP NET FISHERY

Background and Historical Perspective

The *Cook Inlet Personal Use Salmon Dip Net Fishery Management Plan* (5 AAC 77.540) was adopted at the 1981 Alaska Board of Fisheries (BOF) meeting. This plan provided for a personal use dip net fishery in the Kenai and Kasilof Rivers that targeted sockeye salmon and a personal use gillnet fishery in the marine waters at the mouth of Kasilof River. The fishery could occur on the Kenai River after an escapement of 500,000 sockeye salmon was projected. As with other personal use dip net fisheries, only Alaska residents could participate. A sport fishing license was required; no other permits were required. The daily bag and possession limits were 6 sockeye salmon that were not in addition to other marine and freshwater sport fishing limits. Legal gear was confined to a dip net. Regulations restricted the fishery in the Kenai River to the lower section of the river downstream from the Warren Ames Bridge near the City of Kenai (Figure 16).

Prior to 1987, the Kenai River personal use dip net fishery occurred only in 1982 and 1983. Harvest is unknown in 1982, and only 7,562 sockeye were taken in 1983 (Table 25). The

reasons for the low harvest were a combination of unperfected angler technique, relatively clear water, and relatively small numbers of fish present.

In 1987 the dip net fishery opened at 12 noon on July 23, it remained open for the next 13.5 days, and it closed on August 5. Total sockeye salmon escapement to the Kenai River was a record 1.6 million fish. During the peak of the fishery, dipnetting was successfully conducted 24 hours a day. A 1987 harvest of 24,086 sockeye salmon was estimated by the Statewide Harvest Survey (Mills 1988, Table 25).

At the 1988 Alaska Board of Fisheries meeting, the trigger point for the Kenai River personal use dip net fishery was raised to 700,000 sockeye salmon, the upper end of the new escapement goal.

Projected escapement exceeded 700,000 fish in 1989, so the Kenai River sockeye salmon personal use dip net fishery occurred. In December 1989, the Alaska Supreme Court's McDowell Decision ruled that all Alaska residents are subsistence users.

In 1990, there was no personal use dip net fishery because the projected Kenai River escapement was below 700,000 sockeye salmon. In December 1990, the Alaska Board of Fisheries adopted the Upper Cook Inlet Subsistence Salmon Management Plan. Under this plan subsistence fishing was allowed in most marine waters of Upper Cook Inlet normally open to commercial gillnet fishing. Set gillnet fishing was also allowed in Knik Arm, as well as dip net fishing in the mouths of the Kenai and Kasilof rivers. Permits were required to participate in these subsistence fisheries and a valid Alaska resident sport fishing license was not required. The annual bag and possession limit was 25 salmon per head of household of which no more than 5 could be Chinook salmon. In addition, a household was allowed another 10 salmon for each household member, of which no more than 1 could be a Chinook salmon.

The Cook Inlet Personal Use Dip Net Fishery Management Plan was still in place, however, this management plan specified that fisheries in the Kasilof and Kenai rivers could not occur on the same day as the subsistence dip net fishery. The escapement level that triggered the personal use dip net fishery in the Kenai River was set at 700,000 sockeye salmon in years when a subsistence dip net fishery occurred and 400,000 sockeye salmon if there was no subsistence fishery.

Escapement in 1991 was less than 700,000 sockeye salmon so the Kenai River personal use dip net fishery did not occur. Subsistence dip net fishing was open on the Kenai River on May 25 and August 3 only; all other openings in Kenai River were canceled due to legal challenges and court action. Reported sockeye salmon harvest in the Kenai River subsistence dip net fishery was 10,468 fish, with 75% of permits returned (Brannian and Fox 1996).

There were no legal challenges during the 1992 fishing season, so the subsistence dip net fishery was open for a total of 34 days, including 3 days in May, 4 days in June, and every Wednesday and Saturday in July, August, and September (Brannian and Fox 1996). Reported harvest, with 43% of the permits returned, was 16,240 sockeye salmon. The Kenai River personal use dip net fishery allowed under the Cook Inlet Personal Use Salmon Dip Net Fishery Management Plan also took place in 1992 (Table 25). It was restricted to days when the subsistence fishery was not open. It continued to have a possession limit of 6 sockeye salmon and did not require a permit.

The Alaska State Legislature during the 1992 session passed legislation that required the Alaska Boards of Fisheries and Game (BOF/BOG) to identify nonsubsistence areas where dependence

on subsistence was not a principle characteristic of the economy, culture, and way of life. During their November 1992 meeting the BOF/BOG established the Anchorage/Mat-Su/Kenai nonsubsistence area. The BOF also rescinded the Upper Cook Inlet Subsistence Salmon Management Plan. This ended all subsistence fisheries in Upper Cook Inlet except the Tyonek subsistence fishery. The personal use dip net fishery remained in place. The escapement trigger for the personal use dip net fishery on the Kenai River was now 400,000, and once the fishery opened, fishing could be continuous. The 1993 personal use fishery opened on July 17 and closed on July 31, with an estimated harvest of 33,467 sockeye salmon (Table 25).

In October 1993, Superior Court Judge Dana Fabe (in *Kenaitze versus Alaska*) found unconstitutional the provision in the 1992 state subsistence law that directed the BOF/BOG to designate nonsubsistence areas. This ruling was appealed by the State of Alaska to the Alaska Supreme Court where a stay was granted on March 10, 1994. The full court vacated this stay on April 11, 1994. A special meeting of the joint Boards of Fisheries and Game was convened on April 28, 1994 by teleconference. As a result of these meetings the Upper Cook Inlet Subsistence Salmon Management Plan was readopted on April 28, 1994.

Since there was not enough time for a formal board meeting prior to the 1994 season, the BOF directed that the Commissioner of Fish and Game should exercise his emergency regulatory authority to adopt regulations for the 1994 fishery. The BOF directed that this fishery should mirror the 1992 subsistence fishery. Subsistence fishing periods were again on select Wednesdays and Saturdays from late May to the end of September. The annual bag and possession limits were again 25 salmon per head of household of which no more than 5 could be Chinook salmon. In addition a household was allowed another 10 salmon for each household member, of which no more than 1 could be a Chinook salmon. A permit was required to participate, but not a sport fishing license. Reported subsistence dip net harvest, with 48% of the permits returned, was 13,897 sockeye salmon (Brannian and Fox 1996). The personal use dip net fishery remained in place. The escapement trigger for years when a subsistence fishery occurs remained at 700,000 sockeye salmon. The trigger for years without a subsistence fishery was changed to 450,000 sockeye salmon to reflect a new minimum escapement goal. In 1994, a sonar count of 700,000 could not be projected prior to July 31 and the personal use dip net fishery did not occur despite a final sonar count in excess of 1 million.

In 1995, subsistence fisheries were scheduled to begin on May 20; however, in early May the Alaska Supreme Court overturned the October 1993 Superior Court decision. This ruling reestablished the Anchorage/Mat-Su/Kenai nonsubsistence area. The BOF convened an emergency meeting by teleconference on May 24, 1995 to close subsistence fisheries in the now nonsubsistence area. The BOF delegated authority to the Commissioner to readopt the Upper Cook Inlet Subsistence Salmon Management Plan as a personal use fishery. The 1995 dip net fishery was therefore prosecuted as a personal use fishery, having the same regulations as the 1994 subsistence fishery, and still requiring a permit. This permitted fishery was open on select Wednesdays and Saturdays from late May to the end of September. To further complicate the situation, the old personal use fishery allowed under the Cook Inlet Personal Use Salmon Dip Net Management Plan was still in place. It still had a possession limit of 6 sockeye salmon and did not require a permit. The nonpermitted personal use fishery triggered by a projected escapement count of 450,000 fish opened at 6:00 a.m. July 25. The fishery occurred daily except Wednesdays and Saturdays, when the permitted fishery occurred. The nonpermitted fishery closed July 31, with a total fishing time of 4.75 days.

The estimate of permitted Kenai River sockeye salmon personal use dip net harvest was 18,502 (Brannian and Fox 1996). This includes a known harvest of 11,771 fish from returned permits (Ruesch and Fox 1996) and an estimate of the harvest from those that had permits but did not return them. The Statewide Harvest Survey estimated total 1995 Kenai River sockeye salmon personal use harvest (both permitted and nonpermitted) to be 14,352 sockeye salmon (Table 25).

Kenai River Personal Use Dip Net Fishery Management Objectives

This fishery is managed under provisions of the *Kenai River Late-Run Sockeye Salmon Management Plan* (5 AAC 21.360) and the *Upper Cook Inlet Personal Use Salmon Fishery Management Plan* (5 AAC 77.540). The fishery objective is to implement provisions contained in the respective management plans. The fishery primarily targets sockeye salmon.

2007 Inseason Management Approach

Management of this fishery is the joint responsibility of the Division of Commercial Fisheries and the Division of Sport Fish. The Division of Commercial Fisheries is responsible for operation of the Kenai River sonar counter that estimates sockeye salmon entering the river. The personal use dip net fishery opens and closes by regulation. Inseason management by the Division of Sport Fish would be required only in the event the minimum inriver escapement goal for sockeye salmon could not be projected.

By regulation, the Kenai River personal use fishery takes place annually from July 10 through July 31. This fishery is liberalized by increasing the daily hours open for fishing from 6:00 a.m. through 11:00 p.m. to twenty-four hours per day when the strength of the Kenai River sockeye salmon run is projected inseason to be greater than 2.0 million fish.

During 2007, the Kenai River personal use fishery was opened by regulation on July 10 for the daily hours of 6:00 a.m. through 11:00 p.m. Due to the run strength of the 2007 Kenai River sockeye salmon return, as indicated by the daily escapements past ADF&G's sonar station, the personal use fishery was liberalized to a 24-hour per day fishery on the evening of July 25.

2007 Fishery Performance

Participants in this personal use fishery are required to get a permit, and are required to return the permit to ADF&G, regardless of whether they fished. Persons who do not comply with the reporting requirement are sent reminder letters to prompt their response. Since 1996, harvest and effort in the Kenai River personal use dip net fishery has been estimated from reported harvest on returned permits. All responses prior to the second reminder letter are treated as a census of "compliant" permits. Responses from the second (and up to fourth in some years) reminder letters are considered to be a sample of the "noncompliant" permits. Estimates of mean harvest and effort from the noncompliant permits are expanded by the known total number of noncompliant permits and used to generate the total estimate of "noncompliant" harvest and effort. This estimate is then added to the sum of the harvest and effort from the compliant permits to generate the estimate of total harvest for the fishery.

The total Kenai River personal use dip net fishery sockeye salmon harvest for 2006 was approximately 127,630 fish (Table 26). Sockeye salmon harvest during 2006 was significantly below the recent 10-year (1997-2006) average harvest of 170,656 fish; however the fishery was closed by emergency order for 9 days from July 22-30, and then was reopened for one day to close on its normal regulatory date of July 31. This was due to low numbers of sockeye passing

the sonar. The fishery was subsequently reopened by emergency order for an additional 8 days from August 3-10 as a result of increasing numbers of sockeye salmon passing the sonar later in the run. The overall run timing of the sockeye in 2006 was very late and this may have attributed to the low harvest in the personal use fishery. A total of 1,034 Chinook, 2,235 coho, 11,127 pink, and 551 chum salmon were harvested in the Kenai River personal use dip net fishery during 2006 (Table 26).

ADF&G expects the 2007 harvest from the Kenai River personal use dip net fishery will exceed the 2006 harvest by as much as 100%. The fishery was open for 22 consecutive days without disruption and fishing time was increased by emergency order for the final 6 days. Large daily estimates of sockeye passage at the sonar and near normal run timing provided excellent opportunities. Final 2007 harvest estimates will be available by mid-2008 following the collection and processing of personal use permit data.

Participation during 2006 was approximately 12,685 days fished (Table 26). Participation in the 2006 Kenai River dip net personal use fishery was the lowest on record since 2000, and was influenced by the management restrictions that were implemented due to the low return of sockeye in July. The most recent 10-year (1997-2006) average for participation in the personal use fishery was 14,497 days fished (Table 26). Participation in the 2007 Kenai River personal use dip net fishery is expected to return to normal levels as there were no inseason restrictions placed on the fishery, and instead it was liberalized on July 25. Sockeye salmon run timing was near average in 2007 as well.

Department observations and reports from dipnetters indicted that success varied from poor to excellent depending upon the daily escapement of sockeye salmon into the Kenai River. Actions of the commercial fishing fleet and/or the natural run timing of the salmon entering the Kenai River could each make or break a dipnetters day. During 2007, the total Kenai River sockeye salmon escapement estimate past ADF&G's sonar station was 867,572 fish. This cumulative escapement was within established inriver goals. Daily sockeye salmon escapements into the Kenai River ranged from a 2,000 to 60,260 fish per day. During the 22 days the 2007 Kenai River personal use dip net fishery was open, daily sockeye salmon escapements above 30,000 fish per day occurred on 10 days.

2007 KASILOF RIVER PERSONAL USE DIP NET FISHERY

Background and Historical Perspective

In the spring of 1981, the Alaska Board of Fisheries (BOF) adopted a Cook Inlet Personal Use Salmon Dip Net Fishery Management Plan. The BOF's intent was to provide for salmon dip net fisheries in Cook Inlet, allowing Alaska residents an opportunity to harvest sockeye salmon for their personal consumptive needs without disrupting existing fisheries. Personal use dip net fisheries did not initially open until ADF&G determined that specific escapement goals were met and/or subsistence, commercial, and other sport users have had, or will have, reasonable opportunity to harvest fish in excess of spawning requirements. In recent years, this criteria has been relaxed.

Participants in the fishery include local and regional residents from the Southcentral Alaska area. Sockeye salmon are the target species in the fishery, however small numbers of coho and pink salmon are also caught and retained. Fishing takes place from both banks of the Kasilof River as well as from small boats. The majority of the effort occurs along the north bank of the river

where there is good road access and parking spaces. Typically, catch rates are highest 2.5 hours before and after high tide; however, during the peak of large runs, sockeye salmon are harvested at virtually all tide levels.

In 1981 and 1982, harvest and angler participation in the dip net fishery were determined by creel census. Because the fishery is managed by monitoring sonar counts above the fishery, the creel survey was deemed unnecessary and it was discontinued. Harvest and estimates of angler participation were determined by the Statewide Harvest Survey through 1995 (Mills 1982-1994; Howe et al. 1995, 1996) and by returned permits in 1996 through 2004.

From 1981 through 1988, the Kasilof River dip net fishery (Figure 17) was open approximately 2-3 weeks each year from mid-July through early August. The popularity of this fishery increased annually, with record levels of both harvest and effort occurring in 1986 (Table 27). Average harvest and angler participation from 1981 through 1988 was 14,120 sockeye salmon and 7,170 days fished, respectively. Dipnetters harvested an average of 13.5% of the sockeye salmon entering the Kasilof River. From 1981 to 1988, the personal use fishery harvested 1 to 14% of the total number of sockeye salmon that entered Kasilof River and averaged 5.3% annually.

In 1989 and 1990, the minimum sonar count established by the BOF to open this fishery was not achieved or was achieved too late to provide reasonable dipnetting opportunity. Therefore, the personal use dip net fishery did not open during these years.

In 1990, the BOF established subsistence set and dip net fisheries for Upper Cook Inlet. The dip net fishery occurred in the mouths of the Kenai and Kasilof rivers. The allowable days and times subsistence dipnetting occurred was provided for by regulation. The area open to subsistence dipnetting in these rivers was identical to the area where personal use dipnetting occurs when the latter fishery is open. Permits were required for these subsistence fisheries and a valid Alaska resident sport fishing license was not required to participate. The annual bag and possession limits were 25 salmon per head of household of which no more than 5 could be Chinook salmon. In addition, a household was allowed another 10 salmon for each household member, of which no more than 1 could be a Chinook salmon. The BOF determined that subsistence and personal use dipnetting would not occur concurrently and they amended the Cook Inlet Personal Use Salmon Dip Net Fishery Management Plan accordingly. The revised plan stated that when the personal use fishery occurs in either the Kenai or Kasilof rivers, it (personal use) will be closed at 12:01 a.m. on those days that the subsistence fishery occurs, reopening again at 12:01 a.m. the following day.

The Cook Inlet Personal Use Salmon Dip Net Fishery Management Plan was further amended as it pertained to the Kasilof River. The escapement goal, which triggers the opening of the personal use dip net fishery, was raised from the minimum goal of 150,000 to the maximum escapement goal of 250,000. However, during years when the subsistence dip net fishery did not occur, the personal use fishery would open when the minimum sockeye salmon escapement goal of 150,000 could be projected.

A subsistence fishery occurred in 1991. However, the maximum sonar count goal of 250,000 was not realized, and the personal use dip net fishery was not opened. The reported 1991 subsistence harvest, with 75% of the permits returned, was 907 sockeye salmon (Brannian and Fox 1996). Regulation of the subsistence fishery was identical in 1992. The maximum sonar count goal was not achieved in 1992, and a personal use dip net fishery in the Kasilof River

again did not occur. Reported 1992 subsistence harvest, with 43% of the permits returned, was 1,230 sockeye salmon (Brannian and Fox 1996).

During the 1992 session, the Alaska State Legislature passed legislation that required the Boards of Fisheries and Game (BOF/BOG) to identify nonsubsistence areas where dependence on subsistence was not a principle characteristic of the economy, culture, and way of life. During their November 1992 meeting, the BOF/BOG established the Anchorage/Mat-Su/Kenai non-subsistence area. The BOF also rescinded the Upper Cook Inlet Subsistence Salmon Management Plan. This ended all subsistence fisheries in Upper Cook Inlet except the Tyonek subsistence fishery. The personal use dip net fishery remained in place. The trigger point for the opening of the personal use fishery reverted to the minimum projected sonar count of 150,000. The final sonar count was 152,230. The minimum sonar count (150,000) could not be projected with assurance until August 1. By this late date there were insufficient sockeye salmon entering the river to prosecute a successful dip net fishery, and as a result, the personal use fishery did not occur for the fifth consecutive year.

In October 1993, Superior Court Judge Dana Fabe (in *Kenaitze v. Alaska*) found the provision in the 1992 state subsistence law that directed the BOF/BOG to designate nonsubsistence areas was unconstitutional. This ruling was appealed by the State of Alaska to the Alaska Supreme Court where a stay was granted on March 10, 1994. The full court vacated this stay on April 11, 1994. A special meeting of the joint Boards of Fisheries and Game was convened on April 28, 1994 by teleconference. As a result of these meetings, the Upper Cook Inlet Subsistence Salmon Management Plan was readopted on April 28, 1994.

Since there was not enough time for a formal board meeting prior to the 1994 season, the BOF directed that the Commissioner of Fish and Game should exercise his emergency regulatory authority to adopt regulations for the 1994 fishery. The BOF directed that this fishery should mirror the 1992 subsistence fishery. Subsistence fishing periods were again on select Wednesdays and Saturdays from late May to the end of September. The annual bag and possession limits were again 25 salmon per head of household of which no more than five could be Chinook salmon. In addition, a household was allowed another 10 salmon for each household member, of which no more than one could be a Chinook salmon. A permit was required to participate, but not a sport fishing license. Reported 1994 subsistence dip net harvest, with 48% of the permits returned, was 2,735 sockeye salmon (Brannian and Fox 1996).

The personal use dip net fishery remained in place; however ADF&G adopted a trigger sonar count of 150,000 for the 1994 fishery. This was apparently an administrative error; the intent was to use the same 250,000 trigger as in 1992. This notwithstanding, a sonar count of 150,000 was the trigger which opened the Kasilof River personal use dip net fishery in 1994. A sonar count of 150,000 was assured the morning of July 22; the personal use dip net fishery was opened at 12:00 noon and continued through August 5. As this fishery could not open on days subsistence dip netting occurred, the fishery was restricted to July 22, 24, 25, 26, 28, 29, and 31 and August 1, 2, 4, and 5. Total fishing time was 10.5 days in 1994 (Table 27).

In 1995, subsistence fisheries were scheduled to begin on May 20; however, in early May the Alaska Supreme Court overturned the October 1993 Superior Court decision. This ruling reestablished the Anchorage/Mat-Su/Kenai nonsubsistence area. The BOF convened an emergency meeting by teleconference on May 24, 1995 to close subsistence fisheries in the now nonsubsistence area. The BOF delegated authority to the Commissioner of Fish and Game to

readopt the Upper Cook Inlet Subsistence Salmon Management Plan as a personal use fishery. The 1995 dip net fishery was therefore prosecuted as a personal use fishery, having the same regulations as the 1994 subsistence fishery, and still requiring a permit. This permitted fishery was open on select Wednesdays and Saturdays from late May to the end of September. To further complicate the situation, the old personal use fishery allowed under the Cook Inlet Personal Use Salmon Dip Net Management Plan was still in place. It still had a possession limit of 6 sockeye salmon and did not require a permit. The nonpermitted personal use fishery triggered by a projected escapement count of 150,000 opened at 6:00 p.m. July 17. The 1995 non permitted personal use dip net fishery occurred daily except Wednesdays and Saturdays, when the permitted fishery occurred. The nonpermitted fishery closed July 31, with a total fishing time in 1995 of 10.25 days (Table 27).

The estimate of 1995 permitted Kasilof River sockeye salmon personal use dip net harvest was 6,371 (Brannian and Fox 1996). This includes a known harvest of 4,572 from returned permits (Brannian and Fox 1996) and an estimate of the harvest from those who had permits but did not return them. The Statewide Harvest Survey estimated total 1995 Kasilof River sockeye salmon personal use harvest (both permitted and nonpermitted) to be 4,160 fish (Howe et al. 1996, Table 27).

The permitting system for the personal use dip netting fishery was developed and initiated in 1996. Since then, one permit is issued for all four Upper Cook Inlet personal use salmon fisheries (Kenai River dip net, Kasilof River dip net, Kasilof River gillnet, and Fish Creek dip net). At the 1996 BOF meetings, a 27 day fishing season was established which opened by regulation on July 10 through August 5 for 24-hours per day. The regulations adopted by the BOF established a personal use dip net fishery that was independent of the abundance of returning salmon and was not tied to the fisheries management plans for other user groups. The estimate of 1996 Kasilof River sockeye salmon personal use dip net harvest was 11,197 (Table 27; Reimer and Sigurdsson 2004). This included a known harvest from 13,452 returned permits and an estimate of the harvest from those who had permits but did not return them.

Regulations governing the Kasilof River personal use dip net fishery from 1996 to 2001 remained the same. Between 1996 and 2001 dipnetter participation in the fishery fluctuated somewhat but averaged 2,571 days fished. The 1999-2001 average sockeye salmon harvest from this fishery was 27,460 fish. The average total dip net harvest for other salmon species during this period was 103 Chinook, 535 coho, 357 pink, and 36 chum salmon.

New regulations were adopted by the BOF for the 2002 Kasilof River personal use dip net fishery which extended the fishing season up to 44 days per year. Beginning in 2002, the new season dates for this fishery were from June 25 through August 7. The 2002 salmon harvest for the Kasilof River personal use dip net fishery was 46,769 sockeye, 106 Chinook, 1,197 coho, 1,862 pink, and 139 chum salmon (Table 28). This includes a known harvest from 14,284 returned permits and an estimate of the harvest from those who had permits but did not return them. During 2002, dipnetter participation in the fishery was 4,020 days fished.

During 2003, an estimated 43,870 sockeye, 57 Chinook, 592 coho, 286 pink, and 30 chum salmon were harvested in the Kasilof River personal use dip net fishery (Table 28). This includes a known harvest from 15,726 returned permits and an estimate of the harvest from those who had permits but did not return them.

A personal use gillnet fishery also occurs in June at the mouth of Kasilof River, targeting sockeye salmon. The Kasilof River personal use gillnet fishery is monitored inseason by the

Division of Commercial Fisheries and is discussed in the annual management report (Fox and Shields 2001). Final estimates of harvest and effort since 1996 have been made by expanding known returned permits to include permits not returned (Reimer and Sigurdsson 2004).

Kasilof River Personal Use Dip Net Fishery Management Objectives

Regulation and management of this fishery are governed by the *Upper Cook Inlet Personal Use Salmon Fishery Management Plan* (5 AAC 77.540). The fishery objective is to implement the provisions of the BOF-adopted management plan.

2007 Inseason Management Approach

Management of this fishery is the joint responsibility of the Division of Commercial Fisheries Division and the Division of Sport Fish. The Division of Commercial Fisheries is responsible for operation of the Kasilof River sonar counter which enumerates sockeye salmon entering the river. The personal use dip net fishery opens and closes by regulation. Inseason management by the Division of Sport Fish would be required only in the unlikely event the minimum sonar count and biological escapement goal could not be projected and achievement of these goals required restrictions to the dip net fishery or if the projected run strength exceeded the upper goal range. In 2007, the forecasted return of Kasilof River sockeye salmon was in excess of 1.2 million fish, the highest forecast on record.

Participants in this personal use fishery are required to get a permit, and are required to return the permit to Fish and Game, regardless of whether they fished. Persons who do not comply with the reporting requirement are sent reminder letters to prompt their response. Since 1996, harvest and effort in the Kenai River personal use dip net and gillnet fishery have been estimated from reported harvest on returned permits. All responses prior to the second reminder letter are treated as a census of "compliant" permits. Responses from the second (and up to fourth in some years) reminder letters are considered to be a sample of the "noncompliant" permits. Estimates of mean harvest and effort from the noncompliant permits are expanded by the known total number of noncompliant permits and used to generate the total estimate of "noncompliant" harvest and effort. This estimate is then added to the sum of the harvest and effort from the compliant permits to generate the estimate of total harvest for the fishery.

The 2007 sockeye salmon return to Kasilof River resulted in an estimated escapement of 366,866 salmon past ADF&G's sonar station. On the occasion that the upper goal range of the BEG of 150,000 – 250,000 sockeye salmon is projected to be exceeded, ADF&G staff has the tools to liberalize the personal use fishery. On July 23, the Kasilof River personal use dip net fishery area was expanded for shoreline and boat based dipnetting. The shoreline based dipnetting area was expanded to the Sterling Highway Bridge. This is the third year in a row that the Kasilof dip net fishery area was expanded this far upriver. The first time was done as an experiment during the initial development of this fishery. The area opened to dipnetting from boats was expanded upriver to river mile 3 below Trujillo's landing. Both liberalizations were enacted in attempts to reduce sockeye salmon escapement into Kasilof River. The large 2007 sockeye salmon run to the Kasilof River was expected. Liberalization of the sport fishery for sockeye salmon in the Kasilof River was also enacted on July 23 in an attempt to reduce the escapement as well. Although final estimates for the 2007 sockeye run are not available, preliminary results indicate a total run of about 1.6 million.

2007 and Recent Fishery Performance

Harvest and effort during 2006 were estimated from returned permits. Final estimates for 2007 will not be available until mid-2008. The total Kasilof River dip net harvest of sockeye salmon during 2006 was approximately 56,144 fish (Table 27). Sockeye salmon harvest during 2006 was the highest in the history of the fishery. Participation during 2006 was approximately 5,763 days fished which was the highest participation in the last ten years (Table 28). ADF&G expects harvest and effort levels in the 2007 Kasilof River dip net personal use fishery should be similar to 2006. Due to the normal escapements and run timing of sockeye salmon into the Kasilof River during 2007 and similar inseason management actions to liberalize the fishery, ADF&G projects that the total personal use fishery harvest will remain stable.

The 2007 Kasilof River personal use fisheries produced good opportunities to harvest sockeye salmon periodically throughout the season depending upon daily passage rates of sockeye salmon into the river. During commercial fishery closures, personal use dip net harvests significantly increased and the inverse results were also experienced. In response to the excessive sockeye salmon escapement into the Kasilof River during 2007, aggressive commercial fishing management practices were initiated to reduce sockeye salmon escapement. One of these practices was to conduct a terminal harvest fishery that allowed commercial fishing nets up to the mouth of the river. During these terminal fishery periods, personal use dip net harvests were drastically reduced. Final 2007 harvest numbers will be available in mid-2008 following the collection and processing of returned personal use permits.

2007 NORTH KENAI PENINSULA MANAGMENT AREA NORTHERN PIKE RECREATIONAL FISHERY

2008 PROPOSALS TO THE ALASKA BOARD OF FISHERIES CONCERNING NORTHERN PIKE IN THE NORTH KENAI PENINSULA MANAGEMENT AREA SPORT FISHERY ISSUES

The following proposals published in "The Alaska Board of Fisheries 2007/2008 Proposed Changes in the Cook Inlet, Kodiak, and Chignik Areas Finfish Regulations; King and Tanner Regulations (Statewide Except Southeast/Yakutat); and Supplemental Issues" booklet (ADF&G 2007b) will likely have some impact on the sport fisheries targeting northern pike in the North Kenai Peninsula Management Area:

Proposal Numbers: 250, 251, and 252.

BACKGROUND AND HISTORICAL PERSPECTIVE

Northern pike are not indigenous to the Kenai Peninsula. This species was illegally introduced into Derks Lake, tributary to Soldotna Creek, in the mid-1970s. From this initial introduction they spread rapidly through the Soldotna Creek drainage, including East and West Mackey Lakes, Soldotna Creek, and Soldotna (Sevena) Lake. They are also present in Stormy Lake in the Swanson River drainage.

Pike are a predator species, and reports from anglers indicated that as the number of pike in the drainage increased, numbers of rainbow trout and Dolly Varden declined. Soldotna Lake, prior to the introduction of pike, was reputed to support one of the most viable rainbow trout populations on the Kenai Peninsula. Soldotna Lake's reputation as a trout producer declined steadily in the 1980s as pike became the dominant species.

There was considerable public and department concern that pike would become established in the mainstem Kenai River, negatively impacting this river's salmon and trout populations. Although small numbers of pike have been caught in the Kenai River mainstem (Table 29), there is no evidence to date that pike are reproducing in the mainstem Kenai River, and negative impacts to the river's salmon and trout cannot be measured directly. Pike have, however, used the Kenai River as a migratory corridor. Since they are present in the drainage and have negatively impacted salmonid production in the Soldotna Creek drainage, pike have negatively impacted the Kenai River drainage's capacity for salmonid production.

In spring 1986 a weir was established on the east fork of Moose River in conjunction with a rainbow trout study. One pike was known to have passed through the structure. Information from the Statewide Harvest Survey also indicates that anglers have harvested small numbers of pike in the lakes (Afonasi, Imeri, Watson, Equmen, Peterson, Kelly, and Hikers lakes) of this drainage. Harvests of pike are too small to be estimated for specific lakes (Table 29).

Northern pike were also illegally introduced into three unnamed lakes about 6 miles south of Soldotna in the early to mid-1980s. These lakes are accessed via Tote Road and it is assumed local residents introduced the pike. These lakes are fortunately landlocked.

Although there is some local interest in pike fishing, this species supports a minor if not insignificant sport fishery. The best pike fishing is in Stormy, Mackeys, and Soldotna lakes. The Mackeys and Soldotna lakes are almost entirely bordered by private land and access is limited, whereas Stormy Lake is surrounded by public lands within the boundaries of the Captain Cook State Park and Kenai National Wildlife Refuge. A small outlet stream drains from the southwest corner of Stormy Lake into the lower tidally influenced area of the Swanson River, a major Kenai Peninsula coho salmon producer. Pike have been present in Stormy Lake for about 3-decades as indicated from anecdotal information. The largest pike sampled by ADF&G and reported by the sport fishing public have been harvested from Stormy Lake. Reports of pike harvest elsewhere in the Swanson River drainage have not been confirmed by ADF&G. Some fishing by local residents, including spear fishing during the winter months, occurs throughout the year. Pike harvested in the east fork of the Moose River are probably caught incidentally to rainbow trout and Dolly Varden. Total pike harvest on the Kenai Peninsula averages about 287 fish annually. Two of the Northern Kenai Peninsula's stocked lakes, Scout and Arc lakes, are no longer stocked due to the illegal introduction of pike into these waters.

NORTH KENAI PENINSULA MANAGEMENT AREA NORTHERN PIKE FISHERY OBJECTIVES

This fishery is not specifically addressed in any management plan adopted by the Alaska Board of Fisheries. Northern pike were illegally introduced on the Kenai Peninsula. ADF&G-adopted objective for this fishery is to provide the opportunity for angler participation to continue at present or increased levels.

2007 INSEASON MANAGEMENT APPROACH

There has been no inseason management in the history of this fishery. The fishery is managed through existing regulations. Regulations are liberal because northern pike were illegally introduced into Kenai Peninsula waters and compete with resident trout and salmon species. Currently there is no bag limit or closed season for northern pike in the NKPMA.

Beginning in 2003, ADF&G began to aggressively target and remove northern pike from lakes within the NKPMA (Begich and McKinley 2005). The invasive species removal project (basically netting northern pike) took place from May 11 to June 16. During the first half of this project, 1,500 northern pike were captured with variable mesh gillnets and removed from four lakes of the Soldotna Creek drainage. Gillnets were fished for about 10,000 hours among Derks and Sevena lakes, and East and West Mackey lakes. Mean fork lengths of captured northern pike ranged from 10.4 inches at East Mackey up to 16.6 inches at Sevena Lake. No other adult fish species were captured in these lakes.

Reduction of northern pike by gillnetting resumed in these lakes on September 21, 2004 and continued until October 22 when the lakes became ice-covered. During this second half of the project, a total of 1,176 northern pike were removed from the Derks, Sevena, and East and West Mackey lakes. Subsequent sampling of these lakes from 2005 to 2007 indicated that the northern pike population has been reduced, temporarily. Interestingly, as the numbers of pike removed from lakes in the Soldotna Creek drainage increased, overtime bycatch of non-pike species increased. The bycatch included: rainbow trout, Dolly Varden, juvenile coho salmon, and stickleback.

2007 RECENT FISHERY PERFORMANCE

The NKPMA 2006 harvest of an estimated 55 northern pike was the lowest since 1997, and was significantly lower than the most recent 10-year (1996-2005) average of 567 fish. The sudden decrease in northern pike harvests is likely due to the increased eradication efforts of northern pike in area lakes, particularly at Soldotna Lake and to some extent the Mackey Lakes. According to the Statewide Harvest Survey, the 55 pike harvested in 2006 were from Stormy Lake (Table 29).

During 2007, ADF&G did receive two reports of anglers encountering northern pike in the Swanson River. ADF&G could not verify either of the reports. ADF&G projects that the total 2007 harvest of northern pike within the NKPMA will be equal to or slightly greater than the 2006 season. This reduced level in harvest is expected as the direct result of the thousands of northern pike that have been removed from the NKPMA by ADF&G's invasive species removal project. Future efforts to remove invasive species from the NKPMA will continue and strategies to contain their expansion are being developed.

REFERENCES CITED

- ADF&G (Alaska Department of Fish and Game). 1987. Cook Inlet and Copper River Basin rainbow/steelhead trout management policy. Developed by Cook Inlet Sport Fish Planning Team and ADF&G Division of Sport Fish. Adopted by: Alaska Board of Fisheries, December 1986, amended to include the Copper River Basin area.
- ADF&G (Alaska Department of Fish and Game). 2007a. 2007 Alaska sport fishing regulations summary. Southcentral Alaska. Southcentral Alaska. Alaska Department of Fish and Game, Division of Sport Fish, Juneau.
- ADF&G (Alaska Department of Fish and Game). 2007b. The Alaska Board of Fisheries 2007/2008 proposed changes in the Cook Inlet, Kodiak, and Chignik areas finfish regulations; king and tanner regulations (Statewide except Southeast/Yakutat); and supplemental issues. Alaska Department of Fish and Game, Boards Support Section, Juneau.
- Begich, R. N., and T. R. McKinley. 2005. Restoration of salmonid habitat by control and removals of invasive northern pike, Kenai Peninsula, 2003. Alaska Department of Fish and Game, Special Publication No. 05-07, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/sp05-07.pdf>

REFERENCES CITED (Continued)

- Bendock, T. N., and M. Alexandersdottir. 1992. Mortality and movement behavior of hooked-and-released Chinook salmon in the Kenai River recreational fishery, 1989-1991. Alaska Department of Fish and Game, Fishery Manuscript No. 92-2, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fms92-02.pdf>
- Bosch, D., and D. Burwen. 1999. Estimates of Chinook salmon abundance in the Kenai River using split-beam sonar, 1997. Alaska Department of Fish and Game, Fishery Data Series No. 99-3, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds99-03.pdf>
- Bosch, D., and D. Burwen. 2000. Estimates of Chinook salmon abundance in the Kenai River using split-beam sonar, 1998. Alaska Department of Fish and Game, Fishery Data Series No. 00-12, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds00-12.pdf>
- Brannian, L., and J. Fox. 1996. Upper Cook Inlet subsistence and personal use fisheries, report to the Alaska Board of Fisheries, 1996. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development. Regional Information Report NO. 2A96-03, Anchorage.
- Burwen, D., and D. Bosch. 1998. Estimates of Chinook salmon abundance in the Kenai River using split-beam sonar, 1996. Alaska Department of Fish and Game, Fishery Data Series No. 98-2, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds98-02.pdf>
- Carlson, J. A. 2000. Assessment of coho salmon from the Kenai River, Alaska, 1997. Alaska Department of Fish and Game, Fishery Data Series No. 00-15, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds00-15.pdf>
- Carlson, J. A. 2003. Assessment of coho salmon from the Kenai River, Alaska, 1998. Alaska Department of Fish and Game, Fishery Data Series No. 03-06, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds03-06.pdf>
- Carlson, J. A. and D.G. Evans. *In prep.* Abundance of adult coho salmon in the Kenai River, Alaska, 1999-2003. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.
- Carlson, J. A. and D.G. Evans. *In prep.* Abundance of adult coho salmon in the Kenai River, Alaska, 2004. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.
- Carlson, J. A., and J. J. Hasbrouck. 1994. The contribution of Kenai River coho salmon to commercial fisheries of upper Cook Inlet, Alaska in 1993. Alaska Department of Fish and Game, Fishery Data Series No. 94-52, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds94-52.pdf>
- Carlson, J. A., and J. J. Hasbrouck. 1996. Estimated harvest of coho salmon of Kenai River origin in commercial fisheries of Upper Cook Inlet, Alaska, 1993-1994. Alaska Department of Fish and Game, Fishery Data Series No. 96-7, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds96-07.pdf>
- Carlson, J. A., and J. J. Hasbrouck. 1997. Assessment of coho salmon from the Kenai River, Alaska, 1995. Alaska Department of Fish and Game, Fishery Data Series No. 97-7, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds97-07.pdf>
- Carlson, J. A., and J. J. Hasbrouck. 1998. Assessment of coho salmon from the Kenai River, Alaska, 1996. Alaska Department of Fish and Game, Fishery Data Series No. 98-4, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds98-04.pdf>
- Clark, B., R. Lafferty, G. Sandone, J. Fox, P. Cyr, J. Carlson, and J. Hasbrouck. *Unpublished.* Stock status of coho salmon in Upper Cook Inlet: A report to the Alaska Board of Fisheries, February 2000. Located at: Alaska Department of Fish and Game, Division of Sport Fish, 333 Raspberry Road, Anchorage, Alaska.
- Dunker, K. J. and R. Lafferty. *In prep.* Upper Cook Inlet personal use salmon fisheries, 2004-2006. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.
- Eskelin, A.A. *In prep.* Chinook salmon creel survey and inriver gillnetting study, lower Kenai River, Alaska, 2005. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.
- Eskelin, A.A. *In prep.* Chinook salmon creel survey and inriver gillnetting study, lower Kenai River, Alaska, 2006. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.

REFERENCES CITED (Continued)

- Eskelin, A.A. *In prep.* Chinook salmon creel survey and inriver gillnetting study, lower Kenai River, Alaska, 2007. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.
- Fox, J. R., and P. A. Shields. 2001. Upper Cook Inlet fisheries annual management report 2001. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A01-25, Anchorage.
- Hammarstrom, S. L. 1974. Inventory and cataloging of Kenai Peninsula, Cook Inlet, and fish stocks. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1973-1974, Project F-9-6, 15 (G-I-C), Juneau.
- Hammarstrom, S. L. 1975. Inventory and cataloging of Kenai Peninsula, Cook Inlet, Prince William Sound, and fish stocks. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1974-1975, Project F-9-7, 16 (G-I-C), Juneau.
- Hammarstrom, S. L. 1976. Inventory and cataloging of Kenai Peninsula, and Cook Inlet drainages and fish stocks. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1975-1976, Project F-9-8, 17 (G-I-C), Juneau.
- Hammarstrom, S. L. 1977. Evaluation of Chinook salmon fisheries of the Kenai Peninsula. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1976-1977, Project F-9-9, 18 (G-II-L), Juneau.
- Hammarstrom, S. L. 1978. Evaluation of Chinook salmon fisheries of the Kenai Peninsula. Federal Aid in Fish Restoration, Annual Report of Performance, 1977-1978, Project F-9-10, Volume 19 (G-II-L), Juneau, Alaska, USA, Juneau.
- Hammarstrom, S. L. 1979. Evaluation of Chinook salmon fisheries of the Kenai Peninsula. Federal Aid in Fish Restoration, Annual Report of Performance, 1978-1979, Project F-9-11, Volume 20 (G-II-L), Juneau, Alaska, USA, Juneau. [http://www.sf.adfg.state.ak.us/fedaidpdfs/FREDf-9-11\(20\)g-ii-1.pdf](http://www.sf.adfg.state.ak.us/fedaidpdfs/FREDf-9-11(20)g-ii-1.pdf)
- Hammarstrom, S. L. 1980. Evaluation of Chinook salmon fisheries of the Kenai Peninsula. Alaska Department of Fish and Game, Sport Fish Division. Federal Aid in Fish Restoration, Annual Performance Report, 1980-1981, Project F-9-12(21)G-II-L, Juneau. [http://www.sf.adfg.state.ak.us/FedAidpdfs/FREDf-9-12\(21\)G-II-L.pdf](http://www.sf.adfg.state.ak.us/FedAidpdfs/FREDf-9-12(21)G-II-L.pdf)
- Hammarstrom, S. L. 1981. Evaluation of Chinook salmon fisheries of the Kenai Peninsula. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1980-1981, Project F-9-13, 22 (G-II-L), Juneau.
- Hammarstrom, S. L. 1988. Angler effort and harvest of Chinook salmon *Oncorhynchus tshawytscha* and coho salmon *O. kisutch* by the recreational fisheries in the lower Kenai River, 1987. Alaska Department of Fish and Game, Fishery Data Series No. 50, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-050.pdf>
- Hammarstrom, S. L. 1989. Angler-effort and harvest of Chinook salmon and coho salmon by the recreational fisheries in the lower Kenai River, 1988. Alaska Department of Fish and Game, Fishery Data Series No. 100, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-100.pdf>
- Hammarstrom, S. L. 1990. Angler-effort and harvest of Chinook salmon and coho salmon by the recreational fisheries in the lower Kenai River, 1989. Alaska Department of Fish and Game, Fishery Data Series No. 90-22, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds90-22.pdf>
- Hammarstrom, S. L. 1991. Angler effort and harvest of Chinook salmon and coho salmon by the recreational fisheries in the lower Kenai River, 1990. Alaska Department of Fish and Game, Fishery Data Series No. 91-44, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds91-44.pdf>
- Hammarstrom, S. L. 1992a. Angler effort and harvest of Chinook salmon by the recreational fisheries in the Lower Kenai River, 1991. Alaska Department of Fish and Game, Fishery Data Series No. 92-25, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds92-25.pdf>

REFERENCES CITED (Continued)

- Hammarstrom, S. L. 1992b. Angler effort and harvest of coho salmon during the recreational fisheries in the lower Kenai River, 1991. Alaska Department of Fish and Game, Fishery Data Series No. 92-36, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds92-36.pdf>
- Hammarstrom, S. L. 1993. Angler effort and harvest of Chinook salmon by the recreational fisheries in the lower Kenai River, 1992. Alaska Department of Fish and Game, Fishery Data Series No. 93-40, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds93-40.pdf>
- Hammarstrom, S. L. 1994. Angler effort and harvest of Chinook salmon by the recreational fisheries in the lower Kenai River, 1993. Alaska Department of Fish and Game, Fishery Data Series No. 94-7, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds94-07.pdf>
- Hammarstrom, S. L., L. Larson, M. Wenger, and J. Carlon. 1985. Kenai Peninsula Chinook and coho salmon studies. Alaska Department of Fish and Game. Federal Aid in Fish Restoration. Annual Performance Report, 1984-1985, Project F-9-17, 26 (G-II-L), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-17\(26\)G-II-L.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-17(26)G-II-L.pdf)
- Hammarstrom, S. L., and L. L. Larson. 1982. Evaluation of Chinook salmon fisheries of the Kenai Peninsula. Federal Aid in Fish Restoration, Annual Report of Performance, 1981-1982, Project F-9-14, Volume 23 (G-II-L), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-14\(23\)G-II-L.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-14(23)G-II-L.pdf)
- Hammarstrom, S. L., and L. L. Larson. 1983. Evaluation of Chinook salmon fisheries of the Kenai Peninsula. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1982-1983, Project F-9-15, 24 (G-II-L), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-15\(24\)G-II-L.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-15(24)G-II-L.pdf)
- Hammarstrom, S. L., and L. L. Larson. 1984. Evaluation of Chinook salmon fisheries of the Kenai Peninsula. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1983-1984, Project F-9-16, 25 (G-II-L), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-16\(25\)G-II-L.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-16(25)G-II-L.pdf)
- Hammarstrom, S. L., and L. L. Larson. 1986. Kenai River creel census; Kenai River salmon escapement; Kasilof River creel census; Deep Creek marine creel census. Federal Aid in Fish Restoration, Annual Report of Performance, 1985-1986, Project F-10-1, Volume 27 (S-32), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-10-1\(27\)S32-1,2,4,5.PDF](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-10-1(27)S32-1,2,4,5.PDF)
- Hammarstrom, S. L., and L. S. Timmons. 2001a. Stock assessment of early-run Chinook salmon of the Kenai River, 1997 and 1998. Alaska Department of Fish and Game, Fishery Data Series No. 01-4, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds01-04.pdf>
- Hammarstrom, S. L., and L. S. Timmons. 2001b. Stock assessment of late-run Chinook salmon of the Kenai River, 1997 and 1998. Alaska Department of Fish and Game, Fishery Data Series No. 01-5, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds01-05.pdf>
- Hayes, S. R., and J. J. Hasbrouck. 1996. Stock assessment of rainbow trout in the upper Kenai River, Alaska, in 1995. Alaska Department of Fish and Game, Fishery Data Series No. 96-43, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds96-43.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds96-32.pdf>
- Howe, A. L., G. Fidler, and M. J. 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds95-24.pdf>
- 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. [http://www.sf.adfg.state.ak.us/FedAidPDFs/fds97-29\(revised\).pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/fds97-29(revised).pdf)
- 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. [http://www.sf.adfg.state.ak.us/FedAidPDFs/fds98-25\(revised\).pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/fds98-25(revised).pdf)

REFERENCES CITED (Continued)

- 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. [http://www.sf.adfg.state.ak.us/FedAidPDFs/fds99-41\(revised\).pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/fds99-41(revised).pdf)
- Howe, A. L., R. J. Walker, C. Olnes, K. Sundet, and A. E. Bingham. 2001d. Participation, catch, and harvest in Alaska sport fisheries during 1999. Alaska Department of Fish and Game, Fishery Data Series No. 01-8, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds01-08.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds07-40.pdf>
- Jennings, G. B., K. Sundet, and A. E. Bingham. *In prep.* Participation, catch, and harvest in Alaska sport fisheries during 2005. Alaska Department of Fish and Game, Fishery Data Series, 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds04-11.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidpdfs/fds06-34.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidpdfs/fds06-44.pdf>
- King, B. A., and J. A. Breakfield. 2007. Stock assessment of rainbow trout in the upper Kenai River, Alaska, in 2001. Alaska Department of Fish and Game, Fishery Data Series No. 07-14, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidpdfs/fds07-14.pdf>
- King, M. A. 1995. Angler effort and harvest of Chinook salmon by the recreational fisheries in the lower Kenai River, 1994. Alaska Department of Fish and Game, Fishery Data Series No. 95-12, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds95-12.pdf>
- King, M. A. 1996. Angler effort and harvest of Chinook salmon by the recreational fisheries in the lower Kenai River, 1995. Alaska Department of Fish and Game, Fishery Data Series No. 96-22, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds96-22.pdf>
- King, M. A. 1997. Angler effort and harvest of Chinook salmon by the recreational fisheries in the lower Kenai River, 1996. Alaska Department of Fish and Game, Fishery Data Series No. 97-9, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds97-09.pdf>
- Lafferty, R. 1989. Population dynamics of rainbow trout, Kenai River, Alaska. Master's thesis, University of Alaska, Juneau.
- Larson, L. L., and P. Hansen. 2000. Stock assessment of rainbow trout in the middle Kenai River, 1999. Alaska Department of Fish and Game, Fishery Data Series No. 00-19, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds00-19.pdf>
- Marsh, L. E. 1999. Angler effort and harvest of Chinook salmon by the recreational fisheries in the lower Kenai River, 1997. Alaska Department of Fish and Game, Fishery Data Series No. 99-4, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds99-04.pdf>
- Marsh, L. E. 2000. Angler effort and harvest of Chinook salmon by the recreational fisheries in the lower Kenai River, 1998. Alaska Department of Fish and Game, Fishery Data Series No. 00-21, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds00-21.pdf>
- Massengill, R. 2007. Assessment of coho salmon from the Kenai River, Alaska, 2004. Alaska Department of Fish and Game, Fishery Data Series No. 07-79, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidpdfs/fds07-79.pdf>

REFERENCES CITED (Continued)

- Massengill, R., and J. A. Carlon. 2004a. Assessment of coho salmon from the Kenai River, Alaska, 2000. Alaska Department of Fish and Game, Fishery Data Series No. 04-23, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds04-23.pdf>
- Massengill, R., and J. A. Carlon. 2004b. Assessment of coho salmon from the Kenai River, Alaska, 2001. Alaska Department of Fish and Game, Fishery Data Series No. 04-24, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds04-24.pdf>
- Massengill, R., and J. A. Carlon. 2007a. Assessment of coho salmon from the Kenai River, Alaska, 2002. Alaska Department of Fish and Game, Fishery Data Series No. 07-35, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds07-35.pdf>
- Massengill, R., and J. A. Carlon. 2007b. Assessment of coho salmon from the Kenai River, Alaska, 2003. Alaska Department of Fish and Game, Fishery Data Series No. 07-38, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds07-38.pdf>
- Mills, M. J. 1979. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1978-1979, Project F-9-11, 20 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-11\(20\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-11(20)SW-I-A.pdf)
- Mills, M. J. 1980. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1979-1980, Project F-9-12, 21 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-12\(21\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-12(21)SW-I-A.pdf)
- Mills, M. J. 1981a. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1980-1981, Project F-9-13, 22 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-13\(22a\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-13(22a)SW-I-A.pdf)
- Mills, M. J. 1981b. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1980-1981, Project F-9-13, 22 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-13\(22b\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-13(22b)SW-I-A.pdf)
- Mills, M. J. 1982. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1981-1982, Project F-9-14, 23 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-14\(23\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-14(23)SW-I-A.pdf)
- Mills, M. J. 1983. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1982-1983, Project F-9-15, 24 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-15\(24\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-15(24)SW-I-A.pdf)
- Mills, M. J. 1984. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1983-1984, Project F-9-16, 25 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-16\(25\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-16(25)SW-I-A.pdf)
- Mills, M. J. 1985. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1984-1985, Project F-9-17, 26 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-17\(26\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-17(26)SW-I-A.pdf)
- Mills, M. J. 1986. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1985-1986, Project F-10-1, 27 (RT-2), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-10-1\(27\)RT-2.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-10-1(27)RT-2.pdf)
- Mills, M. J. 1987. Alaska statewide sport fisheries harvest report, 1986. Alaska Department of Fish and Game, Fishery Data Series No. 2, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-002.pdf>
- Mills, M. J. 1988. Alaska statewide sport fisheries harvest report, 1987. Alaska Department of Fish and Game, Fishery Data Series No. 52, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-052.pdf>
- Mills, M. J. 1989. Alaska statewide sport fisheries harvest report, 1988. Alaska Department of Fish and Game, Fishery Data Series No. 122, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-122.pdf>

REFERENCES CITED (Continued)

- 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds90-44.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds91-58.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds92-40.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds93-42.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds94-28.pdf>
- Pappas, G. E., and L. E. Marsh. 2004. 2004 Recreational fisheries overview and historic information for the North Kenai Peninsula: fisheries under consideration by the Alaska Board of Fisheries, January 2005. Alaska Department of Fish and Game, Fishery Management Report No. 04-17, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr04-17.pdf>
- Reimer, A. 2003. Chinook salmon creel survey and inriver gillnetting study, lower Kenai River, Alaska, 2001. Alaska Department of Fish and Game, Fishery Data Series No. 03-01, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds03-01.pdf>
- Reimer, A. 2004a. Chinook salmon creel survey and inriver gillnetting study, lower Kenai River, Alaska, 2002. Alaska Department of Fish and Game, Fishery Data Series No. 04-28, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds04-28.pdf>
- Reimer, A. 2004b. Chinook salmon creel survey and inriver gillnetting study, lower Kenai River, Alaska, 2003. Alaska Department of Fish and Game, Fishery Data Series No. 04-32, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds04-32.pdf>
- Reimer, A. *In prep.* Chinook salmon creel survey and inriver gillnetting study, lower Kenai River, Alaska, 2004. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.
- Reimer, A. M., W. W. Jones, and L. E. Marsh. 2002. Chinook salmon creel survey and inriver gillnetting study, lower Kenai River, Alaska, 1999 and 2000. Alaska Department of Fish and Game, Fishery Data Series No. 02-25, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds02-25.pdf>
- Reimer, A. M., and D. Sigurdsson. 2004. Upper Cook Inlet personal use salmon fisheries, 1996-2003. Alaska Department of Fish and Game, Fishery Data Series No. 04-31, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds04-31.pdf>
- Ruesch, P. H., and J. Fox. 1996. Upper Cook Inlet commercial fisheries annual management report, 1995. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Regional Information Report 2A96-27, Anchorage.
- Ruesch, P. H., and J. Fox. 1999. Upper Cook Inlet Commercial Fisheries Annual Management Report, 1998. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A99-21, Anchorage.
- Seeb, L. W., C. Habicht, W. D. Templin, K. E. Tarbox, R. Z. Davis, L. K. Brannian, and J. E. Seeb. 1996. Kenai River sockeye salmon restoration. Restoration Project Annual Report (Restoration Project 95255). Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development, 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds03-05.pdf>
- Westerman, D. L., and T. M. Willette. 2006. Upper Cook Inlet salmon escapement studies, 2004. Alaska Department of Fish and Game, Fishery Data Series No. 06-49, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds06-49.pdf>

TABLES AND FIGURES

Table 1.—Angler-days of effort expended by recreational anglers fishing Kenai Peninsula Management Area waters, 1977-2006.

Year	Kenai River		Other Kenai Peninsula		Kenai Peninsula Dipnet ^a		Kenai Area		Alaska Total
	Effort	%NKPMA	Effort	%NKPMA	Effort	%NKPMA	Total Effort	% of Alaska	
1977	122,138	34	233,626	66	ND	ND	355,764	30	1,198,486
1978	164,264	37	274,129	63	ND	ND	438,393	34	1,286,063
1979	178,485	39	282,943	61	ND	ND	461,428	34	1,364,739
1980	171,803	38	277,573	62	ND	ND	449,376	30	1,488,962
1981	178,716	41	253,238	58	5,370	1	437,324	31	1,420,772
1982	231,948	47	263,516	53	2,580	1	498,044	31	1,623,090
1983	229,228	43	282,428	53	9,576	2	521,232	30	1,732,528
1984	270,422	46	296,641	51	7,227	1	574,290	31	1,866,837
1985	322,230	49	319,601	48	10,647	2	652,478	34	1,943,069
1986	335,051	46	364,681	50	15,856	2	715,588	35	2,071,412
1987	289,165	37	450,768	58	32,473	4	772,406	36	2,152,886
1988	374,259	45	408,226	49	37,304	4	819,789	35	2,311,291
1989	376,902	49	341,981	45	33,054	4	751,937	33	2,264,079
1990	342,662	43	443,175	56	2,184	0	788,021	32	2,463,284
1991	323,368	41	434,795	55	12,040	2	770,203	31	2,456,328
1992	332,573	40	467,185	57	12,131	1	811,889	32	2,540,374
1993	324,120	39	479,614	58	16,525	2	820,259	32	2,559,408
1994	340,904	35	595,784	62	14,785	2	951,473	35	2,719,911
1995	377,710	41	505,047	55	17,124	2	899,881	32	2,787,670
1996 ^b	265,986	65	123,015	30	11,803	3	400,804	20	2,006,528
1997 ^b	247,898	63	125,333	32	12,114	3	385,345	19	2,079,514
1998 ^b	216,650	62	114,792	33	14,223	4	345,665	19	1,856,976
1999 ^b	307,446	64	150,640	31	17,349	4	475,435	19	2,499,152
2000 ^b	358,569	64	187,464	33	14,976	3	561,009	21	2,627,805
2001 ^b	298,817	53	131,932	30	18,154	4	448,903	20	2,261,941
2002 ^b	312,785	65	149,832	31	18,860	4	481,477	21	2,259,091
2003 ^b	320,747	67	120,715	25	19,137	4	460,599	21	2,219,398
2004 ^b	375,370	71	129,461	25	22,945	4	527,776	21	2,473,961
2005 ^b	388,677	72	122,370	23	25,477	5	536,524	22	2,463,929
2006 ^b	329,122	59	206,314	37	18,448	3	553,884	24	2,298,092
Avg. (1997-2006)	315,608	64	143,885	30	18,168	4	477,662	21	2,303,986
Avg. (1981-2006)					16,245	3			
Avg. (1977-2006)	290,267	50	284,561	46			588,907	28	2,109,919

Note: Angler-Day = the time spent fishing by one person for any part of a day; Effort = participation (number of days fished); NKPMA = Northern Kenai Peninsula Management Area; ND = no data collected.

^a 1981-2006 from Statewide Harvest Surveys (Mills 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, *In prep.*; Jennings et al. 2004; 2006 a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication). 1996-1997 total reported harvest from returned permits. 1998, 1999 to 2006 expanded harvest from returned permits (Reimer and Sigurdsson 2004). No data collected prior to 1981.

^b Data from 1995-2006 does not include Lower Cook Inlet.

Table 2.—Angler-days of sport fishing effort for the Kenai River by section, 1977-2006.

Year	Sport Fishing Effort					Kenai River Total
	Cook Inlet to Soldotna Bridge ^a	Soldotna Bridge ^a to Moose River	Moose River to Skilak Outlet	Skilak Inlet to Kenai Lake	Kenai River Reach Not Specified	
1977	ND	ND	ND	ND	ND	122,138
1978	ND	ND	ND	ND	ND	164,264
1979	ND	ND	ND	ND	ND	178,485
1980	ND	ND	ND	ND	ND	171,803
1981	91,763	35,877	33,701	17,375	ND	178,716
1982	119,164	49,372	39,170	24,242	ND	231,948
1983	109,067	52,266	41,442	26,453	ND	229,228
1984	150,824	42,644	40,976	35,978	ND	270,422
1985	163,690	66,100	55,904	36,536	ND	322,230
1986	181,035	63,876	51,171	38,969	ND	335,051
1987	141,203	66,807	41,128	40,027	ND	289,165
1988	203,728	79,727	55,334	35,470	ND	374,259
1989	198,697	93,508	53,135	31,562	ND	376,902
1990	169,818	82,331	43,401	47,112	ND	342,662
1991	151,592	82,552	45,067	44,157	ND	323,368
1992	150,249	81,378	49,774	51,172	ND	332,573
1993	162,171	70,353	38,583	53,013	ND	324,120
1994	170,944	71,440	39,222	59,298	ND	340,904
1995	206,127	81,280	43,432	46,871	ND	377,710
1996	131,751	61,059	32,465	40,711	ND	265,986
1997	120,873	58,618	32,645	35,762	ND	247,898
1998	95,378	56,342	36,218	28,712	ND	216,650
1999	157,493	69,331	41,573	39,049	ND	307,446
2000	178,460	92,056	41,911	46,142	ND	358,569
2001	153,356	75,249	34,918	35,294	ND	298,817
2002	142,492	78,165	33,228	52,937	5,963 ^t	312,785
2003	143,144	90,072	35,804	40,815	10,912 ^t	320,747
2004	166,202	100,180	51,188	49,814	7,986 ^t	375,370
2005	168,570	111,806	40,903	51,892	15,506 ^t	388,677
2006	151,623	91,912	35,667	40,624	9,296 ^t	329,122
Avg. (2002-2006)					9,933	
Avg. (1997-2006)		147,759	82,373	38,406	42,104	315,608
Avg. (1981-2006)		153,054	73,242	41,845	40,384	310,436
Avg. (1977-2006)						290,267

Note: Angler-Day = the time spent fishing by one person for any part of a day; Effort = participation (number of days fished); ND = no data collected

^a The Soldotna Bridge (as referred to in Statewide Harvest Surveys (SWHS)) and the Sterling Highway bridge (as identified in the Sport Fishing Regulations Summary for Southcentral Alaska (ADF&G 2007a)) are one and the same.

^b Adopted by SWHS beginning in 2002.

Table 3.—Kenai River sport fish harvest by species, 1977-2006.

Year	Sport Fish Harvest									Total
	Chinook salmon	Sockeye salmon	Coho salmon	Pink salmon	Chum salmon	Rainbow trout	Dolly Varden	Arctic grayling	Smelt ^a	
1977	7,585	23,196	9,537	163	0	4,438	7,423	187	56,550	109,079
1978	7,130	33,619	10,823	26,579	0	9,272	17,140	90	15,832	120,485
1979	8,843	16,887	15,276	127	0	14,644	34,687	127	10,690	101,281
1980	4,942	25,468	26,838	18,580	0	9,807	26,794	17	150,554	263,000
1981	9,634	19,721	22,324	86	0	18,685	34,862	65	41,126	146,503
1982	10,418	50,103	39,415	25,572	0	12,673	16,484	188	49,355	204,208
1983	15,316	71,267	22,678	1,825	0	13,658	9,556	126	85,126	219,552
1984	12,321	15,702	59,644	28,560	0	15,687	31,407	51	47,455	210,827
1985	13,965	57,213	44,535	1,306	186	14,981	26,235	104	26,460	184,985
1986	18,119	72,398	60,110	19,924	563	2,425	5,775	120	33,124	212,558
1987	24,978	240,819	33,210	941	144	2,185	7,630	156	53,773	363,836
1988	32,415	152,751	48,694	15,777	849	2,133	10,977	692	18,223	282,511
1989	17,160	277,225	55,259	1,421	520	1,917	10,064	151	31,398	395,115
1990	7,684	120,788	60,325	27,185	312	3,535	11,982	51	36,563	268,425
1991	9,174	161,602	76,156	2,416	0	3,319	14,504	0	6,334	273,505
1992	9,753	242,492	52,310	10,029	0	1,977	14,462	0	14,971	345,994
1993	30,312	137,180	50,538	1,003	0	2,574	12,698	0	6,619	240,924
1994	27,708	93,616	86,711	8,701	0	1,576	8,486	0	3,391	230,189
1995	23,168	125,425	46,183	991	0	2,150	9,523	0	987	208,427
1996	15,740	186,291	42,293	15,406	464	1,560	7,484	123	7,366	276,727
1997	15,177	177,133	16,164	1,371	154	1,910	6,957	131	8,874	227,871
1998	7,450	164,536	26,967	8,926	79	2,015	6,079	25	8,175	224,252
1999	17,145	200,574	31,637	1,895	333	3,784	7,568	64	4,942	267,942
2000	16,613	230,983	48,519	19,081	350	3,459	7,427	93	29,286	355,811
2001	15,189	200,762	49,782	2,069	498	2,422	6,528	76	23,012	300,338
2002	10,353	225,917	59,650	22,995	959	6,019	5,781	146	20,036	351,856
2003	17,904	285,925	46,622	2,847	94	2,278	6,113	42	11,841	373,666
2004	18,283	294,038	65,915	20,313	123	3,311	5,818	277	41,085	449,163
2005	21,934	294,287	50,411	5,112	52	2,517	4,316	62	9,206	387,897
2006	19,668	173,425	37,639	12,448	52	2,499	3,218	10	2,307	251,266
Avg. (2004-2006)	19,962	253,917	51,322	12,624	76	2,776	4,451	116	17,533	362,775
Avg. (1997-2006)	15,972	224,758	43,331	9,706	269	3,021	5,981	93	15,876	319,006
Avg. (1977-2006)	15,536	145,711	43,206	10,122	191	5,647	12,599	106	28,489	261,606

Note: Harvest = fish kept (number of fish)

^a Smelt statistics in the Statewide Harvest Survey are reported by family: Osmeridae. The smelt species harvested in the Northern Kenai Peninsula Management Area are eulachon *Thaleichthys pacificus*; longfin smelt *Spirinchus thaleichthys* are also present in the fall, but this smaller species is not harvested (R.N. Begich, Area Management Biologist, ADF&G, Soldotna, personal communication).

Table 4.—Angler-days of sport fishing effort for other Northern Kenai Peninsula Area drainages by fishery, 1979-2006.

Year	Sport Fish Effort								Total
	Russian River	Kasilof River	Swanson River	Quartz Creek	Hidden Lake	Skilak Lake	Tustemena Lake	Other ^a	
1979	58,133	ND	ND	ND	5,974	ND	ND	118,826	182,933
1980	78,983	ND	ND	ND	5,783	ND	ND	103,742	188,508
1981	54,642	8,311	ND	ND	4,761	ND	ND	92,092	159,806
1982	70,372	13,238	ND	ND	6,278	ND	ND	82,595	172,483
1983	35,018	16,675	2,124	691	6,761	422	253	83,918	145,862
1984	55,861	25,697	5,671	^b 3,413	4,835	67	351	73,111	169,006
1985	80,054	24,103	4,058	^b 451	3,676	121	1,734	83,161	197,358
1986	70,729	36,115	7,599	^b 4,146	6,254	413	291	95,974	221,521
1987	91,600	42,703	7,353	^b 5,361	12,532	4,129	1,576	98,989	264,243
1988	76,180	43,965	10,368	3,965	4,820	3,838	1,419	80,417	224,972
1989	53,598	39,318	5,484	4,893	1,152	2,810	923	70,086	178,264
1990	68,861	40,437	6,091	5,655	4,188	2,817	2,200	94,304	224,553
1991	76,433	46,208	5,830	5,354	4,426	4,120	1,596	86,612	230,579
1992	67,443	49,774	4,897	7,906	4,172	3,820	1,600	102,131	241,743
1993	61,018	57,127	5,690	9,152	5,030	3,289	1,055	104,955	247,316
1994	65,996	50,821	5,039	7,241	3,014	1,805	1,587	115,769	251,272
1995	58,090	50,012	4,637	5,179	4,443	2,957	1,332	99,936	226,586
1996 ^c	50,122	33,585	3,907	3,018	2,305	1,780	910	25,141	120,768
1997 ^c	46,914	32,287	3,495	3,401	2,575	2,346	1,699	31,428	124,145
1998 ^c	47,942	26,487	3,422	3,166	1,576	1,645	985	28,679	113,902
1999 ^c	64,536	40,263	3,606	4,708	2,017	1,182	599	31,655	148,566
2000 ^c	69,864	46,654	5,839	2,423	1,804	2,072	1,368	55,633	185,657
2001 ^c	55,972	39,034	4,060	3,105	1,604	1,701	731	25,505	131,712
2002 ^c	68,263	35,198	4,249	4,245	1,412	1,668	871	33,926	149,832
2003 ^c	50,448	30,840	3,807	4,357	1,761	2,068	802	26,632	120,715
2004 ^c	60,784	29,889	2,878	6,589	1,902	2,460	972	23,987	129,461
2005 ^c	55,801	30,436	3,552	6,106	1,548	594	684	23,649	122,370
2006 ^c	70,804	26,175	3,533	5,582	1,975	1,152	455	96,638	206,314
Avg. (1997-2006)	59,133	33,726	3,844	4,368	1,817	1,689	917	37,773	143,267
Avg. (1983-2006)			4,883	4,588		2,053	1,083		
Avg. (1981-2006)		35,206							
Avg. (1979-2006)	63,016				3,878			71,053	181,445

Note: Angler-Day = the time spent fishing by one person for any part of a day; Effort = participation (number of days fished); ND = no data collected

^a Includes all other streams, lakes, rivers and ponds not mentioned. These number in the hundreds.

^b Includes Swanson River canoe route.

^c Data from 1996-2006 does not include Lower Kenai Peninsula Management Area.

Table 5.—Sport fish harvest from other Northern Kenai Peninsula Management Area drainages, 1977-2006.

Year	Sport Fish Harvest									
	Chinook salmon	Sockeye salmon	Coho salmon	Pink salmon	Chum salmon	Rainbow trout	Dolly Varden	Arctic grayling	Smelt ^a	Total
1977	8,110	51,174	9,509	10,637	162	18,663	26,960	1,400	29,561	156,176
1978	10,225	68,689	9,856	12,273	390	16,373	38,192	2,197	39,418	197,613
1979	9,496	40,321	10,484	8,654	127	19,717	51,041	1,391	12,135	153,366
1980	3,887	59,375	8,925	9,729	215	22,655	36,892	2,109	23,958	167,745
1981	7,819	36,082	10,206	9,947	173	23,456	40,325	1,826	85,968	215,802
1982	10,406	49,964	10,028	6,302	180	18,459	26,657	2,015	5,851	129,862
1983	11,108	32,726	9,004	6,063	923	18,729	45,513	1,455	101,439	226,960
1984	12,468	65,027	11,696	7,244	211	13,240	23,357	998	1,348	135,589
1985	11,197	74,781	10,723	7,223	260	14,322	19,279	1,248	1,400	140,433
1986	13,958	72,195	11,735	4,466	118	14,498	19,863	1,758	3,446	142,037
1987	13,747	186,222	18,676	4,272	216	8,310	14,395	850	93	246,781
1988	21,167	89,388	20,918	11,203	671	8,180	12,530	581	62	164,700
1989	14,527	77,132	29,583	9,100	709	5,876	12,013	982	48	149,970
1990	17,048	64,505	17,433	7,679	372	11,346	15,874	862	2,359	137,478
1991	19,962	107,839	25,645	5,150	308	9,222	12,990	1,472	565	183,153
1992	26,163	68,675	20,634	10,074	284	14,379	15,293	775	5,344	161,621
1993	42,974	62,865	32,097	6,426	736	12,078	16,658	1,268	1,541	176,643
1994	35,306	81,431	33,442	5,928	273	12,485	13,542	1,636	4,012	188,055
1995	32,265	45,128	27,692	5,955	291	12,203	10,550	1,863	2,514	138,461
1996 ^b	6,428	62,418	12,813	4,053	188	8,331	4,385	778	0	99,394
1997 ^b	6,959	56,049	8,550	2,409	244	14,247	7,581	1,178	1,621	98,838
1998 ^b	4,921	73,301	10,505	8,180	321	11,060	4,020	838	2,552	115,698
1999 ^b	8,710	74,101	10,587	1,104	246	14,494	3,615	1,040	352	114,249
2000 ^b	10,173	81,548	12,373	6,787	1,376	21,168	6,764	1,780	9	141,978
2001 ^b	8,926	60,863	11,783	2,675	158	7,802	3,025	854	11	96,097
2002 ^b	5,302	92,858	15,040	6,488	150	14,093	3,174	982	0	138,087
2003 ^b	4,294	60,795	14,946	2,459	145	8,225	2,890	1,141	304	95,199
2004 ^b	4,424	66,084	15,028	4,193	209	5,360	4,163	874	0	100,335
2005 ^b	4,689	62,443	10,473	1,190	108	5,228	1,798	739	0	86,668
2006 ^b	3,391	171,624	18,528	5,700	483	5,174	1,588	387	0	206,875
Avg. (1997-2006)	6,179	79,967	12,781	4,119	344	10,685	3,862	981	485	119,402
Avg. (1977-2006)	13,002	73,187	15,630	6,452	342	12,979	16,498	1,243	10,864	150,195

Note: "Other" Northern Kenai Peninsula Management Area drainages include: Russian R, Kasilof R, Swanson R, Quartz Ck, Hidden Lk, Skilak Lk, Tustemena Lk, and other (see Table 4); Harvest = fish kept (number of fish)

^a Smelt statistics in the Statewide Harvest Survey are reported by family: Osmeridae. The smelt species harvested in the Northern Kenai Peninsula Management Area are eulachon *Thaleichthys pacificus*; longfin smelt *Spirinchus thaleichthys* are also present in the fall, but this smaller species is not harvested (R.N. Begich, Area Management Biologist, ADF&G, Soldotna, personal communication).

^b Data from 1996-2006 des not include Lower Kenai Peninsula Management Area

Table 6.—Anglers-days of effort for Kenai River and Kasilof River personal use dip net fisheries, 1982-2006.

Year	Personal Use Dip Net Fishery Effort ^a		Total
	Kenai River	Kasilof River	
1982	Unknown	2,580	2,580
1983	3,203	4,417	7,620
1984	^b	5,956	5,956
1985	^b	9,260	9,260
1986	^b	13,929	13,929
1987	22,547	8,910	31,457
1988	29,013	6,930	35,943
1989	31,312	^b	31,312
1990	^b	^b	^b
1991	^b	^b	^b
1992	10,371	^b	10,371
1993	14,896	^b	14,896
1994	^b	2,361	2,361
1995	11,122	2,845	13,967
1996	10,503	1,300	11,803
1997	11,023	1,091	12,114
1998	10,802	3,421	14,223
1999	13,738	3,611	17,349
2000	12,354	2,622	14,976
2001	14,722	3,382	18,104
2002	14,840	4,020	18,860
2003	15,263	3,874	19,137
2004	18,513	4,432	22,945
2005	20,977	4,500	25,477
2006	12,685	5,763	18,448
<hr/>			
Avg. (2004-2006)	17,392	4,898	22,290
<hr/>			
Avg. (1997-2006)	14,492	3,672	18,163
<hr/>			
Avg. (1982-2006)	15,438	4,760	16,221

Note: Angler-Day = the time spent fishing by one person for any part of a day; Effort = participation (number of days fished).

^a Source: 1982-1995 from Statewide Harvest Surveys (Mills 1983-1994; Howe et al. 1995-1996). 1996-1997 total reported harvest from returned permits. 1998-2006 from expanding the know return to include permits not returned.

^b No personal use fishery.

Table 7.—Kenai Peninsula personal use dip net harvest by species, 1983-2006.

Year	Personal Use Dip Net Harvest ^a					Total
	Chinook salmon	Coho salmon	Sockeye salmon	Pink salmon	Chum salmon	
1983	0	0	24,152	0	0	24,152
1984	0	0	14,565	0	0	14,565
1985	0	248	19,282	62	0	19,592
1986	0	1,422	40,489	1,315	0	43,226
1987	362	2,862	43,771	471	181	47,647
1988	0	5,275	22,337	2,019	345	29,976
1989	0	3,804	54,392	1,212	240	59,648
1990	0	0	5,835	68	178	6,081
1991	0	450	65,082	33	0	65,565
1992	0	1,409	15,657	1,126	106	18,298
1993	0	1,474	37,727	538	0	39,739
1994	0	3,120	31,133	1,882	78	36,213
1995	0	1,839	33,269	526	27	35,661
1996	345	2,266	114,018	2,507	192	119,328
1997	399	649	124,356	638	77	126,119
1998	388	1,742	149,008	1,642	159	152,939
1999	615	1,295	186,680	1,930	154	190,674
2000	544	2,453	122,139	2,298	227	127,661
2001	776	2,321	188,378	1,633	178	193,286
2002	712	2,918	226,797	7,524	690	238,641
2003	1,073	1,924	267,450	1,933	279	272,659
2004	836	3,329	311,146	2,499	477	318,287
2005	1,013	3,050	338,647	2,464	423	345,597
2006	1,089	3,292	183,774	12,119	656	200,930
<hr/>						
Avg. (2004-2006)	979	3,224	277,856	5,694	519	288,271
<hr/>						
Avg. (1997-2006)	745	2,297	209,838	3,468	332	216,679
<hr/>						
Avg. (1983-2006)	340	1,964	109,170	1,935	194	113,604

Note: Harvest = fish kept (number of fish)

^a Source: 1983-1995 from Statewide Harvest Surveys (Mills 1983-1994; Howe et al. 1995-1996). 1996-1997 from total reported harvest from returned permits. 1998-2006 from expanding the known return to include permits not returned.

Table 8.—Estimated harvest, spawning escapement, and return for early-run Kenai River Chinook salmon, 1986-2007.

Year	Deep Creek Marine Sport Fish Harvest	Commercial Gillnet Harvest		Kenaitze Educational Fishery Harvest	Inriver Return ^a	Kenai River Sport Fish Harvest ^b	Hook -and- Release Mortality	Spawning Escapement	Total Return
		Eastside Setnet	Driftnet						
1986	Unknown	Closed	Closed	N/A	27,080	8,156	242	18,682	27,080
1987	Unknown	Closed	Closed	N/A	25,643	13,557	306	11,780	25,643
1988	Unknown	Closed	Closed	N/A	20,880	15,209	340	5,331	20,880
1989	Unknown	Closed	Closed	73	17,992	8,394	149	9,449	18,065
1990	Unknown	Closed	Closed	40	10,679	1,807	378	8,494	10,719
1991	Unknown	Closed	Closed	2	10,931	1,945	152	8,834	10,933
1992	Unknown	Closed	Closed	73	10,087	2,241	236	7,610	10,160
1993	Unknown	Closed	Closed	118	19,921	9,342	286	10,293	20,039
1994	Unknown	Closed	Closed	56	18,403	8,171	285	9,947	18,459
1995	Unknown	Closed	Closed	37	21,884	10,217	357	11,310	21,921
1996	Unknown	Closed	Closed	104	23,505	6,623	287	16,595	23,609
1997	Unknown	Closed	Closed	122	14,963	6,437	350	8,176	15,085
1998	Unknown	Closed	Closed	131	9,184	1,170	254	7,760	9,315
1999	Unknown	Closed	Closed	114	25,666	8,129	261	17,276	25,780
2000	Unknown	Closed	Closed	124	12,479	1,818	185	10,476	12,603
2001	Unknown	Closed	Closed	198	16,676	2,397	205	14,074	16,874
2002	Unknown	Closed	Closed	48	7,162	899	78	6,185	7,210
2003	Unknown	Closed	Closed	126	13,325	2,839	389	10,097	13,451
2004	Unknown	Closed	Closed	72	15,498	3,383	261	11,854	15,570
2005	Unknown	Closed	Closed	76	20,450	3,810	253	16,387	20,526
2006	Unknown	Closed	Closed	65	23,326	4,693	205	18,428	23,391
2007	Unknown	Closed	Closed	16 ^c	15,904 ^c	^d	^d	^d	^d

^a Source: 1986-1998 (Hammarstrom and Timmons 2001a), 1999-2006 (Reimer et al. 2002; Walker et al. 2003; Jennings et al. 2007, *In prep.*; Jennings et al. 2004; 2006 a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication). Includes creel survey estimates for the area from Cook Inlet to the Soldotna bridge and estimates from the Statewide Harvest Survey (SWHS) for Soldotna bridge to the outlet of Kenai Lake.

^b Preliminary data.

^c Information from the 2007 SWHS is needed to complete estimates; it will be available in mid-2008.

Table 9.—Estimated harvest, spawning escapement, and return for late-run Kenai River Chinook salmon, 1986-2007.

Year	Deep Marine Sport Fish Harvest ^a	Commercial Gillnet Harvest			Kenaitze Educational Fishery Harvest	Subsistence Harvest	Personal Use ^f Harvest	Inriver Return ^g	Kenai Sport Fish Harvest ^b	Hook -and- Release Mortality ^b	Spawning Escapement	Total Return
		Eastside Setnet ^b	Driftnet ^c	Personal Use ^d								
1986	630	19,824	1,834	ND	ND	ND	57,563	9,872	316	47,375	79,837	
1987	1,218	21,150	4,552	ND	ND	ND	48,123	13,100	123	34,900	74,480	
1988	1,487	12,859	2,237	ND	ND	ND	52,008	19,695	176	32,137	68,582	
1989	1,368	10,926	0 ^c	4	ND	ND	29,035	9,691	88	19,256	41,344	
1990	1,605	4,139	621	91	ND	ND	33,474	6,897	69	26,508	39,943	
1991	1,705	4,893	246	130	ND	413	34,614	7,903	16	26,695	41,869	
1992	2,115	11,841	615	50	ND	621	30,314	7,556	234	22,524	44,142	
1993	2,834	13,977	765	110	ND	ND	51,991	17,775	478	33,738	69,709	
1994	1,869	15,563	464	13	1	797	53,474	17,837	572	35,065	72,093	
1995	2,069	12,032	594	36	3	753	44,336	12,609	472	31,255	59,642	
1996	2,038	11,521	389	43	1	ND	39,356 ^h	8,112	337	30,907	53,619	
1997	2,931	11,281	627	44	20	ND	39,622 ^h	12,755	570	26,297	54,688	
1998	1,784	5,039	335	48	2	ND	34,878	7,515	595	26,768	42,306	
1999	1,004	9,389	575	73	4	ND	48,069	13,595	682	34,962	60,773	
2000	1,052	3,651	270	33	6	ND	44,517	15,222	499	29,627	50,770	
2001	920	5,904	619	105	8	ND	33,916	16,480	825	17,947	43,446	
2002	427	9,468	415	14	6	ND	41,807	12,607	665	30,464	54,668	
2003	200	14,772	1,240	48	11	ND	41,659	16,943	1,803	23,736	59,759	
2004	1,660	21,683	1,526	255	10	ND	56,205	17,374	1,019	40,198	84,195	
2005	1,040	21,472 ⁱ	1,839 ⁱ	867	11	ND	43,240	18,214	1,267	26,046	70,783	
2006	938	8,696 ⁱ	1,051 ⁱ	47	11	ND	37,743	15,811	830	24,423	52,795	
2007 ^j	n/a	11,996 ⁱ	865 ⁱ	n/a	6 ⁱ	ND	42,979	n/a ^k	n/a ^k	n/a ^k	n/a	

Note: ND = no data collected.

^a Source: (Hammarstrom and Timmons 2001b). Sport harvest includes creel survey estimates for the area from Cook Inlet to the Soldotna bridge and estimates from the Statewide Harvest Survey for Soldotna bridge to the outlet of Kenai Lake.

^b Some harvest is below sonar and not counted against escapement.

^c Total number of Chinook salmon harvested in fishery. No commercial drift net fishery included in 1989 due to Exxon Valdez oil spill.

^d Eastside set net personal use.

^e Source: (Brannian and Fox 1996)

^f Source: 1986-1993 (Brannian and Fox 1996), 1995 (Ruesch and Fox 1996), 1996-2000 estimated from returned permits.

^g Sonar counts for 1996 and 1997 were 49,755 and 49,933, respectively (Burwen and Bosch 1998; Bosch and Burwen 1999). Escapement and total return estimates are calculated using radio telemetry tagging estimates shown here (Hammarstrom and Timmons 2001b).

^h Harvest estimate does not include Kasilof River terminal fishery.

ⁱ Preliminary numbers. n/a = data not available at this time

^j Information from the 2007 SWHS is needed to complete estimates; it will be available in mid-2008.

Table 10.—Guided versus unguided angler harvest, effort, and success rate, estimated by onsite creel survey downstream of the Soldotna bridge, late-run Kenai River Chinook salmon fishery, 1981-2007.

Year	Angler Harvest						Angler Effort						
	Guided			Non-Guided			Total		Guided (Hours)		Non-guided (Hours)		Total (Hours)
	Number	%	HPUE	Number	%	HPUE	Number	HPUE	Number	%	Number	%	Number
1981	2,162	52.1	0.071	1,988	47.9	0.030	4,150	0.043	30,351	31.4	66,309	68.6	96,660
1982	2,257	52.0	0.065	2,083	48.0	0.022	4,340	0.034	34,897	27.3	92,931	72.7	127,828
1983	4,919	59.1	0.090	3,405	40.9	0.031	8,324	0.050	54,756	33.2	110,172	66.8	164,928
1984	2,614	40.2	0.062	3,888	59.8	0.019	6,502	0.026	42,062	16.8	208,309	83.2	250,371
1985	2,705	38.1	0.067	4,395	61.9	0.026	7,100	0.034	40,398	19.1	171,109	80.9	211,507
1986	3,198	39.7	0.067	4,855	60.3	0.030	8,053	0.039	47,379	22.9	159,943	77.1	207,322
1987	5,194	48.2	0.075	5,573	51.8	0.029	10,767	0.041	69,622	26.4	193,630	73.6	263,252
1988	8,393	51.1	0.095	8,042	48.9	0.034	16,435	0.051	88,331	27.3	235,043	72.7	323,374
1989	4,727	59.0	0.055	3,281	41.0	0.018	8,008	0.029	86,507	31.7	186,382	68.3	272,889
1990	3,544	61.0	0.042 ^b	2,269	39.0	0.014 ^b	5,813	0.024 ^b	85,477	34.7	161,071	65.3	246,548
1991	3,864	56.4	0.047	2,985	43.6	0.020	6,849	0.030	82,706	36.0	147,293	64.0	229,999
1992	4,176	62.5	0.064 ^b	2,504	37.5	0.024 ^b	6,680	0.040 ^b	75,324	40.2	112,091	59.8	187,415
1993	7,866	51.5	0.085	7,413	48.5	0.037	15,279	0.052	92,213	31.4	201,695	68.6	293,908
1994	6,628	46.1	0.060	7,760	53.9	0.032	14,388	0.041	110,049	31.0	244,729	69.0	354,778
1995	5,211	51.5	0.042	4,914	48.5	0.025	10,125	0.031	123,585	38.1	200,397	61.9	323,982
1996	3,853	64.4	0.035	2,131	35.6	0.017	5,984	0.025	110,057	46.1	128,438	53.9	238,495
1997	5,856	56.7	0.046	4,480	43.3	0.033	10,336	0.039	126,416	47.9	137,226	52.1	263,642
1998	3,575	59.8	0.041 ^b	2,406	40.2	0.028 ^b	5,981	0.034 ^b	98,872	52.4	89,854	47.6	188,726
1999	7,605	63.2	0.064	4,422	36.8	0.033	12,027	0.048	118,196	46.8	134,264	53.2	252,460
2000	6,585	54.6	0.058	5,480	45.4	0.041	12,065	0.049	114,362	46.0	134,020	54.0	248,382
2001	8,240	60.0	0.075	5,496	40.0	0.043	13,736	0.058	109,238	46.2	127,395	53.8	236,633
2002	6,537	56.9	0.071	4,945	43.1	0.049	11,482	0.060	91,972	47.7	100,808	52.3	192,780
2003	7,637	55.2	0.083	6,200	44.8	0.054	13,837	0.067	91,768	44.2	115,688	55.8	207,456
2004	9,491	65.5	0.086	5,003	34.5	0.039	14,494	0.061	110,690	46.4	127,725	53.6	238,415
2005	8,419	55.0	0.080	6,893	45.0	0.055	15,312	0.066	105,550	45.7	125,235	54.3	230,785
2006	7,295	55.3	0.062	5,895	44.7	0.042	13,190	0.051	117,210	45.5	140,490	54.5	257,700
2007	6,405	69.2	0.060	2,853	30.8	0.025	9,258	0.042	106,644	48.6	112,575	51.4	219,219
Avg. (1997-2006)	7,059	59.2	0.066	4,916	40.8	0.040	11,974	0.052	108,265	47.1	122,298	52.9	230,563
Avg. (1981-2006)	5,517	55.0	0.065	4,502	45.0	0.031	10,019	0.043	87,579	37.5	146,845	62.5	234,424

Note: Harvest = fish kept (number of fish); Effort = participation (number of hours fished).

^a Harvest per angler per hour.

^b Harvest per angler per hour does not include periods open only to retention of trophy (length greater than 52 inches) Chinook salmon.

Table 11.—Kasilof River personal use and subsistence gillnet harvest of Chinook salmon, 1984-2006.

Year	Personal Use and Subsistence Gillnet Harvest
1984	165
1985	203
1986	168
1987	184
1988	118
1989	186
1990	133
1991	34
1992	No Fishery
1993	47
1994	54
1995	63
1996	46
1997	65
1998	126
1999	442
2000	514
2001	174
2002	192
2003	400
2004	163
2005	87
2006	287
<hr/>	
Avg. (1997-2006)	245
<hr/>	
Avg. (1984-2006)	175
<hr/>	

Note: Harvest = fish kept (number of fish).

Sources: 1984-1998 (Ruesch and Fox 1999, Appendix A15), 1995 (Ruesch and Fox 1996, Table 15), 1994 (Brannian and Fox 1996, Table 7), 1996-2006 summaries of returned permits, expanded to include harvest of permits not returned.

Table 12.—Estimated harvest, spawning escapement, and return for early-run Kasilof River/Crooked Creek Chinook salmon, 1996-2007.

Year	Sport Fish Harvest ^a			Return to the weir ^b			Spawning Escapement ^b			Total Return		
	Total	Natural	Hatchery	Total	Natural	Hatchery	Total	Natural	Hatchery	Total	Natural	Hatchery
1996	5,295	ND	ND	2,224	ND	ND	764	ND	ND	7,519	ND	ND
1997	5,627	ND	ND	ND ^c	ND	ND	ND	ND	ND	ND	ND	ND
1998	4,202	ND	ND	ND ^c	ND	ND	ND	ND	ND	ND	ND	ND
1999	7,597	ND	ND	2,358	1,918	440	1,963	1,557	406	9,955	ND	ND
2000	8,815	ND	ND	1,416	1,183	233	1,074	896	178	10,231	ND	ND
2001	7,488	ND	ND	2,584	2,122	462	2,316	1,898	418	10,072	ND	ND
2002	4,791	0 ^d	4,791	3,303	2,506	797	2,674	1,906	768	8,094	2,506	5,588
2003	3,090	0 ^d	3,078	4,127	2,976	1,151	3,597	2,554	1,043	7,217	2,976	4,229
2004	2,421 ^e	0 ^d	2,421	4,873	2,641	2,232	4,356	2,196	2,160	7,294	2,641	4,653
2005	2,624 ^e	576	2,048	3,162	2,107	1,055	2,927	1,903	1,024	5,786	2,683	3,103
2006	2,461 ^e	1,055	1,406	2,645	1,589	1,056	2,568	1,516	1,052	5,106	2,644	2,462
2007	2,497 ^e	1,072	1,425	1,523	1,038	485	1,447	964	483	4,020	2,110	1,910
Avg (2005-2006)		816										
Avg (2002-2006)	3,077		2,749							6,699	2,690	4,007
Avg (1999-2006)				3,059	2,130	928	2,684	1,803	881	7,969		
Avg (1996-2006)	4,946			2,966			2,471			7,919		

Note: ND = no data collected.

^a Data from Statewide Harvest Surveys (Howe et al. 1996-1999; Walker et al. 2003; Jennings et al. 2007, *In prep.*; Jennings et al. 2004; 2006 a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication).

^b Excludes age-0.1 fish 1999-2007.

^c Weir not operational.

^d Retention of wild Chinook salmon prohibited.

^e Numbers taken from inseason creel survey.

Table 13.—Late-run Kasilof River Chinook salmon sport fish harvest, 1996-2006.

Year	Chinook Salmon Sport Fish Harvest ^a
1996	833
1997	1,101
1998	637
1999	658
2000	1,086
2001	1,378
2002	451
2003	1,144
2004	1,038
2005	1,052
2006	883
Avg. (2002-2006)	914
Avg. (1996-2006)	933

Source: Data from Statewide Harvest Surveys (SWHS, Howe et al. 1996-1999; Walker et al. 2003; Jennings et al. 2007, *In prep.*; Jennings et al. 2004; 2006 a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication).

Table 14.—Angler effort, harvest rate, harvest, and spawning escapement for Russian River early-run sockeye salmon, 1965-2007.

Year	Angler			Harvest	Spawning Escapement	Local Return ^a
	Effort		Harvest/			
	Days	Hours	Hour			
1965	7,750	37,710	0.266	10,030	21,514	31,544
1966	11,970	63,080	0.237	14,950	16,658	31,608
1967	11,460	62,960	0.115	7,240	13,710	20,950
1968	11,780	66,540	0.104	6,920	9,192	16,112
1969	12,290	61,790	0.095	5,870	5,000	10,870
1970	9,700	48,730	0.118	5,750	5,451	11,201
1971	6,250	33,060	0.085	2,810	2,654	5,464
1972	12,340	52,500	0.096	5,040	9,273	14,313
1973	15,220	70,950	0.095	6,740	13,120	19,860
1974	11,090	61,330	0.105	6,440	13,164	19,604
1975	5,210	20,590	0.068	1,400	5,645	7,045
1976	8,930	28,910	0.117	3,380	14,736	18,116
1977	38,200	138,580	0.147	20,400	16,061	36,461
1978	51,910	196,590	0.192	37,720	34,240	71,960
1979	25,670	96,300	0.087	8,400	19,749	28,149
1980	31,430	130,820	0.208	27,220	28,624	55,844
1981	24,780	103,130	0.104	10,720	21,142	31,862
1982	39,000	163,140	0.211	34,500	56,106	90,606
1983	18,560	78,550	0.106	8,360	21,272	29,632
1984	29,230	144,680	0.248	35,880	28,908	64,788
1985	16,140	75,000	0.164	12,300	30,605	42,905
1986	29,850	126,720	0.277	35,100	36,338	71,438
1987	80,360	319,820	0.482	154,200	61,513	215,713
1988	46,600	186,390	0.294	54,780	50,406	105,186
1989	20,800	79,660	0.142	11,290	15,338 ^b	26,628
1990	44,740	178,970	0.169	30,215	26,716 ^c	56,931
1991	64,651	255,854	0.256	65,390	32,389 ^d	97,779
1992	37,484	143,937	0.212	30,512	37,117	67,629
1993	34,602	134,949	0.276	37,261	39,857	77,118
1994	42,422	178,173	0.275	48,923	44,872	93,795
1995	31,019	124,076	0.190	23,572	28,603	52,175
1996	51,710	225,457	0.334	75,203	52,905	128,108
1997	ND	ND	ND	36,788	36,280	73,068
1998	ND	ND	ND	42,711	34,143	76,854
1999	ND	ND	ND	34,283	36,607	70,890
2000	ND	ND	ND	40,732	32,736	73,468
2001	ND	ND	ND	35,400	78,255	113,655
2002	ND	ND	ND	52,139	85,943	138,082
2003	ND	ND	ND	22,986	23,650	46,636
2004	ND	ND	ND	32,727	56,582	89,309
2005	ND	ND	ND	37,139	52,903	90,042
2006	ND	ND	ND	51,167	80,524	131,691
2007	ND	ND	ND	^e	27,298	-
Avg. (1997-2006)				38,610	51,760	90,370
Avg. (1965-1996)	27,600	115,280	0.184			
Avg. (1965-2006)				29,160	31,680	60,840

Note: ND = no data collected

“-“ = value can't be calculated until 2007 harvest data becomes available

- ^a Escapement below and above weir plus harvest.
- ^b Includes 60 fish used to test brood source for disease.
- ^c Includes 1,572 fish used as brood source for stocking in Resurrection Bay.
- ^d Includes 729 fish used as brood source for stocking in Resurrection Bay.
- ^e 2007 SWHS harvest data not available until fall 2008.

Table 15.—Angler effort, harvest rate, harvest, and spawning escapement for Russian River late-run sockeye salmon, 1963-2007.

Year	Angler				Spawning Escapement			Local Return
	Effort		Harvest/	Harvest	Above	Below	Total	
	Days	Hours	Hour		Weir	Weir		
1963	2,170	Unknown	Unknown	1,390	51,120	Unknown	Unknown	52,510
1964	1,350	5,070	0.483	2,450	46,930	Unknown	Unknown	49,380
1965	1,970	8,280	0.261	2,160	21,820	Unknown	Unknown	23,980
1966	6,310	28,700	0.254	7,290	34,430	Unknown	Unknown	41,720
1967	5,500	29,490	0.194	5,720	49,480	Unknown	Unknown	55,200
1968	5,500	28,250	0.206	5,820	48,880	4,200	53,080	58,900
1969	2,640	12,230	0.094	1,150	28,872	1,100	29,972	31,122
1970	1,000	2,240	0.268	600	26,200	220	26,420	27,020
1971	8,870	37,390	0.287	10,730	54,421	10,000	64,421	75,151
1972	13,360	55,920	0.287	16,050	79,115	6,000	85,115	101,165
1973	15,470	81,930	0.109	8,930	25,068	6,680	31,748	40,678
1974	10,030	45,210	0.188	8,500	24,904	2,210	27,114	35,614
1975	11,300	52,770	0.159	8,390	31,961	690	32,651	41,041
1976	17,380	74,000	0.185	13,700	31,939	3,470	35,409	49,109
1977	31,310	140,780	0.195	27,440	21,362	17,090	38,452	65,892
1978	17,950	98,830	0.248	24,530	34,334	18,330	52,664	77,194
1979	29,330	124,010	0.216	26,840	87,852	3,920	91,772	118,612
1980	24,900	117,100	0.286	33,500	83,984	3,220	87,204	120,704
1981	26,250	109,250	0.217	23,720	44,523	4,160	48,683	72,403
1982	12,480	59,130	0.175	10,320	30,800	45,000	75,800	86,120
1983	13,300	66,650	0.240	16,000	33,734	44,000	77,734	93,734
1984	20,320	94,850	0.232	21,970	92,659	3,000	95,659	117,629
1985	34,630	159,160	0.367	58,410	136,969	8,650	145,619	204,029
1986	22,400	89,780	0.343	30,810	40,281	15,230	55,511	86,321
1987	32,650	132,570	0.306	40,580	53,932	76,530	130,462	171,042
1988	25,430	94,840	0.206	19,540	42,476	30,360	72,836	92,376
1989	39,770	154,510	0.357	55,210	138,377	28,480	166,857	222,067
1990	39,970	159,890	0.351	56,180	83,434	11,760	95,194	151,374
1991	21,090	78,849	0.399	31,450	78,175	22,270	100,445	131,895
1992	23,015	87,918	0.297	26,101	62,584	4,980	67,564	93,665
1993	23,491	96,312	0.278	26,772	99,259	12,258	111,517	138,289
1994	21,712	91,192	0.289	26,375	122,277	15,211	137,488	163,863
1995	17,166	72,099	0.164	11,805	61,982	12,479	74,461	86,266
1996	17,322	77,951	0.258	20,142	34,691	31,601	66,292	86,434
1997	ND	ND	ND	12,910 ^b	65,905	11,337	77,242	90,152
1998	ND	ND	ND	25,110 ^b	113,480	19,593	133,073	158,183
1999	ND	ND	ND	32,335 ^b	139,863	19,514	159,377	191,712
2000	ND	ND	ND	30,229 ^b	56,580	13,930	70,510	100,739
2001	ND	ND	ND	18,550 ^b	74,964	17,044	92,008	110,558
2002	ND	ND	ND	31,999 ^b	62,115	6,858	68,973	100,972
2003	ND	ND	ND	28,085 ^b	157,469	27,474	184,943	213,028
2004	ND	ND	ND	22,417 ^b	110,244	30,458	140,702	163,119
2005	ND	ND	ND	18,503 ^b	59,473	29,048	88,521	107,024
2006	ND	ND	ND	29,694 ^b	89,160	18,452	107,612	137,306
2007	ND	ND	ND	- ^c	53,068	4,504	57,572	-
Avg. (1997-2006)				24,980	92,930	19,370	112,300	137,280
Avg. (1963-1996)	17,570	75,500	0.247					
Avg. (1963-2006)				21,150	65,180	14,470	79,650	100,800

Note: ND = no data collected; "--" = value can't be calculated until 2007 harvest data becomes available

^a Escapement below and above weir plus harvest.

^b Estimate of late-run harvest from Statewide Harvest Survey, unpublished data.

^c 2007 SWHS harvest data not available until fall 2008.

Table 16.—Daily escapement of early-run sockeye salmon at Russian River weir in 2007 compared to the historical cumulative proportion by day.

Date	2007 Escapement ^a				Historical ^b Cumulative Proportion by Day
	Daily		Cumulative		
	Count	Proportion	Count	Proportion	
07-Jun	0	0.000	0	0.000	0.000
08-Jun	0	0.000	0	0.000	0.000
09-Jun	29	0.001	29	0.001	0.001
10-Jun	138	0.005	167	0.006	0.005
11-Jun	552	0.020	719	0.026	0.009
12-Jun	777	0.028	1,496	0.055	0.017
13-Jun	972	0.036	2,468	0.090	0.027
14-Jun	1,611	0.059	4,079	0.149	0.042
15-Jun	1,320	0.048	5,399	0.198	0.058
16-Jun	2,864	0.105	8,263	0.303	0.076
17-Jun	1,424	0.052	9,687	0.355	0.104
18-Jun	1,312	0.048	10,999	0.403	0.135
19-Jun	775	0.028	11,774	0.431	0.158
20-Jun	809	0.030	12,583	0.461	0.192
21-Jun	422	0.015	13,005	0.476	0.225
22-Jun ^c	857	0.031	13,862	0.508	0.259
23-Jun	1,414	0.052	15,276	0.560	0.290
24-Jun	1,256	0.046	16,532	0.606	0.333
25-Jun	994	0.036	17,526	0.642	0.374
26-Jun	1,062	0.039	18,588	0.681	0.416
27-Jun	1,196	0.044	19,784	0.725	0.457
28-Jun	741	0.027	20,525	0.752	0.495
29-Jun ^d	619	0.023	21,144	0.775	0.536
30-Jun	321	0.012	21,465	0.786	0.574
01-Jul	178	0.007	21,643	0.793	0.615
02-Jul	215	0.008	21,858	0.801	0.668
03-Jul	391	0.014	22,249	0.815	0.713
04-Jul	843	0.031	23,092	0.846	0.748
05-Jul	352	0.013	23,444	0.859	0.782
06-Jul	485	0.018	23,929	0.877	0.817
07-Jul	623	0.023	24,552	0.899	0.849
08-Jul	188	0.007	24,740	0.906	0.876
09-Jul	151	0.006	24,891	0.912	0.902
10-Jul	86	0.003	24,977	0.915	0.921
11-Jul	199	0.007	25,176	0.922	0.941
12-Jul	1,292	0.047	26,468	0.970	0.953
13-Jul	376	0.014	26,844	0.983	0.983
14-Jul	454	0.017	27,298	1.000	1.000

^a Weir count in number of fish.

^b Cumulative proportion by day of 1978-2006 mean daily escapements.

^c 2007 midpoint for Russian River early-run sockeye salmon.

^d Historical midpoint for Russian River early-run sockeye salmon returns, 1978-2006.

Table 17.—Daily escapement of late-run sockeye salmon at Russian River weir in 2007 compared to the historical cumulative proportion by day.

Date	2007 Escapement ^a				Historical ^b Cumulative Proportion by Day
	Daily		Cumulative		
	Count	Proportion	Count	Proportion	
15-Jul	147	0.003	147	0.003	0.003
16-Jul	117	0.002	264	0.005	0.005
17-Jul	208	0.004	472	0.009	0.007
18-Jul	582	0.011	1,054	0.020	0.011
19-Jul	273	0.005	1,327	0.025	0.016
20-Jul	180	0.003	1,507	0.028	0.028
21-Jul	313	0.006	1,820	0.034	0.042
22-Jul	110	0.002	1,930	0.036	0.059
23-Jul	96	0.002	2,026	0.038	0.071
24-Jul	271	0.005	2,297	0.043	0.090
25-Jul	68	0.001	2,365	0.045	0.109
26-Jul	1,468	0.028	3,833	0.072	0.136
27-Jul	345	0.007	4,178	0.079	0.172
28-Jul	455	0.009	4,633	0.087	0.201
29-Jul	485	0.009	5,118	0.096	0.225
30-Jul	571	0.011	5,689	0.107	0.256
31-Jul	3,219	0.061	8,908	0.168	0.279
1-Aug	1,559	0.029	10,467	0.197	0.319
2-Aug	559	0.011	11,026	0.208	0.350
3-Aug	657	0.012	11,683	0.220	0.386
4-Aug	1,556	0.029	13,239	0.249	0.429
5-Aug	1,444	0.027	14,683	0.277	0.476
6-Aug ^c	1,235	0.023	15,918	0.300	0.515
7-Aug	2,022	0.038	17,940	0.338	0.547
8-Aug	1,201	0.023	19,141	0.361	0.586
9-Aug	1,055	0.020	20,196	0.381	0.622
10-Aug	1,104	0.021	21,300	0.401	0.650
11-Aug	1,636	0.031	22,936	0.432	0.675
12-Aug	1,838	0.035	24,774	0.467	0.701
13-Aug	1,343	0.025	26,117	0.492	0.726
14-Aug ^d	2,039	0.038	28,156	0.531	0.750
15-Aug	2,736	0.052	30,892	0.582	0.773
16-Aug	3,373	0.064	34,265	0.646	0.794
17-Aug	2,196	0.041	36,461	0.687	0.811

-continued-

Table 17.—Page 2 of 2.

Date	2007 Escapement ^a				Historical ^b Cumulative Proportion by Day
	Daily		Cumulative		
	Count	Proportion	Count	Proportion	
18-Aug	1,724	0.032	38,185	0.720	0.829
19-Aug	1,406	0.026	39,591	0.746	0.844
20-Aug	1,629	0.031	41,220	0.777	0.859
21-Aug	1,983	0.037	43,203	0.814	0.873
22-Aug	1,520	0.029	44,723	0.843	0.883
23-Aug	1,139	0.021	45,862	0.864	0.894
24-Aug	1,049	0.020	46,911	0.884	0.908
25-Aug	896	0.017	47,807	0.901	0.916
26-Aug	808	0.015	48,615	0.916	0.927
27-Aug	554	0.010	49,169	0.927	0.936
28-Aug	672	0.013	49,841	0.939	0.944
29-Aug	459	0.009	50,300	0.948	0.951
30-Aug	559	0.011	50,859	0.958	0.958
31-Aug	376	0.007	51,235	0.965	0.964
1-Sep	358	0.007	51,593	0.972	0.968
2-Sep	271	0.005	51,864	0.977	0.973
3-Sep	141	0.003	52,005	0.980	0.977
4-Sep	112	0.002	52,117	0.982	0.980
5-Sep	169	0.003	52,286	0.985	0.982
6-Sep	174	0.003	52,460	0.989	0.984
7-Sep	90	0.002	52,550	0.990	0.986
8-Sep	131	0.002	52,681	0.993	0.987
9-Sep	144	0.003	52,825	0.995	0.988
10-Sep	124	0.002	52,949	0.998	0.989
11-Sep	76	0.001	53,025	0.999	0.990
12-Sep	40	0.001	53,065	1.000	0.990
13-Sep	3	0.000	53,068	1.000	0.991
14-Sep	0	0.000	53,068	1.000	0.991
15-Sep	0	0.000	53,068	1.000	0.990
16-Sep	0	0.000	53,068	1.000	0.976
17-Sep	0	0.000	53,068	1.000	0.976
18-Sep	0	0.000	53,068	1.000	0.976
19-Sep	0	0.000	53,068	1.000	0.977
20-Sep	0	0.000	53,068	1.000	0.977

^a Weir count in number of fish.

^b Cumulative proportion by day of 1978-2006 mean daily escapements.

^c Historical midpoint for Russian River late-run sockeye salmon returns, 1978-2006.

^d 2007 midpoint for Russian River late-run sockeye salmon.

Table 18.—Inriver harvest and spawning escapement for Kenai River drainage sockeye salmon, 1981-2006.

Year	Personal use, Subsistence, Dip Net Educational Harvest ^a	Sport Harvest below Sonar ^{b,c}	Kenai R Sonar Count ^d	Total Inriver Return	Harvests above sonar							Hidden Lake Personal Use & Sport	Total Harvest above Sonar	Spawning Escapement
					Kenai R. harvest below Soldotna Bridge	Kenai R Sonar to Soldotna Bridge	Kenai R above Soldotna Bridge	Kenai R Reach Not Specified ^e	Skilak Lake	Late Run Russian R				
1981	0	3,116	407,639	410,755	5,270	2,154	14,451	ND	ND	23,720	0	40,325	367,314	
1982	0	6,922	619,831	626,753	11,706	4,784	38,397	ND	ND	10,320	ND	53,501	566,330	
1983	7,562	13,577	630,340	651,479	22,961	9,384	48,306	ND	0	16,000	0	73,690	556,650	
1984	0	2,613	344,571	347,184	4,419	1,806	11,283	ND	0	21,970	17	35,076	309,495	
1985	0	8,835	502,820	511,655	14,941	6,106	42,272	ND	0	58,410	149	106,937	395,883	
1986	0	12,522	501,157	513,679	21,177	8,655	51,221	ND	13	30,810	0	90,699	410,458	
1987	24,086	50,274	1,596,871	1,671,231	85,020	34,746	155,799	ND	2,029	40,580	689	233,843	1,363,028	
1988	16,880	29,345	1,021,469	1,067,694	49,627	20,282	103,124	ND	382	19,540	583	143,911	877,558	
1989	51,188	66,162	1,599,959	1,717,309	111,889	45,727	165,336	ND	1,654	55,210	331	268,258	1,331,701	
1990	3,477	19,640	659,520	682,637	33,213	13,573	85,074	ND	670	56,180	107	155,604	503,916	
1991	13,433	31,536	647,597	692,566	53,331	21,795	108,271	ND	2,411	31,450	77,060	240,987	406,610	
1992	30,394	47,622	994,798	1,072,814	80,535	32,913	161,956	ND	1,044	26,101	468	222,482	772,316	
1993	35,000	27,717	813,617	876,334	46,873	19,156	90,306	ND	825	26,772	133	137,192	676,425	
1994	15,368	17,954	1,003,446	1,036,768	30,363	12,409	63,253	ND	213	26,375	102	102,352	901,094	
1995	15,720	29,451	630,447	675,618	49,806	20,355	75,622	ND	177	11,805	83	108,042	522,405	
1996	104,110	39,810	797,847	941,767	67,324	27,514	118,967	ND	307	19,136	225	166,149	631,698	
1997	116,107	43,642	1,064,818	1,224,567	73,805	30,163	103,328	ND	312	12,910	274	146,987	917,831	
1998	105,497	33,980	767,558	907,035	57,464	23,484	107,072	ND	158	25,110	81	155,905	611,653	
1999	150,993	46,043	803,379	1,000,415	77,865	31,822	122,709	ND	0	32,335	859	187,725	615,654	
2000	99,571	57,978	624,578	782,127	98,048	40,070	132,935	ND	377	30,229	190	203,801	420,777	
2001	152,580	51,374	650,036	853,990	86,880	35,506	113,882	ND	24	18,550	142	168,104	481,932	
2002	182,229	46,693	957,924	1,186,846	78,964	32,271	143,211	3,742	1,509	31,999	308	213,040	744,884	
2003	227,207	60,722	1,181,309	1,469,238	102,689	41,967	173,068	10,168	96	28,085	302	253,686	927,623	
2004	266,937	62,397	1,385,981	1,715,315	105,521	43,124	182,722	5,795	276	22,417	437	254,771	1,131,210	
2005	300,105	58,017	1,376,452	1,734,574	98,114	40,097	182,704	13,469	45	18,503	0	254,818	1,121,634	
2006	130,486	30,964	1,499,692	1,661,142	52,364	21,400	113,972	7,089	98	29,694	385	172,638	1,327,054	
Avg. (2002-2006)								8,050						
Avg. (1997-2006)	173,170	49,180	1,031,170	1,253,520	83,170	33,990	137,560		290	24,980	300	201,150	830,030	
Avg. (1983-2006)									530					
Avg. (1981-2006)	78,810	34,570	887,830	1,001,210	58,470	23,890	104,200			27,850	3,320	161,170	726,660	

^a Personal use harvest not known in 1982; 1981 and 1983-1995 from Statewide Harvest Surveys (SWHS, Mills 1982-1994; Howe et al. 1995, 1996). 1996-2000 total reported harvest from returned permits, expanded to include permits not returned. Subsistence dip net harvest 1991-1992 and 1994 from Brannian and Fox (1996). Educational is total annual Kenaitze educational permit harvest.

^b Sport harvest and 1991 Hidden Lake personal use from SWHS (Mills 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, *In prep.*; Jennings et al. 2004; 2006 a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication).

^c In 1994 and 1995 a creel survey was conducted to estimate harvest below the sonar. In 1994, 49.7% of the below Soldotna bridge harvest was taken below the sonar. In 1995, 68.6% was taken below the sonar. The average of these two percentages is applied to all other year's below-bridge harvest to estimate the harvest below the sonar.

^d Estimated escapement at sonar site (Westerman and Willette 2006).

^e SWHS began collecting "Kenai River Reach Not Specified" data in 2002. ND = no date collected.

Table 19.—Sport fish harvest of Kenai River sockeye salmon by river section and total angler effort for all species, 1981-2006.

Year	Sport Fish Harvest										Total Angler for all (angler-days)	
	Cook Inlet to Soldotna Bridge		Soldotna Bridge to Moose River		Moose River to Skilak Lake		Skilak Lake to Kenai Lake		Kenai River Reach Not Specified ^a			Total
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
1981	5,270	26.7	5,336	27.1	4,266	21.6	4,849	24.6	ND	ND	19,721	178,716
1982	11,706	23.4	14,829	29.6	12,136	24.2	11,432	22.8	ND	ND	50,103	231,948
1983	22,961	32.2	22,454	31.5	15,180	21.3	10,672	15.0	ND	ND	71,267	229,228
1984	4,419	28.1	2,183	13.9	2,300	14.6	6,800	43.3	ND	ND	15,702	270,422
1985	14,941	26.1	13,025	22.8	13,299	23.2	15,948	27.9	ND	ND	57,213	322,230
1986	21,177	29.3	13,846	19.1	13,533	18.7	23,842	32.9	ND	ND	72,398	335,051
1987	85,020	35.3	65,841	27.3	39,926	16.6	50,032	20.8	ND	ND	240,819	289,165
1988	49,627	32.5	43,494	28.5	29,178	19.1	30,452	19.9	ND	ND	152,751	374,259
1989	111,889	40.4	90,550	32.7	45,844	16.5	28,942	10.4	ND	ND	277,225	376,902
1990	33,213	28.1	37,201	31.4	22,083	18.7	25,790	21.8	ND	ND	118,287	342,662
1991	53,331	33.0	56,059	34.7	24,768	15.3	27,444	17.0	ND	ND	161,602	323,368
1992	80,535	33.2	85,942	35.4	40,616	16.7	35,398	14.6	ND	ND	242,491	332,573
1993	46,873	34.2	41,466	30.2	18,724	13.6	30,116	22.0	ND	ND	137,179	324,120
1994	30,363	32.4	24,307	26.0	12,374	13.2	26,572	28.4	ND	ND	93,616	340,904
1995	49,806	39.7	38,602	30.8	17,606	14.0	19,414	15.5	ND	ND	125,428	377,710
1996	67,324	36.1	51,866	27.8	29,391	15.8	37,710	20.2	ND	ND	186,291	265,986
1997	73,805	41.7	56,784	32.1	23,626	13.3	22,918	12.9	ND	ND	177,133	247,898
1998	57,464	34.9	61,763	37.5	24,315	14.8	20,994	12.8	ND	ND	164,536	216,650
1999	77,865	38.8	61,344	30.6	27,569	13.7	33,796	16.8	ND	ND	200,574	307,446
2000	98,048	42.4	74,132	32.1	30,825	13.3	27,978	12.1	ND	ND	230,983	358,569
2001	86,880	43.3	73,841	36.8	19,616	9.8	20,425	10.2	ND	ND	200,762	298,817
2002	78,964	35.0	79,608	35.2	23,488	10.4	40,115	17.8	3,742	1.7	225,917	312,785
2003	102,689	35.9	116,383	40.7	30,914	10.8	25,771	9.0	10,168	3.6	285,925	320,747
2004	105,521	35.9	111,048	37.8	42,489	14.5	29,185	9.9	5,795	2.0	294,038	375,370
2005	98,114	33.3	115,270	39.2	32,655	11.1	34,779	11.8	13,469	4.6	294,287	388,677
2006	52,364	30.2	71,854	41.4	22,177	12.8	19,941	11.5	7,089	4.1	173,425	329,122
Avg. (2002-2006)									8,050	3.2		
Avg. (1997-2006)	83,170	37.1	82,200	36.3	27,770	12.5	27,590	12.5			224,760	315,610
Avg. (1981-2006)	58,470	33.9	54,960	31.2	23,800	15.7	25,440	18.5			164,220	310,440

Source: Statewide Harvest Surveys (SWHS, Mills 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, *In prep.*; Jennings et al. 2004; 2006 a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication).

^a SWHS began collecting "Kenai River Reach Not Specified" data in 2002. ND = no data collected.

^b Number = number of fish.

Table 20.—Coho salmon harvest in Cook Inlet and Kenai River, 1993-2006.

Year	Cook Inlet commercial harvest				Estimated harvest of Kenai River coho salmon								Percent contribution select commercial fisheries to overall harvest Kenai River ^f
	Drift Gillnet	Central District ESSN	North District Set Gillnet	Kalgan I/ West Side	Drift Gillnet	Central District ESSN	North District Set Gillnet	Kenai R Sport Fish	Russian R Sport Fish	Personal Use and Subsistence	Educational Fishery	Total	
	Total ^a	Total ^{a,b}	Total ^a	Total ^a	Total ^{a,c}	Total ^{b,c}	Total ^c	Total ^d	Total ^d	Total ^e	Total	Total	
1993	121,829	43,098	106,294	35,661	930	6,806	148	50,538	2,290	1,597 ^g	427	62,736	12.6
1994	310,114	68,449	144,064	61,166	11,732	14,673	477	86,711	4,607	2,535 ^h	829	121,564	22.1
1995	241,473	44,750	89,300	71,431	6,956	13,152	582	46,183	4,077	1,261 ^g	868	73,079	28.3
1996	171,434	40,724	78,105	31,405	2,671	11,856	29	42,293	4,599	1,932 ^g	592	63,972	22.8
1997	78,662	19,668	37,369	16,705	1,236	2,093	36	16,164	4,586	559 ^g	191	24,865	13.5
1998	83,338	18,677	34,359	24,286	1,974	8,096	175	26,967	4,612	1,011 ^g	638	43,473	23.6
1999	64,814	11,923	31,446	17,725	818	2,905	171	31,637	3,910	1,009 ^g	530	40,980	9.5
2000	131,478	11,078	71,475	22,840	531	2,351	83	48,519	3,938	1,449 ^g	656	57,527	5.2
2001	39,418	4,246	45,928	23,719	282	349	1,303	49,782	5,222	1,555 ^g	572	59,065	3.3
2002	125,831	35,153	502,922	35,005	1,370	4,688	57	59,650	6,093	1,721 ^g	921	74,500	8.2
2003	52,432	10,171	24,015	15,138	330	2,122	126	46,622	5,197	1,332 ^g	439	56,168	4.6
2004	198,493	30,137	44,130	36,257	4,251 ⁱ	5,921 ⁱ	977 ⁱ	65,915	6,574	2,661 ^g	765	87,064	12.8
2005	144,753	19,543	30,859	29,502	1,533 ⁱ	3,310 ⁱ	176 ⁱ	50,411	3,868	2,512 ^g	489	62,299	8.1
2006	98,473	22,556	20,215	36,450	n/a ^j	n/a ^j	n/a ^j	37,639	5,431	2,235 ^g	689	n/a ^j	n/a
Avg (1997-2006)	101,770	18,320	84,270	25,760	1,230	3,180	310	43,330	4,940	1,600	590	50,590	8.9
Avg(1993-2006)	133,040	27,160	90,030	32,660	2,470	5,590	310	47,070	4,640	1,670	610	59,090	10.0

^a Some commercial harvest estimates have been revised (due to discovery of lost or late fish tickets). The Kenai River coho salmon commercial harvest contribution estimates were generated and reported based on slightly lower total commercial harvest estimates. N. District = Northern District.

^b Central District (C. District) eastside setnet (ESSN) commercial fishery.

^c Sources: (Carlson and Hasbrouck 1994, 1996-1998; Carlson 2000, 2003; Massengill and Carlson 2004 a-b, 2007 a-b; Massengill *In prep*).

^d Source: Statewide Harvest Surveys (Mills 1994; Howe et al. 1995, 1996, 2001 a-d (1996-2000 are revised estimates); Walker et al. 2003; Jennings et al. 2007, *In prep*; Jennings et al. 2004; 2006 a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication (includes Hidden and Skilak lake harvests)).

^e Source of personal use and subsistence harvest (Mills 1994; Brannian and Fox 1996; Ruesch and Fox 1996; Reimer and Sigurdsson 2004; K.H. Sundet, Sport Fish Research Analyst, ADF&G, Anchorage; personal communication).

^f Percent of Kenai River original coho salmon caught in combined Upper Cook Inlet drift gillnets, eastside set gillnet, and Northern District get gillnet commercial harvests, Kalgan Island and West Side setnet harvest historically an insignificant harvest of Kenai River coho salmon and is not counted?

^g Personal use.

^h Subsistence.

ⁱ Preliminary Kenai River origin coho salmon commercial harvest contribution data.

^j 2005 was the final year the contribution of Kenai River coho salmon was estimated for Upper Cook Inlet.

Table 21.—Estimated sport fish harvest of Kenai River coho salmon by river section, 1977-2006.

Year	Kenai R Lower Section ^a			Kenai R Middle Section ^b			Kenai R Upper Section ^c			Inter-Lake ^d			Reach Not Specified ^e			All Sections		
	Early Run	Late Run	Total	Early Run	Late Run	Total	Early Run	Late Run	Total	Early Run	Late Run	Total	Early Run	Late Run	Total	Early Run	Late Run	Total
1977	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9,537
1978	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10,823
1979	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15,276
1980	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	26,838
1981	ND	ND	12,280	ND	ND	3,326	ND	ND	6,178	ND	ND	540	ND	ND	ND	ND	ND	22,324
1982	ND	ND	26,582	ND	ND	3,904	ND	ND	7,200	ND	ND	1,729	ND	ND	ND	ND	ND	39,415
1983	ND	ND	12,231	ND	ND	4,007	ND	ND	4,867	ND	ND	1,573	ND	ND	ND	ND	ND	22,678
1984	ND	ND	40,173	ND	ND	7,596	ND	ND	8,065	ND	ND	3,810	ND	ND	ND	ND	ND	59,644
1985	ND	ND	22,579	ND	ND	6,781	ND	ND	12,774	ND	ND	2,401	ND	ND	ND	ND	ND	44,535
1986	ND	ND	38,338	ND	ND	10,336	ND	ND	8,348	ND	ND	3,088	ND	ND	ND	ND	ND	60,110
1987	ND	ND	19,612	ND	ND	6,222	ND	ND	4,077	ND	ND	3,299	ND	ND	ND	ND	ND	33,210
1988	ND	ND	34,690	ND	ND	4,863	ND	ND	5,714	ND	ND	3,427	ND	ND	ND	ND	ND	48,694
1989	ND	ND	36,668	ND	ND	7,921	ND	ND	8,236	ND	ND	2,434	ND	ND	ND	ND	ND	55,259
1990	ND	ND	40,567	ND	ND	8,446	ND	ND	7,281	ND	ND	4,031	ND	ND	ND	ND	ND	60,325
1991	ND	ND	49,499	ND	ND	13,438	ND	ND	9,520	ND	ND	3,699	ND	ND	ND	ND	ND	76,156
1992	ND	ND	33,175	ND	ND	7,579	ND	ND	7,547	ND	ND	4,009	ND	ND	ND	ND	ND	52,310
1993	ND	ND	29,135	ND	ND	9,677	ND	ND	6,771	ND	ND	4,955	ND	ND	ND	ND	ND	50,538
1994	ND	ND	46,345	ND	ND	15,249	ND	ND	12,286	ND	ND	12,831	ND	ND	ND	ND	ND	86,711
1995	20,031	11,808	31,839	4,842	1,131	5,973	2,785	2,794	5,579	2,065	727	2,792	ND	ND	ND	29,723	16,460	46,183
1996	17,551	5,010	22,561	8,347	2,076	10,423	4,371	1,682	6,053	2,457	799	3,256	ND	ND	ND	32,726	9,567	42,293
1997	5,570	1,293	6,863	2,858	1,319	4,177	1,752	1,330	3,082	1,587	455	2,042	ND	ND	ND	11,767	4,397	16,164
1998	9,955	5,506	15,461	3,667	1,430	5,097	2,373	1,833	4,206	1,764	439	2,203	ND	ND	ND	17,759	9,208	26,967
1999	14,413	6,029	20,442	4,732	654	5,386	1,268	1,812	3,080	1,951	778	2,729	ND	ND	ND	22,364	9,273	31,637
2000	22,392	8,444	30,836	8,185	1,880	10,065	3,894	1,159	5,053	1,652	913	2,565	ND	ND	ND	36,123	12,396	48,519
2001	23,501	8,977	32,478	7,381	1,947	9,328	3,565	1,986	5,551	1,672	753	2,425	ND	ND	ND	36,119	13,663	49,782
2002	27,062	9,641	36,703	8,220	2,630	10,850	2,663	2,406	5,069	3,965	886	4,851	1,552	625	2,177	43,462	16,188	59,650
2003	20,093	5,963	26,056	8,961	2,029	10,990	3,160	1,517	4,677	2,690	490	3,180	1,367	352	1,719	36,271	10,351	46,622
2004	29,606	12,010	41,616	9,145	4,055	13,200	3,492	2,234	5,726	2,733	868	3,601	1,135	637	1,772	46,111	19,804	65,915
2005	17,331	7,810	25,141	10,793	3,563	14,356	1,697	2,739	4,436	2,310	2,103	4,413	1,699	366	2,065	33,830	16,581	50,411
2006	13,817	7,132	20,949	4,800	2,331	7,131	1,890	2,939	4,829	2,638	890	3,528	797	405	1,202	23,942	13,697	37,639
Avg (2002-2006)													1,310	477	1,787			
Avg (1997-2006)	18,374	7,281	25,655	6,874	2,184	9,058	2,575	1,996	4,571	2,296	858	3,154				30,775	12,556	43,331
Avg (1995-2006)	18,444	7,469		6,828	2,087		2,743	2,036		2,290	842					30,850	12,632	
Avg (1981-2006)			28,955			8,320			6,393			3,439						
Avg (1977-2006)																		43,206

Source: all data from Statewide Harvest Surveys (SWHS, Mills 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, *In prep.*; Jennings et al. 2004; 2006

a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication). ND = no data collected.

^a Cook Inlet to Soldotna bridge.

^b Soldotna bridge to Moose River.

^c Moose River to Skilak Lake.

^d Skilak Lake to Kenai Lake.

^e Kenai River Reach Not Specified - adopted by SWHS beginning in 2002.

Table 22.—Kenai River rainbow trout, number caught and number retained by river section, 1984-2006.

Year	Kenai River sections																				
	Cook Inlet to Soldotna Bridge			Soldotna Bridge to Moose R			Moose R to Skilak Outlet			Skilak Inlet to Kenai Lake			Kenai R- reach not specified ^a			Kenai River Total					
	Number Caught ^b	Number Kept	Percent Kept	Number Caught ^b	Number Kept	Percent Kept	Number Caught ^b	Number Kept	Percent Kept	Number Caught ^b	Number Kept	Percent Kept	Number Caught ^b	Number Kept	Percent Kept	Number Caught ^b	Number Kept	Percent Kept			
1984 ^c	3,464	710	20.5	2,911	1,250	42.9	5,112	580	11.3	4,200	930	22.1	ND	ND	ND	15,687	3,470	22.1			
1985 ^c	3,398	880	25.9	2,653	850	32.0	5,410	1,500	27.7	3,520	710	20.2	ND	ND	ND	14,981	3,940	26.3			
1986	2,570	623	24.2	2,380	168	7.1	1,750	901	51.5	2,020	733	36.3	ND	ND	ND	8,720	2,425	27.8			
1987	2,220	522	23.5	3,450	670	19.4	6,430	629	9.8	3,870	364	9.4	ND	ND	ND	15,970	2,185	13.7			
1988	2,780	295	10.6	1,560	216	13.8	5,880	1,063	18.1	7,580	559	7.4	ND	ND	ND	17,800	2,133	12.0			
1989	2,020	481	23.8	2,230	354	15.9	6,470	829	12.8	6,870	253	3.7	ND	ND	ND	17,590	1,917	10.9			
1990	2,624	510	19.4	3,571	943	26.4	5,366	937	17.5	11,995	1,145	9.5	ND	ND	ND	23,556	3,535	15.0			
1991	3,672	516	14.1	3,844	1,123	29.2	7,930	940	11.9	18,108	740	4.1	ND	ND	ND	33,554	3,319	9.9			
1992	4,448	427	9.6	3,879	411	10.6	15,127	736	4.9	28,702	403	1.4	ND	ND	ND	52,160	1,980	3.8			
1993	6,190	1,149	18.6	5,556	580	10.4	12,651	653	5.2	37,755	192	0.5	ND	ND	ND	62,150	2,570	4.1			
1994	3,796	506	13.3	3,980	364	9.1	10,968	543	5.0	35,089	163	0.5	ND	ND	ND	53,833	1,576	2.9			
1995	4,516	620	13.7	4,087	440	10.8	13,072	780	6.0	33,475	310	0.9	ND	ND	ND	55,150	2,150	3.9			
1996	5,513	304	5.5	4,777	646	13.5	8,650	373	4.3	45,471	237	0.5	ND	ND	ND	64,411	1,560	2.4			
1997	7,411	739	10.0	6,641	539	8.1	20,047	632	3.2	61,053	0 ^d	0.0 ^d	ND	ND	ND	95,152	1,910	2.0			
1998	5,502	608	11.1	5,380	670	12.5	12,158	737	6.1	42,224	0 ^d	0.0 ^d	ND	ND	ND	65,264	2,015	3.1			
1999	11,415	1,516	13.3	8,325	695	8.3	32,050	1,573	4.9	50,189	0 ^d	0.0 ^d	ND	ND	ND	101,979	3,784	3.7			
2000	16,477	1,292	7.8	9,428	1,083	11.5	18,990	1,084	5.7	78,836	0 ^d	0.0 ^d	ND	ND	ND	123,731	3,459	2.8			
2001	11,216	987	8.8	7,473	868	11.6	22,392	567	2.5	51,130	0 ^d	0.0 ^d	ND	ND	ND	92,211	2,422	2.6			
2002	12,641	995	7.9	8,157	944	11.6	19,355	864	4.5	71,753	0 ^d	0.0 ^d	2,269	216	9.5	114,175	3,019	2.6			
2003	12,844	1,026	8.0	10,913	700	6.4	41,204	372	0.9	54,552	0 ^d	0.0 ^d	3,536	180	5.1	123,049	2,278	1.9			
2004	15,080	1,452	9.6	13,310	978	7.3	34,026	831	2.4	91,443	0 ^d	0.0 ^d	5,651	50	0.9	159,510	3,311	2.1			
2005	14,119	953	6.7	11,585	647	5.6	34,675	607	1.8	57,936	267	0.5	7,949	43	0.5	126,264	2,517	2.0			
2006	13,168	588	4.5	13,683	1,109	8.1	33,222	472	1.4	67,741	289	0.4	4,005	41	1.0	131,819	2,499	1.9			
Averages																					
(2005-2006)													62,839	278	0.4						
(2002-2006)																4,680	110	3.4			
(1997-2006)	11,990	1,020	8.8	9,490	820	9.1	26,810	770	3.3	62,690				113,320 2,720 2.5							
(1984-1996)													18,358	518	9.0						
(1984-2006)	7,260	770	13.5	6,080	710	14.4	16,210	790	9.5	37,630				68,210 2,610 7.8							

Source: Statewide Harvest Surveys (SWHS, Mills 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, *In prep.*; Jennings et al. 2004; 2006 a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication). Catch = fish harvested plus fish released. Harvest = fish kept (retained). ND = no data collected.

^a Adopted by SWHS in 2002.

^b Catch estimates from 1984-1989 are unpublished estimates from the SWHS data base (M.J. Mills, Sport Fish Biometrician, ADF&G, Anchorage; personal communication).

^c In 1984 and 1985, catch estimates were mistakenly reported as harvest in Mills (1985-1986). Corrected harvest numbers are presented here.

^d Retention of rainbow trout was prohibited from 1977 through 2004.

Table 23.— Kenai River Dolly Varden harvest and catch by river section, 1984-2006.

Year	Harvest											Catch													
	Cook Inlet to Soldotna Bridge		Soldotna Bridge to Moose R		Moose River to Skilak Lake		Skilak Inlet to Kenai Lake		Kenai River reach not specified ^a		Total	Cook Inlet to Soldotna Bridge		Soldotna Bridge to Moose R		Moose River to Skilak Lake		Skilak Inlet to Kenai Lake		Kenai River reach not specified ^a		Total			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Number			
1984	7,506	23.9	1,966	6.3	11,211	35.7	10,724	34.1	ND	ND	31,407	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
1985	7,560	28.8	3,277	12.5	8,930	34.0	6,468	24.7	ND	ND	26,235	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
1986	1,249	21.6	771	13.4	1,928	33.4	1,827	31.6	ND	ND	5,775	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
1987	2,429	31.8	1,671	21.9	2,139	28.0	1,391	18.2	ND	ND	7,630	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
1988	3,531	32.2	1,266	11.5	3,527	32.1	2,653	24.2	ND	ND	10,977	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
1989	3,414	33.9	1,371	13.6	3,649	36.3	1,630	16.2	ND	ND	10,064	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
1990	2,738	22.9	2,424	20.2	2,741	22.9	4,079	34.0	ND	ND	11,982	7,795	22.5	5,094	14.7	7,537	21.8	14,151	40.9	ND	ND	34,577			
1991	4,211	29.0	3,285	22.6	4,268	29.4	2,740	18.9	ND	ND	14,504	10,665	15.5	8,116	11.8	19,363	28.2	30,601	44.5	ND	ND	68,745			
1992	3,777	26.1	2,516	17.4	4,900	33.9	3,269	22.6	ND	ND	14,462	11,822	15.0	5,899	7.5	26,348	33.4	34,754	44.1	ND	ND	78,823			
1993	4,599	36.2	1,539	12.1	3,503	27.6	3,057	24.1	ND	ND	12,698	13,019	17.1	6,079	8.0	20,778	27.2	36,451	47.8	ND	ND	76,327			
1994	3,276	38.6	1,107	13.0	2,051	24.2	2,052	24.2	ND	ND	8,486	8,752	14.2	5,185	8.4	14,584	23.6	33,168	53.8	ND	ND	61,689			
1995	4,069	42.7	1,732	18.2	2,113	22.2	1,609	16.9	ND	ND	9,523	10,146	18.4	5,399	9.8	12,447	22.6	27,103	49.2	ND	ND	55,095			
1996	2,411	32.2	1,797	24.0	1,995	26.7	1,281	17.1	ND	ND	7,484	9,787	17.3	5,973	10.6	14,506	25.7	26,245	46.4	ND	ND	56,511			
1997	2,518	36.2	1,042	15.0	2,824	40.6	573	8.2	ND	ND	6,957	9,955	11.0	5,268	5.8	22,266	24.5	53,317	58.7	ND	ND	90,806			
1998	1,977	32.5	1,787	29.4	1,847	30.4	468	7.7	ND	ND	6,079	7,560	12.4	5,961	9.8	11,732	19.3	35,659	58.5	ND	ND	60,912			
1999	3,867	51.1	1,086	14.3	1,932	25.5	683	9.0	ND	ND	7,568	14,752	20.2	6,316	8.7	20,053	27.5	31,826	43.6	ND	ND	72,947			
2000	3,916	52.7	1,759	23.7	1,403	18.9	349	4.7	ND	ND	7,427	18,261	17.4	9,122	8.7	21,291	20.3	56,375	53.7	ND	ND	105,049			
2001	3,763	57.6	1,613	24.7	789	12.1	363	5.6	ND	ND	6,528	16,304	15.1	8,367	7.8	28,312	26.3	54,802	50.8	ND	ND	107,785			
2002	2,191	37.9	1,431	24.8	1,105	19.1	766	13.3	288	5.0	5,781	16,414	21.2	7,751	10.0	13,384	17.3	38,481	49.7	1,437	1.9	77,467			
2003	2,996	49.0	1,318	21.6	1,066	17.4	487	8.0	246	4.0	6,113	15,520	14.9	9,765	9.4	25,972	25.0	50,969	49.1	1,684	1.6	103,910			
2004	1,759	30.2	2,129	36.6	1,220	21.0	452	7.8	258	4.4	5,818	14,386	9.9	13,591	9.3	23,833	16.3	89,318	61.3	4,660	3.2	145,788			
2005	1,548	35.9	934	21.6	1,243	28.8	565	13.1	26	0.6	4,316	13,501	11.4	9,629	8.1	27,398	23.0	62,798	52.8	5,615	4.7	118,941			
2006	971	30.2	1,061	33.0	515	16.0	414	12.9	257	8.0	3,218	11,405	11.6	8,135	8.3	24,499	24.9	52,048	52.9	2,211	2.2	98,298			
Averages																									
(2002-2006)											220	4.4											3,120	2.7	
(1997-2006)	2,550	41.3	1,420	24.5	1,390	23.0	510	9.0			5,980	13,810	14.5	8,390	8.6	21,870	22.4	52,560	53.1			98,190			
(1990-2006)													12,360	15.6	7,390	9.2	19,660	23.9	42,830	50.5					83,160
(1984-2006)	3,320	35.4	1,690	19.6	2,910	26.8	2,080	17.3			10,040														

Source: Statewide Harvest Surveys (SWHS, Mills 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, *In prep.*; Jennings et al. 2004; 2006 a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication). Harvest = fish kept (number of fish). Catch = fish harvested plus fish released. ND = no data collected.

^a SWHS began collecting "Kenai River Reach Not Specified" data in 2002.

Table 24.—Fishing effort, catch, and harvest for Hidden Lake lake trout, 1977-2006.

Year	Sport Fish		
	Effort	Catch	Harvest
1977	7,462	ND	1,542
1978	4,028	ND	850
1979	5,974	ND	1,109
1980	5,783	ND	1,860
1981	4,761	ND	1,069
1982	6,728	ND	2,117
1983	6,761	ND	1,437
1984	4,835	ND	1,047
1985	3,676	ND	1,405
1986	6,254	ND	3,761
1987	12,532	ND	1,050
1988	4,820	ND	1,183
1989	1,152	ND	619
1990	4,188	2,020	1,260
1991	4,426	2,302	1,494
1992	4,172	2,005	995
1993	5,030	2,358	1,449
1994	3,014	1,271	822
1995	4,443	1,103	852
1996	2,305	2,082	1,131
1997	2,575	1,091	524
1998	1,576	1,012	550
1999	2,017	1,452	545
2000	1,804	437	318
2001	1,604	734	160
2002	1,412	653	200
2003	1,761	443	285
2004	1,902	1,188	482
2005	1,548	728	216
2006	1,975	580	386
<hr/>			
Avg. (1997-2006)	1,817	832	367
<hr/>			
Avg. (1990-2006)		1,262	
<hr/>			
Avg. (1977-2006)	4,017		1,024

Source: Statewide Harvest Surveys (SWHS, Mills 1979-1980, 1981 a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, *In prep.*; Jennings et al. 2004; 2006 a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication). Effort = participation (number of days fished). Catch = fish harvested plus fish released (number of fish). Harvest = fish kept (number of fish). ND = no data collected.

Table 25.—Kenai River sockeye salmon personal use dip net fishery, 1981-2006.

Year	Personal Use Dip Net Fishery							Total sockeye salmon return	
	Opened		Closed		Total days fished	Sockeye salmon harvest ^a	Fishery participation (days fished) ^c	Sonar estimate ^b	Percent of total harvested
	Date (m/dd)	Time (hh:mm)	Date (m/dd)	Time (hh:mm)					
1981	No Fishery		ND	ND	ND	ND	ND	407,639	ND
1982	7/26	18:00	8/05	24:00	9.3	Unknown	ND	619,831	ND
1983	7/20	18:00	8/05	24:00	15.3	7,562	3,203	630,340	1.2
1984	No Fishery		ND	ND	ND	ND	ND	344,571	ND
1985	No Fishery		ND	ND	ND	ND	ND	502,820	ND
1986	No Fishery		ND	ND	ND	ND	ND	501,157	ND
1987	7/23	12:00	8/05	24:00	13.5	24,086	22,547	1,596,871	1.5
1988	7/22	18:00	8/05	24:00	14.3	16,880	29,013	1,021,469	1.7
1989	7/21	00:01	8/05	24:00	15.0	48,976	31,312	1,599,959	3.1
1990	No Fishery		ND	ND	ND	ND	ND	659,520	ND
1991	Subsistence Fishery only			ND	ND	ND	ND	647,597	ND
1992	^d 7/27	12:00	8/05	24:00	6.5 ^e	12,189	10,371	994,798	1.2
1993	7/17	14:00	7/31	24:00	14.4	33,467	14,896	813,617	4.1
1994	Subsistence Fishery only			ND	ND	ND	ND	1,003,446	ND
1995	7/25	06:00	7/31	24:00	4.8 ^e	14,352	11,122	630,447	2.3
1996	7/10	00:01	8/05	24:00	27.0	102,821	10,503	797,847	12.9
1997	7/10	00:01	7/31	24:00	22.0	114,619	11,023	1,064,818	10.8
1998	7/10	00:01	7/28	00:01	18.0	103,847	10,802	767,558	13.5
1999	7/10	00:01	7/31	24:00	22.0	149,504	13,738	803,379	18.6
2000	7/10	00:01	7/31	24:00	22.0	98,262	12,354	624,578	15.7
2001	7/10	00:01	7/31	24:00	22.0	150,766	14,722	650,036	23.2
2002	7/10	06:00	7/31	23:00	22.0	180,028	14,840	957,924	18.8
2003	7/10	06:00	7/31	23:00	22.0	223,580	15,263	1,181,309	18.9
2004	7/10	06:00	7/31	23:00	22.0	262,831	18,513	1,385,981	19.0
2005	7/10	06:00	7/31	23:00	22.0	295,496	20,977	1,376,452	21.5
2006	7/10	06:00	8/10	23:01	13.0 ^{f,g}	127,630	12,685	1,499,692	8.5

Note: ND = no data collected.

^a Harvest not known in 1982; 1983-1995 from Statewide Harvest Surveys (Mills 1983-1994; Howe et al. 1995-1996). 1996-2006 reported harvest from returned permits, expanded to include permits not returned.

^b Total sockeye salmon return estimate from ADF&G, Commercial Fisheries Division, Kenai River sonar at river mile 19.

^c 1981-1995 are individually days fished. 1996-2006 are days fished. Each day fished may include fishing effort by more than one household member named on the household's permit.

^d A subsistence dip net fishery also occurred in 1992.

^e Fishery closed Wednesday and Sunday to avoid conflict with concurrent subsistence fishery. Total days reflect this closure.

^f By Emergency Order - the personal use fishery closed on July 21 at 11:00 p.m.; it reopened on July 31 from 6:00 a.m. to 11:00 p.m.; and it reopened a final time from August 3 at 5:00 p.m. until August 10 at 11:59 p.m.. Total days reflect this closure.

^g Fish passing the sonar during the personal use fishing closures are not included in sockeye available during the dip net fishery.

Table 26.—Kenai River personal use dip net fishery effort and salmon harvest , 1996-2006.

Year	All Upper Cook Inlet Personal use salmon fisheries ^a			Kenai River Personal use dip net fishery					
	Permits issued	Permits returned	Did not fish	Effort (days fished)	Salmon harvest				
					Sockeye	Chinook	Coho	Pink	Chum
1996	14,576	13,452	4,408	10,503	102,821	295	1,932	2,404	175
1997	14,919	13,756	6,248	11,023	114,619	364	559	619	58
1998	15,535	13,190	5,539	10,802	103,847	254	1,011	1,032	85
1999	17,197	14,216	5,643	13,738	149,504	488	1,009	1,666	102
2000	16,107	13,582	5,745	12,354	98,262	410	1,449	1,457	193
2001	16,915	14,398	3,528	14,772	150,766	638	1,555	1,326	155
2002	17,568	14,284	4,858	14,840	180,028	606	1,721	5,662	551
2003	19,110	15,726	3,576	15,263	223,580	1,016	1,332	1,647	249
2004	21,910	17,748	4,001	18,513	262,831	792	2,661	2,103	387
2005	21,905	19,081	3,839	20,977	295,496	997	2,512	1,806	321
2006	18,563	16,532	4,695	12,685	127,630	1,034	2,235	11,127	551
<hr/>									
Avg. (1997-2006)	17,973	15,251	4,767	14,497	170,656	660	1,604	2,845	265
<hr/>									
Avg. (1996-2006)	17,664	15,088	4,735	14,134	164,489	627	1,634	2,804	257

Source: 1996-2003 data (Reimer and Sigurdsson 2004). 2004-2006 data (Dunker and Lafferty *In prep.*) Effort = participation (number of days fished); Harvest = fish kept (number of fish).

^a ADF&G issues one permit which authorizes the permittee and/or named members of his/her household to participate in any or all four Upper Cook Inlet personal use fisheries (e.g., Kenai River dip net, Kasilof River dip net, Kasilof River gill net, and Fish Creek dip net).

Table 27.—Kasilof River sockeye salmon personal use dip net fishery, 1981-2006.

Year	Personal Use Dip Net Fishery							Total sockeye salmon return	
	Opened		Closed		Total days fished	Sockeye salmon harvest ^a	Fishery participation (days fished) ^b	Sonar estimate ^c	Percent of total harvested
	Date (m/dd)	Time (hh:mm)	Date (m/dd)	Time (hh:mm)					
1981	7/04	12:00	7/31	24:00	27.50	10,300	5,370	256,625	4.0
1982	7/21	12:00	8/05	24:00	15.50	1,800	2,580	180,239	1.0
1983	7/15	24:00	8/05	24:00	21.00	11,124	4,417	210,271	5.3
1984	7/16	12:00	8/05	24:00	20.50	12,771	5,956	231,685	5.5
1985	7/15	18:00	8/05	24:00	21.25	16,284	9,260	505,049	3.2
1986	7/15	06:00	8/05	24:00	21.75	38,674	13,929	275,963	14.0
1987 ^d	7/10	12:00	8/05	24:00	25.50	18,454	8,910	249,250	7.4
1988	7/22	18:00	8/05	24:00	14.25	3,547	6,930	204,000	1.7
1989	No Fishery		ND	ND	ND	ND	ND	158,206	ND
1990	No Fishery		ND	ND	ND	ND	ND	144,136	ND
1991	Subsistence Fishery		ND	ND	ND	ND	ND	238,269	ND
1992	Subsistence Fishery		ND	ND	ND	ND	ND	184,178	ND
1993	No Fishery		ND	ND	ND	ND	ND	149,939	ND
1994	7/22	12:00	8/05	23:59	10.50 ^e	3,679	2,361	205,117	1.8
1995	7/17	18:00	7/31	24:00	10.25 ^e	4,160	2,845	204,935	2.0
1996	7/10	00:01	8/05	24:00	27.00	11,197	1,300	249,944	4.5
1997	7/10	00:01	8/05	24:00	27.00	9,737	1,091	266,025	3.7
1998	7/10	00:01	8/05	24:00	27.00	45,161	3,421	273,213	16.5
1999	7/10	00:01	8/05	24:00	27.00	37,176	3,611	312,587	11.9
2000	7/10	00:01	8/05	24:00	27.00	23,877	2,622	256,053	9.3
2001	7/10	00:01	8/05	24:00	27.00	37,612	3,382	307,570	12.2
2002	6/25	00:01	8/07	24:00	44.00	46,769	4,020	226,682	20.6
2003	6/25	00:01	8/07	24:00	44.00	43,870	3,874	359,633	12.2
2004	6/25	00:01	8/07	24:00	44.00	48,315	4,432	577,581	8.4
2005	6/25	00:01	8/07	24:00	44.00	43,151	4,500	348,012	12.4
2006	6/25	00:02	8/07	24:01	44.00	56,144	5,763	368,092	15.3
Averages									
(1997-2006)					35.50	39,181	3,672	329,545	12.2
(1994-2006)					30.98	31,604	3,325	304,265	10.1
(1981-2006)					27.14	24,943	4,789	267,050	8.2

Note: ND = no data collected.

^a Harvest participation during first 2 years of fishery are field creel survey estimates. 1983-1995 data are from Statewide Harvest Surveys (Mills 1983-1994; Howe et al. 1995-1996). 1996-2006 total reported harvest from returned permits, expanded to include permits not returned.

^b 1981-1995 are individual days fished. 1996-2006 are days fished. Each day fished may include fishing effort by more than one household member named on the household's permit.

^c Total sockeye salmon return estimate from ADF&G, Commercial Fisheries Division, Kasilof River sonar at river mile 8.

^d The fishery was closed from July 14 at 6:00 a.m. to July 15 at 6:00 p.m. as a precautionary measure due to possible oil contamination.

^e Fishery closed on Wednesday and Sunday due to subsistence/personal use permit fishery. Total days reflect this closure.

Table 28.—Kasilof River personal use dip net fishery effort and salmon harvest, 1996-2006.

Year	All Upper Cook Inlet Personal use salmon fisheries ^a			Kasilof River Personal use dip net fishery					
	Permits issued	Permits returned	Did not fish	Effort (days fished)	Salmon harvest				
					Sockeye	Chinook	Coho	Pink	Chum
1996	14,576	13,452	4,408	1,300	11,197	50	334	103	17
1997	14,919	13,756	6,248	1,091	9,737	35	90	19	19
1998	15,535	13,190	5,539	3,421	45,161	134	731	610	74
1999	17,197	14,216	5,643	3,611	37,176	127	286	264	52
2000	16,107	13,582	5,745	2,622	23,877	134	1,004	841	34
2001	16,915	14,398	3,528	3,382	37,612	138	766	307	23
2002	17,568	14,284	4,858	4,020	46,769	106	1,197	1,862	139
2003	19,110	15,726	3,576	3,874	43,870	57	592	286	30
2004	21,910	17,748	4,001	4,432	48,315	44	668	396	90
2005	21,905	19,081	3,839	4,500	43,151	16	538	658	102
2006	18,563	16,532	4,695	5,763	56,144	55	1,057	992	105
Avg. (1996-2006)	17,664	15,088	4,735	3,456	36,637	81	660	576	62

Source: 1996-2003 (Reimer and Sigurdsson 2004). 2004-2006 (Dunker and Lafferty *In prep.*)

Effort = participation (number of days fished); Harvest = fish kept (number of fish).

^a ADF&G issues one permit which authorizes the permittee and/or named members of his/her household to participate in any or all four Upper Cook Inlet personal use fisheries (e.g., Kenai River dip net, Kasilof River dip net, Kasilof River gill net, and Fish Creek dip net).

Table 29.—Kenai Peninsula northern pike harvest, 1981-2006.

Year	Sport Fish Harvest		Total
	Kenai Peninsula Lakes	Kenai River	
1981	32	ND	32
1982	105	ND	105
1983	294	ND	294
1984	187	ND	187
1985	52	69	121
1986	0	0	0
1987	0	12	12
1988	36	0	36
1989	49	18	67
1990	30	10	40
1991	86	0	86
1992	239	0	239
1993	216	26	242
1994	36	0	36
1995	219	29	248
1996	32	92	124
1997	21	7	28
1998	114	0	114
1999	329	0	329
2000	153	6	159
2001	1,288	0	1,288
2002	368	12	380
2003	641	58	699
2004	2,263 ^a	58	2,321
2005	212	12	224
2006	55	0	55
Avg. (1997-2006)	544	15	560
Avg. (1985-2006)		19	
Avg. (1981-2006)	271		287

Source: Statewide Harvest Surveys (Mills 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2007, *In prep.*; Jennings et al. 2004; 2006 a-b; G.B. Jennings, Sport Fish Program Coordinator, ADF&G, Anchorage; personal communication). Harvest = fish kept (number of fish). ND = no data collected.

^a The 2004 harvest may be inflated due to one large angler report.

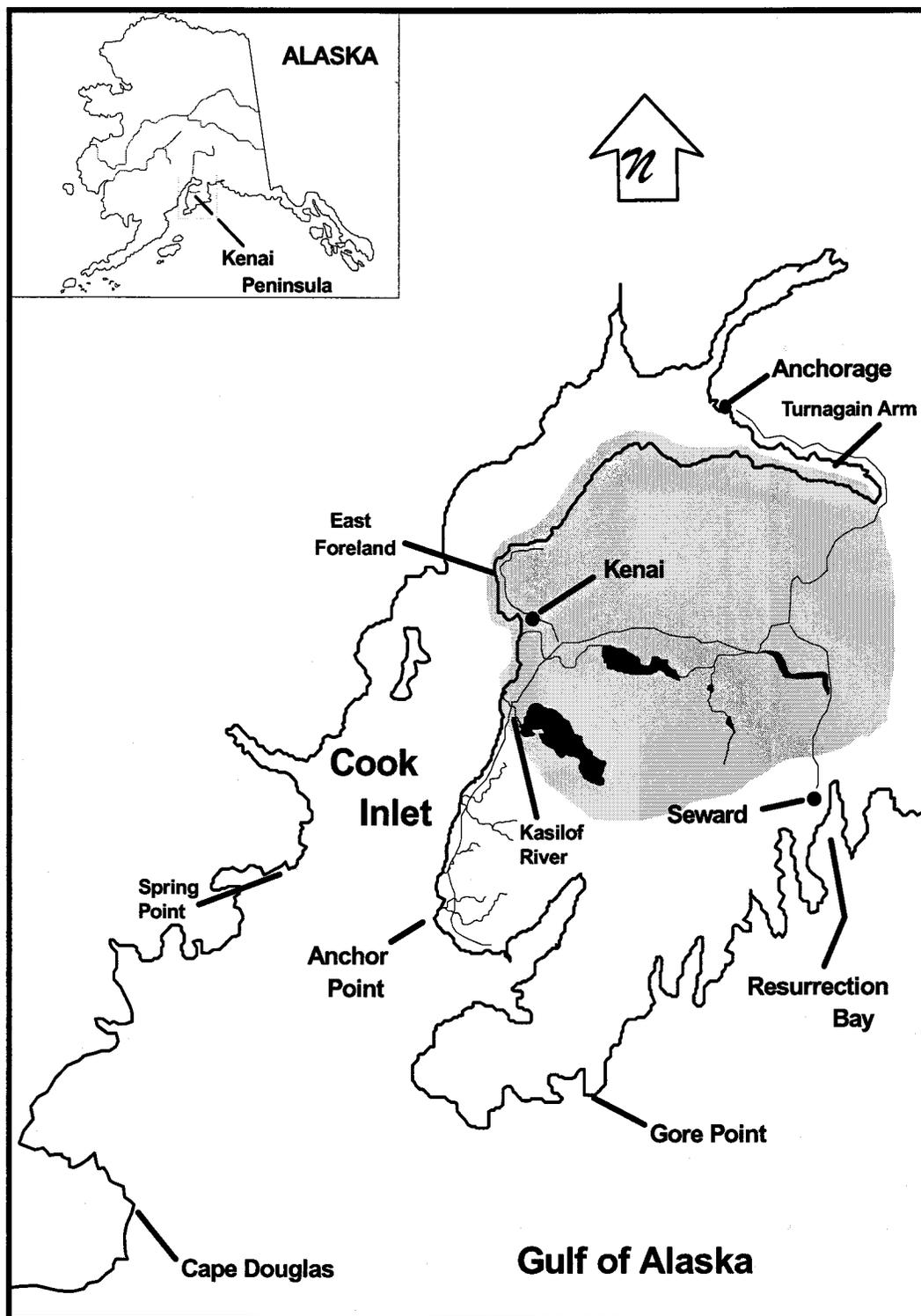


Figure 1.—The Northern Kenai Peninsula Management Area (shaded) includes all freshwater drainages and saltwater fisheries from the Kasilof River north to Turnagain Arm on the Kenai Peninsula.

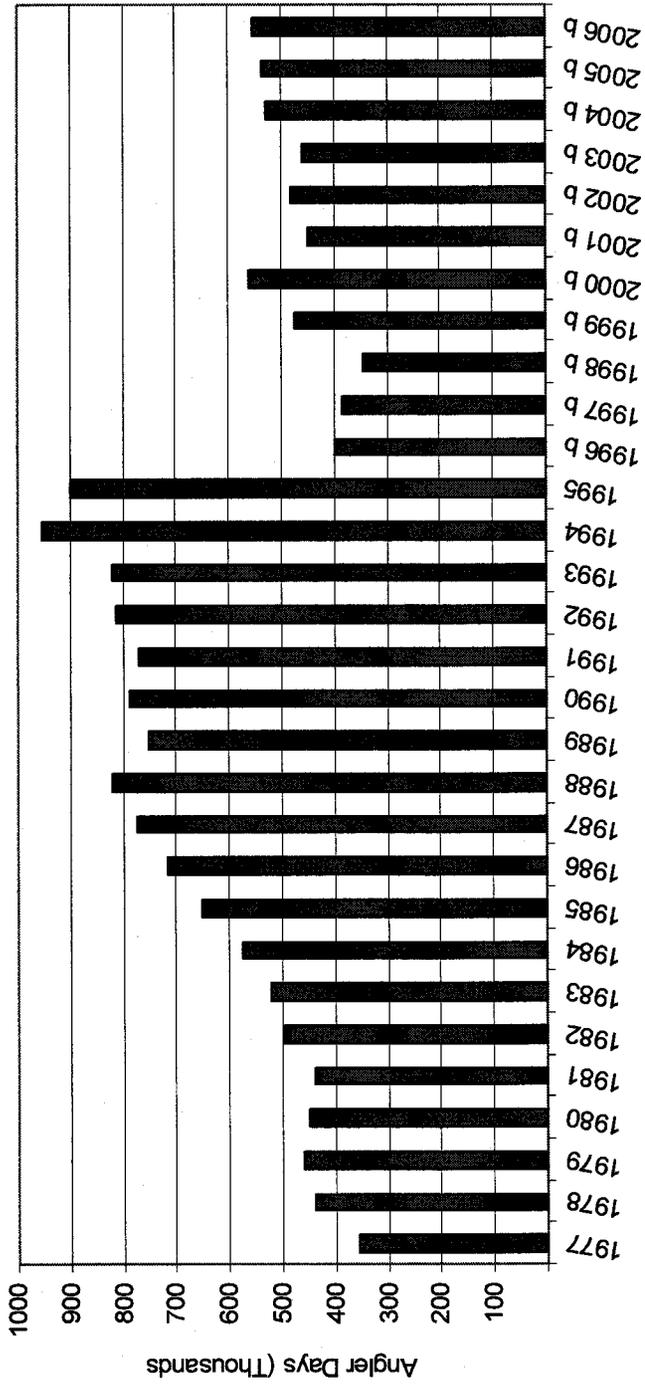


Figure 2.—Recreational angler participation in the Kenai Peninsula Management Area, 1977-2006.

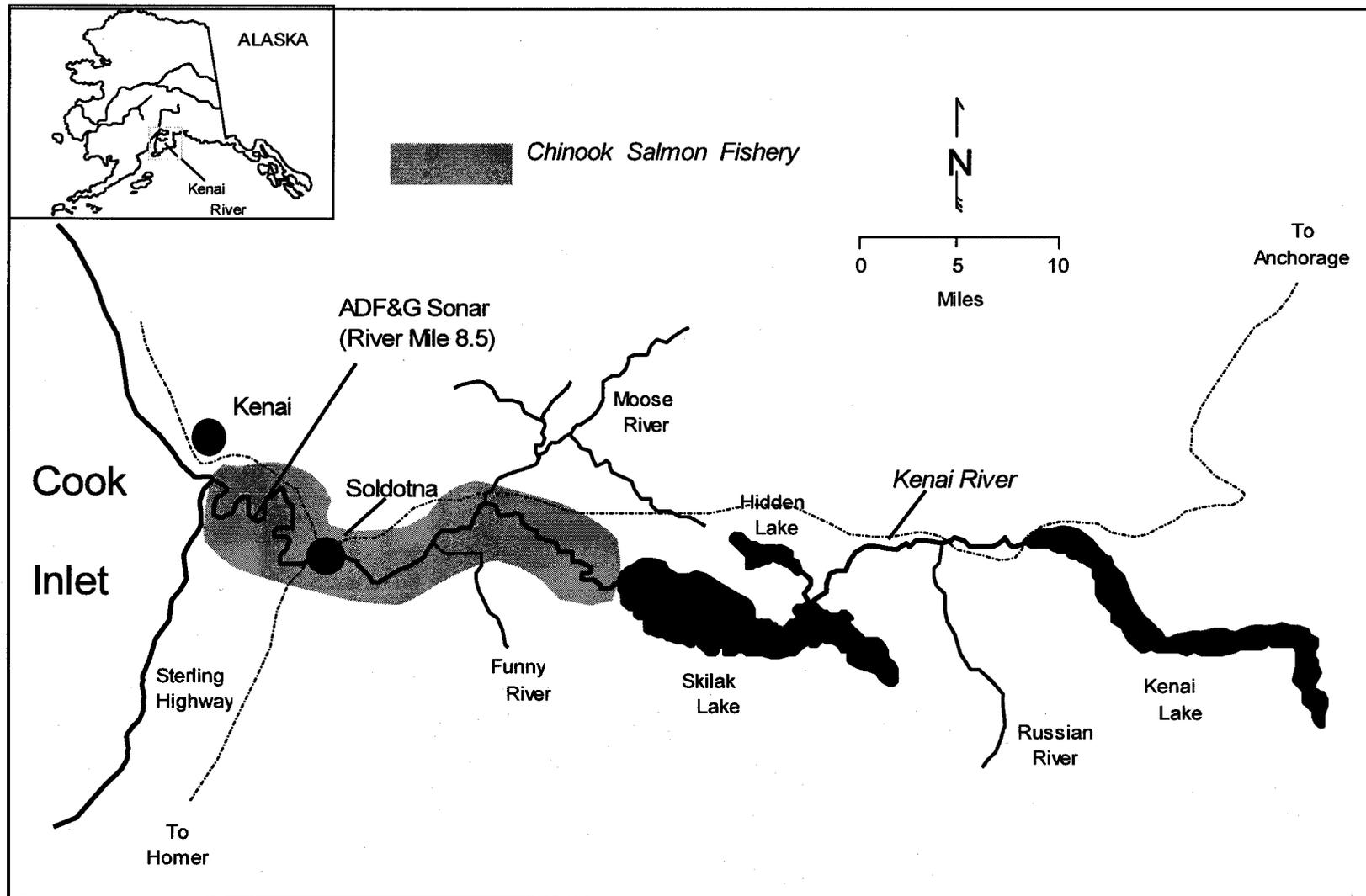


Figure 3.—Kenai River Chinook salmon fishery.

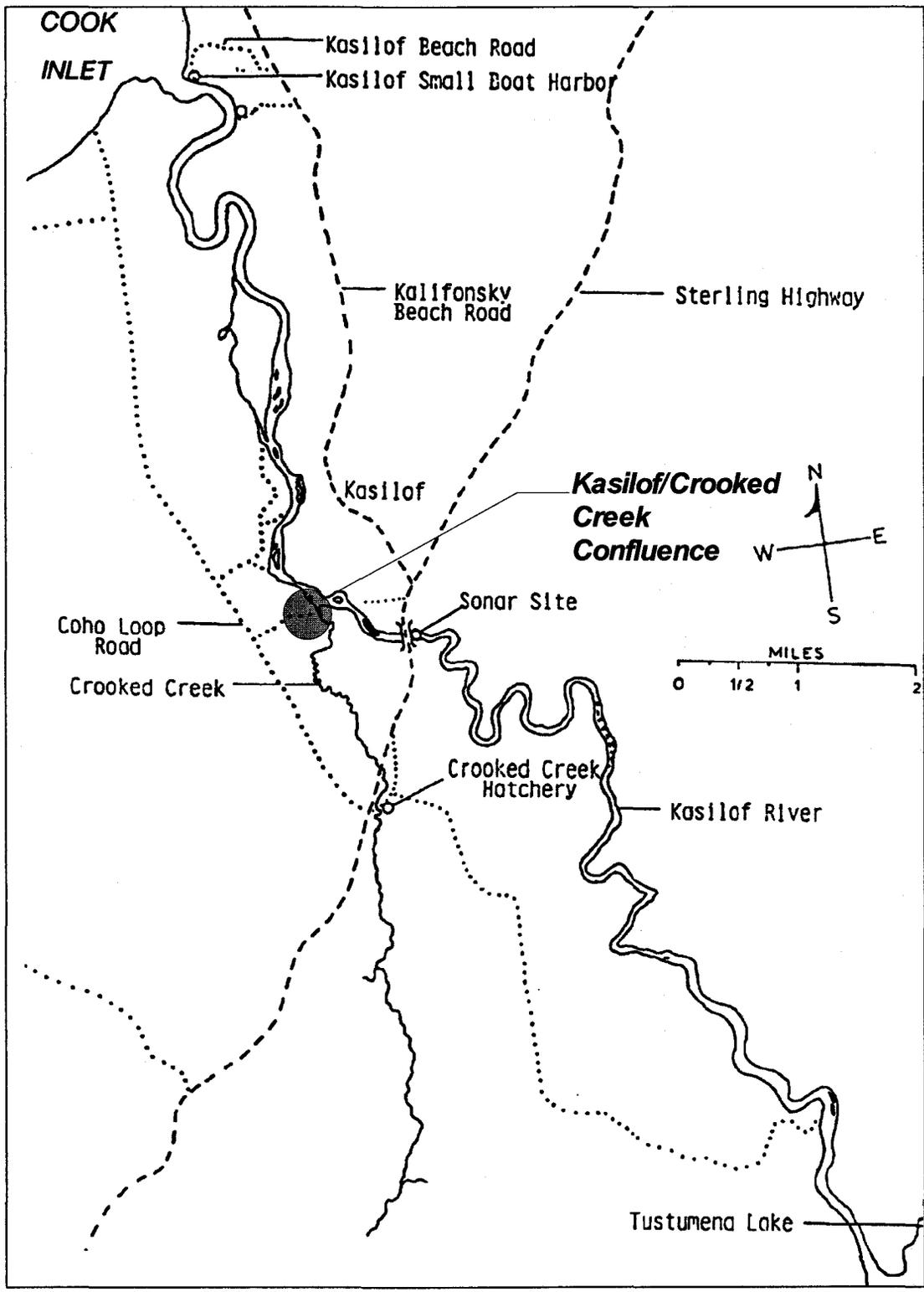


Figure 4.—Kasilof River Chinook salmon fishery.

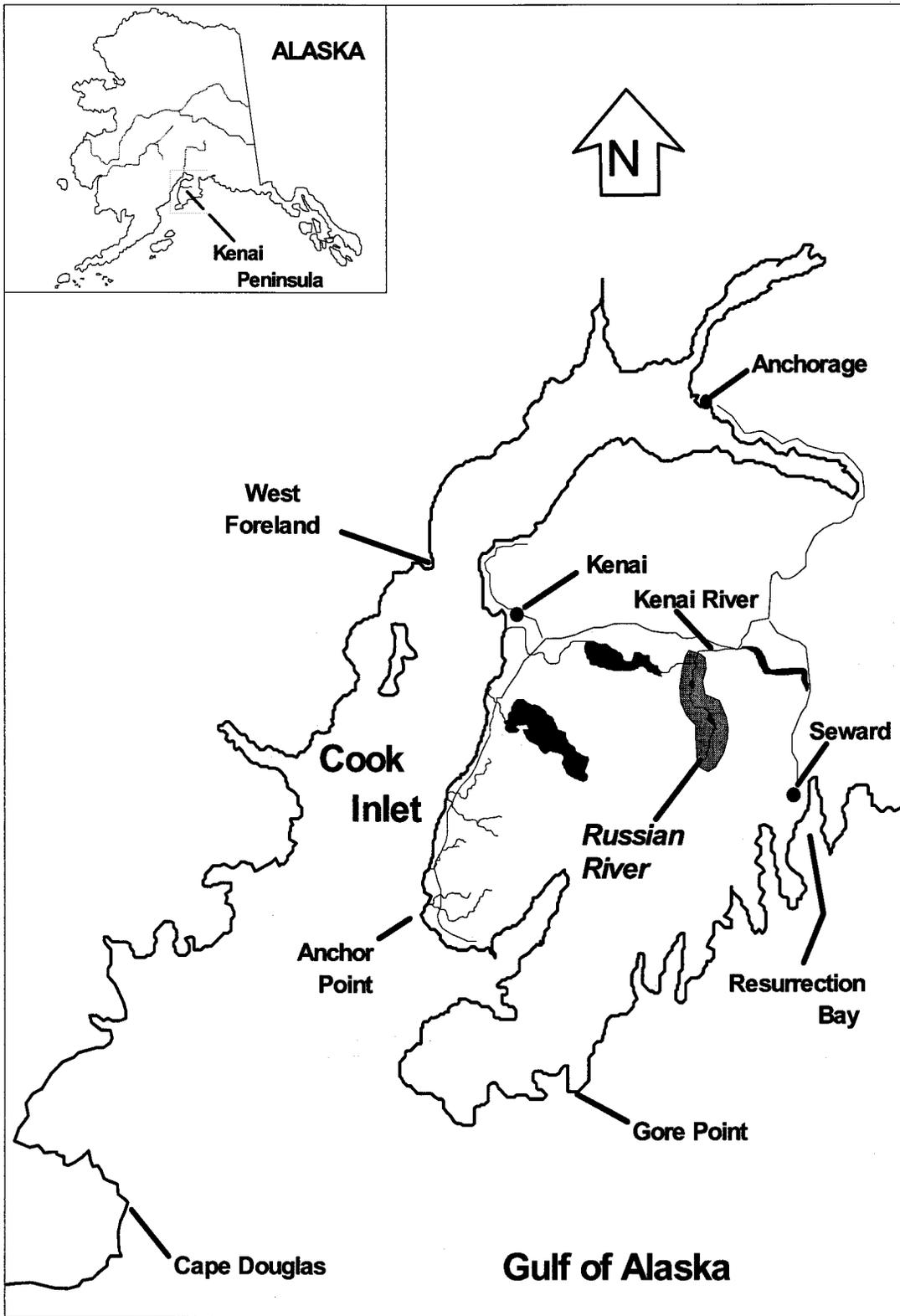


Figure 5.—Location of Russian River on the Kenai Peninsula, Alaska.

CONFLUENCE OF KENAI and RUSSIAN RIVERS

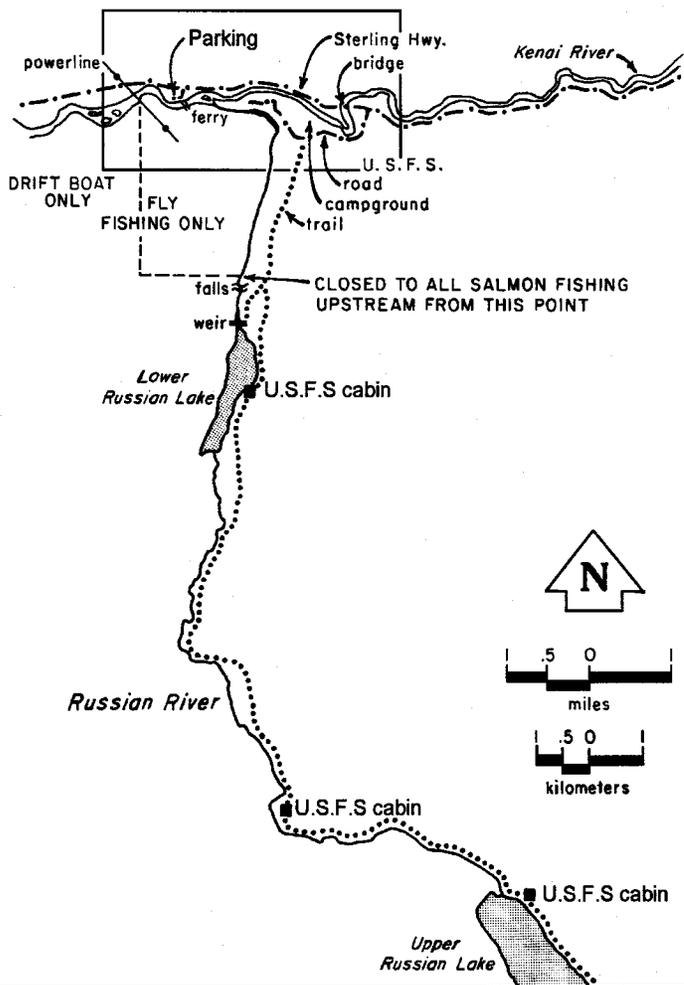
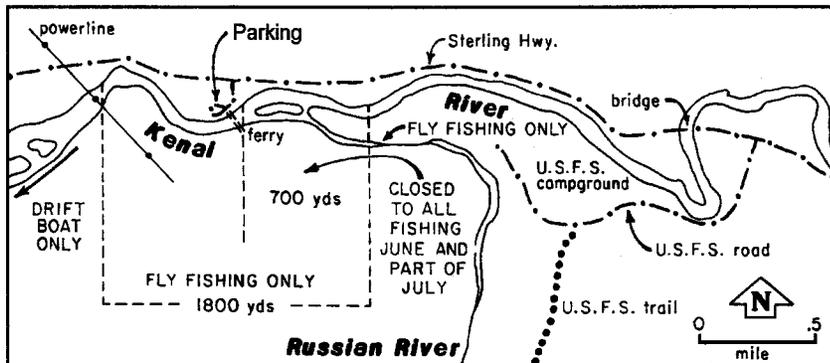


Figure 6.—Map of Russian River drainage.

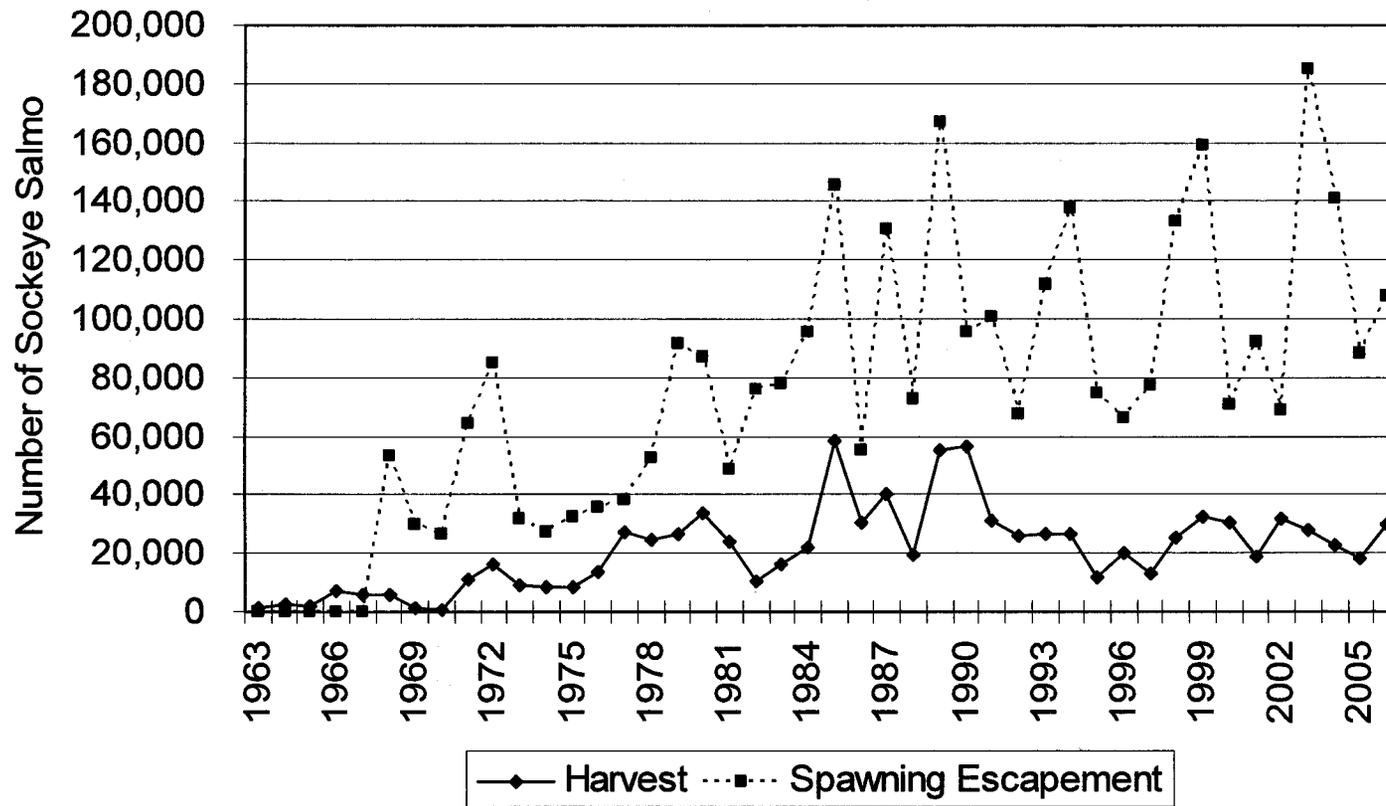


Figure 7.—Late-run Russian River sockeye salmon harvest and total spawning escapement, including lower river spawners, 1968-2006.

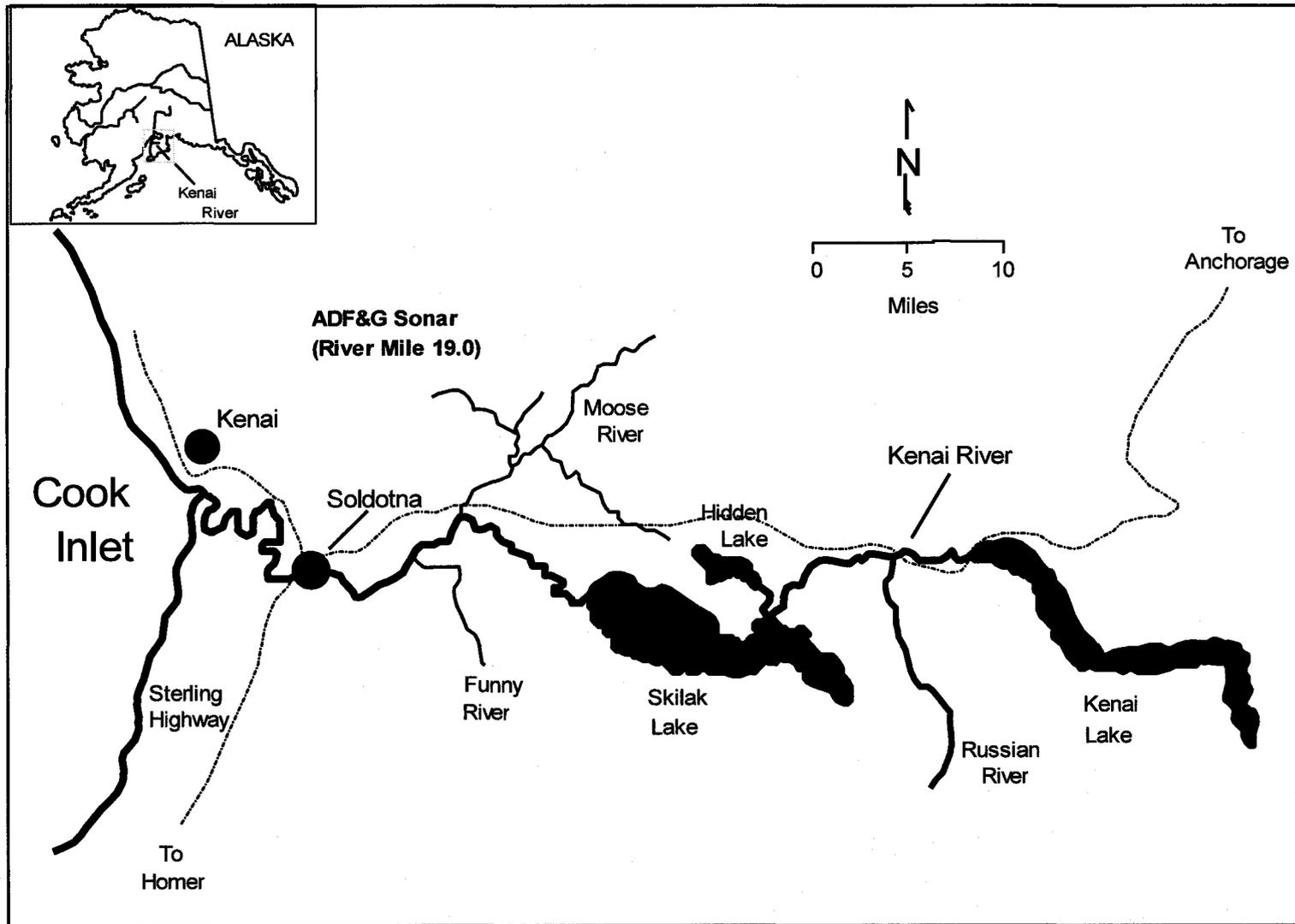


Figure 8.—Map of the Kenai River drainage. Late-run sockeye salmon fishery occurs from Cook Inlet to Kenai Lake.

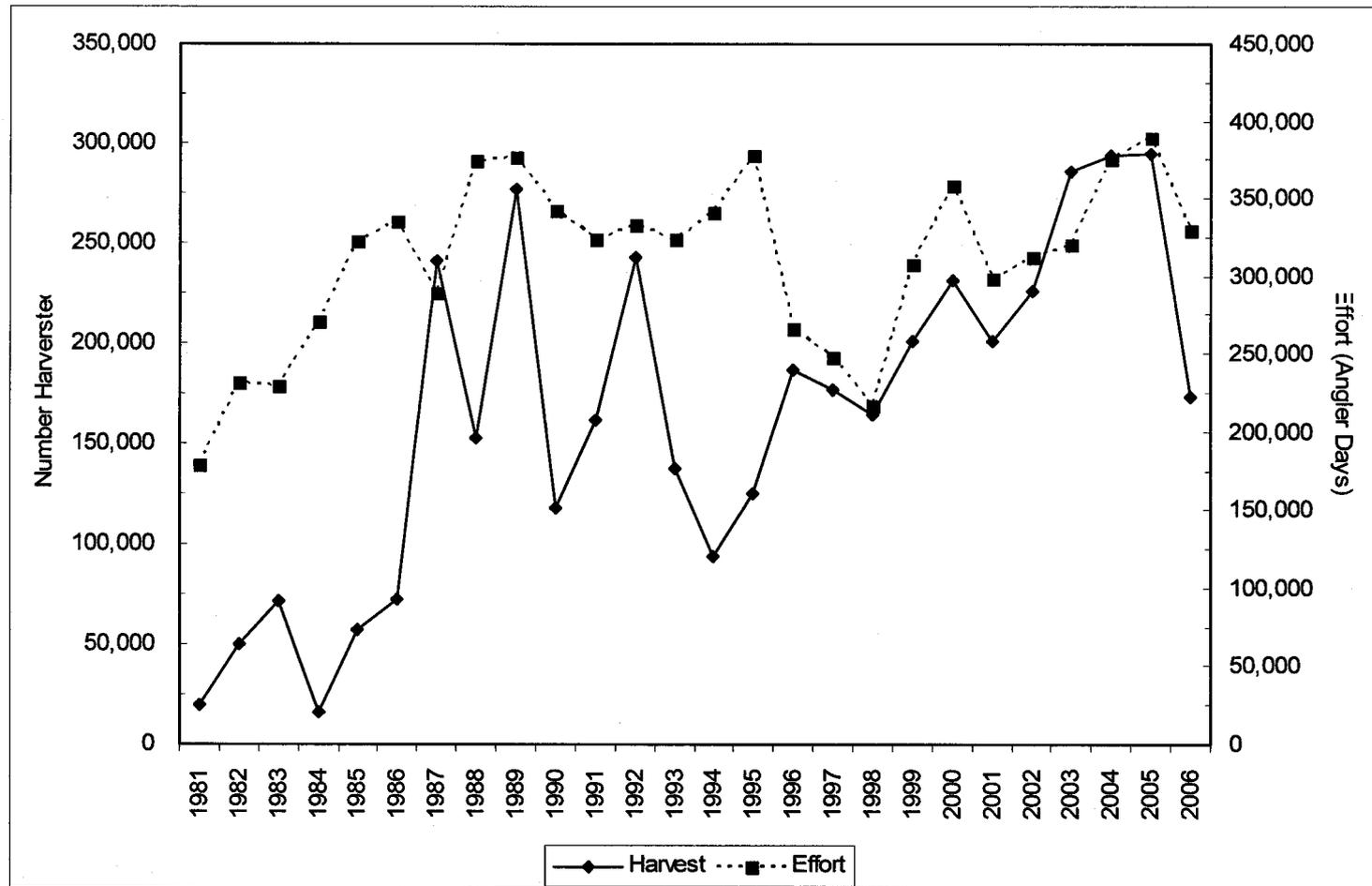


Figure 9.—Total harvest of sockeye salmon and angler effort directed toward all species, Kenai River, 1981-2006.

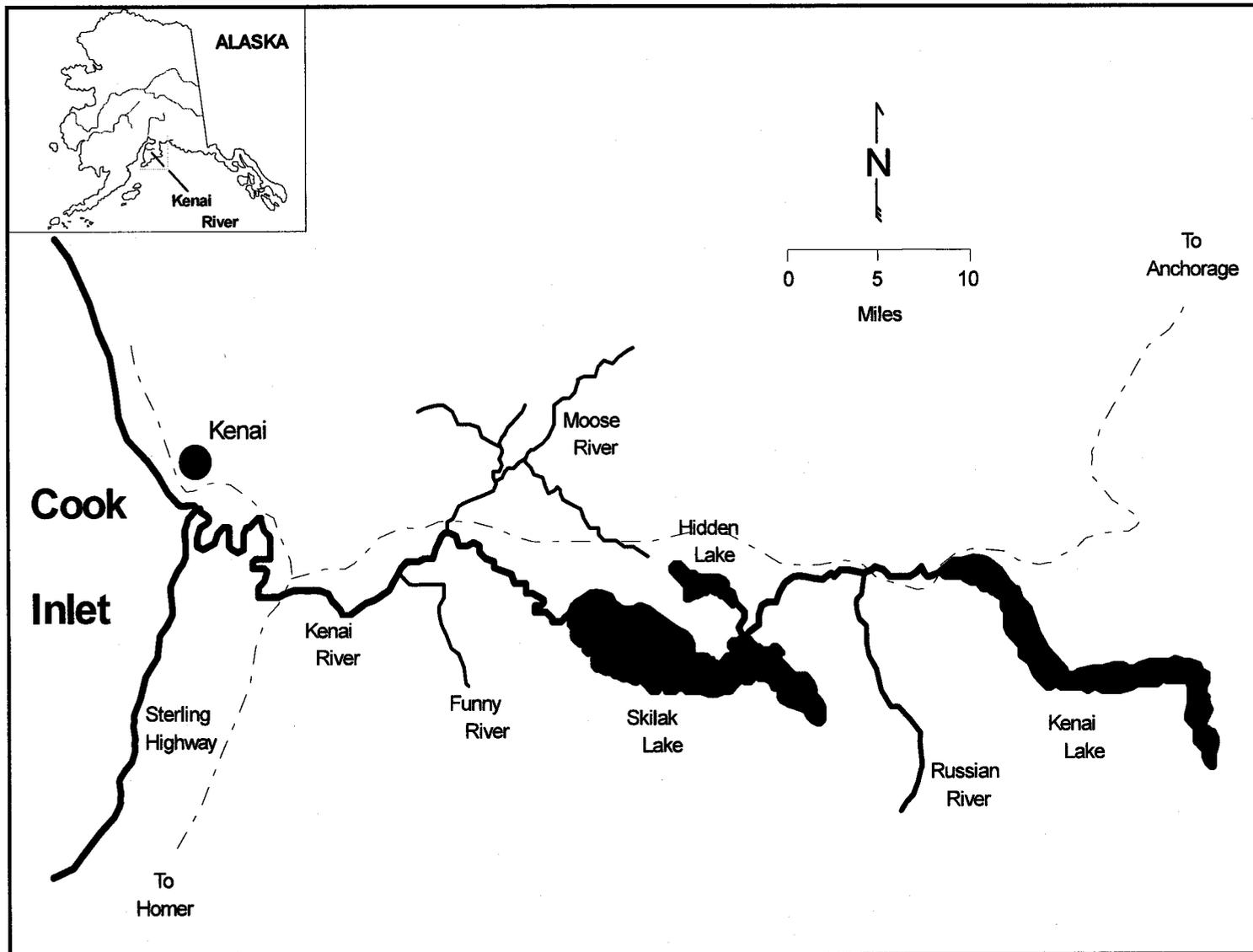


Figure 10.—Map of Kenai River drainage.

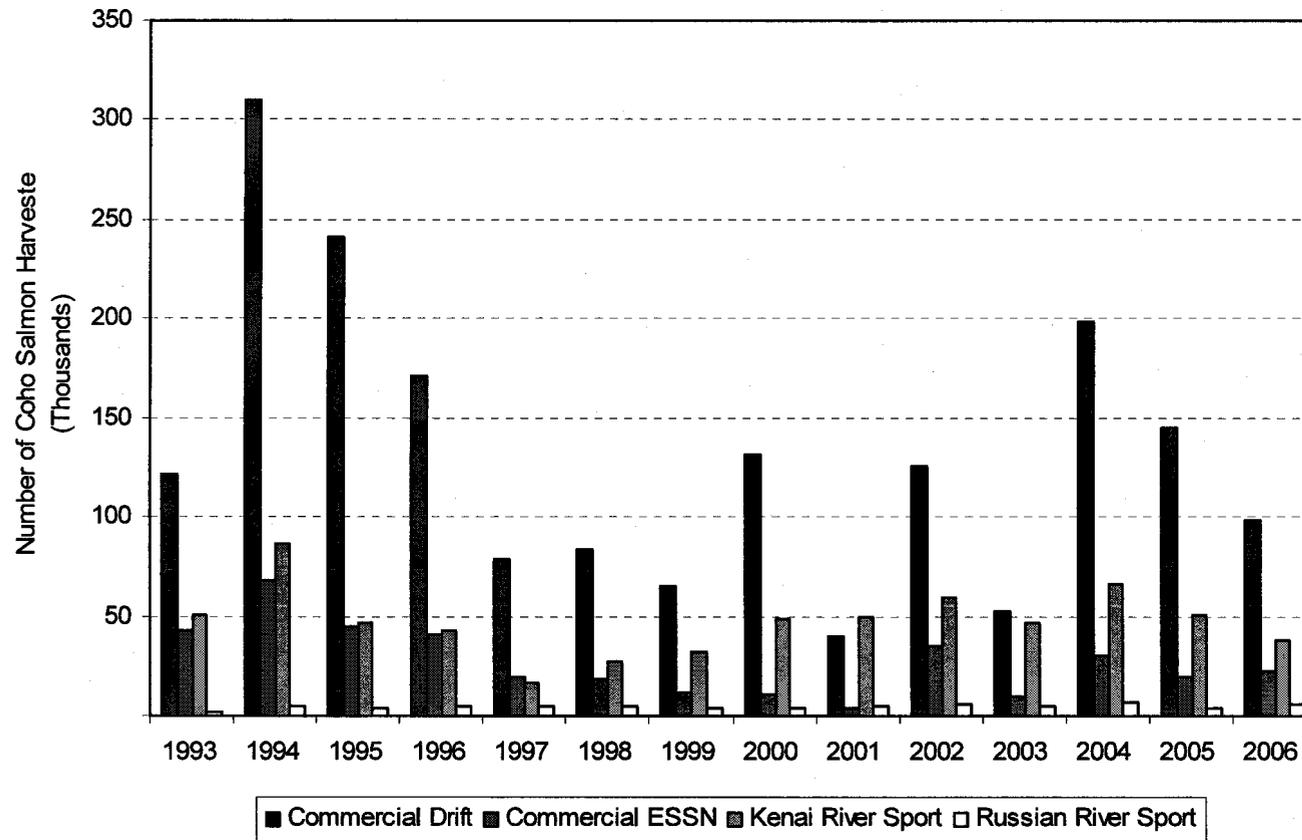


Figure 11.—Cook Inlet commercial coho salmon harvest and harvest of Kenai River coho salmon, 1993-2006.

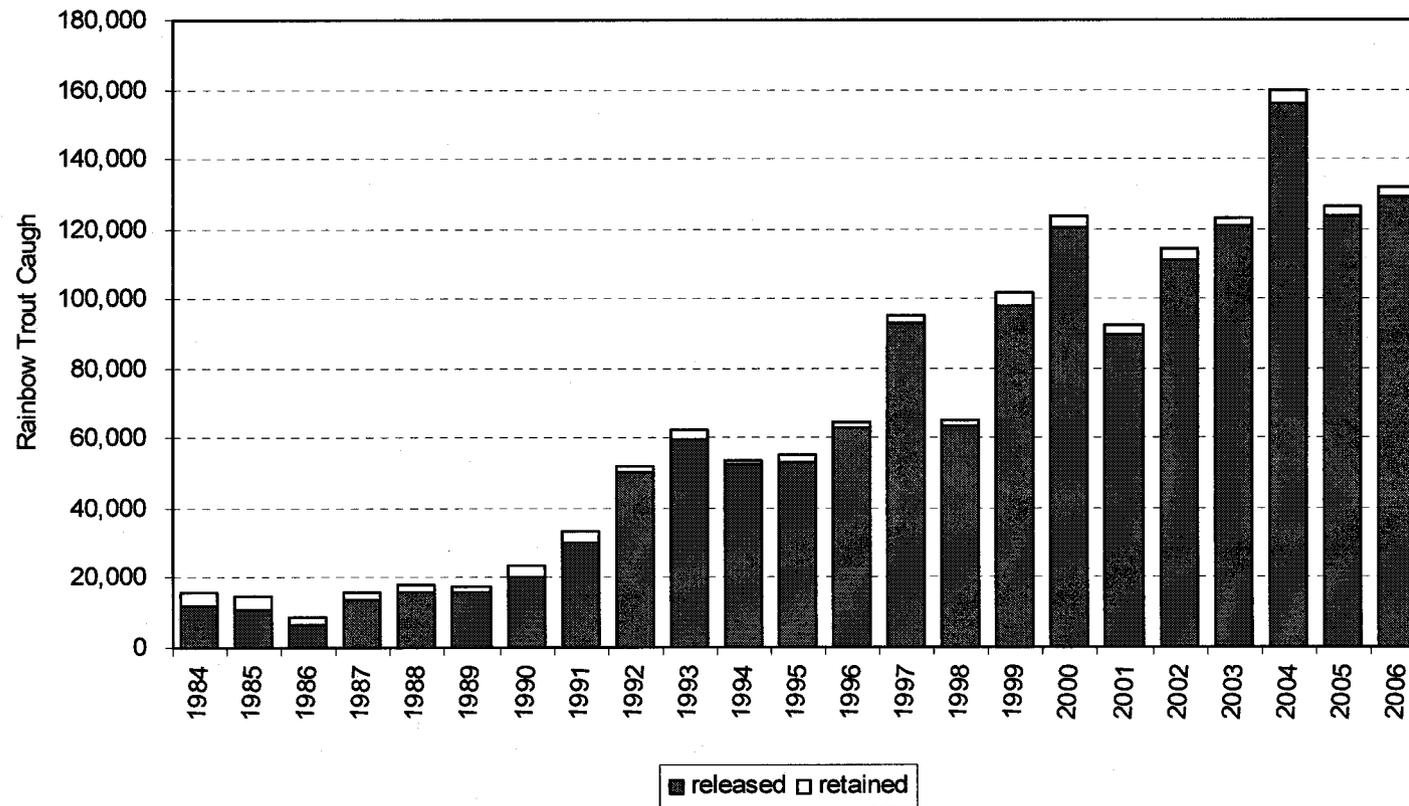


Figure 12.—Total number of rainbow trout caught, showing number released and number retained, Kenai River sport fishery, 1984-2006.

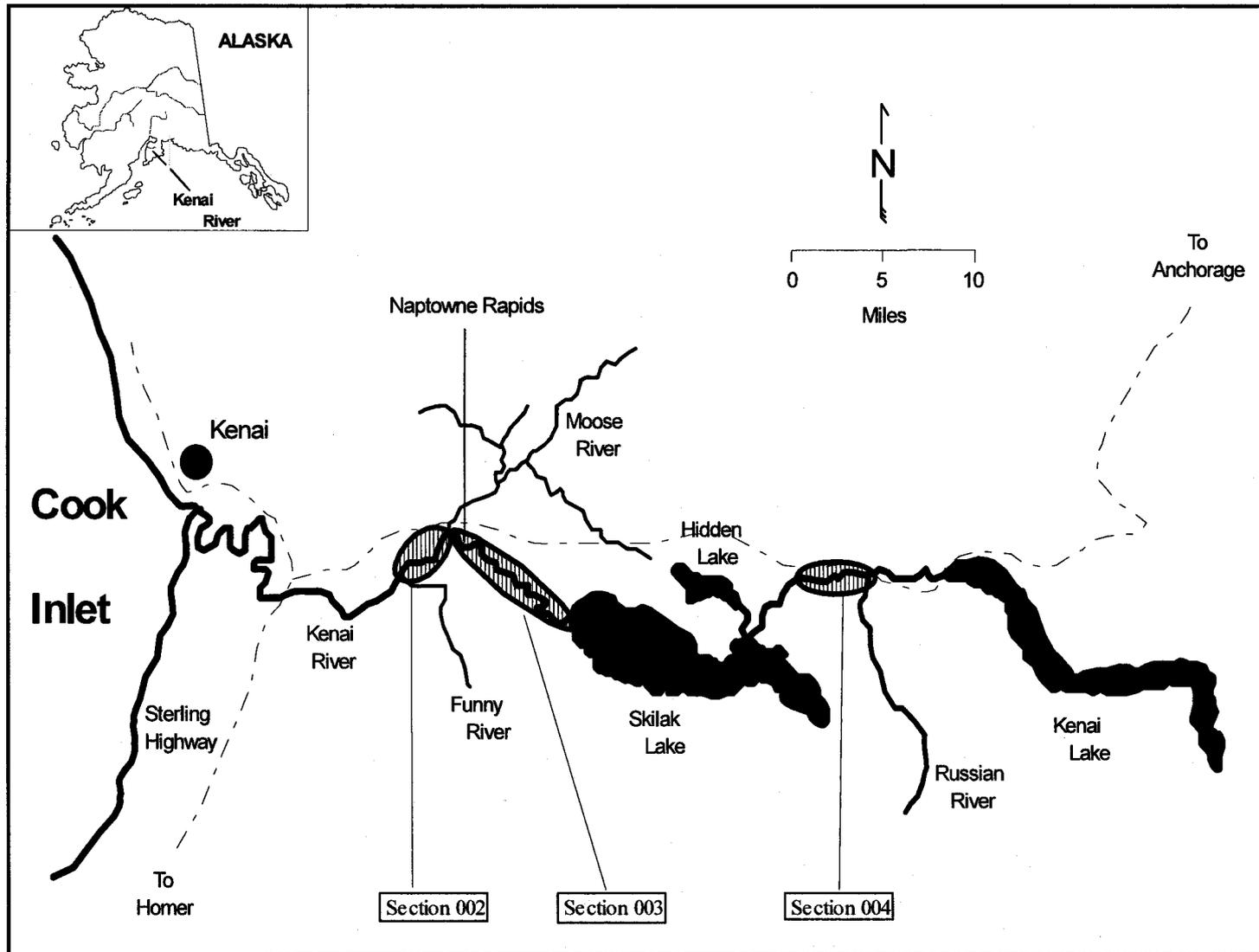


Figure 13.—Map of rainbow trout study areas in Kenai River drainage.

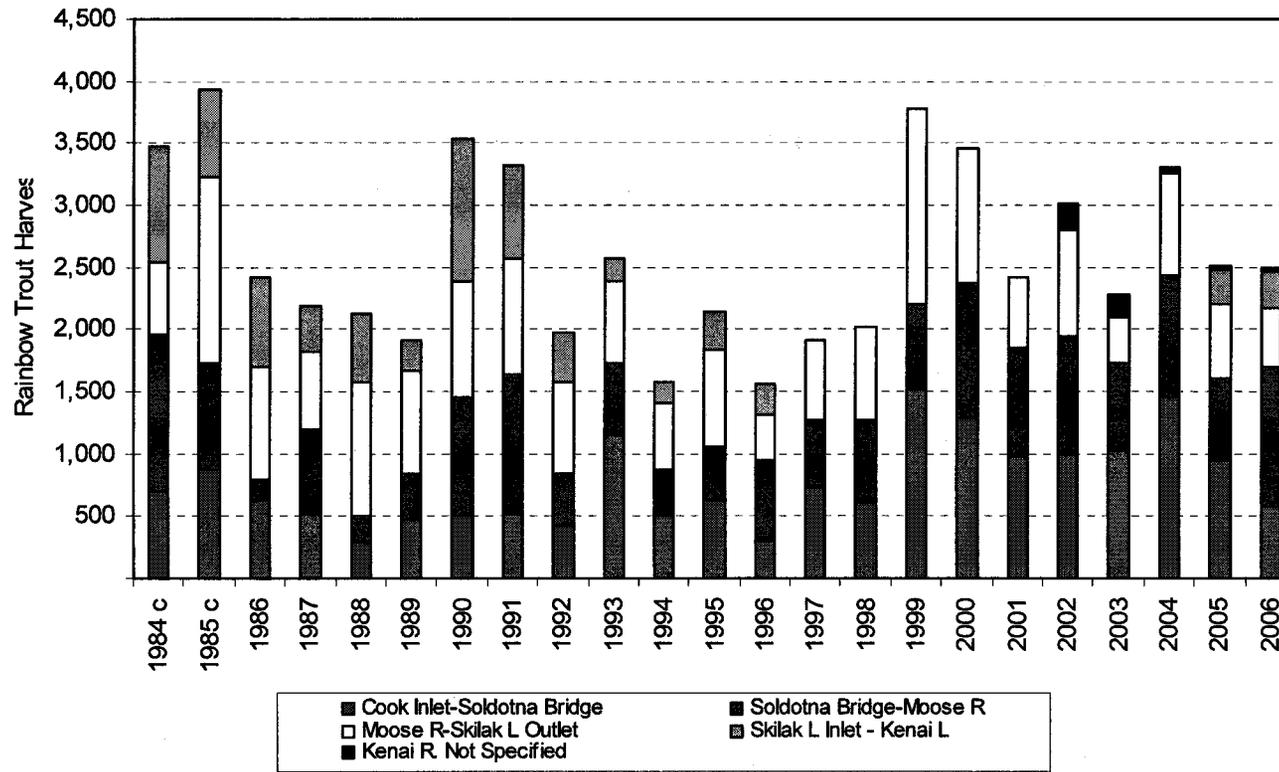


Figure 14.—Number of rainbow trout retained by river section, Kenai River sport fishery, 1984-2006.

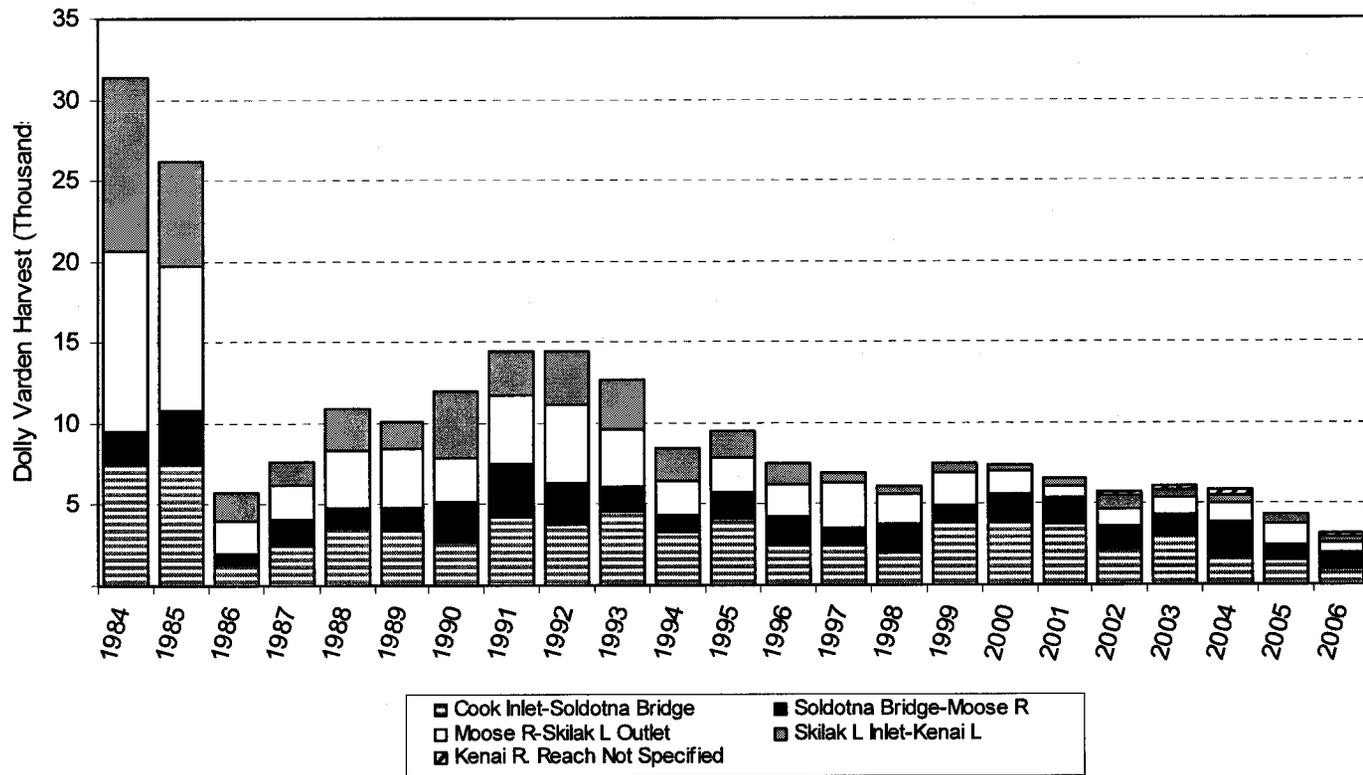


Figure 15.—Dolly Varden harvest by river section, Kenai River sport fishery, 1984-2006.

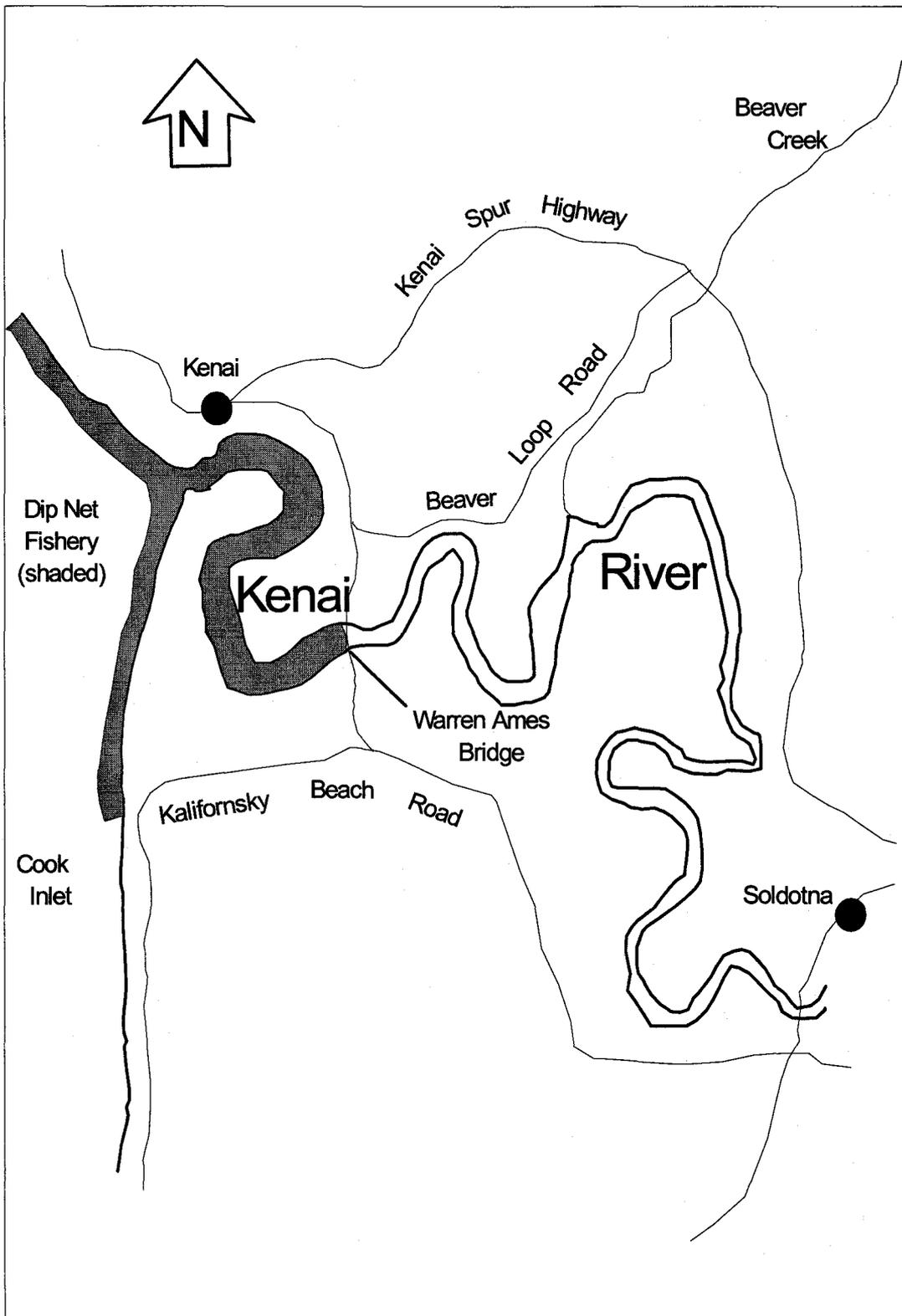


Figure 16.—Map of the Kenai River sockeye salmon dip net fishery.

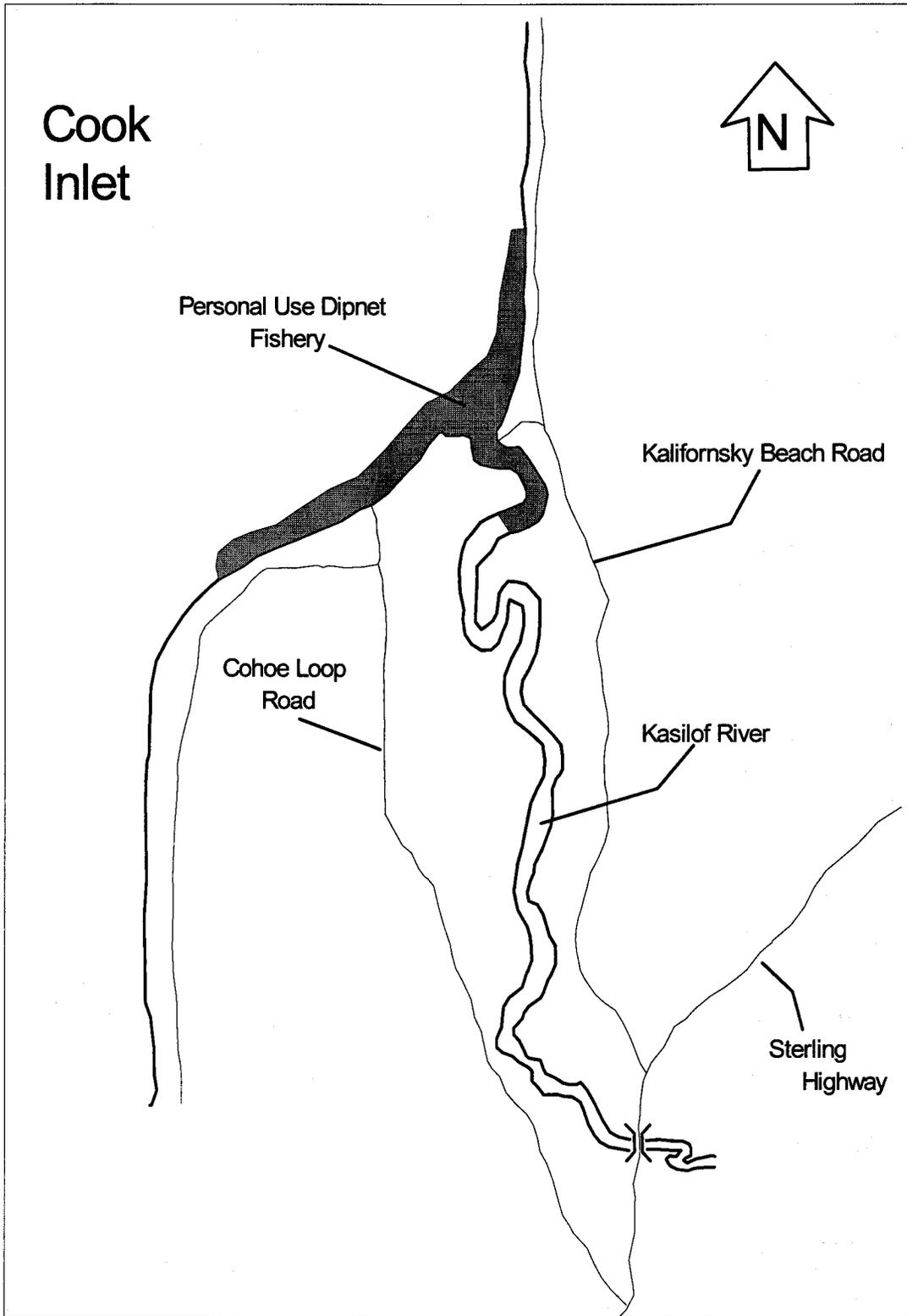


Figure 17.—Map of the Kasilof River personal use sockeye salmon dip net fishery.

APPENDIX A. EMERGENCY ORDERS

Appendix A1.—Emergency orders issued for Northern Kenai Peninsula Management Area waters in 2005.

Emergency Order Number	Effective Date	Action/Justification
2-KS-1-01-05	5/1/2005 12:01 a.m.	Kenai River king salmon cannot be filleted before fish are brought to shore and offloaded from a vessel or removed from the shore fishing site.
2-RS-1-08-05	6/16/2005 6:00 a.m.	Open sanctuary at Russian River.
2-KS-1-10-05	6/18/2005 12:01 a.m.	Bait allowed on the Kenai River downstream of the Moose River.
2-S-1-05	6/25/2005 6:00 a.m.	Kasilof River personal use set gillnet open season extended by one day.
2-RS-1-14-05	6/25/2005 6:00 a.m.	Sockeye salmon daily bag limit increased to 4 per day in the Russian River and the Russian/Kenai River "Fly-Fishing-Only-Waters".
2-RS-1-13-05	6/25/2005 12:01 a.m.	Increases rod-and-reel limits for salmon (other than king salmon) on the Kasilof River to 6 per day.
2-RS-1-12-05	6/25/2005 12:01 a.m.	Kasilof River personal use dipnetting area extended up to the Sterling Highway Bridge.
2-RS-1-18-05	7/7/2005 12:01 a.m.	Close additional Kenai River bank areas to shore-based fishing.
2-RS-1-25-05	7/19/2005 11:01 p.m.	Personal use fishery hours increased on the Kenai River.
2-RS-1-24-05	7/20/2005 12:01 a.m.	Increases rod-and-reel limits for salmon (other than king salmon) on the Kenai River to 6 per day.
2-RS-1-28-05	8/21/2005 12:01 a.m.	Sockeye salmon season extended, and bag limit increased for a portion of the Upper Kenai River "fly-fishing-only" area.

Appendix A2.—Emergency orders issued for Northern Kenai Peninsula Management Area waters in 2006.

Emergency Order Number	Effective Date	Action/Justification
2-NP-1-01-06	1/1/2006 12:01 a.m.	Adds Scout Lake to the list of lakes on the Kenai Peninsula in which five lines may be used to fish for northern pike through the ice.
2-RT-1-03-06	4/21/2006 12:01 a.m.	Prohibits the removal of rainbow/steelhead trout from the water during the closed fishing season in flowing waters of the Kenai River to Skilak Lake.
2-KS-1-04-06	5/1/2006 12:01 a.m.	Prohibits the filleting, heading, mutilation or disfigurement of king salmon in a manner that would prevent the determination of length.
2-KS-1-05-06	5/18/2006 12:01 a.m.	Adds Thursdays as an additional day anglers may retain naturally-produced king salmon from the Kasilof River.
2-KS-1-10-06	6/10/2006 12:01 a.m.	Allows the use of bait in the flowing waters of the Kenai River drainage open to fishing for king salmon.
2-RS-1-13-06	6/21/2006 6:00 a.m.	Opens the Russian River Sanctuary Area to fishing for sockeye salmon.
2-RS-1-16-06	6/25/2006 6:00 a.m.	Sockeye salmon daily bag limit increased to 4 per day in the Russian River and the Russian/Kenai River "Fly-Fishing-Only-Waters".
2-RS-1-20-06	7/8/2006 12:01 a.m.	Increases rod-and-reel limits for salmon (other than king salmon) on the Kasilof River to 6 per day.
2-RS-1-19-06	7/8/2006 12:01 a.m.	Kasilof River personal use dip netting area extended up to the Sterling Highway Bridge.
2-RS-1-28-06	7/22/2006 12:01 a.m.	Closes the Kenaitze Indian Tribe educational fishery authorized for the Kenai River.
2-RS-1-27-06	7/22/2006 12:01 a.m.	Sockeye salmon daily bag limit reduced to 1 per day in all portions of the Kenai River except the Upper Kenai River "fly-fishing-only" area.
2-RS-1-26-06	7/21/2006 11:00 p.m.	Closes the personal use salmon fishery at the mouth of the Kenai River.
2-RS-1-31-06	7/25/2006 12:01 a.m.	Closes the sport fishery for sockeye salmon in all portions of the Kenai River except the Upper Kenai River "fly-fishing-only" area.
2-RS-1-35-06	7/31/2006 6:00 a.m.	Reopens the Kenaitze Indian Tribe educational fishery authorized for the Kenai River.
2-RS-1-34-06	7/31/2006 6:00 a.m.	Reopens the personal use salmon fishery at the mouth of the Kenai River.
2-RS-1-33-06	7/31/2006 6:00 a.m.	Reopens the sport fishery for sockeye salmon in all waters of the Kenai River open to salmon fishing and returns the bag limit to 3 fish per day.
2-RS-1-36-06	8/3/2006 12:01 a.m.	Increases the daily bag limit for salmon (other than king salmon) on the Kasilof River to 6 per day.
2-RS-1-38-06	8/3/2006 5:00 p.m.	Reopens the personal use salmon fishery at the mouth of the Kenai River.
2-RS-1-39-06	8/7/2006 6:00 p.m.	Increases the daily bag limit for salmon (other than king salmon) to 6 per day on the Kenai River except the Russian River "fly-fishing-only" area.

Appendix A3.—Emergency orders issued for Northern Kenai Peninsula Management Area waters in 2007.

Emergency Order Number	Effective Date	Action/Justification
2-NP-1-01-07	1/10/2007 12:01 a.m.	Adds Scout and Arc Lake to the list of lakes on the Kenai Peninsula in which five lines may be used to fish for northern pike through the ice.
2-RT-1-04-07	5/2/2007 12:01 a.m.	Prohibits the removal of rainbow/steelhead trout from the water during the closed fishing season in flowing waters of the Kenai River to Skilak Lake.
2-KS-1-03-07	5/1/2006 12:01 a.m.	Prohibits the filleting, heading, mutilation or disfigurement of king salmon in a manner that would prevent the determination of length.
2-KS-1-07-07	5/17/2007 12:01 a.m.	Adds Thursdays as an additional day anglers may retain naturally-produced king salmon from the Kasilof River.
2-KS-1-12-07	6/12/2007 12:01 a.m.	Allows the use of bait in the flowing waters of the Kenai River drainage open to fishing for king salmon.
2-RS-1-15-07	6/18/2007 8:00 a.m.	Opens the Russian River Sanctuary Area to fishing for sockeye salmon.
2-RS-1-26-07	7/23/2007 6:00 p.m.	Kasilof River personal use dip netting area extended up to the Sterling Highway Bridge.
2-RS-1-20-07	7/23/2007 6:00 p.m.	Increases rod-and-reel limits for salmon (other than king salmon) on the Kasilof River to 6 per day.
2-RS-1-31-07	7/25/2007 11:00 p.m.	Personal use fishery hours increased on the Kenai River.
2-RS-1-30-07	7/26/2007 12:01 a.m.	Increases rod-and-reel limits for salmon (other than king salmon) on the Kenai River to 6 per day.

Fishery Management Report No. 07-65

**Overview of Northern Cook Inlet Area Sport
Fisheries with Proposals under Consideration by
the Alaska Board of Fisheries, February 2008**

by

Sam Ivey,

Chris Brockman,

and

Dave Rutz

December 2007

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



FISHERY MANAGEMENT REPORT NO. 07-65

**OVERVIEW OF NORTHERN COOK INLET AREA SPORT FISHERIES
WITH PROPOSALS UNDER CONSIDERATION BY THE ALASKA
BOARD OF FISHERIES, FEBRUARY 2008**

by

Sam Ivey,
Chris Brockman,
and
Dave Rutz

Alaska Department of Fish and Game, Division of Sport Fish, Palmer

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1599

December 2007

The Division of Sport Fish Fishery Management Reports series was established in 1989 for the publication of an overview of Division of Sport Fish management activities and goals in a specific geographic area. Since 2004, the Division of Commercial Fisheries has also used the Fishery Management Report series. 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.

*Sam Ivey,
Alaska Department of Fish and Game, Division of Sport Fish,
1800 Glenn Highway, Suite 4
Palmer, AK 99645-6736, USA*

*Chris Brockman,
Alaska Department of Fish and Game, Division of Sport Fish,
1800 Glenn Highway, Suite 4
Palmer, AK 99645-6736, USA*

*and
Dave Rutz
Alaska Department of Fish and Game, Division of Sport Fish,
1800 Glenn Highway, Suite 4
Palmer, AK 99645-6736, USA*

This document should be cited as:

Ivey, S., C. Brockman and D. Rutz. Overview of Northern Cook Inlet Area sport fisheries with proposals under consideration by the Alaska Board of Fisheries, February 2008. Alaska Department of Fish and Game, Fishery Management Report No. 07-65, Anchorage.

The Alaska Department of Fish and Game (ADF&G) administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act (ADA) of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility please write:

ADF&G ADA Coordinator, P.O. Box 115526, Juneau AK 99811-5526

U.S. Fish and Wildlife Service, 4040 N. Fairfax Drive, Suite 300 Webb, Arlington VA 22203

Office of Equal Opportunity, U.S. Department of the Interior, Washington DC 20240

The department's ADA Coordinator can be reached via phone at the following numbers:

(VOICE) 907-465-6077, (Statewide Telecommunication Device for the Deaf) 1-800-478-3648, (Juneau TDD) 907-465-3646, or (FAX) 907-465-6078

For information on alternative formats and questions on this publication, please contact:

ADF&G, Sport Fish Division, Research and Technical Services, 333 Raspberry Road, Anchorage AK 99518 (907)267-2375.

TABLE OF CONTENTS

	Page
LIST OF TABLES.....	IV
LIST OF FIGURES	V
LIST OF APPENDICES	VI
ABSTRACT	1
INTRODUCTION.....	1
CHINOOK SALMON FISHERIES	3
Knik Arm Unit Chinook Salmon Fisheries.....	5
Fishery Description.....	5
Historical Harvest and Escapement	5
Stocking Program	6
Fishery Management and Objectives.....	6
Sport Fishery Performance and Escapement in 2006 and 2007.....	6
Eastside Susitna Management Unit Chinook Salmon Fisheries	7
Fishery Description.....	7
Deshka to Talkeetna Area	7
Talkeetna River	7
Upper Susitna River Area.....	8
Stocking Program	8
Historical Harvest and Escapement	8
Fishery Management and Objectives.....	9
Sport Fishery Performance and Escapement in 2006 and 2007.....	10
Westside Susitna Management Unit Chinook Salmon Fisheries.....	10
Fishery Description.....	10
Historical Harvest and Escapement	11
Fishery Management and Objectives.....	11
Sport Fishery Performance and Escapement in 2006 and 2007.....	12
West Cook Inlet Management Unit Chinook Salmon Fisheries	12
Fishery Description.....	12
Historical Harvest and Escapement	13
Fishery Management and Objectives.....	13
Fishery Performance and Escapement in 2006 and 2007	14
COHO SALMON FISHERIES	14
Area-Wide Overview.....	14
Area-wide Historical Harvest and Escapement.....	14

TABLE OF CONTENTS (Continued)

	Page
Area-wide Fishery Management and Objectives	14
Knik Arm Management Unit: Little Susitna River Coho Salmon Fishery	15
Fishery Description	15
Stocking Program	15
Historical Harvest and Escapement	16
Fishery Management and Objectives	16
Fishery Performance and Escapement in 2006 and 2007	17
Knik Arm Management Unit: Other Coho Salmon Fisheries	17
Fishery Description	17
Stocking Program	18
Historical Harvest and Escapement	18
Fishery Management and Objectives	18
Fishery Performance and Escapement in 2006 and 2007	19
Eastside Susitna and Westside Susitna Management Units Coho Salmon Fisheries	20
Fishery Description	20
Historical Harvest and Escapement	20
Fishery Management and Objectives	21
Sport Fishery Performance and Escapement in 2006 and 2007	22
West Cook Inlet Management Unit Coho Salmon Fisheries	22
Fishery Description	22
Historical Harvest and Escapement	22
Fishery Management and Objectives	23
Sport Fishery Performance and Escapement in 2006 and 2007	23
SOCKEYE SALMON FISHERIES	23
Fishery Description	23
Stocking Program	23
Historical Harvest and Escapement	24
Fishery Management and Objectives	24
Sport Fishery Performance and Escapement in 2006 and 2007	25
NORTHERN PIKE FISHERIES	26
Fishery Description	26
Historical Harvest and Catch	27
Fishery Management and Objectives	27
Sport Fishery Performance in 2006 and 2007	28
BURBOT FISHERIES	29
Fishery Description	29
Historical Harvest	29
Fishery Management and Objectives	29
Sport Fishery Performance in 2006 and 2007	29

TABLE OF CONTENTS (Continued)

	Page
PERSONAL USE FISHERIES	30
Overview	30
Fishery Description.....	30
Historical Harvest and Escapement	30
Fishery Management and Objectives.....	31
Fishery Performance and Escapement in 2006 and 2007	31
REFERENCES CITED	32
TABLES AND FIGURES.....	39
APPENDIX A. REGULATORY HISTORIES OF SELECTED FISHERIES.....	99
APPENDIX B. PRESENCE OF NORTHERN PIKE IN WATERS OF THE NORTHERN COOK INLET MANAGEMENT AREA	121

LIST OF TABLES

Table	Page
1. Estimated harvests, by all user groups, of Chinook salmon of Northern Cook Inlet origin, 1893-2006.....	40
2. Estimated harvests of Chinook salmon originating from the Northern Cook Inlet Management Area, 1977-2007.....	42
3. Chinook salmon escapement goals for the Northern Cook Inlet Management Area in 2006.....	43
4. Harvest of Chinook salmon from the Knik Arm Management Unit, 1977-2006.....	46
5. Escapement of Chinook salmon, Knik Arm Management Unit, 1977-2007.....	47
6. Chinook salmon smolt stocked into Eklutna Tailrace, and harvest of returning adults, 2002-2007.....	50
7. Harvest of Chinook salmon from the Eastside Susitna, Westside Susitna, West Cook Inlet, and Knik Arm management units, 1979-2006.....	51
8. Chinook salmon harvests from the Eastside Susitna Management Unit, by fishery, 1977-2006.....	53
9. NCIMA Chinook salmon escapement index counts (aerial), 1979-2004.....	54
10. Eastside Susitna River Management Unit Chinook salmon escapement index counts (aerial), 1979-2007.....	55
11. Chinook salmon harvest, by fishery, in the West Susitna Management Unit, 1977-2006.....	59
12. Chinook salmon escapement index counts, for Westside Susitna Management Unit stocks, 1979-2007.....	60
13. West Cook Inlet Management Unit Chinook salmon harvest by fishery, 1977-2006.....	64
14. Chinook salmon escapement index counts, for West Cook Inlet Management Unit stocks, 1979-2007.....	66
15. Sport harvest of coho salmon in the Northern Cook Inlet Management Area, by management unit, 1977-2006.....	67
16. Coho salmon harvest and fishing effort from Knik Arm sport fisheries, 1977-2006.....	68
17. Sport harvest of coho salmon from the Eastside Susitna Management Unit, by fishery, 1977-2006.....	69
18. Sport harvest coho salmon from the Westside Susitna Management Unit, by fishery, 1977-2006.....	70
19. Sport harvest of coho salmon from the West Cook Inlet Management Unit, by fishery, 1977-2006.....	71
20. Coho salmon escapement counts for Knik Arm Management Unit stocks, 1981-2007.....	72
21. Eastside Susitna Management Unit and Westside Susitna Management Unit coho salmon escapement counts, 1981-2007.....	76
22. Sport harvest of sockeye salmon in the Knik Arm Management Unit, by fishery, 1977-2006.....	77
23. Sport harvest of sockeye salmon in the Eastside Susitna Management Unit, by fishery, 1977-2006.....	78
24. Sport harvest of sockeye salmon from the Westside Susitna Management Unit, by fishery, 1977-2006.....	79
25. Sport harvest of sockeye salmon in the West Cook Inlet Management Unit, by fishery, 1977-2006.....	80
26. Sport harvest of sockeye salmon in the Northern Cook Inlet Management Area, by management unit, 1977-2006.....	81
27. Harvest, catch, and effort of sockeye salmon from Wolverine Creek as estimated by the SWHS and guide reports, 1996-2005.....	82
28. Sockeye salmon counts from Yentna and Crescent River sonar, Chelatna, Hewitt, Judd and Larson lakes, Fish, Cottonwood, Wasilla, Jim and Packers creeks weirs, and the Little Susitna River weir, 1968-2006.....	83
29. Bodenbug Creek escapement index surveys, 1968-2007.....	85
30. Northern Cook Inlet Management Area sport catch and harvest of northern pike, by management unit, 1977-2005.....	87
31. Sport catch of northern pike in the Knik Arm Management Unit, by fishery, 1990-2006.....	89
32. Sport catch of northern pike in the Westside Susitna Management Unit, by fishery, 1990-2006.....	90
33. Sport harvest of burbot in the Northern Cook Inlet Management Area, by management unit, 1977-2005.....	91
34. Sport harvest by fishery, and total catch, of burbot in the Knik Arm Management Unit, 1977-2006.....	92
35. Sport harvest by fishery, and total catch, of burbot from the Eastside Susitna Management Unit, 1977-2006.....	93
36. Sport harvest by fishery, and total catch, of burbot in the Westside Susitna Management Unit, 1977-2006.....	94
37. Fish Creek salmon harvests, by commercial set gillnet and personal use dip net, 1987-2006.....	96
38. Harvest of smelt in the Westside Susitna Management Unit and Knik Arm Management Unit, by fishery, 1985-2006.....	97

LIST OF FIGURES

Figure	Page
1. Northern Cook Inlet Management Area	2
2. Harvest of Chinook salmon by all users, 1893-2006.....	41
3. The Knik Arm Management Unit.....	44
4. The Little Susitna River.	45
5. Harvest of Chinook salmon from the Little Susitna River, 1977-2006.	46
6. Escapement of Chinook salmon into the Little Susitna River (1983-2007), biological escapement goal (dashed line, 1993-2001)) and sustainable escapement goal range (solid lines, 2002-2007).	48
7. The Eklutna power plant tailrace stocking location and fishery.....	49
8. Susitna River and tributaries.	52
9. Eastside Susitna Management Unit.	56
10. The Talkeetna River area.	57
11. Escapement (1981-2007) and escapement goals for Chinook salmon stocks in 8 systems of the Eastside Susitna Management Unit.	58
12. Escapement (1979-2007) and escapement goals for Chinook salmon stocks in five systems of the Westside Susitna Management Unit.....	62
13. West Cook Inlet coastal streams.....	63
14. Escapement (1980-2007) and escapement goals for Chinook salmon stocks in three systems of the West Cook Inlet Management Unit.	65
15. Coho salmon harvest, escapement, and inriver exploitation from the Little Susitna River sport fishery for years counts were completed at a weir located at rm 71.....	74
16. Little Susitna River weir and McRoberts Creek index counts of coho salmon, 1982-2007, and escapement goals.....	75
17. Sport harvest of sockeye salmon from five major fisheries of the Northern Cook Inlet Management Area, 1985-2006.....	82
18. Sockeye salmon counts from the Fish Creek weir, Yentna River sonar, and Crescent River sonar, and escapement goals.....	86
19. Sport harvest of northern pike in the Northern Cook Inlet Management Area, 1977-2006.	88
20. Percent of sport-caught northern pike that were kept and released in the Northern Cook Inlet Management Area, 1990-2006.....	88
21. Sport harvest of burbot in the Northern Cook Inlet Management Area, 1977-2006.	95

LIST OF APPENDICES

Appendix	Page
A1. Chinook salmon regulatory history for NCIMA waters.....	100
A2. Deshka River Chinook salmon regulatory changes, 1977-2007. ^a	109
A3. Coho salmon regulatory history for NCIMA waters, 1991-2007.....	111
A4. Northern Pike regulatory history for NCIMA waters.....	119
B1. Confirmed and suspected presence of northern pike in waters of the Northern Cook Inlet Management Area.....	122

ABSTRACT

This report provides a detailed summary of sport fisheries in the Northern Cook Inlet Management Area for which the Alaska Board of Fisheries (BOF) is considering proposals in February 2008. Included are a description and historical overview of each fishery, how the fishery is managed, and sport fishery performance and escapement for 2006 and 2007.

Key words: Northern Cook Inlet Management Area, Alaska Board of Fisheries, sport fisheries overview.

INTRODUCTION

This report provides a detailed summary of sport fisheries in the Northern Cook Inlet Management Area (NCIMA) for which the Alaska Board of Fisheries (BOF) is considering proposals in February 2008. Included are a description and historical overview of each fishery, how the fishery is managed, and sport fishery performance and escapement for 2006 and 2007.

The Northern Cook Inlet (NCI) sport fish management area (Figure 1) includes all freshwater drainages and adjacent marine waters of Upper Cook Inlet between the southern tip of Chisik Island and the Eklutna River, excluding the upper Susitna River drainage above the Oshetna River confluence. The management area encompasses approximately 30,000 square miles and is dominated by the Susitna River drainage which originates in glaciers of the Alaska and Talkeetna mountain ranges and flows south about 200 miles to Cook Inlet near Anchorage. Most sport fisheries in the NCIMA are easily accessible by road or jet boat, with the exception of remote West Cook Inlet (WCI) waters accessible only by boat or aircraft.

For the purposes of management and harvest reporting, the NCIMA is divided into four major units (Figure 1):

1. Knik Arm Management Unit (KAMU): includes all waters bounded on the north by Willow Creek (not including Willow Creek), on the west by a line $\frac{1}{2}$ mile east of the Susitna River, on the south by Cook Inlet, Knik Arm and the Eklutna River (not including the Eklutna River), and on the east by the Upper Susitna River drainage upstream of its confluence with the Oshetna River. All adjacent marine waters of Cook Inlet are included.
2. Eastside Susitna Management Unit (ESMU): includes all drainages of the upper Susitna River above the Chulitna River to and including the Oshetna River drainage, all eastside drainages of the Chulitna River, and all eastside drainages of the Susitna River below its confluence with the Chulitna River to and including Willow Creek to the south. This management unit has no marine waters.
3. Westside Susitna Management Unit (WSMU): includes all westside drainages of the Chulitna River, and all westside drainages of the Susitna River below its confluence with the Chulitna River and, primarily for management purposes, eastside drainages of the Susitna River within a half-mile of the Susitna River downstream of Willow Creek. This management unit has no marine waters.
4. West Cook Inlet Management Unit (WCIMU): includes all freshwater drainages entering Cook Inlet between the Susitna River and the latitude of the southern tip of Chisik Island, and all adjacent marine waters of Cook Inlet.

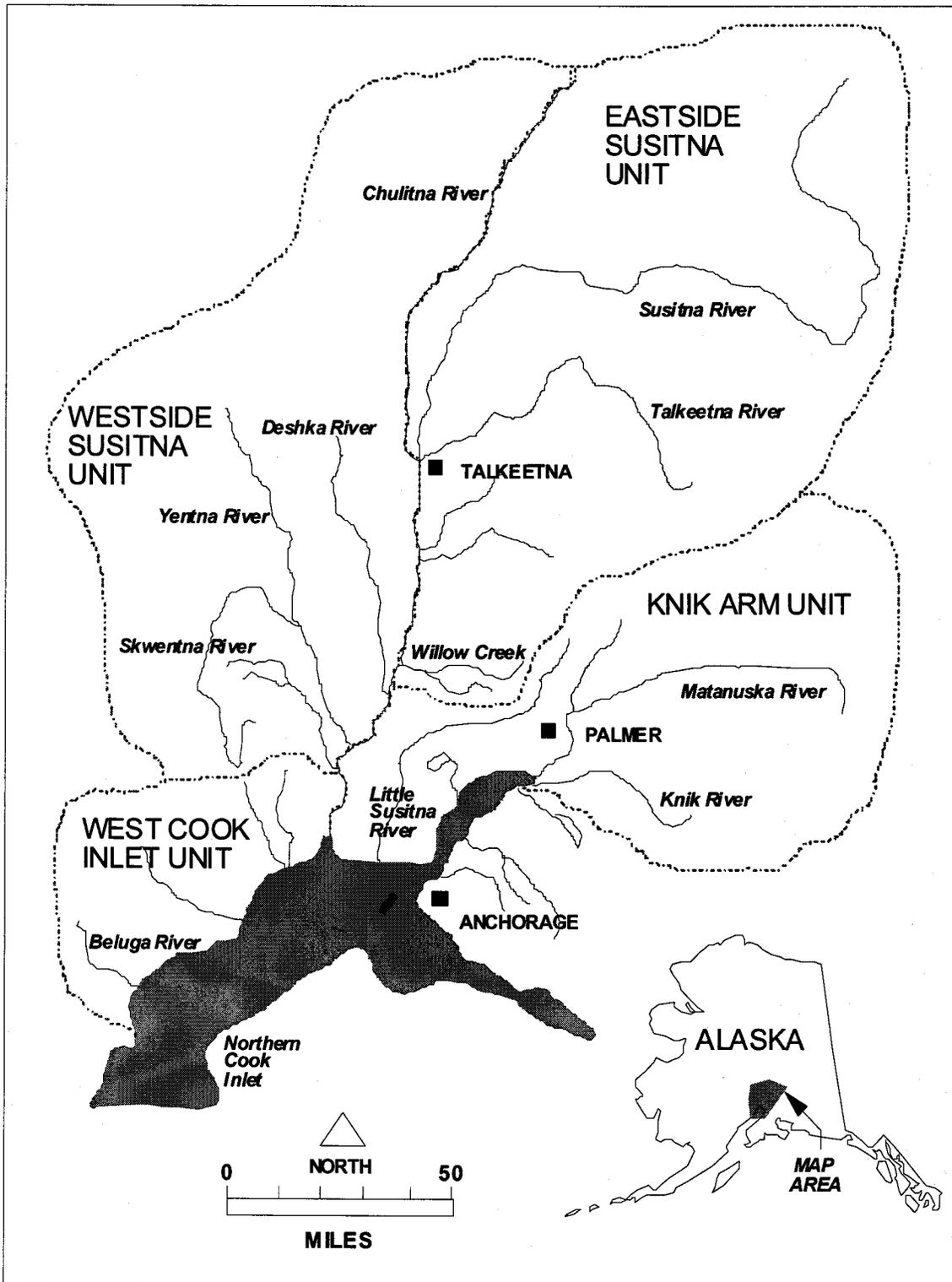


Figure 1.— Northern Cook Inlet Management Area.

Beginning in 1977, sport fishing effort in the NCIMA has been estimated using the Statewide Harvest Survey (SWHS), a mail survey (Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d); Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, *In prep.*). Unless noted otherwise, all estimates of effort, harvest and catch that follow are from the SWHS. This survey estimates the number of angler-days of sport fishing effort expended by anglers fishing Alaskan waters, as well as the harvest and, beginning in 1990, catch (number harvested plus number released) of important sport species. The SWHS is designed to provide estimates of effort, harvest and catch by site but is not designed to provide estimates of effort directed towards a single species at a site.

The NCIMA is composed of two complete and a portion of a third SWHS reporting area (Jennings et al. *In prep.*). These areas include: (1) the Knik Arm Drainage Area reporting unit (Area K), (2) the West Cook Inlet reporting unit (Area N), and (3) the Susitna River Drainage reporting unit (Area M). The West Cook Inlet Area presently includes fresh and marine waters between the southern tip of Chisik Island and Cape Douglas, an area outside of the NCIMA. The Susitna River area includes several rivers and many lakes north of the Oshetna River boundary of the NCIMA. Area N and M fisheries outside of the NCIMA are not included in this report.

CHINOOK SALMON FISHERIES

Eighteen proposals (330-341, 343-346, and 348) specifically addressing Northern Cook Inlet Chinook salmon fisheries will be addressed by the BOF in February 2008. These proposals focus on Susitna River Chinook salmon stocks and range from liberalizing to restricting fisheries.

Chinook salmon runs to the NCIMA are made up of many stocks, and collectively make up the largest proportion of Cook Inlet drainage stocks. The Susitna River stock is the most numerous in the management area, and the fourth most numerous in Alaska, smaller only than the Yukon, Kuskokwim and Nushagak river stocks (Delaney and Vincent-Lang *Unpublished*). Although estimates of total return are unavailable for Northern Cook Inlet Chinook salmon because estimates of escapement are not available for all stocks, the collective annual return is probably from 100,000-200,000 fish (Delaney and Vincent-Lang *Unpublished*).

Total harvests of NCI Chinook salmon for all users varied from about 11,200 to 70,000 from 1893-1940 (Table 1), averaging about 38,500 fish. This harvest appears to be sustainable, considering it was maintained for over a half century. After harvests increased from 1940-1951, peaking at 150,000 and averaging 84,500 fish annually, harvests declined precipitously until fisheries were closed in 1963 to allow stocks to rebuild (Figure 2). This history suggests that the maximum sustainable harvest range for NCI Chinook salmon is from 38,500-70,000 fish.

In 1976, the Magnuson Fishery Conservation and Management Act was passed. This act, also known as the 200-mile limit law, extended federal fishery management authority into waters within 3 to 200 miles of the United States coast. It phased out foreign fishing fleets and implemented fishery management in offshore waters. Its effects on Cook Inlet Chinook salmon stocks are not fully understood; however, it is likely that the act and its associated fishery management plans increased Chinook salmon returns to NCI.

A variety of users have historically harvested NCIMA Chinook salmon returns, including freshwater and marine sport, commercial, subsistence, personal use, and educational (Table 2). However, harvest strategies for NCI Chinook salmon have changed substantially since the 1890s. The fishery has slowly evolved from a mixed-stock commercial harvest to a recreationally

dominated harvest that targets a multitude of discrete substocks. A detailed user history is documented in Whitmore et al. *Unpublished*.

From 1975-1990, sport fisheries targeting NCI Chinook salmon runs were gradually expanded to allow harvest of increasing returns (Figure 2). The Upper Cook Inlet Salmon Management Plan (5 AAC 21.363), adopted by the BOF in 1977, guided these expansions. This plan as it relates to NCI Chinook salmon stocks, originally stipulated that stocks normally moving through Upper Cook Inlet to spawning grounds prior to July 1 are to be managed primarily for recreational uses. Therefore, sport fisheries were expanded and currently constitute the largest harvests. In 1986 the BOF adopted the Northern District King Salmon Management Plan (5 AAC 21.366) to allocate a portion of the increasing NCI Chinook salmon returns to the commercial fishery. This step-down plan allows for a harvest up to 12,500 Chinook salmon by a commercial setnet fishery in the Northern District during June.

Under these plans, total harvest of NCI Chinook salmon continued to increase from 1986-1993, ranging from 40,300-54,300 fish and averaging 46,500 fish (Table 2). Mean and peak harvest of NCIMA Chinook salmon in sport fisheries from 1986-1993 were 34,600 and 49,400 fish, respectively (Table 2). Sport harvests decreased substantially to 16,500 fish in 1995 due in part to fishery closures and restrictions (Appendix A1) placed on sport fisheries following a period of poor escapements observed in the early 1990's. As Chinook salmon stocks rebounded in the mid to late 1990s, fisheries were reopened and some restrictions were lifted. Beginning in 1997 sport harvests trended upward peaking at 33,100 fish in 2000. They have since stabilized with an average of 28,300 fish harvested from 2001-2005. The average total harvest of NCI Chinook salmon by all users was 31,900 fish during the same time period (Table 2).

In response to development of a recreationally dominated harvest that targeted a multitude of discrete substocks, biological escapement goals (BEGs) were established in 1993 for 18 NCIMA Chinook salmon spawning streams based on long-term escapement survey data. Escapement goals are intended to ensure the long-term viability of NCIMA Chinook salmon stocks. The 1993 BEGs were replaced with sustainable escapement goals (SEGs) as new assessment methods were developed (Bue and Hasbrouck *Unpublished*). Escapement goals were revised during the February 2002 BOF meeting (Bue and Hasbrouck *Unpublished*), and again at the 2005 BOF meeting (Hasbrouck and Edmundson 2007) based on the Policy for the Management of Sustainable Salmon Fisheries and the Policy for Statewide Salmon Escapement Goals, both adopted by the BOF during winter 2000-2001. Currently there are 16 SEGs and one BEG governing Chinook salmon escapements in the NCIMA (Table 3).

Therefore, the primary management objective for NCIMA Chinook salmon is to achieve established escapement goals. Spawning escapement on each of the 17 streams is indexed annually using helicopter surveys or weirs. To ensure escapement goals are met, fishery managers may reduce harvest potential by reducing daily and seasonal bag limits, prohibiting bait, and reducing time and areas open to fishing. Streams that consistently fall below escapement goals may be closed to Chinook salmon fishing. On streams with weirs or programs that provide inseason sport harvest information, regulations may be liberalized by emergency order (EO) if harvestable surpluses are projected.

From the late 1970s through 1989, escapement goals were achieved. However, beginning in 1990, observed spawning escapements in streams with escapement goals decreased, and in 1992-1995 were well below escapement goals in many streams. In response, actions were taken in 1994

through EOs and BOF regulations to reduce harvest levels. As a result, the combined sport harvest of NCI Chinook salmon from 1995-1998 was reduced to approximately half of the 1993 peak harvest (Table 2). Escapement goals were again achieved beginning in 1997. Fisheries were subsequently reopened contributing in part to increased harvest levels beginning in 1999. Harvests have remained stable since the early 2000s despite liberalizations to major fisheries. The regulatory history of Chinook salmon in Northern Cook Inlet waters is outlined in Appendix A1.

KNIK ARM UNIT CHINOOK SALMON FISHERIES

Fishery Description

Within the Knik Arm Management Unit (Figures 1 and 3), the Little Susitna River (Figure 4) is the only stream open to Chinook salmon harvest, other than the Eklutna tailrace terminal fishery (see section below). It supports a major Chinook salmon fishery as well as the largest coho salmon fishery in the NCIMA. Chinook salmon bound for the Little Susitna River are also harvested in marine sport and commercial fisheries, and subsistence and personal use fisheries.

Chinook salmon return to the Little Susitna River from late May through early July with the peak immigration approximately mid-June. Spawning occurs from the Burma Road area upstream into Hatcher Pass with the majority of spawning taking place upstream of the Parks Highway Bridge. Few Chinook salmon use tributaries for spawning. Peak spawning typically occurs during the last week of July.

Angler access to the Little Susitna River occurs at three primary locations: (1) intertidal waters of the river are accessed by boats crossing Knik Arm from the Port of Anchorage public boat launch; (2) the road-accessible Little Susitna Public Use Facility (Burma Road Access) which includes a launch and campground; and (3) private and public launches near the Parks Highway which provide access to the upper reaches of the river. The Little Susitna Public Use Facility is the most heavily used access to the river. Powerboats can travel on the Little Susitna River from its mouth to the Parks Highway during periods of moderate to high water levels. However, during low flows, travel is restricted to smaller jet boats between river mile (rm) 28 and the Parks Highway at rm 70.

Historical Harvest and Escapement

Information about the fishery and Chinook salmon stock is available from several sources. Inseason sport harvest and fishing effort for Chinook salmon were estimated by onsite creel surveys from 1979 through 1990. Creel survey and SWHS estimates produced comparable results; therefore, the creel survey program was discontinued in 1991. Average annual harvest of Chinook salmon from the Little Susitna River was approximately 2,100 fish from 1977-2005 (Figure 5; Table 4).

Due to the semiglacial character of the Little Susitna River, aerial survey counts of Chinook salmon on spawning grounds cannot be conducted annually, although surveys were completed in 20 years since 1983. The average Chinook salmon escapement index during these years was 1,396 fish, with a peak count of 3,197 fish in 1988 (Table 5; Figure 6). During 1988, 1989, 1994 and 1995 a weir was operated at rm 32.5, with escapement counts ranging from about 2,800-7,400 fish (Table 5).

Stocking Program

To increase road-accessible harvest opportunities and ensure sustainability of the area's wild Chinook salmon populations, Sport Fish Division began a program to stock Chinook salmon at the Eklutna power plant tailrace (Figure 7) in 1999. Ship Creek Chinook salmon are used as brood stock (Loopstra 2007). There are no wild Chinook salmon returns to the tailrace, although a few hold in the confluence area before traveling to other Knik River streams to spawn. All fishing takes place in the ½ mile long power plant tailrace from the Old Glenn Highway to its confluence with the Knik River.

In May 2002, the first Chinook smolt were stocked into the tailrace (Table 6). Harvest in 2003 was about 400 fish and only about 20 fish in 2004, but increased in 2005 to 941 fish, and 484 fish were harvested in 2006.

Fishery Management and Objectives

The Chinook salmon fishing season for the Little Susitna River is from January 1 through July 13 with fishing permitted from the river's mouth upstream to the Parks Highway, a distance of about 70 miles.

Management of Chinook salmon has undergone changes (Appendix A1). In 2002, an SEG range of 900-1,800 Chinook salmon was set for the Little Susitna River (Bue and Hasbrouck *Unpublished*), replacing the BEG of 850 Chinook salmon that was set in 1993. During 1988, 1989, 1994 and 1995, years in which a weir program was conducted and harvest estimates were available, inriver exploitation rates were estimated at approximately 28%, 49%, 59% and 38%, respectively. This indicated an increased rate of exploitation from 1988 to 1994 which might not have been sustainable. From 1997-2006 escapement ranged from 1,100-2,100 fish and harvest varied from about 2,000-3,300 fish (Tables 4 and 5), indicating that the present regulatory framework is maintaining the necessary escapement to ensure a sustainable fishery.

The management objective for the Little Susitna River Chinook salmon fishery is to maximize fishing opportunity while ensuring the attainment of the SEG. The annual objective for the Eklutna Tailrace stocking program is to release 150,000 Chinook smolt, resulting in a return of 4,000 adults and generating 10,000 angler-days of effort. The only other Knik Arm Unit Chinook salmon stream indexed annually is Moose Creek, a tributary of the Matanuska River, but there is no escapement goal.

In the near future NCI managers will be looking for signs of reduced sibling return from brood year 2006 due to a 100-year flood which swept much of the NCIMA during the third week of August, 2006. Major scouring and definite channelization was observed on the Little Susitna River above the Parks Highway where most Chinook salmon spawning occurs.

Sport Fishery Performance and Escapement in 2006 and 2007

The 2006 sport harvest of Chinook salmon from the Little Susitna River was 3,300 fish, above the 2001-2005 average of 2,500 fish (Table 4). The Little Susitna River harvest accounted for approximately 12% of the total Chinook salmon sport harvest from NCIMA waters during 2006 (Table 7). An aerial index of about 1,900 Chinook salmon was documented for the Little Susitna River in 2006 (Table 5). In 2006, about 220 fish were counted during the Moose Creek survey (Table 5). The Eklutna Tailrace provided its first compliment of age 4, 5, and 6 year old Chinook salmon in 2006. Harvest of Chinook salmon at the Eklutna Tailrace in 2006 was about 480 fish.

During 2007 catch rates reported by guides and anglers were above average on the Little Susitna River throughout the Chinook fishing season. Department staff observations of fishing at the Eklutna Tailrace indicated fair catches from late-May through mid-July.

Water conditions in August provided for above average visibility in which to conduct the annual index count. On July 17, 2007, about 1,700 Chinook salmon were counted (Table 5), within the SEG range of 900-1,800 (Figure 6).

In 2007, an aerial survey conducted on Moose Creek counted 330 fish, below the 1997-2006 (10 yr) average of about 350 (Table 5). There is no SEG established for Moose Creek, however, escapement counts from aerial surveys since 2000 have all fallen below the long-term average indicating a possible decrease in run strength for unknown reasons. In the early 2000s, the Chickaloon Village Traditional Council began a multiphase project to restore Moose Creek to its condition prior to the construction of a railroad spur used in the coal industry in the early 1920s. The project's main focus was restoration of the original creek channel and thereby reestablishment of fish passage where barriers had formed, the result of the human caused channelization. In 2005 and 2006, completion of the first and second phases restored fish passage around one major and three minor waterfall barriers. Chinook salmon were observed spawning above these barriers in 2005-2007.

EASTSIDE SUSITNA MANAGEMENT UNIT CHINOOK SALMON FISHERIES

Fishery Description

The Eastside Susitna Management Unit (ESMU; Figures 1, 8 and 9) is composed of three distinct geographical areas with different regulations: (1) the eastside Susitna River tributaries between the Dshka and Talkeetna rivers, (2) the Talkeetna River, and (3) the upper Susitna area which includes the Susitna River and its tributaries between Talkeetna River and Oshetna River (including the Oshetna River drainage) and all eastside tributaries of the Chulitna River (including the East Fork drainage of the Chulitna River).

Deshka to Talkeetna Area

Tributaries of the Dshka to Talkeetna area (Figures 8 and 9) are numerous and are characterized by their clear water. The majority of the fisheries in this portion of the management unit are accessible by road. There are exceptions, including Little Willow and Greys creeks and various Susitna River side sloughs that require a boat to access their most productive portions. The George Parks Highway (Alaska Route 1), which connects Anchorage and Fairbanks, parallels the Susitna River on the east. The Alaska Railroad also parallels the east side of the Susitna River to a large extent. Both transportation systems provide angler access to numerous tributaries.

Talkeetna River

The Talkeetna River joins the Susitna River about 98 miles upstream from Cook Inlet. This glacial system contains two major and numerous minor clear water tributaries that support Chinook salmon (Figure 10). Clear Creek is the most prominent Chinook fishery within the Talkeetna River drainage. The Talkeetna Spur Road provides access to the Talkeetna River; however, a boat is required to reach virtually all Chinook salmon fisheries within the drainage. This area is primarily accessed from the Talkeetna boat launch.

Upper Susitna River Area

The upper Susitna River area (Talkeetna to Devils Canyon; Figure 8) is accessible only by boat or railroad. A public boat launch adjacent to the community of Talkeetna provides access to the area. Boat travel is relatively safe from the Talkeetna River upstream to the entrance of Devils Canyon, a distance of about 55 miles. Boat travel beyond the entrance to Devils Canyon is extremely hazardous and few boat operators venture past this location. Indian River and Portage Creek are the most prominent Chinook salmon fisheries within the Upper Susitna River Area. The entrance to Devils Canyon, beyond which salmon cannot migrate, is about 150 miles upstream from Cook Inlet.

The Chulitna River empties into the Susitna River a short distance upstream of Talkeetna River at rm 92. Most tributaries entering the Chulitna River from the east are relatively short, high gradient streams, which receive few spawners. The exception is the East Fork, currently the only Chulitna River tributary supporting a Chinook salmon fishery (Middle Fork, West Fork mouth and lower Honolulu Creek are included in this fishery).

Stocking Program

Willow Creek was identified in 1981 as a candidate for Chinook salmon stocking in the Cook Inlet Regional Salmon Enhancement Plan (CIRPT 1981). A Chinook salmon smolt stocking program was initiated in 1985 and the program has continued annually with the exception of 1987. The goals of this program are to: (1) maintain the present quality and quantity of natural Chinook salmon production (2) produce through stocking an additional 6,000 returning Chinook salmon of which 4,000 would be available for harvest at Willow Creek on an annual basis, and (3) provide 10,000-15,000 angler-days of Chinook salmon fishing opportunity during Chinook salmon season (Sweet 1999). A project to estimate the relative contribution of stocked Chinook salmon to the sport harvest was conducted at the mouth of Willow Creek annually from 1988-2005. The program was ended when it was determined that harvests of stocked fish were well documented and relatively stable, averaging about 40% of the total harvest and ranging from 26% to 51% for 1991-2005, years in which a full compliment of stocked fish returned (Sweet 1999; Whitmore and Sweet 1998, 1999; Rutz and Sweet 2000; Sweet and Rutz 2001; Sweet et al. 2003, 2004).

Historical Harvest and Escapement

Information about the fishery and Chinook salmon stock is available from the SWHS, creel surveys, escapement surveys, and tagging studies. In the Deshka to Talkeetna area, most of the Chinook salmon harvest occurs the third and fourth weekends in June because few Chinook salmon arrive at the mouths of eastside Susitna tributaries prior to mid-June. At the Talkeetna River the fishery peaks the first week in July. The Upper Susitna River fishery has run timing similar to the Talkeetna River.

Tagging studies have shown that Chinook salmon substocks from Willow Creek, Talkeetna River, Sheep Creek and Montana Creek are subject to harvest at stream mouths other than their natal stream (Peltz and Sweet 1992). For example, stocks from the upper portions of the drainage such as Prairie Creek are harvested at stream mouths along their migration corridor. The magnitude of nonnatal stream harvest has not been determined.

From 1979-1995, harvest ranged from about 1,300 Chinook salmon in 1979 to 22,700 in 1993 (Table 7). From 2001-2005, ESMU fisheries averaged about 36% of the total NCIMA Chinook

salmon harvest (Table 7). Harvest steadily declined during this period, from about 13,500 Chinook salmon in 2001 to about 8,500 in 2004 and 2005. Included in these harvests are approximately 500-4,000 hatchery fish taken in Willow Creek beginning in 1988.

Willow Creek, Talkeetna River, Sheep Creek and Montana Creek traditionally produce the largest harvest of Chinook salmon in the Eastside Susitna Management Unit. The 2001-2005 average annual harvest for these fisheries ranged from 1,100 fish in Sheep Creek to 3,500 fish in Willow Creek (Table 8).

Creel surveys were employed from 1979-1989 to monitor the effort for and harvest of Chinook salmon and to collect biological samples at Montana Creek and the Talkeetna River. In 1991, 1992 and 1995 creel surveys were conducted for the Talkeetna River. Biological samples were collected from the Talkeetna River during the 1993, 1994 and 1996 seasons. Creel surveys were intermittently conducted at Sheep, Goose, Caswell, Little Willow, Sunshine, and Birch creeks and within the upper Susitna River area. Findings from these surveys are documented in Department of Fish and Game annual reports (Watsjold 1980, 1981; Bentz 1982, 1983; Hepler and Bentz 1984-1987; Hepler et al. 1988, 1989; Sweet and Webster 1990; Sweet et al. 1991; Peltz and Sweet 1992, 1993; Sweet and Peltz 1994; Whitmore et al. 1995, 1996; Whitmore and Sweet 1997).

Aerial survey escapement counts suggest that ESMU substocks comprise from 40% to 60% of the Susitna River Chinook salmon escapement (Table 9). Prairie Creek, a headwater tributary of the Talkeetna River, consistently receives the largest escapement with an average escapement of 5,200 Chinook salmon from 1997-2006 (Table 10).

Fishery Management and Objectives

Management of Chinook salmon in the Eastside Susitna Unit has undergone numerous changes since the 1980s, as has management of Chinook salmon in the entire NCIMA (Appendix A1).

In the Deshka to Talkeetna area, waters within one-quarter mile of the Susitna River are open to Chinook salmon fishing from January 1 through the third Monday in June and on Saturday, Sunday and Monday for three consecutive weeks beginning the fourth Saturday in June. For the Willow, Little Willow, Caswell, Kashwitna, Sheep, Goose and Montana creeks (Figure 9), fishing is allowed from the Susitna River upstream to the Parks Highway. Fishing on Montana Creek extends one-half mile upstream of the Parks Highway Bridge while

The Talkeetna River (Figure 10) and upper Susitna River drainages are open to Chinook salmon fishing from January 1 through July 13, from 6 am to 11 pm. Bag and possession limits are one fish per day and one in possession. Within the Talkeetna River area, Clear Creek is open upstream to rm 2. Both Larson and Prairie Creeks are closed to Chinook salmon fishing. Eastside Chulitna River tributaries are closed to Chinook salmon fishing with the exception of East Fork Chulitna and its tributaries. Harvest is allowed within a quarter mile of the confluence of the East Fork and West Fork of Chulitna River and including the Middle Fork and the first quarter mile of Honolulu Creek under the weekend only management strategy described for the Deshka to Talkeetna area. During the rest of the week, only catch-and-release fishing is allowed. The portion of the Susitna River above the Talkeetna River is designated as a trophy fishery for rainbow trout; therefore, only unbaited, single-hook artificial lures are permitted as terminal gear.

SEG ranges for nine Eastside Susitna Management Unit streams were established in 2002 (Table 3) based on historic escapement index counts (Bue and Hasbrouck *Unpublished*). The Deception Creek SEG was removed at the 2005 BOF meeting (Hasbrouck and Edmundson 2007) because Deception Creek is managed as part of Willow Creek. The management objective for these eight streams is to achieve the escapement goal for each system. In the streams that cross the George Parks Highway, management strategies provide maximum levels of sustained Chinook salmon fishing opportunity while attaining escapement objectives.

In the near future NCI managers will be looking for signs of reduced sibling return from brood year 2006 due to a 100-year flood which swept much of the NCIMA during the third week of August, 2006. Major scouring and channelization was observed on Willow and Montana creeks above the Parks Highway where most Chinook salmon spawning occurs. Other major eastside Chinook salmon producing streams were likely affected as well.

Sport Fishery Performance and Escapement in 2006 and 2007

The 2006 Chinook salmon harvest from the Eastside Susitna Management Unit was 7,300 fish, approximately 72% of the 2001-2005 average harvest of 10,100 fish, and 27% of the entire Chinook salmon sport harvest from the NCIMA (Table 7). All SEGs were met in 2006 with the exception of Sheep Creek which was 20 fish below the lower end of its SEG range of 400-1,200 Chinook salmon (Figure 11).

During 2006 the harvest of Chinook salmon from Willow Creek was 2,100, about 62% of the previous 5-year mean, but still dominating other major eastside fisheries (Sheep Creek, Montana Creek, and the Talkeetna River; Table 8).

Information provided to the department from sport anglers and guides indicated returns to eastside Susitna tributaries were average in 2007.

The 2007 escapement surveys for ESMU Chinook salmon, all of which were completed, indicated that SEGs were met for five of eight streams. SEGs were not met for Willow, Sheep, and Goose creeks (Table 10; Figure 11).

WESTSIDE SUSITNA MANAGEMENT UNIT CHINOOK SALMON FISHERIES

Fishery Description

The Westside Susitna Management Unit (WSMU) includes all westside drainages of the Chulitna River, and all westside drainages of the Susitna River below its confluence with the Chulitna River and, primarily for management purposes, eastside drainages of the Susitna River within a half mile of the Susitna River downstream of Willow Creek. Major tributaries within this unit which support Chinook salmon fisheries include the glacially turbid Yentna River, the largest tributary of the Susitna River, which flows into the Susitna River about 30 miles upstream from Cook Inlet, the Deshka River with confluence at rm 40 of the Susitna River, and Alexander Creek (confluence at rm 10 of the Susitna River). The Deshka River produces the largest return of Chinook salmon to the NCI area which exhibit early run timing, due to the relative closeness of the Deshka to the mouth of the Susitna River. Lake Creek (64 miles from the mouth of the Susitna River at rm 34 of the Yentna River), supports the largest Chinook salmon fishery on the Yentna River.

Access to these relatively remote fisheries is primarily by boat or aircraft. Susitna Landing, located at the mouth of the Kashwitna River, and Deshka Landing, located about 4 miles

upstream from the Deshka River, are the principal boat access sites on the Susitna River. A few anglers also gain access to Westside Susitna Management Unit fisheries by traversing Cook Inlet by boat from the Port of Anchorage. The Petersville Road provides the only vehicular access to this portion of the Susitna River drainage, allowing access to the upper reaches of the Deshka River and Peters Creek.

Historical Harvest and Escapement

Information about the WSMU fishery and Chinook salmon stock is available from the SWHS, weirs, and escapement surveys. Chinook salmon enter WSMU tributaries in May and June. Peak harvest at the mouth of Alexander Creek normally occurs during the first week of June. Harvest at the mouth of the Deshka River peaks during mid-June, and at Lake Creek the peak harvest usually takes place during the third week in June.

The WSMU supported the largest harvests of Chinook salmon within the NCIMA from 1979-1991 (Table 7). Within the unit, the Deshka River, Alexander Creek and Lake Creek have historically supported the largest Chinook salmon fisheries (Table 11), making up about 85% of the Chinook salmon harvest of the unit from 2001-2005. The Deshka River has historically provided the largest Chinook salmon harvest within the entire NCIMA (Table 11) except during the mid 1990's when the fishery was closed due to low observed escapements.

Harvest by major WSMU fisheries increased substantially from 1979-1993 (Table 11), probably as a result of improved access (as described in Whitmore et al. 1994) and population growth. However, liberalized regulations from 1986-1992 also contributed to increased harvests.

Escapements have been monitored annually in six tributaries using aerial surveys (Table 12). A weir has been used to census escapements to the Deshka River since 1995 (Table 12). From 1991-1996, Chinook salmon spawning abundance in WSMU tributaries fell below escapement goals (Table 12). At the Deshka River, Chinook salmon escapement index counts indicated an alarming decline during this period, while the average sport harvest of Chinook salmon from 1990-1992 was approximately 40% greater than the average harvest during the previous 10 years (Table 11). In response, restrictions were implemented on major WSMU streams and the Deshka River was closed to Chinook salmon fishing from June 17, 1994 to June 21, 1997 (Appendix A1). The escapement goal for the Deshka River of 11,200 Chinook salmon, counted by aerial survey, was not met from 1991-1996 (Table 12). In 1997-2005, the SEG or BEG was met for all streams, except Alexander Creek which fell 164 and 88 fish short in 2002 and 2003, respectively (Table 12).

Fishery Management and Objectives

Management of Chinook salmon in the WSMU has undergone numerous changes since the 1980s, as has management of Chinook salmon in the entire NCIMA (Appendix A1). These changes reflect periods of strong Chinook salmon returns during most of the 1980s and from about 1997 to present, surrounding a period of weak returns. An escapement monitoring weir at rm 7 of the Deshka River is an important tool for managing Chinook salmon returning to the Susitna River because of large observed escapements and relatively early run timing due the river's closeness to the mouth of the Susitna River. The Deshka weir operates from mid May through the duration of the Chinook salmon season to provide managers with timely inseason run information as well as post season biological data used to assess productivity in this system. A weir-based BEG range of 13,000-28,000 fish was established for the Deshka River based on

actual escapement, age, and harvest data gathered at the weir. SEG ranges for four other WSMU systems (Lake, Alexander, Peters creeks and the Talachulitna River) were also established in 2002 (Table 3). SEGs were based on historical aerial index counts of escapement (Bue and Hasbrouck *Unpublished*). The management objective for these five systems is to achieve the escapement goals while providing maximum levels of Chinook salmon fishing opportunity.

Inseason liberalizations to the Deshka River Chinook salmon fishery have been common since 2000 (Appendix A2). The Deshka River escapement exceeded the escapement goal of 17,500 fish from 1999-2001 and exceeded or was within the more recent BEG range since 2002 (Figure 12).

The SEG for Alexander Creek was not met in four out of the past six years (Figure 12). Northern pike have likely reduced Chinook salmon productivity in this system through predation on juvenile salmon. As a result, management for sustainable yield through reduction in harvest is anticipated in the near future.

In the near future NCI managers will be looking for signs of reduced returns from brood year 2006 due to a 100-year flood which swept much of the NCIMA during the third week of August, 2006. Major scouring and some channelization was observed on Moose Creek, a major tributary of the Deshka River where significant Chinook salmon spawning occurs.

Currently, the bag limit for WSMU Chinook fisheries is one daily and two in possession (except Alexander Creek; one in possession), and a seasonal limit of five Cook Inlet Chinook salmon. Only unbaited, single-hook artificial lures are allowed in large portions of Lake and Alexander creeks and the Deshka River, and in the Talachulitna River. Sport fishing guides may not participate or engage in fishing for Chinook salmon while clients are present or within their control.

Sport Fishery Performance and Escapement in 2006 and 2007

In 2006, total Chinook salmon harvest from all WSMU streams was 16,500 fish, 114% of the 2001-2005 mean (Table 7). These fisheries supported the largest harvests of Chinook salmon within the NCIMA in 2006. In 2006 escapements in all streams were within or above their SEG ranges except Alexander Creek (Figure 12).

During the 2007 season catch information from lodge owners, guides and anglers at Alexander Creek indicated a below average return for that stream. Angler success on Yentna tributaries and the Deshka River was variable. The final Deshka River weir count for 2006 totaled 18,714 Chinook salmon, within the SEG range of 13,000-28,000, and about half of the 2002-2006 mean (Table 12). Alexander Creek was the only stream in 2007 that did not meet its SEG. The aerial index count on Alexander Creek was 480 fish, less than 25% of the lower end of the SEG range (Table 12; Figure 12).

WEST COOK INLET MANAGEMENT UNIT CHINOOK SALMON FISHERIES

Fishery Description

Prior to 2000 the West Cook Inlet Management Unit (WCIMU) extended south from the mouth of the Susitna River to the West Foreland of Cook Inlet (Figure 13). Beginning in 2000 it was expanded to include all waters along the westside of Cook Inlet to the latitude of the southern tip of Chisik Island. Streams in the WCIMU, with the exception of the Chakachatna-McArthur and the Beluga River drainages, are relatively small clearwater coastal drainages that originate in the Alaska Range, Aleutian Range or from slopes of Mount Susitna. The Chakachatna-McArthur

and Beluga River drainages are largely glacial and receive minor use by Chinook salmon anglers. Beginning in 2000 the data in this report reflect harvest, effort and catch data from the expanded management unit.

The Chuitna and Theodore rivers are the area's most prominent Chinook salmon sport fisheries (Table 13). Streams south of the West Foreland, namely the Kustatan River and Polly Creek, support small returns of Chinook salmon and generate only a small Chinook harvest. Stocks from the WCIMU are also harvested in commercial fisheries as well as a subsistence fishery located near the village of Tyonek (Table 2).

Chinook salmon begin to arrive in the area during late May with the peak of most fisheries occurring during mid to late June.

Access to the coastal fisheries of the WCIMU is by air or water because there is no road link to the Southcentral Alaska highway system. Helicopters are used to access the upper reaches of these streams, and airplane combined with vehicle to access the lower reaches. A road network, built to facilitate oil and gas exploration and the timber industry, does exist in the Tyonek/Beluga area. Several gravel aircraft landing strips are present and a few roads also serve as runways. The village of Tyonek, with a population of nearly 300, is the area's primary population center.

Historical Harvest and Escapement

The total annual harvest of Chinook salmon from all streams in the WCIMU ranged from 550 to 1,200 fish and averaged 900 fish from 2001-2005 (Table 13).

In the 1990s, escapement goals were not met for some streams (Figure 14). The reduced abundance of spawning Chinook salmon in WCIMU is probably due to elevated sport harvest and flood-related mortality of eggs and juveniles in 1986. Inspection of the coastal streams after an October 1986 flood revealed substantial streambed scouring and channelization. In association with flooding, there was severe erosion, landslides and subsequent deposition of earth and debris into the streams. The 1993 escapement index count showed an improvement over the previous 4 years but decreased again in 1994. The 1994-1996 escapement counts for all streams were low. This trend finally reversed in 1997-1999 when all escapement goals were met (Figure 14). Run strength continued to be good through 2005, except that the Theodore River escapement was marginally less than the lower end of the SEG range in 2004 and 2005 (Table 14).

Fishery Management and Objectives

SEGs for three WCIMU streams were established in 2002 (Table 3), based on historical escapement index counts. The management objective for these three streams is to achieve the escapement goal while providing maximum levels of sustained Chinook salmon fishing opportunity.

West Cook Inlet Chinook fisheries are open January 1-June 30. The current bag and possession limit is one daily and one in possession, and a seasonal limit of five Cook Inlet Chinook salmon. Only unbaited, single-hook artificial lures are allowed in drainages between the mouth of Susitna River and West Foreland. In drainages from West Foreland to the southern tip of Chisik Island, bait is allowed after May 15. The Chuitna River is open to Chinook salmon sport fishing below the old cable crossing. Both the Lewis and Theodore Rivers have been catch-and-release only Chinook salmon fisheries since the 2002 BOF meeting (Appendix A1).

Fishery Performance and Escapement in 2006 and 2007

The estimated 2006 West Cook Inlet harvest was 1,038 Chinook salmon, exceeding the previous 5-year mean of 880 (Table 13). SEGs were met for the Chuitna, Theodore, and Lewis rivers in 2006 (Figure 14).

No SEGs were met in 2007 for WCIMU streams (Figure 14; Table 14). Escapements at the Chuitna and Theodore rivers were below the lower end of the SEG ranges by about 20 fish. A spawning escapement survey conducted on the Lewis River on July 17 counted zero Chinook salmon. Upon investigation, it was found that the river had overflowed its bank about one-half mile below the bridge and was flowing into a large swampy area. After the channel was restored, the river was again surveyed on August 7 to check for evidence of spawning. No Chinook salmon were observed spawning in the Lewis River in 2007.

COHO SALMON FISHERIES

Two proposals (342 and 345) addressing bait restriction and liberalizing bag limits for coho salmon fisheries of the NCIMA will be addressed by the BOF in February 2008.

AREA-WIDE OVERVIEW

Area-wide Historical Harvest and Escapement

Sport harvests of coho salmon in the NCIMA ranged from 17,200-105,300 fish from 1977-2005, and averaged 85,300 fish during the last five years (Table 15). From 2001-2005 NCIMA harvests accounted for 17% of the coho salmon harvests in the Southcentral region and 10% of the statewide harvests (Table 15). Within the NCIMA, the KAMU, which includes the Little Susitna River, accounted for the largest harvest of coho salmon through 2005 with the exception of 1999 and 2000 when ESMU surpassed it. The ESMU is usually a close second followed by the WSMU. The WCIMU, with fewer accessible streams, is a distant fourth in average harvest. Harvests of coho salmon in the KAMU are dominated by harvests from the Little Susitna River while harvests from other management units are distributed across several systems (Tables 16-19).

Area-wide Fishery Management and Objectives

Management of coho salmon in the NCIMA has undergone numerous changes (Appendix A3). Each season, management strategies for NCIMA coho salmon are implemented as the stocks begin entering Cook Inlet and are intercepted, first by the commercial fishery and then the sport fishery.

The magnitude, catch per unit effort, and geographical distribution of the commercial harvest are indices of general run strength. Comparison between years can be difficult because fishery restrictions may vary from year to year. As coho salmon enter fresh water, the department has limited ability to gauge overall run size. Until 1997, counting weirs at the Little Susitna River and the Doshka River provided the only quantitative measure of coho abundance in the NCIMA. Beginning in 1997, weirs were also operated in Wasilla, Cottonwood and Fish creeks. Wasilla and Fish Creek weirs were discontinued after 2003 and Cottonwood Creek weir after 2004. The Fish Creek weir currently operates to count only the sockeye salmon escapement and is removed about August 15, half way through the historical coho salmon run. Fish wheels and sonar on the Yentna River, and foot and aerial index counts for a few streams also contribute information about relative abundance. Within the NCIMA, nine index areas are surveyed annually by foot: Yellow Creek (Matanuska River), McRoberts and upper Jim Creeks (Knik River), Cottonwood

and Wasilla Creeks (Knik Arm), and Rabideux, Birch, Question, and Answer Creeks (Susitna River).

A creel survey to estimate coho salmon harvest and fishing effort was conducted at the Little Susitna River from 1982 through 1993. Intermittent or partial creel survey data have also been collected from other coho salmon fisheries.

Poor runs in 1997 and 1999 prompted inseason restrictions to both sport and commercial fisheries. In response to a poor return of coho salmon to Cook Inlet in 1997, emergency orders were issued to close the commercial fishery and to institute an areawide bag limit reduction and bait prohibition for wild stock sport fisheries. Restrictive action was again taken in the commercial fishery in 1998 because of a poor sockeye return. Because of the nature of the multi-species fishery, this action probably resulted in higher escapements. No additional action was required in the sport fishery during 1998, because instream coho abundance seemed to be above average. In 1999, poor returns again resulted in restrictions to the sport and commercial fisheries. Unfortunately these restrictions were made too late to increase coho salmon escapement. Low escapements of coho salmon to UCI streams prompted the governor and users to submit a request to the BOF to meet out of cycle and address this conservation problem. The BOF met in February 2000 and significant actions to both the sport and commercial fisheries were taken to reduce the overall harvest of Cook Inlet coho salmon (Appendix A3). Since then, coho salmon returns to NCIMA streams have been mostly above average. A 100-year flood which swept much of the NCIMA during the third week of August 2006 could impact future returns of coho salmon, at least in the short term. Impact would be greatest for adults returning in 2008.

KNIK ARM MANAGEMENT UNIT: LITTLE SUSITNA RIVER COHO SALMON FISHERY

Fishery Description

Access to the Little Susitna River (Figure 4) occurs at three primary locations: (1) intertidal waters of the river are accessed by boats crossing Knik Arm from the Port of Anchorage public boat launch; (2) the road-accessible Little Susitna Public Use Facility (Burma Road Access) which includes a launch and campground; and (3) private and public launches near the Parks Highway which provide access to the upper reaches of the river. The Little Susitna Public Use Facility is the most heavily used access to the river. Powerboats can travel on the Little Susitna River from the mouth of the river to the Parks Highway during periods of moderate to high water levels. However, during low flows travel is restricted to smaller jet boats between rm 28 and the Parks Highway at rm 70.

Coho salmon return to the Little Susitna River primarily from mid-July through early September. Tagging studies indicate that coho salmon migrate slowly up the Little Susitna River and remain available to the fishery for about 4 weeks, after which they pass the George Parks Highway Bridge into waters closed to fishing for salmon. Spawning takes place from late September through mid-October. Spawning primarily occurs upstream from the George Parks Highway in the mainstem of the river, but some spawning occurs in tributary streams.

Stocking Program

Stocking of coho salmon occurred at the Little Susitna River from 1982-1995. Beginning in 1987, returns from smolt releases started to make significant contributions to the sport harvest. The 1995 smolt release in Nancy Lake was the last stocking of hatchery coho salmon for the

Little Susitna River. The program was terminated because it was no longer cost effective to stock the Little Susitna River because of the strength of the natural run and high cost of hatchery enhancement. A summary of the stocking program can be found in the following reports: Bartlett and Conrad 1988; Bartlett and Vincent-Lang 1989; Bartlett and Sonnichsen 1990; Bartlett and Bingham 1991, 1993; Bartlett 1992, 1994, 1996 a-b.

Historical Harvest and Escapement

From 1977-2005, harvest of Little Susitna River coho salmon ranged from 2,800-27,600 fish with a mean harvest of 12,300 fish (Table 16). It has been a consistent second to the Kenai River, which supports the largest freshwater coho salmon harvest in Alaska.

Prior to 1986, coho salmon escapement to the Little Susitna River was indexed by ground and/or aerial surveys when water conditions permitted. Coho salmon escapements were counted at a weir in 1986 and from 1988 to present (Table 20). In 1986 the weir was damaged for several days by floodwaters and the count through the weir was incomplete (Table 20). Weir counts in 2005 and 2006 were also incomplete due to high water events. From 1988-1995 the weir was located at rm 32.5. From 1996 to present, the weir was located upstream at rm 71. Direct comparison of counts between weir sites is not possible, although most spawning occurs above the rm 71 site.

During 1997 and 1999 the Little Susitna River (Table 20), as well as the whole NCIMA, experienced poor coho salmon returns. However, these low returns did not appear to affect returns in subsequent years as escapement in 2001 was 30,600 coho salmon and a record escapement of 48,000 coho salmon occurred in 2002.

Harvest estimates from the SWHS and escapement data indicate that coho salmon abundance at the Little Susitna River fluctuates widely. Inriver returns (escapement plus sport harvest) ranged from approximately 12,000-67,000 fish from 1996-2005 (Tables 16 and 20), years after the stocking program ended and for which complete escapement counts are available. This wide range of inriver returns was mostly related to run size and to a lesser extent, sport harvest. Mean inriver exploitation has varied with escapement over the same time period and averaged 45% (Figure 15).

Fishery Management and Objectives

The Little Susitna River coho salmon sport fishery has been managed in accordance with the Little Susitna River Coho Salmon Management Plan (5 AAC 61.060) since 1991 and as modified following the 1992 and 1996 seasons (Appendix A3). Management objectives stated in the plan are to provide an SEG of 10,100-17,700 naturally spawning coho salmon upstream of the George Parks Highway (Table 20), and to provide coho salmon fishing opportunity from the George Parks Highway downstream to tidewater without emergency restrictions.

Currently the bag and possession limits are two coho salmon 16 inches or more in length per day and in possession. Only unbaited, artificial lures are allowed in the Little Susitna River from October 1 - August 5. This regulation was originally designed to reduce the catch rate of early arriving nonhatchery fish and remains in effect to reduce hook-and-release mortality. The hook-and-release mortality of bait-caught, ocean-fresh coho salmon has been documented to be approximately 70% (Vincent-Lang et al. 1993). The management plan allows the use of bait beginning August 6. Downstream of rm 32.5 (the original weir site) anglers are required to quit fishing when they reach their bag limit of Little Susitna coho salmon. Coho salmon intended for

release cannot be removed from the water, a regulation that also helps reduce hook-and-release mortality.

Coho salmon runs on the Little Susitna River have been found to be significantly correlated to those of other Knik Arm streams (Namtvedt and Yanusz *In prep.*). However, the Little Susitna River at its present location at rm 71 provides very little potential for gauging run strength in other Knik Arm streams or for inseason management of the fishery which occurs primarily on the lower 40 miles of river. Despite its low use as an inseason management tool due to the weir's location high up on the river, Little Susitna weir counts were used to liberalize bag and possession limits as well as time restrictions on the Little Susitna River and Cottonwood, Fish, and Wasilla creeks in 2006 (Appendix A3).

Fishery Performance and Escapement in 2006 and 2007

During 2006 fishing guides and anglers reported above average catches of coho salmon throughout the season despite extremely high water levels which occurred near the peak of the salmon run. Observations during the first half of the historical run were indicative of a large early run. The magnitude of the 2006 run and a possibly earlier than average run timing resulted in use of the Little Susitna River weir counts in liberalizing coho fisheries across the Knik Arm Unit (Appendix A3). At the same time this EO went into effect, the weir was subjected to major flooding, remaining submerged for the last two weeks in August and resulting in an incomplete count of escapement of only 8,800 fish (Table 20). However, the SEG of 10,100-17,700 was likely met because historical run timing suggests that at least half the run would have occurred during the two weeks the weir was inoperable. Also, escapement index surveys on Wasilla and Cottonwood creeks, both of which closely mirror the Little Susitna run, were about average (Figure 16). Reports from anglers fishing downstream of the weir during the period of flooding were good despite poor fishing conditions. During 2006, 12,400 coho were harvested from the Little Susitna River, below the 2001-2005 mean of 15,100 fish (Table 16).

During 2007, sport fishing guides and anglers reported below average catches early in the season. Angling success became average about a week later than historical observations. Post-season analysis of fish passage through the weir indicated the 2007 coho salmon run on the Little Susitna River to be about seven days late. A total of 17,600 coho salmon were counted through the Little Susitna River weir at rm 71 (Table 20), near the high end of the SEG range.

KNIK ARM MANAGEMENT UNIT: OTHER COHO SALMON FISHERIES

Fishery Description

The Knik Arm Management Unit (Figures 1 and 3) presently supports five significant sport coho salmon fisheries in addition to the Little Susitna River: Fish Creek, Cottonwood Creek, Wasilla Creek, Jim Creek, and Eklutna Tailrace. This unit also has a personal use dip net fishery on Fish Creek and four educational permit fisheries (Knik Tribal Council, Eklutna Village, Big Lake Cultural Outreach, and Intertribal Native Leadership).

Next to the Little Susitna, Jim Creek is historically the second largest Knik Arm sport fishery in terms of both participation and coho salmon harvest (Table 16). Jim Creek enters the glacial Knik River about 10 river miles from salt water. Most sport fishing occurs at the confluence of Jim Creek and the Knik River, an area locally known as the Jim Creek Flats. Fishing effort and harvest rates in the Jim Creek Flats area are strongly influenced by the Knik River because its

glacial waters can inundate the entire area. Powered and nonpowered boats can access upstream reaches of Jim Creek.

Coho salmon return to Knik Arm fisheries from late-July through August. Spawning occurs from late September through mid-October. The average weight of Knik Arm coho salmon, excluding those of Little Susitna River origin, is less than 6 pounds.

Stocking Program

The sport fishery at the Eklutna power plant tailrace (Figure 7) was originally supported by coho salmon returning to the Cook Inlet Aquaculture Association's (CIAA) hatchery located at the head of the tailrace. The nonprofit Eklutna hatchery operated from 1981-1998. Presently fish reared at the ADF&G Fort Richardson Hatchery support the fishery which is confined to the 0.5 mi long tailrace. Sport anglers harvest stocked coho, and a few wild sockeye and chum salmon in the tailrace during the coho return. Salmon of Knik River and Matanuska River drainage origin are also harvested at the confluence of the tailrace and the Knik River. Current objectives of the Eklutna stocking program are to stock 120,000 thermally marked coho salmon annually to produce a return of 7,500 adult coho salmon and generate 6,000 angler-days of effort (Loopstra 2007).

Coho salmon have been periodically stocked into other KAMU systems. Stocking of Fish and Cottonwood creeks was initiated during the late 1970s, and at Jim and Wasilla creeks in the late 1980s (Whitmore et al. 1994-1996; Whitmore and Sweet 1997-1999; Rutz and Sweet 2000; Sweet and Rutz 2001; Sweet et al. 2003, 2004). Contribution of hatchery fish to the catch and harvest in the sport fisheries was not evaluated.

Historical Harvest and Escapement

From 1987-1998 Knik Arm stocks were harvested by a set gillnet commercial fishery that operated near the mouth of Fish Creek. Coho salmon harvests averaged 2,900 annually during this period (Whitmore et al. 1996; Whitmore and Sweet 1997-1999). BOF action closed the Knik Arm commercial set gillnet fishery beginning in 1999 to allow higher coho and sockeye salmon escapements into Knik Arm streams. The total annual harvest for the five sport fisheries (Fish, Cottonwood, Wasilla, and Jim creeks and Eklutna Tailrace) averaged 16,500 coho salmon from 2001-2005 (Table 16). Jim Creek averaged 10,300 coho salmon harvested during this period, whereas the three weekend-only fisheries averaged 600 fish at Fish Creek, 620 fish at Cottonwood, and 350 fish at Wasilla Creek (Table 16).

Escapement index surveys have been conducted on four Knik Arm streams: Cottonwood, Wasilla, Jim, and Yellow creeks. Coho salmon escapement on Fish Creek has been monitored historically by weir, except from 1994-1996 and 2004 to the present, when the weir was removed prior to August 15 and before the majority of the run. Low escapements were observed in 1997 and 1999. Rebound from these escapements occurred in 2001 and 2003. The 2001 return was above average and the 2003 return was below average (Table 20).

Fishery Management and Objectives

Fish Creek, Cottonwood Creek, and Wasilla Creek (Figure 3) are restricted primarily to intertidal fisheries, and have been open to salmon fishing on weekends only (Saturday and Sunday) since 1971 because harvestable stock surpluses cannot normally accommodate continuous daily exploitation. Time restrictions were added in February 1999 after poor returns during 1997 and

1999 occurred in these creeks (Appendix A3). Motorboats are not permitted on Wasilla Creek during weekends from July 15 - August 15.

Historical escapement data are available for Fish, Cottonwood, and Wasilla creeks from past weirs operated on each creek from about July 20 through September 25 and foot index counts conducted annually on Cottonwood and Wasilla creeks. For Jim Creek, foot surveys are conducted on McRoberts Creek, a tributary of Jim Creek, and on Upper Jim Creek; the counts are summed to provide a total Jim Creek escapement index. However, only the McRoberts Creek counts are used in the escapement goal. Biological escapement goals set in 1994 were reevaluated in 2002 and SEGs were established for Fish, Cottonwood, and Jim creeks (Table 21). The BEG for Wasilla Creek was dropped in 2002 because of a lack of historical escapement data from which to develop one. The Jim Creek SEG was based on historic escapement index counts, and the Fish and Cottonwood goals were based on average coho salmon weir counts. Wasilla and Fish Creek weirs were discontinued after 2003 and Cottonwood Creek weir after 2004. Therefore the Cottonwood and Fish Creek SEGs were subsequently dropped. Only one SEG of 450-700 fish on the Jim Creek drainage (McRoberts Creek) remains (Table 21). The management objective for these four systems is to achieve the escapement goal while providing a maximum level of sustained coho salmon fishing opportunity.

Coho salmon weir counts on Wasilla, Cottonwood, Fish, and Jim creeks and the Little Susitna River have been found to be significantly correlated (Namtvedt and Yanusz *In prep.*). Despite its low use as an inseason management tool due to the weir's location high up on the river, Little Susitna weir counts were used to liberalize bag and possession limits as well as time restrictions on the Little Susitna River and Cottonwood, Fish, and Wasilla creeks on August 19, 2006. Area flooding beginning at this same time and lasting through the end of August may have somewhat deflated the intent of these liberalizations.

The Cook Inlet Coho Salmon Conservation Management Plan was adopted by the BOF in February 2000 (Appendix A3) in response to poor returns of coho salmon to the Knik Arm Management Unit in 1997 and 1999 (Table 21). The plan sets the bag and possession limits for all Knik Arm fisheries, excluding the stocked coho fishery at the Eklutna Tailrace, at two coho salmon 16 inches or more in length. Jim Lake, McRoberts Creek, and upper Jim Creek, tributaries supporting large spawning populations, are the only areas closed to coho salmon fishing in the Jim Creek drainage.

Fishery Performance and Escapement in 2006 and 2007

Total sport harvest of coho salmon in Knik Arm streams (excluding Little Susitna River) was 27,300 fish in 2006, about 150% of the 2001-2005 mean of 17,600 fish (Table 16). Total harvest was driven by a record high harvest from Jim Creek. The 2006 harvest of 19,300 on Jim Creek was nearly double the 2001-2005 mean of 10,900 fish. Anglers reported good catches at Jim Creek. Eklutna Tailrace had an average run as reported by anglers and supported by an onsite inspection by area staff. Index survey counts in 2006 were above average (Table 20). The upper limit of the SEG for McRoberts Creek (Jim Creek drainage) was exceeded (Figure 16).

Limited inseason information is available for Fish, Cottonwood, and Wasilla creeks because of the very limited open season and little angler effort. Reports that were received from anglers in 2007 indicated an average return. Anglers reported good catches at Jim Creek. Eklutna Tailrace had an average run as reported by anglers and supported by an onsite inspection by area staff.

In 2007, 725 coho salmon were counted on McRoberts Creek, just above the upper bound of the SEG (Figure 16). Index counts of 430 fish on Wasilla and 50 fish on the Matanuska River – Yellow Creek were below respective five and ten year means, while the Cottonwood Creek index count of 1,000 fish was above its five and ten year means (Table 20). The Fish Creek sockeye salmon weir concluded on August 15 with a partial count of 6,900 coho salmon. About 2,800 additional coho salmon were counted below the weir on the day the weir was pulled resulting in a total count of 9,600. Even though the count was partial, it was still above the five-year mean of 7,000 fish corresponding to the years 1999-2003 in which full counts were conducted.

EASTSIDE SUSITNA AND WESTSIDE SUSITNA MANAGEMENT UNITS COHO SALMON FISHERIES

Fishery Description

A description of these management units, including access, is presented in the Chinook salmon section of this report. The Susitna River drainage supports the largest coho salmon stock within the NCIMA and the entire Upper Cook Inlet area. Coho salmon returning to the Susitna River units are early-run stocks, which begin to enter these drainages about mid-July. The migration into the Yentna River drainage (rm 28 of the Susitna River, WSMU) normally peaks the last week in July, whereas the peak passage into the Talkeetna River (rm 98 of the Susitna River, Eastside Susitna Management Unit) takes place 7 to 10 days later. Few coho salmon enter the Susitna River after early September. Most spawning occurs between mid-September and mid-October.

All Eastside Susitna Management Unit tributaries provide fishing opportunities for coho salmon. The Deshka River and Lake Creek are the major Westside Susitna Management Unit coho salmon fisheries. Fish Lakes Creek and the Talachulitna provide modest harvests, while the Alexander Creek fishery has diminished over the past decade, possibly a result of northern pike predation on juvenile coho salmon.

Historical Harvest and Escapement

Coho salmon harvests averaged 22,000 fish in the ESMU and 17,100 fish in the WSMU from 2001-2005 (Table 15). The contribution from the ESMU and WSMU to the total NCIMA coho salmon harvest during 2001-2005 was 26% and 20%, respectively.

From 2001-2005, Willow Creek, Montana Creek, and the Talkeetna River produced the largest coho salmon harvests in the ESMU, averaging 4,600, 4,100, and 4,500 fish, respectively, and accounting for approximately 60% of the Eastside Susitna harvest (Table 17). During that period, coho salmon harvest averaged 4,600 fish from the Deshka River, 1,600 fish from Fish Lakes Creek, and 6,100 fish from Lake Creek, accounting for 72% of the WSMU coho salmon harvest (Table 18).

Total coho salmon abundance in the Susitna River drainage has not been estimated. Abundance in portions of this vast drainage has been measured by sonar, fish wheel, weir, and mark-recapture methods. From 1981-1983, average coho salmon abundance was an estimated 47,000 fish in the Susitna River excluding all systems below rm 80 (Table 21). It is important to recognize that significant coho salmon returns occur in tributaries of the Susitna River downstream of rm 80. Coho salmon abundance in the Deshka River, Alexander Creek, Willow

Creek, and many other important coho salmon systems was not measured during the 1981-1983 studies.

Side-scan sonar and fish wheels have been used to estimate coho salmon abundance in the Yentna River from 1981-2007 (Westerman and Willette 2007). The Yentna River sonar program was designed to estimate sockeye salmon escapement utilizing sonar counters and fish wheels on opposite banks. Coho salmon are also counted, though factors such as the offshore distribution of upstream migrating coho affect the accuracy of the counts. Estimates of coho salmon are considered index counts only (Tarbox et al. 1983; Davis and King 1997). Coho salmon estimates made from 1981-1984 encompassed the entire coho salmon migration. Partial counts were recorded from 1985-2007 due to the sonar project shutting down prior to the end of the coho run. The number of coho salmon passing rm 80 on the Susitna River exceeded the number of coho salmon entering the Yentna River annually from 1981-1983. Sonar enumeration of coho salmon entering the Yentna River drainage ranged from 6,300-132,900 fish from 1985-2007 (Table 21).

Coho salmon have been counted through a weir on the Deshka River since 1995. The weir was operated at rm 17 from 1995-1996 and at rm 7 from 1997 to present. During 1996 the weir was operational only through July 30, after which high water made counting fish impossible. Incomplete counts were also recorded in 1998-1999 and 2002 due to high water events (Ivey *In prep.*). Estimating escapement during incomplete count years is nearly impossible as run timing for Deshka River coho is highly variable (Ivey *In prep.*). Mean escapement from 1997-2006 at rm 7, including the complete count years of 1997, 2000-2001, and 2003-2005 only, was 32,100 coho salmon (Table 21). A peak escapement of 62,900 coho salmon occurred in 2004. The weir continues to be operated at this site annually.

Fishery Management and Objectives

Coho salmon sport fishing is permitted throughout the year at most sites in the ESMU and WSMU. However, portions of several ESMU fisheries are closed to salmon fishing to protect spawning fish. Closures usually include upper reaches of tributaries that are road accessible.

Flowing waters of major tributaries, or portions of tributaries, within the Susitna River drainage are restricted to unbaited, single-hook artificial lures throughout the year. These regulations are implemented as part of special management regulations for rainbow trout under the Cook Inlet and Copper River Basin Rainbow/Steelhead Trout Management Policy (CIRTMP) and in part under current Chinook salmon management strategies (Appendix A1). Under CIRTMP, only unbaited artificial lures may be used from September 1 through May 15 in all flowing waters of the Susitna River drainage. Additionally, except in the Deshka River, bait is prohibited from May 15 through July 13 in waters open to Chinook salmon fishing. Exceptions have been made for fishing burbot when legal burbot fishing gear is used.

In the ESMU, the bag and possession limit for coho salmon is two fish 16 inches or more in length. Bag and possession limits were increased in the WSMU at the January 2005 BOF meeting to three fish 16 inches or more in length and six in possession, except in Alexander Creek where the two fish bag/possession limit was retained.

Besides the Deshka River weir where actual escapement is counted, four other streams are indexed on an annual basis: Rabideux Creek, Birch, Question, and Answer creeks (Table 21). There are no SEGs within the ESMU and WSMU.

Sport Fishery Performance and Escapement in 2006 and 2007

The 2006 sport coho salmon harvest was an estimated 22,700 fish from the ESMU, and 20,500 fish from the WSMU (Table 15), above the 2001-2005 means. Most escapement index counts for ESMU and WSMU streams were above average for 2006 (Table 21). The Deshka River weir succumbed to a 100-year flood that swept the ESMU and WSMU during the third week in August. No coho salmon were counted after August 15, 2006. Although incomplete due to the high waters, the 2006 weir count was 59,400 and 185% of the mean count for years in which the weir was successfully operated at rm 7.

During 2007, fishing guides and anglers reported average to below average catches of coho salmon for the WSMU throughout much of the season. Conversely, angling success across much of the ESMU was reportedly average and specifically in the Talkeetna River area, above average. A below average run was realized for the Deshka River. The final 2007 weir count for the Deshka River was 10,600 fish (Table 21). The 2007 escapement to the Yentna River, estimated by sonar at rm 4, was 40,000 coho salmon (Table 21), below the 1997-2006 mean of 58,700 fish. As stated earlier it is unknown if this is an accurate representation of the coho escapement as there are questions about the migration pattern of coho within the river.

The department conducted surveys to index escapement of coho salmon on three of the additional ESMU streams: Question, Answer, and Birch creeks. Poor water conditions may have resulted in lower than average observed counts (Table 21).

WEST COOK INLET MANAGEMENT UNIT COHO SALMON FISHERIES

Fishery Description

A description of this management unit, including access, is presented in the Chinook salmon section of this report. Little information is available regarding run timing of West Cook Inlet Management Unit coho salmon; however, it is assumed to be similar to that of the Susitna River. The Chuitna and Theodore rivers provide the major fisheries north of the West Foreland, and the Kustatan River and tributaries of Big River Lakes provide the major fishery sites south of the West Foreland. Harvest levels on Big River Lakes' tributaries surpassed those of Chuitna River every year since 2003. Currently this fishery mirrors the Kustatan River in size.

Historical Harvest and Escapement

Coho salmon harvests averaged 14,000 fish in the WCIMU from 2001-2005 (Table 15). The unit's contribution to the total NCIMA was 16% during this period. The Kustatan River is the primary producer of coho salmon in the management unit. Average harvest in this stream from 2001-2005 was an estimated 4,400 fish, accounting for approximately 32% of the harvest within this management unit (Table 19). The second and third major coho producers are tributaries of Big River Lakes, with a 2001-2005 sport harvest of 2,100 fish and the Chuitna River with 2,000 coho salmon harvested during the same period (Table 19).

During recent years the department has collected no coho salmon escapement information in the West Cook Inlet Management Unit, so very little information exists regarding coho salmon abundance.

Fishery Management and Objectives

Regulatory history of WCIMU is found in Appendix A3. In the WCIMU all flowing waters are closed to salmon fishing October 1-December 31. In the unit north of the West Foreland, the bag and possession limits for coho salmon are two per day and four in possession. South of the West Foreland the limit is three per day and six in possession.

Sport Fishery Performance and Escapement in 2006 and 2007

The 2006 sport harvest of coho salmon from West Cook Inlet unit was an estimated 11,900 fish (Table 15), 85% of the 2001-2005 mean. The largest harvest of coho salmon came from the tributaries of Big River Lakes with an estimated harvest of 4,000 fish, about 190% of the 2001-2005 mean. The Kustatan River, normally supporting the largest harvests, had the second highest harvest at 3,600 fish. Inseason catch information received in 2007 from sport anglers and guides indicated an average return.

SOCKEYE SALMON FISHERIES

The BOF will consider numerous proposals addressing the prosecution of sockeye salmon fisheries in Upper Cook Inlet in February 2008. Although no sport fishing proposals are before the BOF, stock history and status information and information relevant to management of NCIMA sockeye salmon sport fisheries may be useful to the BOF when considering these Upper Cook Inlet proposals.

FISHERY DESCRIPTION

The Yentna River is thought to support about 50% of Susitna River sockeye escapement. The sport fishery for sockeye salmon in NCIMA drainages is mostly incidental to harvest of other salmon. Big River Lakes, a major sockeye salmon sport fishery in the WCIMU, is growing rapidly and is currently the largest fishery in the NCIMA. The majority of the harvest in this fly fishing only fishery occurs at the mouth of Wolverine Creek which drains into Big River Lakes. Other directed sockeye salmon fisheries occur in the Susitna River drainage at Larson Creek (Talkeetna River drainage) in the ESMU, Lake Creek and the Talachulitna River in the WSMU, and the mouth of Nancy Lake Creek (Little Susitna River drainage) and at Jim Creek in the KAMU; harvests are generally smaller in the WCIMU (Tables 22-24).

STOCKING PROGRAM

Due to declining abundance of sockeye salmon during the early 1970s, stocking of Fish Creek with sockeye salmon was initiated in 1975. The Big Lake state fish hatchery supported the program through 1992 using Fish Creek broodstock. After the Big Lake hatchery closed in 1993, stocking continued using Fish Creek broodstock reared at the Eklutna hatchery, a private non-profit hatchery operated by Cook Inlet Aquaculture Association (CIAA), located on the Knik River in the Eklutna power plant tailrace. CIAA discontinued operation of the Eklutna Hatchery in 1998 following the 1997 release, at which time the program was switched to the Trail Lakes Hatchery, another CIAA facility. Current production goals are 9 million sockeye salmon eggs of Fish Creek brood, from which sockeye salmon fry and smolt are released annually into the Big Lake drainage.

HISTORICAL HARVEST AND ESCAPEMENT

Sport harvests of sockeye salmon in the NCIMA ranged from 3,100-23,200 fish during 1977-2005 and averaged 13,300 fish (Table 26). Within the NCIMA, the KAMU and ESMU historically accounted for the majority of the harvest of sockeye salmon. The WCIMU, with fewer accessible streams, placed last in average harvest until about 1993 when the sport fishery at Wolverine Creek (Big River Lakes) began to grow (Figure 17). The Little Susitna River, Knik River and Cottonwood Creek dominate KAMU harvests (Table 22) while ESMU harvests are predominately from the Talkeetna River, specifically Larson Creek (Table 23). The Talkeetna River accounted for 71% of the ESMU harvest from 2001-2005. Lake Creek is the largest fishery in the WSMU while the WCIMU harvest is predominately from Wolverine Creek (Big River Lakes; Tables 24 and 25). Wolverine Creek, located in Redoubt Bay Critical Habitat Area, has developed into a popular sockeye salmon fly-fishing and bear viewing area since the early 1980s. Charter operators and guides have reported actual harvest and client counts annually since 2001 (Table 27).

Sockeye salmon populations are present in numerous streams throughout the KAMU, some of which were surveyed sporadically in the past (Table 28). Bodenbug Creek, a Knik River tributary, was surveyed annually from 1968-2007, except for 1984 (Table 29).

The escapement of sockeye salmon into the Fish Creek drainage has been documented. Escapement of these late-run sockeye salmon ranged from 2,705 fish in 1973 to 307,000 fish in 1940 (Chlupach and Kyle 1990). From 1968-2005, escapement of sockeye salmon ranged from 2,700 fish in 1973 to 192,400 fish in 1984 and averaged 51,400 fish (Table 28; Figure 18). Escapements were below the historical average from 1998-2001 and 2004 to 2007.

Escapement of sockeye salmon to the Susitna River drainage was documented annually since 1978 at the Yentna River sonar site operated by the Commercial Fisheries Division at rm 4 of the Yentna River, and at various times by CIAA weirs at Chelatna Lake (Lake Creek drainage), Larson Lake (Talkeetna River drainage), and Hewitt Lake (Table 28). Within the NCIMA, Commercial Fisheries Division has also operated a weir at Packers Creek on Kalgin Island and at Judd Lake.

CIAA operated a weir on Wolverine Creek from 1981-1983 (Table 28). Increased harvest and use of the area prompted managers to investigate the escapement of sockeye salmon into Wolverine Creek beginning in 2004. A remote camera station was set up on Wolverine Creek in mid-June, 2004. Technical problems have resulted in incomplete counts since 2004 (Table 28).

FISHERY MANAGEMENT AND OBJECTIVES

Regulations for sockeye salmon sport fisheries of the NCIMA follow general regulations for other salmon over 16 inches in length. The bag and possession limit on WSMU and WCIMU tributaries is three per day and six in possession; ESMU and KAMU tributaries is three per day and three in possession. Wolverine Creek is managed as the area's only fly-fishing only waters June 1-July 31, within a 500-yard radius of its mouth.

The management objective for sockeye salmon in the NCIMA sport fisheries is to attain established escapement goals as measured at various weirs and sonar sites while harvesting fish in excess of these escapement goals. The SEG for Fish Creek is 20,000-70,000 sockeye salmon counted through a weir. The SEG for the Yentna River is 90,000-160,000 counted by side-scan sonar at rm 4 of the Yentna River. The Yentna River also has an Optimal Escapement Goal (OEG) of 75,000-185,000 fish when returns to the Kenai River exceed 4,000,000 sockeye salmon.

Management of Fish Creek sockeye salmon has undergone many changes in conjunction with an observed decline in total escapements in recent years. During the February 2002 BOF meeting, Fish Creek sockeye salmon were designated as a stock of yield concern after demonstrating a chronic inability to meet the escapement goal, 50,000 fish at the time, over the previous five years (Figure 18; Table 28). At the same meeting, an SEG of 20,000-70,000 fish was recommended based on wild fish (pre-hatchery) escapements from 1938-1978 (Bue and Hasbrouck *Unpublished*). An action plan was developed, as directed by the BOF in 2002, to modify current land use patterns that may adversely affect fish habitat resource values in the Fish Creek watershed through education, increased community planning involvement, monitoring, and research to increase escapement toward the goal of achieving the SEG. Specific actions recommended for achieving this objective may be found in Sweet et al. (2004).

Litchfield and Willette (2002) found dissolved oxygen and nutrient concentrations similar to levels experienced in the early 1980s, suggesting no relationship to the decline in survival of Fish Creek sockeye salmon. Aggregate survival (hatchery and wild fish) to the smolt life stage was $\frac{1}{4}$ the survival rates of other sockeye producing systems during the late 1980s. Further, wild survival to the smolt stage was lower than hatchery stocked fish. Two plausible explanations to overall decline in wild stock productivity were identified: 1) a cofferdam at the Big Lake outlet could have reduced productivity of the subpopulation spawning below the dam; 2) Big Lake Hatchery operations prevented sockeye salmon from entering Meadow Creek above the Hatchery in an effort to reduce potential spread of disease (Litchfield and Willette 2002). The cofferdam was removed in 2004 in an attempt to improve passage of fry into the Lake (Hasbrouck and Edmundson 2007).

The Fish Creek stock was reevaluated at the 2005 BOF meeting where it was determined to no longer be a stock of yield concern. Regardless of the official standing, sockeye salmon returns to Fish Creek since 2004 have been only 20%-50% of the mean escapement for years since enhancement of the stock began (Table 28). Since 2004, sockeye salmon sport fisheries occurring on the Susitna River and Fish Creek have been restricted through various emergency orders prohibiting retention and the Fish Creek personal use fishery has not been opened since 2001 (see the personal use section below for details). The EOs were based on low inseason escapement estimates generated at the Yentna River sonar and additionally in 2006, on a low preseason projection of 190,000 sockeye salmon returning to Susitna River. About half the projected sockeye return, or 95,000 fish, were projected to ascend the Yentna River in 2006.

SPORT FISHERY PERFORMANCE AND ESCAPEMENT IN 2006 AND 2007

In 2006, anglers fishing KAMU streams reported fair sockeye catches. However, based on low Yentna sonar counts early in the season, combined with a preseason projection near the low end of the Yentna River SEG range, an effort was made to reduce the sport harvest of Susitna sockeye on July 15 by prohibiting retention of sockeye while fishing for other salmon. The EO was rescinded and sport harvest resumed after the low end of the escapement goal for Yentna River was achieved on August 11, near the end of the run. The final Yentna River sonar count was 92,045 fish, within the SEG range of 90,000-160,000 (Table 28). Since the EO spanned the majority of the historical run, its effect likely reduced harvest on major fisheries of the Susitna, such as Larson Creek.

Harvest from the ESMU was 1,400 sockeye salmon and from the WSMU, 630 fish, 60% and 86% below their 2001-2005 means, respectively (Tables 23 and 24). The CIAA-operated Larson

Creek weir ended the season with an above average count of 56,300 fish. A return of 32,600 sockeye was counted at the Fish Creek weir (Table 28), within the SEG of 20,000-70,000 fish. The 2006 sport harvest of sockeye salmon in the KAMU totaled 4,600 fish. The majority of the harvest occurred in the Knik River (Table 22). The Wolverine Creek fishery at Big River Lakes accounted for the majority of the total sport harvest of 5,000 fish from the WCIMU (Tables 25). The KAMU was 12% below its 2001-2006 mean harvest of 5,200 sockeye salmon while the WCIMU was 144% of its 5-year mean of 3,400 fish (Tables 22 and 25).

In 2007, anglers fishing KAMU streams reported below average sockeye catches. A return of 27,900 sockeye salmon was counted at the Fish Creek weir, within, but near the low end of, the SEG range (Table 28). Talkeetna River anglers and spot checks by department staff indicated an average year at Clear and Larson creeks. Fisheries on the Yentna River were reported to be below average. The final Larson Creek weir count was 47,800 sockeye salmon, above the historical mean of 32,300 fish (Table 28). Based on inseason escapement estimates from the Yentna River sonar, an EO was issued on August 11 closing the Susitna River to the harvest of sockeye salmon. The Yentna River sonar count of 79,900 was below the SEG range of 90,000-160,000 (Table 28).

In light of recent declines in sockeye salmon escapements to the Susitna River, a major effort to better understand the dynamics surrounding sockeye salmon production in the Susitna River began in 2006. A three-year capture-recapture study using a combination of fish wheels and weirs is being used to estimate abundance. Sport Fish Division operated fish wheels on the lower Susitna near Flathorn Lake and on the upper Susitna near Sunshine. Commercial Fish Division operated fish wheels at rm 4 of the Yentna River. CIAA operated weirs on outlet streams of eight major sockeye-producing lakes: Chelatna, Shell, Hewitt, Judd, Larson, Stephan, Byers, and Swan lakes. The whole-drainage abundance estimate derived from the capture-recapture study will be compared to the sonar count of sockeye salmon at rm 4 of the Yentna River to establish the relationship between the two and whether the sonar can be used as a reliable index in future years. Part of this project is directed at establishment of a genetic baseline for Susitna sockeye salmon. Microsatellite and Single Nucleotide Polymorphism (SNPs) technology will be used to further our understanding of stock identification and, in turn, exploitation of Susitna origin sockeye among various fisheries. The validity of stock composition estimates generated by the currently used weighted age composition analysis method will be tested as will historical estimates evaluated (Tobias and Willette *In prep*).

NORTHERN PIKE FISHERIES

The BOF will consider four proposals (352-355) to liberalize methods and means and general harvest of northern pike in various locations within the NCIMA.

FISHERY DESCRIPTION

Northern pike are not indigenous to the NCIMA although they are north of the Alaska Range. It is believed they were illegally introduced into the area during the early 1950s. Since then, northern pike have expanded their range both naturally and through subsequent illegal stockings. They have been reported in more than 100 lakes and more than a dozen tributaries of the Susitna River (Sweet and Rutz 2001; Appendix B1). Prior to about 1992 several of these lakes consistently produced northern pike in the trophy class range (greater than 40 inches for catch-and-release honorary certificates or 15 pounds) and it was common to find fish weighing up to 20 lb and occasionally over 30 lb. The potential for proliferation of northern pike in the Susitna

Drainage is immense. Most of the habitat suitable to northern pike is found within the lower lying WSMU. The area from the headwaters of the Deshka River (Petersville Road) across the Kahiltna River to Hewitt Lake, then down to the mouth of the Susitna River, encompasses areas where most of the pike and pike habitat exists (Figure 8). In the KAMU, most pike habitat exists in a triangle created by the Susitna River and Parks Highway south of Willow (Figure 3). This area includes the Nancy Lake, Big Lake, and the Little Susitna River drainages, and lakes of the Susitna Flats such as Flathorn and Figure Eight lakes. Growing or even new pike fisheries are expected in these areas as northern pike continue colonization of the NCIMA. Northern pike were documented in Big Lake and Nancy Lake in 2005 (Appendix B1). The amount of available pike habitat in ESMU waters is sparse when compared to that of the WSMU or KAMU. Regardless, pike have been documented or reported in some of the lakes in the ESMU (Appendix B1).

HISTORICAL HARVEST AND CATCH

In 1977, the first year estimates were available, harvest of northern pike in the NCIMA was only 130 fish, accounting for only 1% of the statewide harvest of northern pike (Table 30). Northern pike harvests slowly increased through 1983 when the harvest totaled 950 fish. Since 1984, harvest of northern pike has greatly increased, likely due to continued range expansion and increased angler interest. Interest in northern pike as a sport fish grew in the mid 1990s as concerns about their spread increased and regulations were subsequently liberalized (Appendix A4). As interest increased, harvest increased sharply (Figure 19). Harvests have been over 5,000 fish in all years since 1990 except 1994 and 1995. The 2001-2005 average harvest in the NCIMA was 11,300 fish, about twice the historical average of 5,100 fish (Table 30).

Since 1990, the first year catch estimates were generated from the SWHS, the average catch of northern pike in the NCIMA has been about 3.5 times the harvest; 70% of pike are released by anglers (Figure 20). The first northern pike catch from the ESMU and WCIMU was documented in the SWHS in 1996 and 1993, respectively (Table 30). Previously, other than anecdotal information, no information was available regarding northern pike catch or harvest from these areas. The NCIMA harvest surpassed the Arctic-Yukon-Kuskokwim area for the first time in 1997, but the NCIMA catch remains less than the AYK catch.

FISHERY MANAGEMENT AND OBJECTIVES

The management objective for this fishery is to maximize harvest opportunity. The majority of the NCIMA does not have a bag or possession limit for northern pike. Note that this is in contrast to other areas of Alaska where pike are indigenous and are managed conservatively.

In 1997 and 2002, the BOF liberalized harvest methods in many lakes within the NCIMA where pike populations were pervasive (Appendix A4). Additional lakes may be added to this list as pike gain strongholds in new areas through continued range expansion. In 1998 the BOF adopted a slot limit regulation for Alexander and Trapper lakes to provide anglers the opportunity to catch large fish. The daily bag limits were set at: less than 22 inches in length, no limit; 22-30 inches, no retention; and over 30 inches, 1 per day. The objective was to remove fish less than 22 inches in length from the population while protecting fish in the 22-30 inch range, allowing them a chance to attain a larger size when they would again be available for harvest. In 2002 the slot limit was repealed for Trapper Lake when it was determined only one lake, Alexander Lake, would be used to evaluate the effectiveness a slot limit management strategy.

The current management strategy was based on a study conducted from 1994 to 1997 that described seasonal movements and age, length, and diet composition of northern pike in selected Susitna River tributaries (Rutz 1999). This study gathered baseline data to describe pike population structure and measure the effects of pike on salmonid productivity in the area. Results were extrapolated to potential effects on other salmonid-producing areas of NCI (Whitmore and Sweet 1998; Appendix B1). Coho salmon productivity was found to be most adversely affected due to overlap in habitat use (Rutz 1999; Roth and Stratton 1984). Areas that once contained healthy fish populations but that now contain mostly pike include Alexander Lake and all inlet streams, Fish Creek of the Nancy Lake canoe system, Fish Creek of Kroto Slough, and Fish Lake Creek of the Yentna River.

Future management of northern pike in the NCIMA will follow guidelines and strategies outlined in the Management Plan for Invasive Northern Pike in Alaska (ADF&G 2007) implemented in 2005, and the Alaska Aquatic Nuisance Species Management Plan (ADF&G 2002). Management will be integrated with long-term investigations and will follow the six steps identified in the Management Plan for Invasive Northern Pike in Alaska: 1) detection and monitoring, 2) assessment, 3) defining management options, 4) public involvement, 5) management action, and 6) evaluation of management. Possible management strategies will depend on assessment results and will likely be tailored by specific system.

Since the total number of waters identified for investigations outnumbers those that can be visited during one season, detection and assessment investigations are considered to be long-term and subject to prioritization. Priority for assessment work is currently given to systems most vulnerable to pike colonization such as anadromous and stocked waters containing suitable pike habitat. At least eight areas that could be threatened should pike invade include: 1) Mama and Papa Bear Lake in Talkeetna, 2) Caswell Creek along the Parks Highway, 3) Rabideux Creek near Susitna River bridge, 4) Big Lake system, 5) Little Susitna system, 6) Jim Creek system, 7) Cottonwood Creek system, and 8) Three Mile River and lakes of West Cook Inlet. Pike have now been confirmed in Big Lake and the Little Susitna River. It is suspected that pike have invaded Cottonwood Creek because they have been documented in Anderson Lake, a lake intermittently connected to the Cottonwood system. The department has had anecdotal reports of northern pike in Jim Creek, but their presence has not been documented. Because the Big Lake, Cottonwood, and Jim Creek systems have ideal pike habitat, salmonid populations would likely be severely affected by colonization. The Little Susitna River has limited pike habitat, so the negative effects to salmonid stocks there may be limited. Mama and Papa Bear lakes and WCIMU area lakes were assessed in 2007. No pike were found in Mama and Papa Bear lakes; pike were documented in Chuitbuna Lake in the WCIMU.

SPORT FISHERY PERFORMANCE IN 2006 AND 2007

The NCIMA estimated harvest of northern pike during the 2006 season was 11,400 fish, approximately 100 fish more than the 2001-2005 mean harvest. The KAMU and WSMU each accounted for the majority of the harvest, with the remainder from the ESMU and WCIMU (Table 30). The Nancy Lake Complex and Flathorn lakes contributed to approximately 58% of the KAMU mean catch from 2001-2005 (Table 31). Alexander Creek Drainage was the main producer of northern pike (>50%) on the WSMU throughout the same period (Table 32). Estimated harvest and catch of northern pike during 2007 is expected to be similar to 2006.

BURBOT FISHERIES

The BOF will consider two proposals (350 and 351) to restrict burbot harvest on Big Lake.

FISHERY DESCRIPTION

The majority of burbot angling in the NCIMA occurs in the KAMU, primarily in Big Lake (Figure 3; Tables 33-36). Nancy Lake, also in the KAMU, is the only water body in the NCIMA closed to the harvest of burbot. Burbot fisheries of the ESMU are primarily located near the confluences of tributaries along the Susitna River, including the Talkeetna River. Access to ESMU fisheries is primarily from the George Parks Highway and by jet boat. Burbot fisheries of the WSMU occur on the Yentna River and all streams entering the Susitna River from the west. Access is by boat or aircraft.

HISTORICAL HARVEST

Harvest in the NCIMA ranged from 520-5,100 fish since 1977 with a mean harvest of 1,700 fish (Table 33). Harvest in the NCIMA increased substantially from 1977 to 1987 (Figure 21). Historically, the vast majority of the burbot harvest in the NCIMA has occurred in the KAMU, specifically in the Big Lake fishery (Table 34). About 50% of the total harvest was from the KAMU from 2001-2005 (Table 33) and 25% each from the ESMU and WSMU. Within the KAMU, nearly 79% of the harvest occurs in Big Lake. Burbot harvest in the Susitna River Drainage is spread out and occurs primarily in the flowing waters.

FISHERY MANAGEMENT AND OBJECTIVES

The management objective for this fishery is to maintain historical size and age compositions and abundance levels.

Burbot are a long lived fish commonly reaching 15 years of age. In Alaska they often do not reach sexual maturity until late in life, 6-7 years in the more northern extent of their range (Morrow 1980). The long life and slow reproduction rate requires more conservative management of this species to maintain healthy populations.

In Southcentral Alaska over-exploitation of burbot in lakes by sport fishing was documented in 1991 (Lafferty et al. 1992). Subsequently, restrictive measures were taken to protect burbot from overexploitation. In 1993 regulations prohibited the use of set lines. Lines had to be closely attended and the number of lines and hooks used for burbot could not exceed the daily bag limit. Additionally Nancy Lake was closed to the harvest of burbot. In 1997 the closely attended portion of the regulation adopted in 1993 was repealed for the flowing waters of the Susitna River and Yentna River. In 1998 bait was restricted and single hook, artificial only regulations went into effect on Big Lake during the winter fishery (November 1-April 30). This measure was taken to reduce harvest and catch-and-release associated mortality on burbot, Arctic char, and rainbow trout stocks in Big Lake.

SPORT FISHERY PERFORMANCE IN 2006 AND 2007

The 2006 harvest of 550 burbot (Table 33) in the KAMU represents 51% of the NCIMA total harvest for this stock. Within the KAMU, 94% of the harvest was from Big Lake (Table 34). The ESMU harvest of 406 fish (Table 33) represents 38%, and the WSMU harvest of 126 fish (Table 33) represents 12% of burbot harvested in the NCIMA. Harvest patterns are expected to be similar in 2007.

PERSONAL USE FISHERIES

The BOF will consider three proposals (356-358) addressing personal use fisheries within the NCIMA. Two proposals would open new personal use salmon fisheries and one proposal would limit harvest of smelt in Cook Inlet.

OVERVIEW

Brannian and Fox (1996) and Reimer and Sigurdsson (2004) provide a detailed history of subsistence and personal use salmon fishing in Upper Cook Inlet. Sockeye salmon is the predominant harvest in these fisheries in Upper Cook Inlet.

Fish Creek sockeye salmon have long been used in commercial and subsistence (Engel and Vincent-Lang 1992), as well as personal use, fisheries. The Knik Arm subsistence fishery was operational through 1970. In 1971 the fishery was closed because of declining sockeye salmon escapements into Fish Creek. It was reopened in 1984 and 1985, and then closed again in 1986.

The Fish Creek commercial set gillnet and personal use dip net fisheries along the northwest shore of Knik Arm were initiated by the BOF in 1986 to harvest sockeye salmon surplus to spawning and egg take needs. These fisheries continued annually, contingent upon a projected escapement of 50,000 Fish Creek sockeye salmon. The commercial gillnet fishery was closed by BOF action from 1999 through 2001, due to low returns in 1997 and 1998. The fishery was eliminated by the BOF in 2002 because returns continued below desired escapement levels. Mean annual harvest of sockeye salmon in the commercial gillnet fishery while in existence was 23,400 fish (Table 37). The personal use fishery is authorized for Fish Creek, but it has been closed since 2001.

The Upper Cook Inlet Subsistence Management Plan provided for a subsistence set gillnet fishery in marine waters in the Northern District of Upper Cook Inlet in 1991, 1992 and 1994. Subsistence set gillnet fishing was allowed for a total of 17 days between May 21 and September 28. Hours for the fishery were 8:00 a.m. until 8:00 p.m. The threat of a court-ordered closure of this subsistence fishery for the 1995 season caused the BOF to take action to allow the fishery to proceed as a personal use gillnet fishery. Annual harvest ranged from 3,900 fish in 1985 to 53,300 fish in 1994 with a mean harvest of 31,500 sockeye salmon (see Table 23 in Sweet et al. 2003). Coho, sockeye, and pink salmon were harvested as well. This personal use gillnet fishery was eliminated by the BOF prior to the 1996 season.

FISHERY DESCRIPTION

The current personal use fisheries within the NCIMA include a sockeye salmon dip net fishery in Fish Creek and a personal use smelt fishery, the majority of which takes place in the Susitna River. There is also a small harvest in the Knik Unit at the mouth of Fish Creek (Tables 38).

HISTORICAL HARVEST AND ESCAPEMENT

The personal use dip net fishery on Fish Creek sustained an annual mean harvest of 9,700 sockeye salmon from 1987-2001, ranging from 460 fish in 2001 to 37,200 fish in 1993 (Table 37). The fishery was closed by EO after the third day in 2001 and has not opened since. Prosecution of this fishery is dependent on projected escapements into Fish Creek. Levels of escapement have been mostly below average since about 1998.

The average Susitna River smelt harvest from 1996–2005 was 4,800 fish and ranged from 10-16,900 fish (Table 38). The inriver return of smelt to the Susitna River drainage ranges in the millions with personal use harvest accounting for less than 1% of this return. In terms of harvest, this fishery is likely one of the most underutilized in the state. It is managed inseason with spot checks conducted by Palmer Area staff and postseason through the SWHS. It is likely that unless increased access is provided to the Susitna River, the personal use harvest of smelt will remain fairly stable.

FISHERY MANAGEMENT AND OBJECTIVES

In 2002 the SEG for sockeye salmon on Fish Creek was changed from a point goal of 50,000 fish to a range of 20,000-70,000 fish (Bue and Hasbrouck *Unpublished*). Further, the Fish Creek dip net fishery was modified under the Upper Cook Inlet Personal Use Salmon Fisheries Management Plan (5AAC 77.540). The commissioner will open the fishery from July 10 through July 31, if the department projects the escapement of sockeye salmon into Fish Creek will be above the upper end of the escapement goal of 20,000-70,000 fish. Prior to 2002, the fishery was open until closed by EO. Participants in the fishery must obtain an Upper Cook Inlet personal use permit, which also includes the Kenai River and Kasilof River personal use dip net fisheries, and the Kasilof River set gillnet personal use fishery. The annual limit is 25 fish for the head of household plus 10 fish for each additional member of the household, and is inclusive of all Upper Cook Inlet personal use fisheries. Permits must be returned with the total catch recorded. The closing date is set at July 31 to limit the number of coho salmon harvested.

The management objective for the Fish Creek personal use fishery is to allow escapement of sockeye salmon along the entire course of the return while harvesting fish in excess of spawning needs. There are no specific management objectives for the personal use smelt fishery. All fisheries are managed to provide sustained yield.

FISHERY PERFORMANCE AND ESCAPEMENT IN 2006 AND 2007

The personal use fishery on Fish Creek was not opened in 2006 or 2007 due to low returns to the Fish Creek system as measured by the Fish Creek weir. The total weir count in 2006 and 2007 was 32,600 and 27,900 fish, respectively (Table 28).

The 2006 NCIMA estimated smelt harvest was 71 fish, all from the KAMU (Table 38). No smelt were reported harvested in the WSMU. It should be noted that no reported harvest has occurred in the past. This most likely only indicates low fishery participation, which makes it difficult to estimate harvest through the SWHS which surveys anglers randomly. The 2001-2005 mean harvest in the WSMU was 6,600 smelt. Inseason observations of run strength by staff in 2006 and 2007 indicate good returns. The smelt harvest in 2007 is expected to be similar to the 2001-2005 mean.

REFERENCES CITED

- ADF&G (Alaska Department of Fish and Game). 2002. Alaska aquatic nuisance species management plan. Alaska Department of Fish and Game.
- ADF&G (Alaska Department of Fish and Game). 2007. Management plan for invasive northern pike in Alaska. Alaska Department of Fish and Game.
- Bartlett, L. D. *Unpublished a.* Biological and escapement studies of coho and sockeye salmon in the Jim Creek drainage, Knik Arm, Alaska, during 1993. Located at: Alaska Department of Fish and Game, Division of Sport Fish, 1800 Glenn Highway, Palmer.
- Bartlett, L. D. *Unpublished b.* Coho and sockeye stock assessment studies in the Jim Creek drainage, Knik Arm, Alaska, during 1994. Located at: Alaska Department of Fish and Game, Division of Sport Fish, 1800 Glenn Highway, Palmer.
- Bartlett, L. D. 1992. Creel, escapement, and stock statistics for coho salmon on the Little Susitna River, Alaska, during 1991. Alaska Department of Fish and Game, Fishery Data Series No. 92-24, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds92-24.pdf>
- Bartlett, L. D. 1994. Creel, escapement, and stock statistics for coho salmon on the Little Susitna River, Alaska, during 1993. Alaska Department of Fish and Game, Fishery Data Series No. 94-29, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds94-29.pdf>
- Bartlett, L. D. 1996a. Escapement and stock statistics for coho salmon of the Little Susitna River and selected streams of the Matanuska-Susitna Valley, Alaska, 1995. Alaska Department of Fish and Game, Fishery Data Series No. 96-39, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds96-39.pdf>
- Bartlett, L. D. 1996b. Escapement and stock statistics for Coho salmon on the Little Susitna River and selected Matanuska-Susitna Valley, Alaska streams during 1994. Alaska Department of Fish and Game, Fishery Data Series No. 96-16, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds96-16.pdf>
- Bartlett, L. D., and A. E. Bingham. 1991. Creel and escapement statistics for coho salmon on the Little Susitna River, Alaska, during 1990. Alaska Department of Fish and Game, Fishery Data Series No. 91-46, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds91-46.pdf>
- Bartlett, L. D., and A. E. Bingham. 1993. Creel, escapement, and stock statistics for coho salmon on the Little Susitna River, Alaska, during 1992. Alaska Department of Fish and Game, Fishery Data Series No. 93-32, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds93-32.pdf>
- Bartlett, L. D., and R. H. Conrad. 1988. Effort and catch statistics for the sport fishery for coho salmon in the Little Susitna River with estimates of escapement, 1987. Alaska Department of Fish and Game, Fishery Data Series No. 51, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-051.pdf>
- Bartlett, L. D., and S. Sonnichsen. 1990. Creel and escapement statistics for coho salmon and Chinook salmon on the Little Susitna River, Alaska, during 1989. Alaska Department of Fish and Game, Fishery Data Series No. 90-59, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds90-59.pdf>
- Bartlett, L. D., and D. Vincent-Lang. 1989. Creel and escapement statistics for coho and Chinook salmon stocks of the Little Susitna River, Alaska, during 1988. Alaska Department of Fish and Game, Fishery Data Series No. 86, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-086.pdf>
- Bentz, R. W., Jr. 1982. Inventory and cataloging of the sport fish and sport fish waters in upper Cook Inlet. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1981-1982, Project F-9-14, 23 (G-I-D), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDf-9-14\(23\)G-I-D.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDf-9-14(23)G-I-D.pdf)
- Bentz, R. W., Jr. 1983. Inventory and cataloging of the sport fish and sport fish waters in upper Cook Inlet. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1982-1983, Project F-9-15, 24 (G-I-D), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDf-9-15\(24\)G-I-D.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDf-9-15(24)G-I-D.pdf)
- Brannian, L., and J. Fox. 1996. Upper Cook Inlet subsistence and personal use fisheries, report to the Alaska Board of Fisheries, 1996. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development. Regional Information Report. 2A96-03, Anchorage.

REFERENCES CITED (Continued)

- Bue, B. G., and J. J. Hasbrouck. *Unpublished*. Escapement goal review of salmon stocks of Upper Cook Inlet. Alaska Department of Fish and Game, Report to the Alaska Board of Fisheries, November 2001 (and February 2002), Anchorage.
- Chlupach, R. S. and G. B. Kyle. 1990. Enhancement of Big Lake sockeye salmon (*Oncorhynchus nerka*): summary of fisheries production (1976-1989). Alaska Department of Fish and Game, Division of Fisheries Rehabilitation, Enhancement and Development Report No. 106, Juneau.
- CIAA (Cook Inlet Aquaculture Association). 1981. Big River Lakes Pre-enhancement investigation, 1981. Cook Inlet Aquaculture Association.
- CIAA (Cook Inlet Aquaculture Association). 1982. Big River Lakes Pre-enhancement investigation, 1982. Cook Inlet Aquaculture Association.
- CIAA (Cook Inlet Aquaculture Association). 1984. Big River Lakes Pre-enhancement investigation, 1983. Cook Inlet Aquaculture Association.
- CIAA (Cook Inlet Aquaculture Association). 1987. Shell Lake project progress report: 1986 adult enumeration, 1987 smolt enumeration. Cook Inlet Aquaculture Association.
- CIAA (Cook Inlet Aquaculture Association). 1991. Hewitt Lake sockeye salmon enhancement report for 1990. Cook Inlet Aquaculture Association.
- CIAA (Cook Inlet Aquaculture Association). 1998a. Chelatna Lake sockeye salmon enhancement progress report, 1995. Cook Inlet Aquaculture Association.
- CIAA (Cook Inlet Aquaculture Association). 1998b. Technical report, Larson Lake project. Progress Report 1984-1987. Cook Inlet Aquaculture Association.
- Davis, R. Z., and B. E. King. 1997. Upper Cook Inlet salmon escapement studies 1996. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development, Regional Information Report 2A97-23, Anchorage.
- Delaney, K. and D. Vincent-Lang. *Unpublished*. Current status and recommendations for the future management of the chinook salmon stocks of Northern Cook Inlet. A report to the Alaska Board of Fisheries, Anchorage, Alaska, November 1992. Alaska Department of Fish and Game, Division of Sport Fish, Anchorage.
- Engel, L. and D. Vincent-Lang. *Unpublished*. Area management report for the recreational fisheries of Northern Cook Inlet. Report to the Alaska Board of Fisheries, November 1992. Alaska Department of Fish and Game, Division of Sport Fish, Anchorage.
- Fox, J., and P. Shields. 2000. Upper Cook Inlet Commercial Fisheries Annual Management Report, 1999. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A00-29, Anchorage.
- Fox, J., and P. Shields. 2005. Upper Cook Inlet commercial fisheries annual report, 2004. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A05-01, Anchorage.
- Hasbrouck, J. J., and J. A. Edmundson. 2007. Escapement goals for salmon stocks in Upper Cook Inlet, Alaska: report to the Alaska Board of Fisheries, January 2005. Alaska Department of Fish and Game, Special Publication No. 07-10, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/sp07-10.pdf>
- Hepler, K. R., and R. W. Bentz. 1984. Chinook salmon population and angler user studies of upper Cook Inlet waters. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1983-1984, Project F-9-16, 25 (G-II-M), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDf-9-16\(25\)G-II-M.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDf-9-16(25)G-II-M.pdf)
- Hepler, K. R., and R. W. Bentz. 1985. Chinook salmon population and angler use studies of Northern Cook Inlet waters. Alaska Department of Fish and Game. Federal Aid in Fish Restoration. Annual Performance Report, 1984-1985, Project F-9-17, 26 (G-II-M), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDf-9-17\(26\)G-II-M.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDf-9-17(26)G-II-M.pdf)

REFERENCES CITED (Continued)

- Hepler, K. R., and R. W. Bentz. 1986. East Susitna Chinook salmon - West Susitna Chinook salmon. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1985-1986, Project F-10-1, 27 (S-32-7), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDf-10-1\(27\)S-32-7.8.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDf-10-1(27)S-32-7.8.pdf)
- Hepler, K. R., and R. W. Bentz. 1987. Harvest, effort, and escapement statistics for selected Chinook salmon (*Oncorhynchus tshawytscha*) sport fisheries in northern Cook Inlet, Alaska, 1986. Alaska Department of Fish and Game, Fishery Data Series No. 8, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-008.pdf>
- Hepler, K. R., R. H. Conrad, and D. Vincent-Lang. 1988. Estimates of effort and harvest for selected sport fisheries for Chinook salmon in northern Cook Inlet, Alaska, 1987. Alaska Department of Fish and Game, Fishery Data Series No. 59, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-059.pdf>
- Hepler, K. R., A. G. Hoffmann, and D. Vincent-Lang. 1989. Estimates of effort and harvest for selected sport fisheries for Chinook salmon in northern Cook Inlet, Alaska, 1988. Alaska Department of Fish and Game, Fishery Data Series No. 85, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-085.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds96-32.pdf>
- Howe, A. L., G. Fidler, and M. J. 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds95-24.pdf>
- 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. [http://www.sf.adfg.state.ak.us/FedAidPDFs/fds97-29\(revised\).pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/fds97-29(revised).pdf)
- 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. [http://www.sf.adfg.state.ak.us/FedAidPDFs/fds98-25\(revised\).pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/fds98-25(revised).pdf)
- 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. [http://www.sf.adfg.state.ak.us/FedAidPDFs/fds99-41\(revised\).pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/fds99-41(revised).pdf)
- Howe, A. L., R. J. Walker, C. Olnes, K. Sundet, and A. E. Bingham. 2001d. Participation, catch, and harvest in Alaska sport fisheries during 1999. Alaska Department of Fish and Game, Fishery Data Series No. 01-8, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds01-08.pdf>
- Ivey, S. *In prep.* Deshka River Chinook and coho salmon studies, 1995-2004. Alaska Department of Fish and Game. Fishery Data Series, 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds07-40.pdf>
- Jennings, G. B., K. Sundet, and A. E. Bingham. *In prep.* Participation, catch, and harvest in Alaska sport fisheries during 2005. Alaska Department of Fish and Game, Fishery Data Series, 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds04-11.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidpdfs/fds06-34.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidpdfs/fds06-44.pdf>

REFERENCES CITED (Continued)

- Lafferty, R., J. F. Parker, and D. R. Bernard. 1992. Stock assessment and biological characteristics of burbot in lakes of Interior Alaska during 1991. Alaska Department of Fish and Game, Fishery Data Series No. 92-20, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds92-20.pdf>
- Litchfield, V. P., and T. M. Willette. 2002. Fish Creek sockeye salmon - technical review. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A01-30, Anchorage.
- Loopstra, D. 2007. Statewide stocking plan for recreational fisheries, 2007-2011. Alaska Department of Fish and Game, Division of Sport Fish, Sport Fish Hatchery Program, Online Report, Anchorage. <http://www.sf.adfg.state.ak.us/statewide/Hatchery/> Accessed 12/07.
- Mills, M. J. 1979. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1978-1979, Project F-9-11, 20 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-11\(20\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-11(20)SW-I-A.pdf)
- Mills, M. J. 1980. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1979-1980, Project F-9-12, 21 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-12\(21\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-12(21)SW-I-A.pdf)
- Mills, M. J. 1981a. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1980-1981, Project F-9-13, 22 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-13\(22a\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-13(22a)SW-I-A.pdf)
- Mills, M. J. 1981b. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1980-1981, Project F-9-13, 22 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-13\(22b\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-13(22b)SW-I-A.pdf)
- Mills, M. J. 1982. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1981-1982, Project F-9-14, 23 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-14\(23\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-14(23)SW-I-A.pdf)
- Mills, M. J. 1983. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1982-1983, Project F-9-15, 24 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-15\(24\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-15(24)SW-I-A.pdf)
- Mills, M. J. 1984. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1983-1984, Project F-9-16, 25 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-16\(25\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-16(25)SW-I-A.pdf)
- Mills, M. J. 1985. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1984-1985, Project F-9-17, 26 (SW-I-A), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-17\(26\)SW-I-A.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-9-17(26)SW-I-A.pdf)
- Mills, M. J. 1986. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1985-1986, Project F-10-1, 27 (RT-2), Juneau. [http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-10-1\(27\)RT-2.pdf](http://www.sf.adfg.state.ak.us/FedAidPDFs/FREDF-10-1(27)RT-2.pdf)
- Mills, M. J. 1987. Alaska statewide sport fisheries harvest report, 1986. Alaska Department of Fish and Game, Fishery Data Series No. 2, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-002.pdf>
- Mills, M. J. 1988. Alaska statewide sport fisheries harvest report, 1987. Alaska Department of Fish and Game, Fishery Data Series No. 52, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-052.pdf>
- Mills, M. J. 1989. Alaska statewide sport fisheries harvest report, 1988. Alaska Department of Fish and Game, Fishery Data Series No. 122, Juneau. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-122.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds90-44.pdf>
- 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds91-58.pdf>

REFERENCES CITED (Continued)

- 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.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/fds92-40.pdf>
- 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.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/fds93-42.pdf>
- 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.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/fds94-28.pdf>
- 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.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/sp92-02.pdf>
- Morrow, J. E. 1980. The freshwater fishes of Alaska. Alaska Northwest Publishing Company, Anchorage.
- Namtvedt, T. B., and R. J. Yanusz. *In prep.* Coho salmon escapements at four weirs in Knik Arm, Cook Inlet, Alaska, during 1997-2003. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.
- Peltz, L., and D. E. Sweet. 1992. Performance of the Chinook salmon enhancement program in Willow Creek, Alaska, 1985-1991. Alaska Department of Fish and Game, Fishery Data Series No. 92-33, Anchorage.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/fds92-33.pdf>
- Peltz, L. R., and D. E. Sweet. 1993. Performance of the Chinook salmon enhancement program in Willow Creek, Alaska, 1985-1992. Alaska Department of Fish and Game, Fishery Data Series No. 93-22, Anchorage.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/fds93-22.pdf>
- Reimer, A. M., and D. Sigurdsson. 2004. Upper Cook Inlet personal use salmon fisheries, 1996-2003. Alaska Department of Fish and Game, Fishery Data Series No. 04-31, Anchorage.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/fds04-31.pdf>
- Roth, K.J. and M. E. Stratton. 1984. The migration and growth of juvenile salmon in the Susitna River. Alaska Department of Fish and Game. Susitna Hydro Aquatic Studies Report Series. Report No. 7, Part 1. Anchorage.
- Rutz, D., and D. Sweet. 2000. Area management report for the recreational fisheries of Northern Cook Inlet, 1999. Alaska Department of Fish and Game, Fishery Management Report No. 00-8, Anchorage.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr00-08.pdf>
- Rutz, D. S. 1999. Movements, food availability and stomach contents of northern pike in selected Susitna River drainages, 1996-1997. Alaska Department of Fish and Game, Fishery Data Series No. 99-5, Anchorage.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/fds99-05.pdf>
- Shields, P. 2007. Upper Cook Inlet commercial fisheries annual management report, 2007. Alaska Department of Fish and Game, Fishery Management Report No. 07-64, Anchorage.
<http://www.sf.adfg.state.ak.us/FedAidpdfs/fmr07-64.pdf>
- Sweet, D., S. Ivey, and D. Rutz. 2003. Area management report for the recreational fisheries of Northern Cook Inlet, 2001 and 2002. Alaska Department of Fish and Game, Fishery Management Report No. 03-10, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr03-10.pdf>
- Sweet, D., S. Ivey, and D. Rutz. 2004. Area management report for the recreational fisheries of Northern Cook Inlet, 2003. Alaska Department of Fish and Game, Fishery Management Report No. 04-05, Anchorage.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr04-05.pdf>
- Sweet, D., and D. Rutz. 2001. Area management report for the recreational fisheries of Northern Cook Inlet, 2000. Alaska Department of Fish and Game, Fishery Management Report No. 01-9, Anchorage.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr01-09.pdf>
- Sweet, D. E. 1999. Performance of the Chinook salmon enhancement program in Willow Creek, Alaska, through 1996. Alaska Department of Fish and Game, Fishery Manuscript No. 99-2, Anchorage.
<http://www.sf.adfg.state.ak.us/FedAidPDFs/fms99-02.pdf>

REFERENCES CITED (Continued)

- Sweet, D. E., A. E. Bingham, and K. A. Webster. 1991. Estimates of effort and harvest for selected sport fisheries for Chinook salmon in Northern Cook Inlet, Alaska, 1990. Alaska Department of Fish and Game, Fishery Data Series No. 91-61, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds91-61.pdf>
- Sweet, D. E., and L. R. Peltz. 1994. Performance of the Chinook salmon enhancement program in Willow Creek, Alaska, 1985-1993. Alaska Department of Fish and Game, Fishery Manuscript No. 94-3, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fms94-03.pdf>
- Sweet, D. E., and K. A. Webster. 1990. Estimates of effort and harvest for selected sport fisheries for Chinook salmon in northern Cook Inlet, Alaska, 1989. Alaska Department of Fish and Game, Fishery Data Series No. 90-32, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds90-32.pdf>
- Tarbox, K. E., B. E. King, and D. L. Waltemyer. 1983. Cook Inlet sockeye salmon studies. Alaska Department of Fish and Game, Division of Commercial Fisheries, Anadromous Fish Conservation Act Project Report AFC-62, Anchorage.
- Tobias T. M. and M. Willette. *In prep.* An estimate of total return of sockeye salmon to Upper Cook Inlet, 1976-2005. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.
- Vincent-Lang, D., M. Alexandersdottir, and D. McBride. 1993. Mortality of coho salmon caught and released using sport tackle in the Little Susitna River, Alaska. Fisheries Research 15:339-356
- 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. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds03-05.pdf>
- Watsjold, D. A. 1980. Inventory and cataloging of the sport fish and sport fish waters in upper Cook Inlet. Alaska Department of Fish and Game, Sport Fish Division. Federal Aid in Fish Restoration, Annual Performance Report, 1980-1981, Project F-9-12(21)G-I-D, Juneau. [http://www.sf.adfg.state.ak.us/FedAidpdfs/FREDf-9-12\(21\)G-I-D.pdf](http://www.sf.adfg.state.ak.us/FedAidpdfs/FREDf-9-12(21)G-I-D.pdf)
- Watsjold, D. A. 1981. Inventory and cataloging of the sport fish and sport fish waters in upper Cook Inlet. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1980-1981, Project F-9-13, 22 (G-I-D), Juneau. [http://www.sf.adfg.state.ak.us/FedAidpdfs/FREDf-9-13\(22\)G-I-D.pdf](http://www.sf.adfg.state.ak.us/FedAidpdfs/FREDf-9-13(22)G-I-D.pdf)
- Westerman, D. L., and T. M. Willette. 2007. Upper Cook Inlet salmon studies, 2006. Alaska Department of Fish and Game, Fishery Data Series No 07-82, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fds07-82.pdf>
- Whitmore, C., and D. Sweet. 1997. Area management report for the recreational fisheries of Northern Cook Inlet, 1996. Alaska Department of Fish and Game, Fishery Management Report No. 97-3, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr97-03.pdf>
- Whitmore, C., and D. Sweet. 1998. Area management report for the recreational fisheries of Northern Cook Inlet, 1997. Alaska Department of Fish and Game, Fishery Management Report No. 98-4, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr98-04.pdf>
- Whitmore, C., and D. Sweet. 1999. Area management report for the recreational fisheries of Northern Cook Inlet, 1998. Alaska Department of Fish and Game, Fishery Management Report No. 99-1, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr99-01.pdf>
- Whitmore, C., D. Sweet, and L. Bartlett. 1996. Area management report for the recreational fisheries of Northern Cook Inlet, 1995. Alaska Department of Fish and Game, Fishery Management Report No. 96-2, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr96-02.pdf>
- Whitmore, C., D. Sweet, L. Bartlett, A. Havens, and L. Restad. 1994. 1993 Area management report for the recreational fisheries of northern Cook Inlet. Alaska Department of Fish and Game, Fishery Management Report No. 94-6, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr94-06.pdf>

REFERENCES CITED (Continued)

Whitmore, C., D. E. Sweet, and L. D. Bartlett. 1995. Area management report for the recreational fisheries of Northern Cook Inlet, 1994. Alaska Department of Fish and Game, Fishery Management Report No. 95-6, Anchorage. <http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr95-06.pdf>

Whitmore, C., D. Sweet and L. Bartlett. *Unpublished*. Area management report for the recreational fisheries of Northern Cook Inlet, 1992. Located at: Alaska Department of Fish and Game, Division of Sport Fish, 333 Raspberry Road, Anchorage.

TABLES AND FIGURES

Table 1.-Estimated harvests, by all user groups, of Chinook salmon of Northern Cook Inlet origin, 1893-2006.

Year	Harvest	Year	Harvest	Year	Harvest
1893	24,000	1935	60,060	1977	5,446
1894	12,400	1936	64,850	1978	4,430
1895	20,159	1937	68,786	1979	9,837
1896	14,461	1938	46,130	1980	11,301
1897	11,266	1939	42,181	1981	11,372
1898	13,111	1940	50,413	1982	17,121
1899	13,682	1941	83,858	1983	18,706
1900	21,346	1942	76,144	1984	23,996
1901	27,455	1943	89,105	1985	25,842
1902	39,210	1944	68,168	1986	43,192
1903	52,818	1945	55,362	1987	40,335
1904	24,058	1946	51,425	1988	44,153
1905	14,134	1947	85,443	1989	50,981
1906	17,936	1948	84,797	1990	42,430
1907	50,355	1949	89,025	1991	43,397
1908	27,019	1950	130,274	1992	52,788
1909	47,699	1951	150,010	1993	54,335
1910	39,222	1952	59,600	1994	36,189
1911	44,676	1953	71,544	1995	22,963
1912	38,293	1954	52,260	1996	22,981
1913	50,922	1955	37,199	1997	24,505
1914	38,043	1956	52,248	1998	26,569
1915	67,034	1957	34,214	1999	37,621
1916	50,316	1958	18,278	2000	37,325
1917	52,399	1959	26,226	2001	33,894
1918	27,909	1960	22,031	2002	29,888
1919	19,041	1961	15,822	2003	31,308
1920	31,650	1962	16,216	2004	31,376
1921	11,157	1963	14,106	2005	33,078
1922	24,824	1964	3,698	2006	33,985
1923	23,929	1965	7,801		
1924	21,610	1966	815		
1925	40,826	1967	623		
1926	60,496	1968	1,163		
1927	69,923	1969	3,927		
1928	55,908	1970	1,853		
1929	54,155	1971	10,494		
1930	57,854	1972	5,748		
1931	41,122	1973	246		
1932	56,745	1974	238		
1933	47,425	1975	301		
1934	57,903	1976	692		

Source: Delaney and Vincent-Lang *Unpublished*; Fox and Shields 2000; Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d); Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, *In prep.*

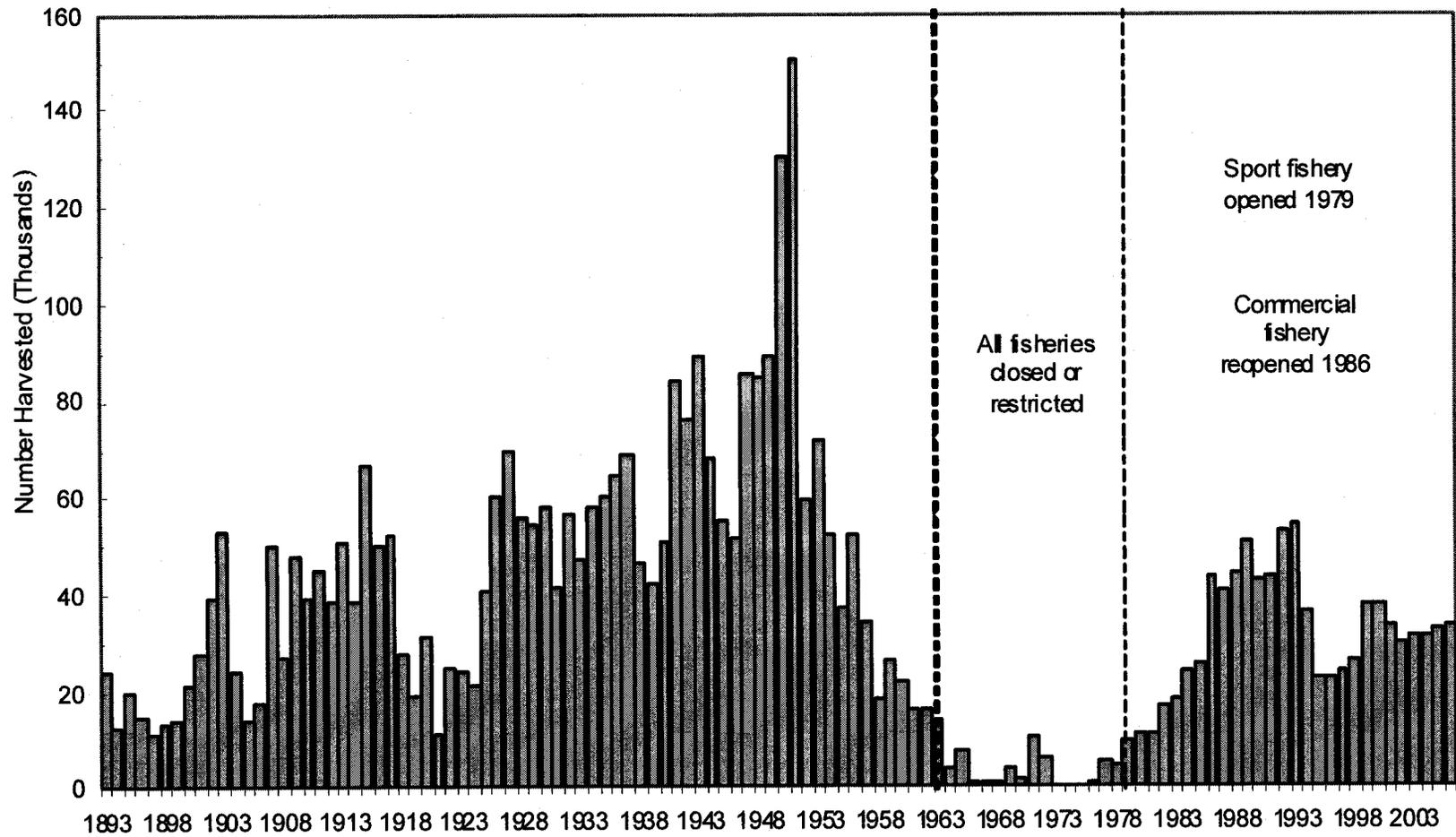


Figure 2.-Harvest of Chinook salmon by all users, 1893-2006.

Table 2.-Estimated harvests of Chinook salmon originating from the Northern Cook Inlet Management Area, 1977-2007.

Year	Commercial ^a			Recreational ^b				Subsistence ^d	NCIMA Total
	NCI ^c	Kustatan	Total	Knik Arm Drainages	Eastside Susitna	Westside Susitna	West Cook Inlet		
1977	565	207	772	207	1,056	2,938	473	4,674	5,446
1978	666	221	887	140	886	2,039	478	3,543	4,430
1979	1,714	159	1,873	800	1,298	5,768	98	7,964	9,837
1980	993	174	1,167	646	1,370	6,148	34	8,198	11,301
1981	725	43	768	1,466	2,202	4,742	192	8,602	11,372
1982	2,716	391	3,107	1,666	2,063	8,573	147	12,449	17,121
1983	933	163	1,096	1,255	2,852	9,568	1,185	14,860	18,706
1984	1,004	214	1,218	2,057	4,428	12,106	1,833	20,424	23,996
1985	1,890	211	2,101	1,889	4,342	13,644	2,029	21,904	25,842
1986	15,488	308	15,796	1,524	8,569	13,402	2,378	25,873	43,192
1987	12,701	176	12,877	2,476	8,603	13,350	1,477	25,906	40,335
1988	12,836	123	12,959	2,916	9,139	15,970	1,695	29,720	44,153
1989	12,731	1,144	13,875	4,341	9,783	19,343	2,325	35,792	50,981
1990	9,582	1,084	10,666	2,022	9,423	17,425	2,097	30,967	42,430
1991	6,859	925	7,784	2,277	9,083	21,836	762	33,958	43,397
1992	4,554	964	5,518	3,969	21,307	18,737	1,213	45,226	52,788
1993	3,307	424	3,701	3,602	22,688	21,142	1,955	49,387	54,335
1994	3,185	449	3,634	4,303	14,970	10,248	1,583	31,104	36,189
1995	4,130	198	4,328	1,707	7,872	6,265	693	16,537	22,963
1996	1,958	145	2,103	1,579	11,023	5,879	1,358	19,839	22,981
1997	1,133	113	1,246	2,938	10,989	7,799	894	22,620	24,505
1998	2,547	83	2,630	2,031	10,472	9,716	693	22,912	26,569
1999	2,812	776	3,588	2,724	16,875	12,131	1,073	32,803	37,621
2000	2,307	759	3,066	2,824	11,774	17,341	1,163	33,102	37,325
2001	1,811	712	2,523	2,255	13,504	13,914	722	30,395	33,894
2002	1,895	439	2,334	3,195	10,695	11,357	1,227	26,474	29,888
2003	1,670	445	2,115	2,562	9,499	15,035	1,124	28,220	31,308
2004	2,058	430	2,488 ^e	2,556	8,498	15,694	782	27,530	31,363
2005	3,373	87	3,460	3,692	8,453	15,945	546	28,636	33,078
2006	4,261	244	4,505	3,813	7,339	16,454	1,038	28,644	33,985
2007	3,822	42	3,864 ^e	Data not available					

^a Fox and Shields 2005, Shields 2007.

^b Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d); Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, *In prep.*

^c Northern District total.

^d Source of data is Shields 2007. Includes Tyonek subsistence fishery 1980-2007 and Northern/Central districts subsistence fisheries 1985 and 1991-1993. 1994-1995 data include Northern districts.

^e Preliminary data.

Table 3.-Chinook salmon escapement goals for the Northern Cook Inlet Management Area in 2006.

Drainage	Escapement Goal Range	Type ^a	Method of Survey
<u>Knik Arm Management Unit</u>			
Little Susitna River	900-1,800	SEG	Aerial
<u>Eastside Susitna River Management Unit</u>			
Chulitna River	1,800-5,100	SEG	Aerial
Clear Creek	950-3,400	SEG	Aerial
Goose Creek	250-650	SEG	Aerial
Little Willow Creek	450-1,800	SEG	Aerial
Montana Creek	1,100-3,100	SEG	Aerial
Prairie Creek	3,100-9,200	SEG	Aerial
Sheep Creek	600-1,200	SEG	Aerial
Willow Creek	1,600-2,800	SEG	Aerial
Deception Creek	No goal		
<u>Westside Susitna River Management Unit</u>			
Alexander Creek	2,100-6,000	SEG	Aerial
Deshka River	13,000-28,000	BEG	Weir
Lake Creek	2,500-7,100	SEG	Aerial
Peters Creek	1,000-2,600	SEG	Aerial
Talachulitna River	2,200-5,000	SEG	Aerial
<u>West Cook Inlet Management Unit</u>			
Chuitna River	1,200-2,900	SEG	Aerial
Lewis River	250-800	SEG	Aerial
Theodore River	500-1,700	SEG	Aerial

^a SEG is sustainable escapement goal; BEG is biological escapement goal.

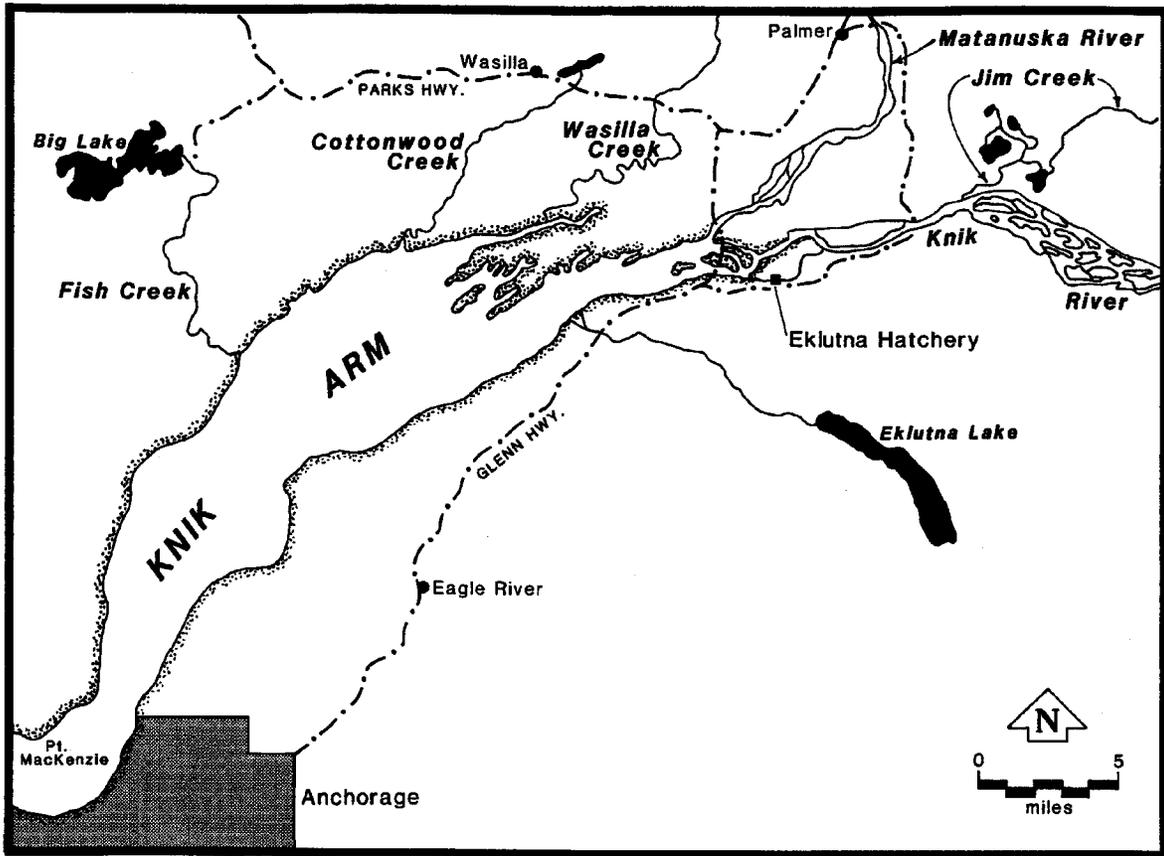


Figure 3.-The Knik Arm Management Unit.

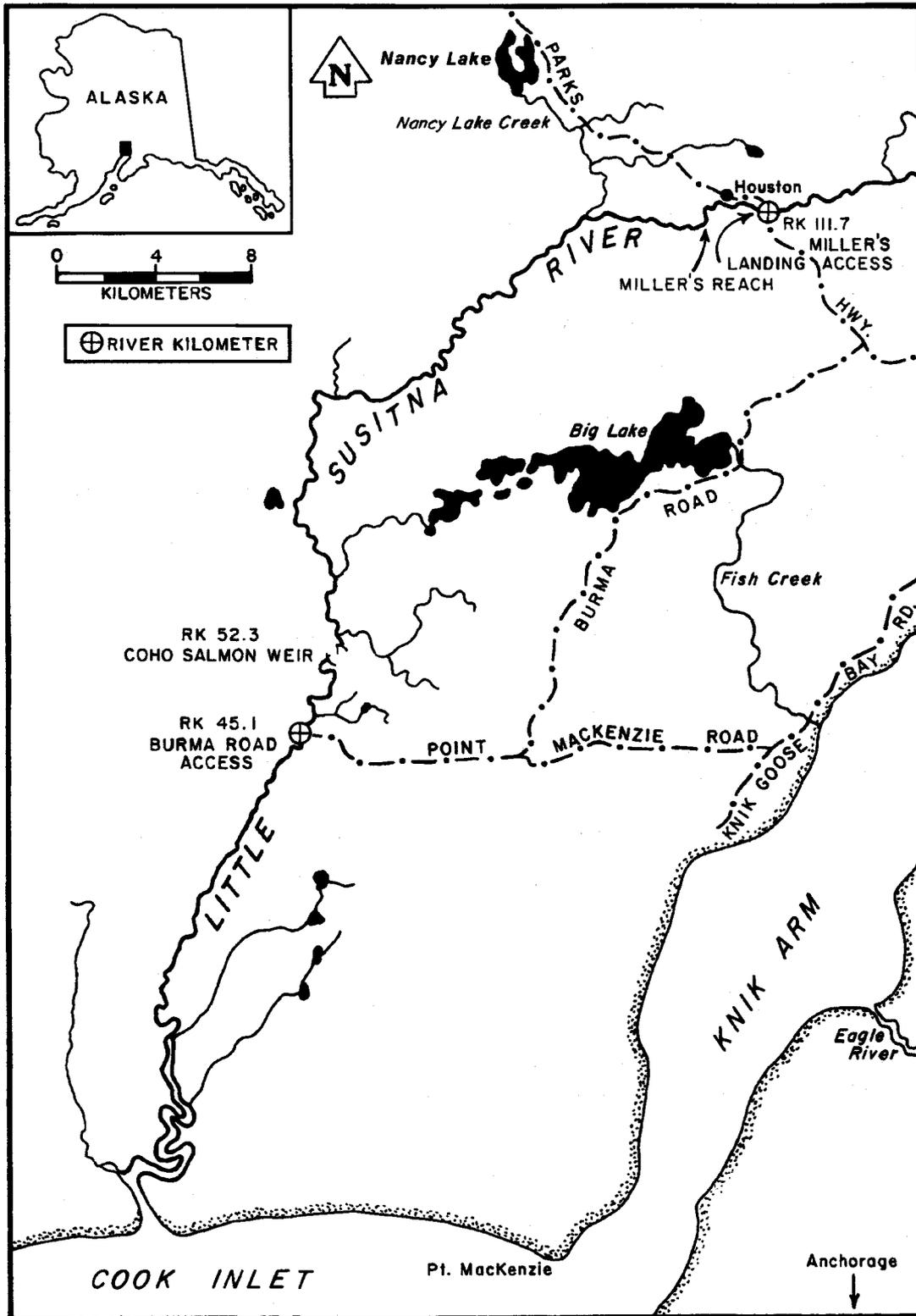


Figure 4.-The Little Susitna River.

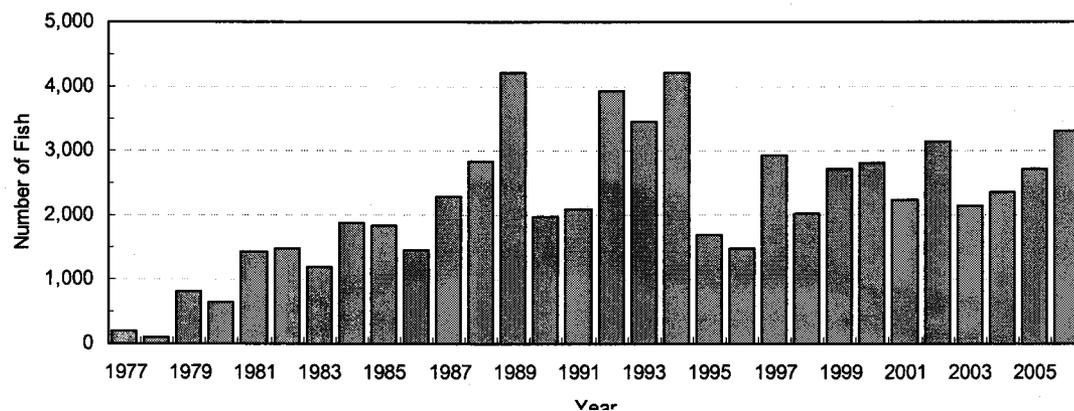


Figure 5.-Harvest of Chinook salmon from the Little Susitna River, 1977-2006.

Table 4.-Harvest of Chinook salmon from the Knik Arm Management Unit, 1977-2006.

Year	LittleSusitna River	Eklutna Tailrace	Other	Total
1977	191		16	207
1978	93		47	140
1979	800		0	800
1980	646		0	646
1981	1,418		48	1,466
1982	1,467		199	1,666
1983	1,187		68	1,255
1984	1,883		174	2,057
1985	1,845		44	1,889
1986	1,457		67	1,524
1987	2,282		194	2,476
1988	2,822		94	2,916
1989	4,204		137	4,341
1990	1,965		57	2,022
1991	2,102		175	2,277
1992	3,920		49	3,969
1993	3,441		161	3,602
1994	4,204		99	4,303
1995	1,698		9	1,707
1996	1,484		95	1,579
1997	2,938		0	2,938
1998	2,031		0	2,031
1999	2,713		11	2,724
2000	2,802		22	2,824
2001	2,243		12	2,255
2002	3,144		51	3,195
2003	2,138	399	25	2,562
2004	2,362	23	66	2,451
2005	2,724	941	27	3,692
2001-2005				
Mean	2,522	454	36	2,831
2006	3,303	484	26	3,813

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d); Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, *In prep.*

Table 5.-Escapement of Chinook salmon, Knik Arm Management Unit, 1977-2007.

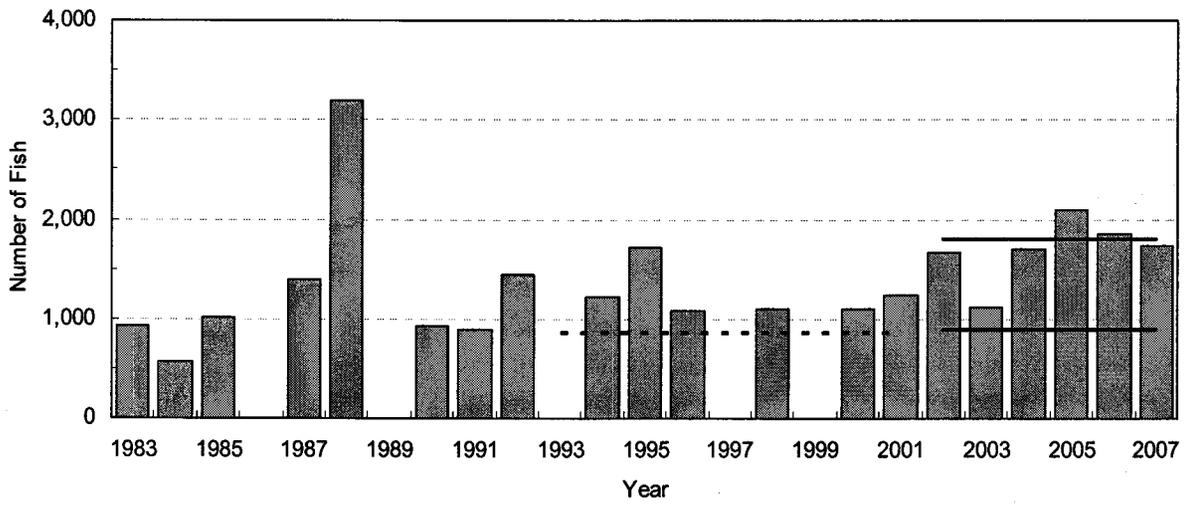
Year	Little Susitna River		Moose Creek ^a
	Weir	Aerial	
1977			
1978			
1979		- ^b	253
1980		- ^b	
1981		- ^b	238
1982		- ^b	406
1983		929	452
1984		558	541
1985		1,005	475
1986		- ^b	419
1987		1,386	957
1988	7,374	3,197	1,072
1989	4,367	- ^b	999
1990		922	545
1991		892	704
1992		1,441	959
1993		- ^b	175 ^c
1994	2,981	1,221	894
1995	2,809	1,714	488
1996		1,079	652
1997		- ^b	652
1998		1,091	214
1999		- ^b	744
2000		1,094	198
2001		1,238	275
2002		1,660	310
2003		1,114	471
2004		1,694	197
2005		2,095	254
2006		1,855	216
<u>Means</u>			
1977-2006		1,378	510
1997-2006		1,480	353
2002-2006		1,684	290
SEG ^d		900-1,800	
2007		1,731	330

^a Foot survey through 1994, helicopter beginning in 1995.

^b No count conducted, turbid water.

^c Late count

^d Sustainable escapement goal.



Note: escapement was not counted in 1986, 1989, 1993, 1997, and 1999.

Figure 6.-Escapement of Chinook salmon into the Little Susitna River (1983-2007), biological escapement goal (dashed line, 1993-2001)) and sustainable escapement goal range (solid lines, 2002-2007).

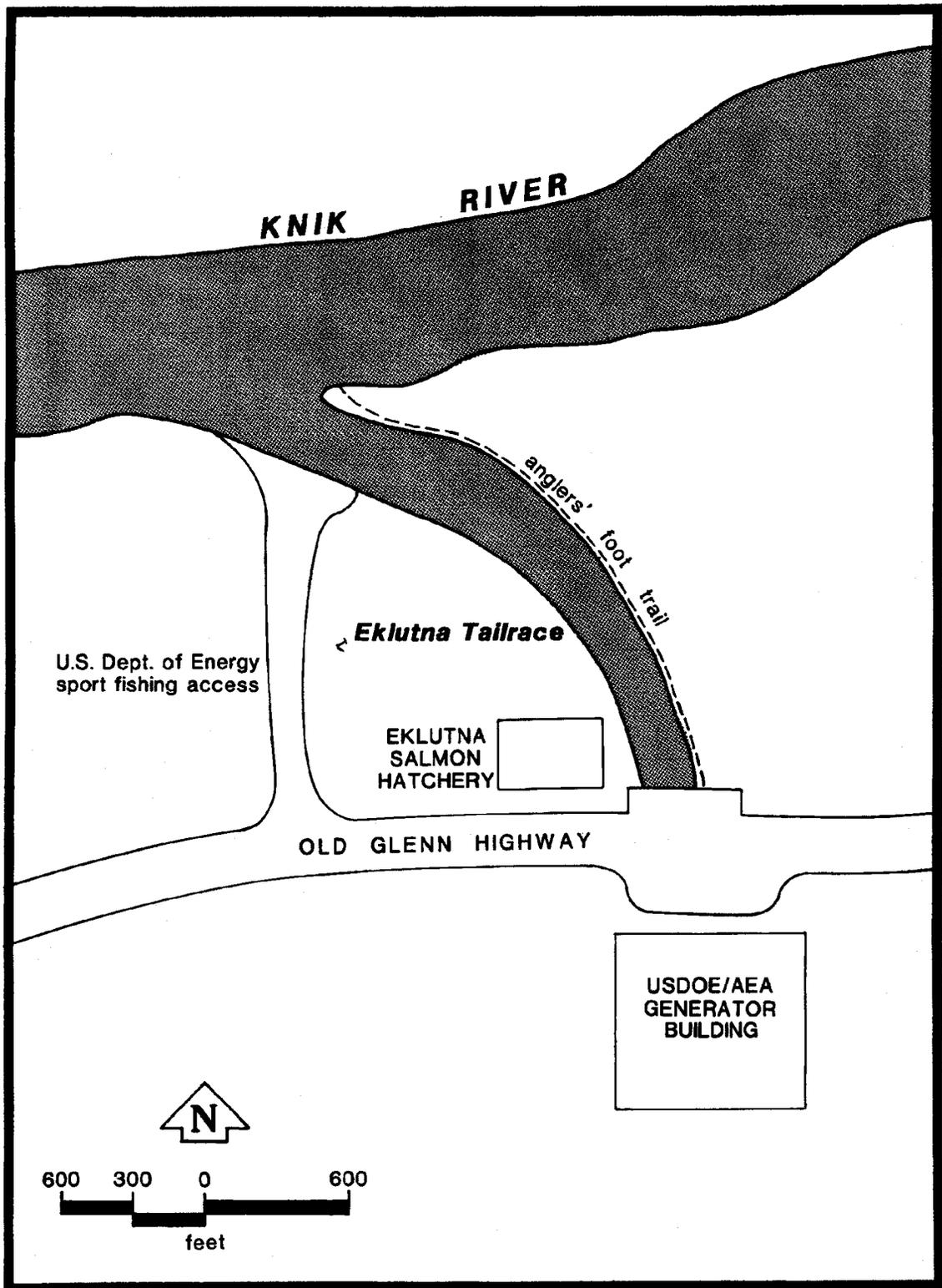


Figure 7.-The Eklutna power plant tailrace stocking location and fishery.

Table 6.-Chinook salmon smolt stocked into Eklutna Tailrace, and harvest of returning adults, 2002-2007.

Release Year	Brood Year	Smolt Released	Mean Size (g)	Release Date	Harvest
2002	2001	106,991	11.3	5/20	
2003	2002	218,492	12.8 (50.05%), 12.0 (49.95%)	6/3, 6/4	398
2004	2002 ^a	215,165	13.4	5/19	23
2005	2003	164,586	14.0	6/1	941
2006	2004	213,250	10.6	5/31 & 6/1	484
2007	2005	110,978	8.9	5/30	not available

Notes: for all releases, brood stock was Ship Creek and all fish were marked with a thermal mark. All releases were raised at Ft. Richardson Hatchery, except the 2002 release which was raised at Elmendorf Hatchery.

Table 7.-Harvest of Chinook salmon from the Eastside Susitna, Westside Susitna, West Cook Inlet, and Knik Arm management units, 1979-2006.

Year	Eastside Susitna Management Unit			Westside	West	Knik	Total
	Hatchery	Non-hatchery	Total	Susitna Management Unit	Cook Inlet Management Unit	Arm Management Unit	
1979			1,298	5,768	98	800	7,964
1980			1,370	6,148	34	646	8,198
1981			2,202	4,742	192	1,466	8,602
1982			2,063	8,573	147	1,666	12,449
1983			2,852	9,568	1,185	1,255	14,860
1984			4,428	12,106	1,833	2,057	20,424
1985			4,342	13,644	2,029	1,889	21,904
1986			8,569	13,402	2,378	1,524	25,873
1987			8,603	13,350	1,477	2,476	25,906
1988	355	8,784	9,139	15,970	1,695	2,916	29,720
1989	1,079	8,704	9,783	19,343	2,325	4,341	35,792
1990	1,194	8,229	9,423	17,425	2,097	2,022	30,967
1991	844	8,239	9,083	21,836	762	2,277	33,958
1992	4,566	16,741	21,307	18,737	1,213	3,969	45,226
1993	3,977	18,711	22,688	21,142	1,955	3,602	49,387
1994	2,703	12,267	14,970	10,248	1,583	4,303	31,104
1995	1,111	6,761	7,872	6,265	693	1,707	16,537
1996	1,205	9,818	11,023	5,879	1,358	1,579	19,839
1997	1,091	9,898	10,989	7,799	894	2,938	22,620
1998	902	9,570	10,472	9,716	693	2,031	22,912
1999	2,464	14,411	16,875	12,131	1,073	2,724	32,803
2000	1,776	9,998	11,774	17,341	1,163	2,824	33,102
2001	2,057	11,447	13,504	13,914	722	2,255	30,395
2002	1,720	8,975	10,695	11,357	1,227	3,195	26,474
2003	1,605	7,894	9,499	15,035	1,124	2,562	28,220
2004	969	7,529	8,498	15,694	782	2,556	27,530
2005	981	7,472	8,453	15,945	546	3,692	28,636
Mean							
2001-2005	1,466	8,663	10,130	14,389	880	2,852	28,251
2006	^a		7,339	16,454	1,038	3,813	28,644

^a Hatchery contribution no longer available. Creel program concluded in 2005.

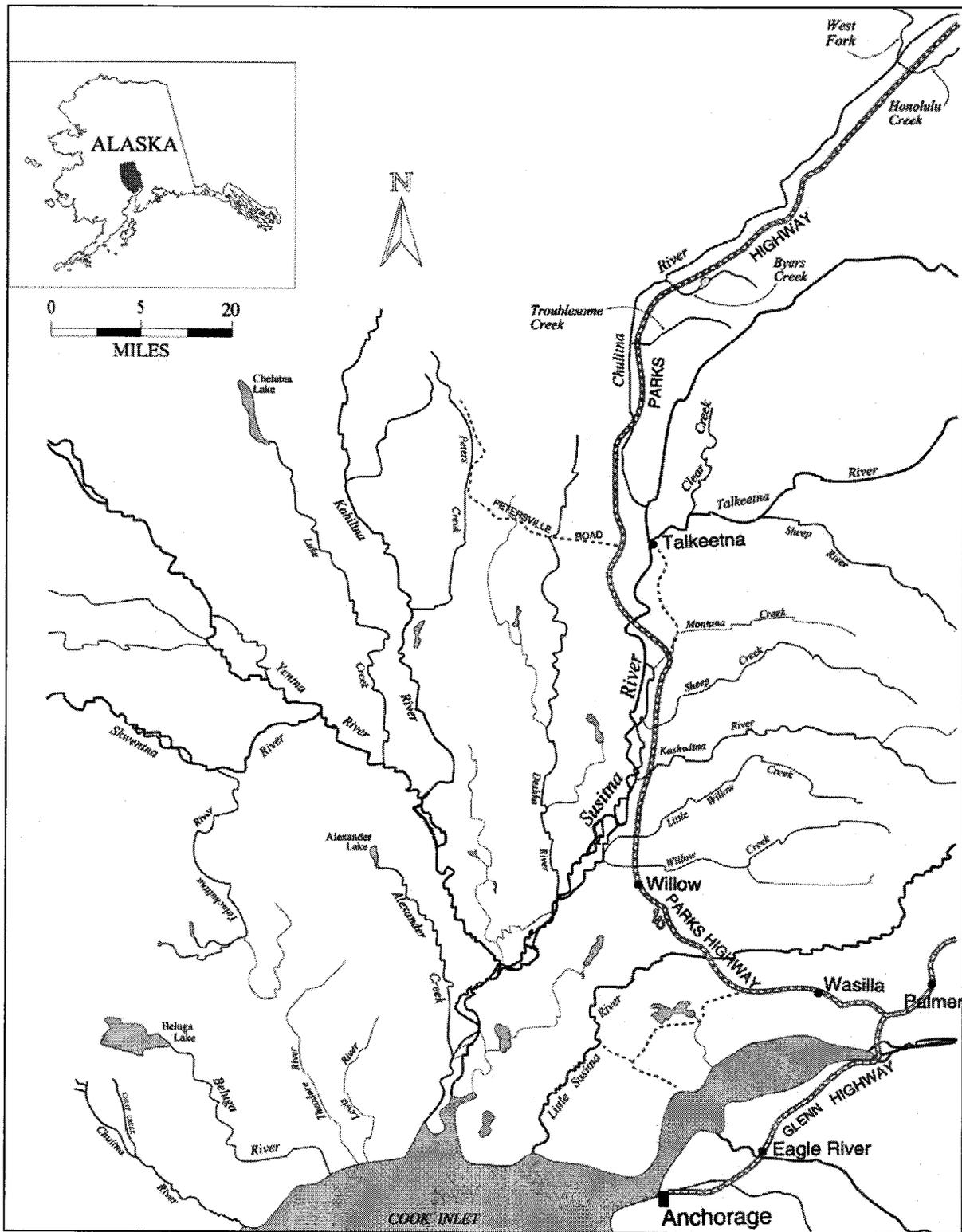


Figure 8.-Susitna River and tributaries.

Table 8.-Chinook salmon harvests from the Eastside Susitna Management Unit, by fishery, 1977-2006.

Year	Little											Total
	Willow Creek	Willow Creek	Kashwitna River	Caswell Creek	Sheep Creek	Goose Creek	Montana Creek	Birch Creek	Sunshine Creek	Talkeetna River ^a	Other ^b	
1977	137	16			259		415			25	204	1,056
1978	47	0			256		408			12	163	886
1979	459	0		156	10		312		10	312	39	1,298
1980	289	32		215	45		559		13	172	45	1,370
1981	585	0		249	0		661		57	373	277	2,202
1982	629	0		471	0		241		52	450	220	2,063
1983	534	0	231	272	0		504		105	934	272	2,852
1984	774	37	0	586	0	0	1,522		125	1,272	112	4,428
1985	1,063	25		527	0		979		771	871	106	4,342
1986	1,017	872	73	327	1,778	145	2,796	290	327	908	36	8,569
1987	1,987	711	116	88	1,610	334	1,726	44	319	1,639	29	8,603
1988	2,349	937	0	578	1,847	218	1,070	28	303	1,762	47	9,139
1989	2,846	507	11	357	1,116	385	1,708	28	368	2,372	85	9,783
1990	3,237	387	6	330	1,537	504	478		465	2,358	121	9,423
1991	3,208	684	41	305	1,519	288	575	47	230	2,025	161	9,083
1992	8,884	1,023	16	592	2,663	1,033	3,078	101	365	3,338	214	21,307
1993	8,626	1,200	38	531	2,300	633	4,054	9	280	4,729	288	22,688
1994	5,980	745	78	562	1,349	361	3,111	108	297	2,144	235	14,970
1995	2,742	436	18	397	746	226	1,004	0	132	2,126	45	7,872
1996	2,690	896	21	128	1,397	437	1,612	22	53	3,585	182	11,023
1997	3,135	699	10	30	550	298	2,181	30	53	3,800	203	10,989
1998	2,793	546	15	226	700	348	1,471	83	116	3,846	328	10,472
1999	4,988	1,344	83	142	2,558	371	3,279	134	11	3,701	264	16,875
2000	3,782	578	160	561	851	258	1,728	223	472	2,740	421	11,774
2001	4,573	941	74	238	1,420	160	2,646	65	93	2,866	428	13,504
2002	3,591	580	217	115	928	403	2,026	35	38	2,616	146	10,695
2003	3,922	510	373	26	1,284	350	1,242	167	154	1,276	195	9,499
2004	2,818	445	125	23	914	335	1,071	0	25	2,473	25	8,254
2005	2,466	621	112	394	878	150	1,328	287	205	1,960	52	8,453
Mean												
2001-2005	3,474	619	180	159	1,085	280	1,663	111	103	2,238	169	10,081
2006	2,141	449	210	264	707	27	1,672	97	211	1,561	0	7,339

^a Talkeetna River and tributaries including Clear Creek.

^b Includes lakes and streams.

Table 9.-NCIMA Chinook salmon escapement index counts (aerial), 1979-2004.

Year	Susitna River			Knik Arm ^a	West Cook Inlet	Total NCIMA
	Eastside	Westside	Total			
1979	5,082	39,552	44,634		2,540	47,174
1980						
1981	7,419	2,025	9,444		3,601	13,045
1982	10,700	25,224	35,924		7,384	43,308
1983	17,859	42,850	60,709	929	5,562	67,200
1984	25,678	27,974	53,652	558	5,043	59,253
1985	18,177	38,932	57,109	1,005	4,619	62,733
1986	15,828	32,330	48,158		6,114	54,272
1987	26,535	23,936	50,471	1,386	2,423	54,280
1988	26,255	40,963	67,218	3,197	5,546	75,961
1989	23,117	4,818	27,935		2,468	30,403
1990	25,040	28,042	53,082	922	1,329	55,333
1991	21,773	19,425	41,198	892	1,348	43,438
1992	15,782	18,899	34,681	1,441	2,835	38,957
1993	13,066	18,028	31,094		3,882	34,976
1994	11,904	9,423	21,327	1,221	2,121	24,669
1995	21,778	15,828	37,606	1,714	2,223	41,543
1996	22,084	16,802	38,886	1,079	2,392	42,357
1997	35,927	38,437	74,364		5,087	79,451
1998	24,393	32,958	57,351	1,091	4,805	63,247
1999	24,306	30,260	54,566		7,812	62,378
2000	20,161	11,137	31,298	1,094	3,964	36,356
2001	23,047	15,102	38,149	1,238	4,394	43,781
2002	35,137	28,066	63,203	1,660	3,649	68,512
2003	15,341	24,294	39,635	1,114	4,974	45,723
2004	22,567	54,421	76,988	1,694	5,038	83,720
2005	21,780	27,774	49,554	2,095	2,730	54,379
2006	16,934	23,074	40,008	1,855	4,206	46,069
<u>Means</u>						
1979-2006	20,284	25,577	45,861	1,378	4,003	50,834
1997-2006	23,959	28,552	52,512	1,480	4,666	58,362
2002-2006	22,352	31,526	53,878	1,684	4,119	59,681
2007	23,229	18,645	41,874	1,731	2,439	46,044

Table 10.-Eastside Susitna River Management Unit Chinook salmon escapement index counts (aerial), 1979-2007.

Year	Deception Creek		Non-hatchery	Little Willow Creek	Sheep Creek	Goose Creek	Montana Creek	Clear Creek	Prairie Creek	Chulitna River	Portage Creek	Indian River	Kashwitna River	Other ^b	Total
	Willow Creek ^g	Total													
1979	848	239		327	778		1,094 ^h	864			190	285	457		5,082
1980															0
1981	991	366		459	1,013	262	814		1,875		659	422	558		7,419
1982	592	229 ^f		316	527	140	887 ^h	982	3,844	863	1,111	1,053	156	268	10,700
1983	777	121 ^f		1,042	975	477	1,641 ^h	938	3,200	4,058	3,140	1,193	297		17,859
1984	2,789	675 ^f			1,028	258	2,309 ^h	1,520	9,000	4,191	2,341	1,456	111		25,678
1985	1,856	1,044 ^f		1,305	1,634	401	1,767 ^h	2,430	6,500	783			457	4,066	18,177
1986	2,059	521 ^f	364	2,133	1,285	630			8,500				700		15,828
1987	2,768	692 ^f	518	1,320	895	416	1,320 ^h		9,138	5,252	2,616	1,246	872		26,535
1988	2,496	790 ^f	537	1,515	1,215	1,076	2,016 ^h	4,850	9,280		1,402	456	1,159		26,255
1989	5,060	800 ^f	623	1,325	610	835	2,701 ^h		9,463		1,309	659	355		23,117
1990	2,365	700 ^f	420	1,115	634	552	1,269	2,380	9,113	2,681	1,886	1,473	872		25,040
1991	2,006	747 ^f	515	498	154 ^d	968	1,215	1,974	6,770	4,410	1,223	1,468	340		21,773
1992	1,660	983 ^f	423	673		369	1,560	1,530	4,453	2,527	1,078	479	470		15,782
1993	2,227	1,011 ^f	502	705		347	1,281	886	3,023	2,070	629	362	525		13,066
1994	1,479	766	388	712	542	375	1,143	1,204	2,254	1,806	857	336	430		11,904
1995	3,792	834	445	1,210	1,049	374	2,110	1,928	3,884	3,460	1,505	796	836		21,778
1996	1,776	1,211	654	1,077	1,028	305	1,841	2,091	5,037	4,172	2,185	579	782		22,084
1997	4,841	1,340		2,390		308	3,073	5,100	7,710	5,618	3,086	1,700	761		35,927
1998	3,500	1,273	699	1,782	1,160	415	2,936	3,894	4,465	2,586	1,261	502	619		24,393
1999	2,081	1,000	801	1,837		268	2,088	2,216	5,871	5,455	1,797	1,049	644		24,306
2000	2,601	1,563	828	1,121	1,162	348	1,271	2,142	3,790	4,218	1,015	601	329		20,161
2001	3,188	1,975	943	2,084			1,930	2,096	5,191	2,353 ^d	2,334	1,292	604		23,047
2002	2,758	1,000	123	1,680	854	565	2,357	3,496	7,914	9,002	3,336	1,126	1,049		35,137
2003	3,964	914	288	879		175	2,576		4,095		827 ^d	1,365	546		15,341
2004	2,985	480	170	2,227	285	417	2,117	3,417	5,570	2,162	1,972	593	342	652	22,567
2005	2,463	1,806	634	1,784	760	468	2,600	1,924	3,862	2,838	2,151	670	454	83	21,780
2006	2,217	940	368	816	580	306	1,850	1,520	3,570	2,862	942	718	613		16,934
Means															
1979-2006	2,450	890	512	1,244	865	442	1,837	2,245	5,668	3,494	1,634	875	568	1,267	19,560
1997-2006	3,060	1,229	539	1,660	800	363	2,280	2,867	5,204	4,122	1,872	962	596		23,959
2002-2006	2,877	1,028	317	1,477	620	386	2,300	2,589	5,002	4,216	1,846	894	601		22,352
^j	1,600-2,800		350-700 ⁱ	450-1,800	600-1,200	250-650	1,100-3,100	950-3,400	3,100-9,200	1,800-5,100					
2007	1,373	604		1,103	400	105	1,936	3,310	5,036	5,166	2,284	1,017	895		23,229

^a No counts conducted.

^b May include Honolulu, Byers, Troublesome, Bunco, Birch, Sunshine, Larson creeks.

^c Included with other streams.

^d Poor count due to timing, poor visibility or weather conditions.

^e Sustainable escapement goal.

^f Combination of foot surveys and weir counts.

^g Includes hatchery fish.

^h Foot survey

ⁱ Deception Creek SEG discontinued after 2005.

^h Foot survey

^j Deception Creek SEG discontinued after 2005.

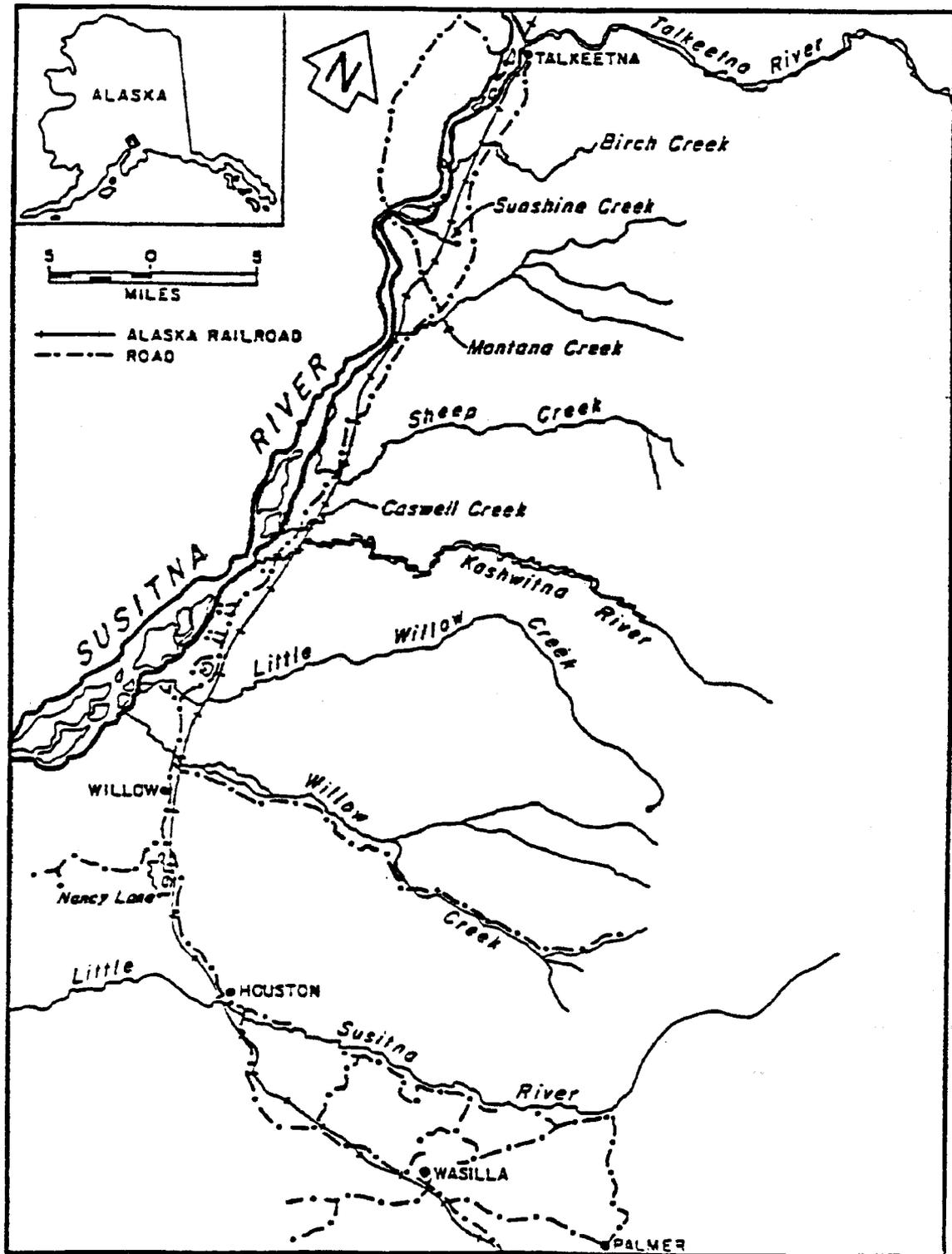


Figure 9.-Eastside Susitna Management Unit.

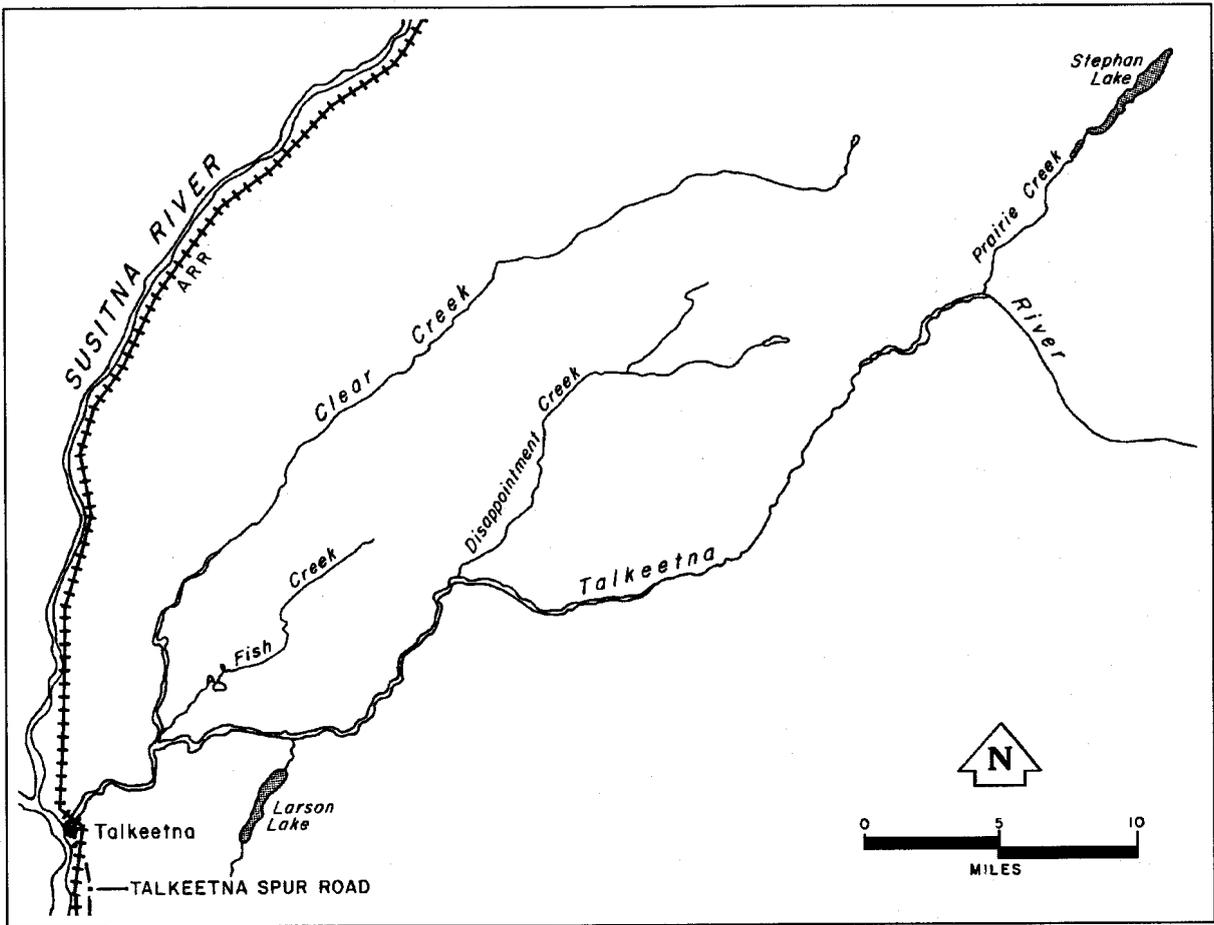
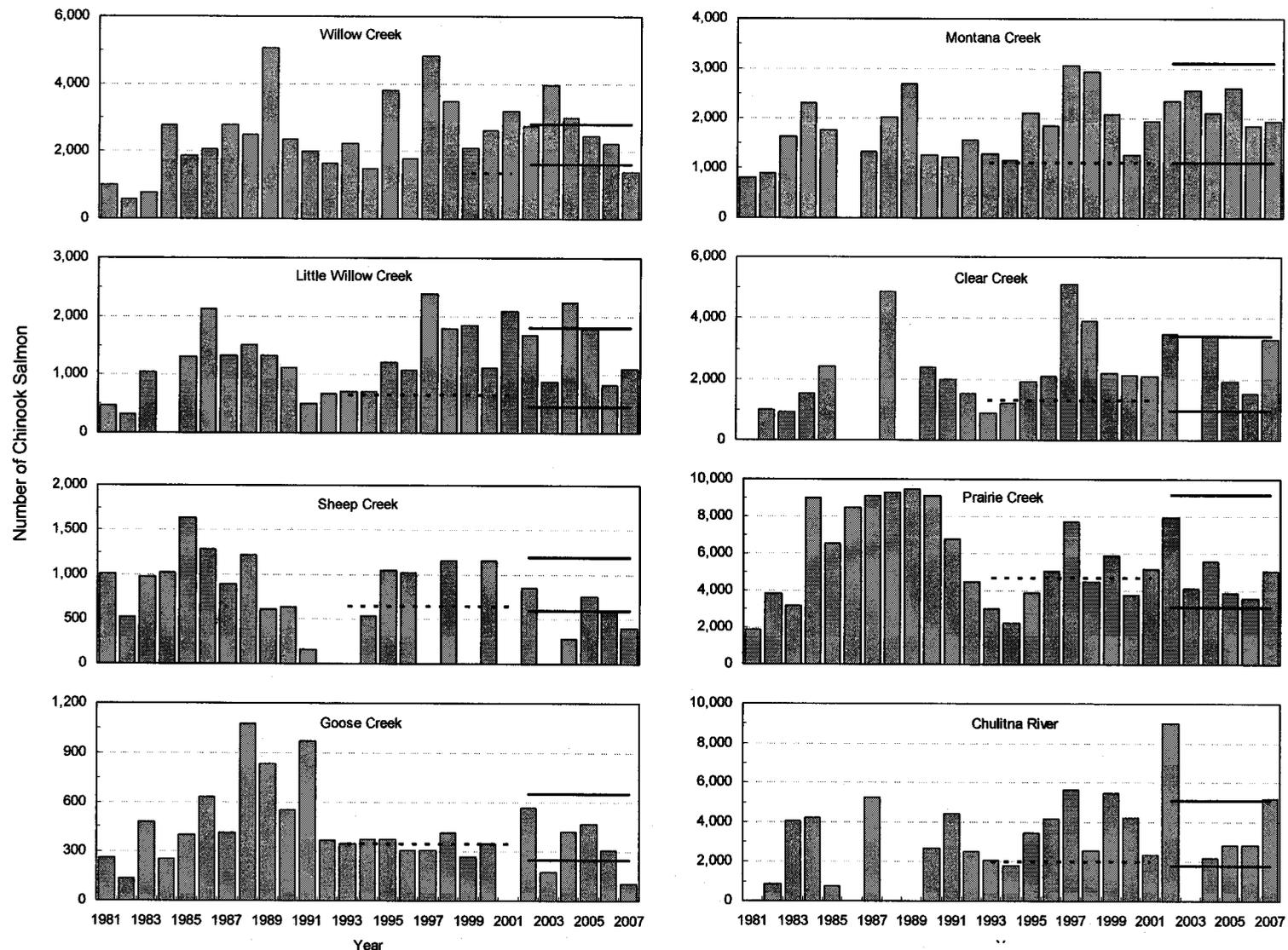


Figure 10.-The Talkeetna River area.



Notes: Bars are escapement, solid lines represent current escapement goal ranges, and dashed lines represent previous escapement goals.

Figure 11.-Escapement (1981-2007) and escapement goals for Chinook salmon stocks in 8 systems of the Eastside Susitna Management Unit.

Table 11.-Chinook salmon harvest, by fishery, in the West Susitna Management Unit, 1977-2006.

Year	Alexander Creek	Deshka River	Rabideux Creek	Yentna River	Peters Creek	Lake Creek	Fish Creek ^a	Talachulitna River	Other Streams ^b	Other Lakes ^b	Total
1977	820	1,017				464		224	413	0	2,938
1978	769	850				326		12	82	0	2,039
1979	712	2,811				1,796		293	156	0	5,768
1980	1,438	3,685				775		121	129	0	6,148
1981	1,121	2,769				795		57	0	0	4,742
1982	2,506	4,307				1,645		0	115	0	8,573
1983	1,711	4,889				2,423		336	209	0	9,568
1984	2,107	5,699			112	2,881		424	709	174	12,106
1985	2,761	6,407				2,575		224	1,677	0	13,644
1986	2,937	6,490				2,134	647	201	948	45	13,402
1987	2,224	5,632				3,282	834	116	1,252	10	13,350
1988	4,687	5,474			549	2,784	729	909	829	9	15,970
1989	4,882	8,062	12	215	339	3,554	1,202	403	656	18	19,343
1990	5,119	6,161	55	178	385	3,423	740	709	631	24	17,425
1991	6,548	9,306		301	495	2,712	660	848	942	24	21,836
1992	4,124	7,256	23	652	655	3,668	879	445	867	168	18,737
1993	5,154	5,682		653	283	6,425	1,148	875	922	0	21,142
1994	3,070	624		402	202	3,548	930	927	545	0	10,248
1995	1,217	0		425	252	2,838	545	509	479	0	6,265
1996	1,005	11		320	74	2,587	415	697	770	0	5,879
1997	1,470	42		315	34	3,777	557	778	826	0	7,799
1998	1,275	3,384		350		2,511	840	563	793	0	9,716
1999	2,241	3,496		939	197	3,037	1,188	977	56	0	12,131
2000	2,721	7,076		838	236	4,611	742	695	422	0	17,341
2001	2,313	5,007		648	88	4,067	965	409	417	0	13,914
2002	1,992	4,508		559	52	2,878	761	508	99	0	11,357
2003	2,293	6,605		277	122	4,467	371	587	313	0	15,035
2004	1,294	9,050	12	523	85	3,657	390	344	293	0	15,648
2005	1,052	7,332		963	0	4,508	307	800	915	68	15,945
Mean											
2001-2005	1,789	6,500		594	69	3,915	559	530	407	14	14,380
2006	1,396	7,753	40	1964	33	4,070	103	452	643	0	16,454

^a Fish Lake drainage (Yentna River drainage).

^b May include harvest from West Cook Inlet waters through 1998.

Table 12.-Chinook salmon escapement index counts, for Westside Susitna Management Unit stocks, 1979-2007.

Year	Deshka River				Lake Creek	Talachulitna River	Cache Creek	Other Streams ^b	Aerial Total
	Alexander Creek	Aerial index	Weir ^g	Peters Creek					
1979	6,215	27,385		108	4,196	1,648	^a	^a	39,552
1980 ^a									
1981	^a	^a		^a	^a	2,025	^a	^a	2,025
1982	2,546	16,000		^a	3,577	3,101	^a	^a	25,224
1983	3,755	19,237		2,272	7,075	10,014	497	^a	42,850
1984	4,620	16,892		324	^a	6,138	^a	^a	27,974
1985	6,241	18,151		2,901	5,803	5,145	206	485	38,932
1986	5,225	21,080		1,915	^a	3,686	424	^a	32,330
1987	2,152	15,028		1,302	4,898	^a	556	^a	23,936
1988	6,273	19,200		3,927	6,633	4,112	818	^a	40,963
1989	3,497	^a		959	^a	^a	362	^a	4,818
1990	2,596	18,166		2,027	2,075	2,694	484	^a	28,042
1991	2,727	8,112 ^c		2,458	3,011	2,457	499	161	19,425
1992	3,710	7,736		996	2,322	3,648	487	^a	18,899
1993	2,763	5,769		1,668	2,869	3,269	1,690	^a	18,028
1994	1,514	2,665		573	1,898	1,575	628	570	9,423
1995	2,090	5,150	10,048	1,041	3,017	2,521	1,601	408	15,828
1996	2,319	6,343	14,349	749	3,514	2,748	581	548	16,802
1997	5,598	19,047	35,587	2,637	3,841	4,494	1,774	1,046	38,437
1998	2,807	15,556	15,409 ^f	4,367	5,056	2,759	1,771	642	32,958
1999	3,974	12,904	29,649	3,298	2,877	4,890	1,720	597	30,260
2000	2,331 ^c	^a	35,242	1,648	4,035	2,414	709	^a	11,137
2001	2,282	^a	29,004	4,226	4,661	3,309	624	^a	15,102
2002	1,936	8,749	29,428	2,959	4,852	7,824	671	1,075	28,066
2003	2,012	^a	39,496	3,998	8,153	9,573	558	^a	24,294
2004	2,215	28,778	57,934	3,757	7,598	8,352	212	3,509	54,421
2005	2,140	11,495	37,725	1,508	6,345	4,406	1,460	420	27,774
2006	885	6,499 ^c	31,150	1,114	5,300	6,152	1,230	1,894	23,074

-continued-

Table 12.-Page 2 of 2.

Year	Alexander Creek	Deshka River		Peters Creek	Lake Creek	Talachulitna River	Cache Creek	Other Streams ^b	Aerial Total
		Aerial index	Weir ^g						
Means									
1979-2006	3,247	14,088	30,418	2,109	4,505	4,358	851	946	25,577
1997-2006	2,618	14,718	34,062	2,951	5,272	5,417	1,073	1,312	28,552
2002-2006	1,838	13,880	39,147	2,667	6,450	7,261	826	1,725	31,526
Esc. Goal	2,100-6,000 ^d	^e	13,000-28,000 ^h	1,000-2,600 ^d	2,500-7,100 ^d	2,200-5,000 ^d			
2007	480	6,712	18,714	1,225	4,081	3,871	551	1,725	18,645

^a No count conducted.

^b May include Donkey Creek, Red Creek, Red Salmon Creek, Canyon Creek and other miscellaneous creeks.

^c Low count due to timing, poor visibility or weather conditions.

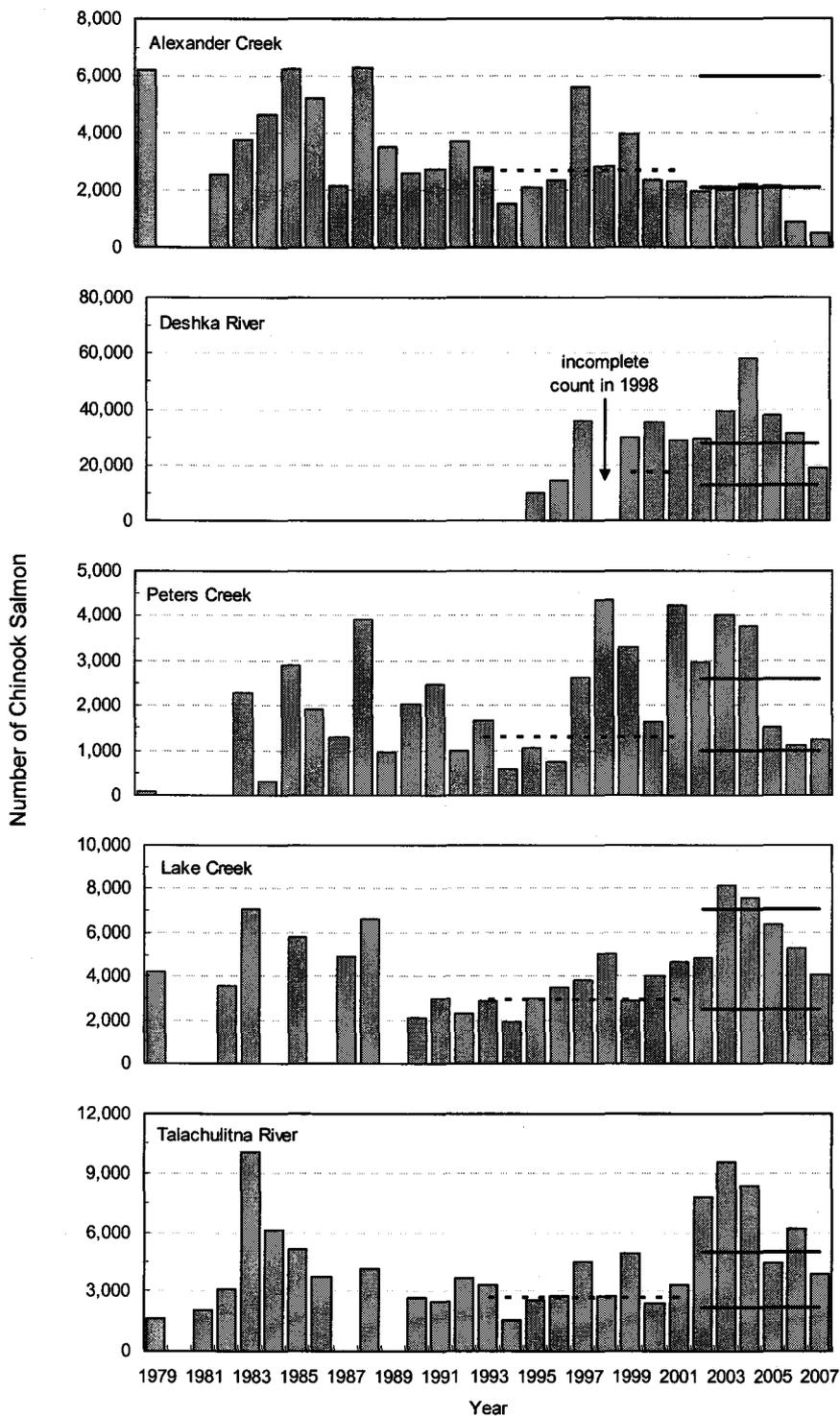
^d Sustainable escapement goal (Bue and Hasbrouck *Unpublished*).

^e Aerial escapement goal 1994-1998 was 11,200, revised for 1999 to 8,750 and discontinued after 2001.

^f During 1998 weir count represents only half the return. High water delayed construction until June 16.

^g Weir count, not an actual escapement count.

^h Weir based BEG established in 2001 (Bue and Hasbrouck *Unpublished*).



Notes: Y-axis scales vary by stock. Bars are escapement, solid lines represent current escapement goal ranges, and dashed lines represent previous escapement goals.

Figure 12.-Escapement (1979-2007) and escapement goals for Chinook salmon stocks in five systems of the Westside Susitna Management Unit.

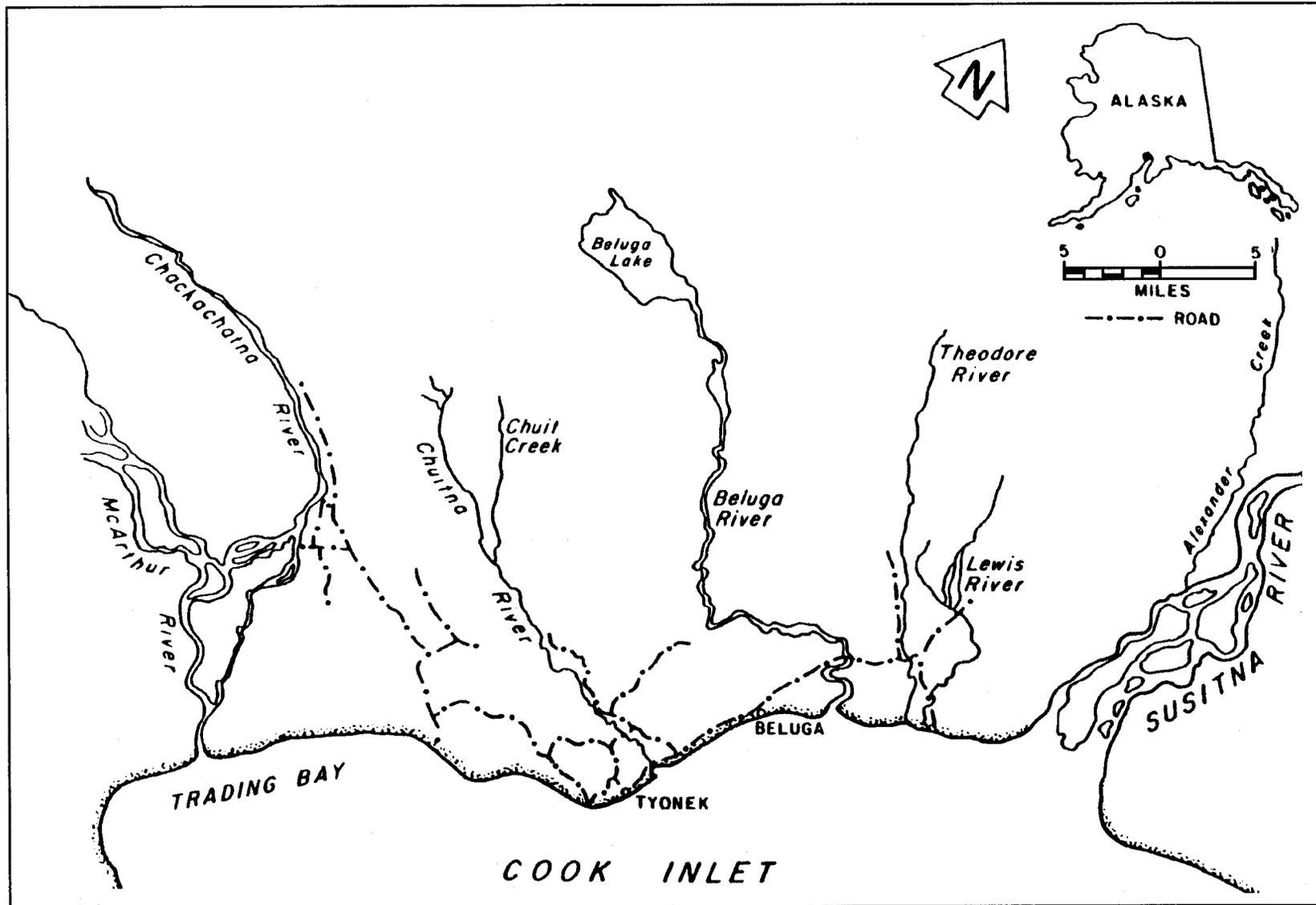
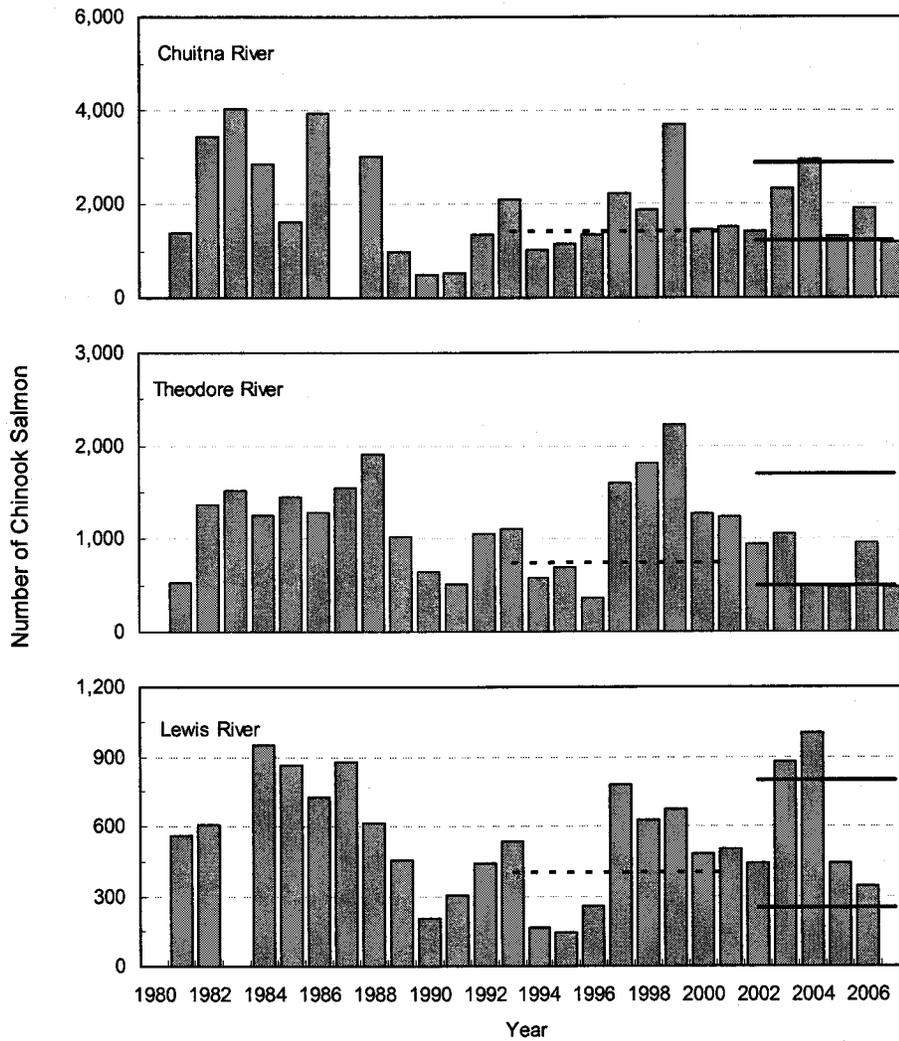


Figure 13.-West Cook Inlet coastal streams.

Table 13.-West Cook Inlet Management Unit Chinook salmon harvest by fishery, 1977-2006.

Year	Chuitna River	Beluga River	Theodore River	Lewis River	Susitna River - North Foreland	South of North Foreland	Other Sites	Total
1977	227		237	9				473
1978	408		58	12				478
1979	78		20	0				98
1980	17		17	0				34
1981	115		77					192
1982	105		42					147
1983	1,185		0					1,185
1984	723		1,110					1,833
1985	734		1,195	100				2,029
1986	960		1,418					2,378
1987	146		1,146	185				1,477
1988	312		1,137	246				1,695
1989	581	237	1,317	190				2,325
1990	1,064		748	285				2,097
1991	377		369	16				762
1992	516	175	522					1,213
1993	893		527	27		100	408	1,955
1994	530		581			6	466	1,583
1995	201		360	0		19	113	693
1996	844		183	0	331	0	0	1,358
1997	728		0	0	121	22	23	894
1998	551		0	0	73	63	6	693
1999	561		0	0	301	189	22	1,073
2000	513		0		182	468	0	1,163
2001	457		21		54	64	126	722
2002	629		0	0	502	0	96	1,227
2003	592	51	13	0	194	144	130	1,124
2004	333	276	0	0	102	0	71	782
2005	294	105	0	0	24	92	31	546
2001-2005								
Mean	461		7	0	175	60	91	880
2006	445	66	0	0	160	32	335	1,038

Note: Estimates as reported through the SWHS based on fewer than 30 responses, and therefore indicate only that fishing occurred in the drainages, and an approximate order of magnitude (Mills and Howe 1992).



Notes: Y-axis scales vary by stock. Bars are escapement, solid lines represent current escapement goal ranges, and dashed lines represent previous escapement goals.

Figure 14.-Escapement (1980-2007) and escapement goals for Chinook salmon stocks in three systems of the West Cook Inlet Management Unit.

Table 14.-Chinook salmon escapement index counts, for West Cook Inlet Management Unit stocks, 1979-2007.

Year ^a	Chuitna River	Theodore River	Lewis River	Coal Creek	Other Streams ^c	Total
1979	1,246	512	546		236	2,540
1980 ^b						
1981	1,362	535	560		1,144	3,601
1982	3,438	1,368	606		1,972	7,384
1983	4,043	1,519	^b		^b	5,562
1984	2,845	1,251	947		^b	5,043
1985	1,600	1,458	861		700	4,619
1986	3,946	1,281	722		165	6,114
1987	^b	1,548	875		^b	2,423
1988	3,024	1,906	616		^b	5,546
1989	990	1,026	452		^b	2,468
1990	480	642	207		^b	1,329
1991	537	508	303		^b	1,348
1992	1,337	1,053	445		^b	2,835
1993	2,085	1,110	531		156	3,882
1994	1,012	577	164		368	2,121
1995	1,162	694	146	221		2,223
1996	1,343	368	257	424		2,392
1997	2,232	1,607	777	471		5,087
1998	1,869	1,807	626	503		4,805
1999	3,721	2,221	675	1195		7,812
2000	1,456	1,271	480	757		3,964
2001	1,501	1,237	502	1,154		4,394
2002	1,394	934	439	882		3,649
2003	2,339	1,059	878	698		4,974
2004	2,938	491	1,000	609		5,038
2005	1,307	478	441	504		2,730
2006	1,911	958	341	996		4,206
Means						
1979-2006	1,966	1,090	554	701	677	4,003
199720-06	2,067	1,206	616	777		4,666
2002-2006	1,978	784	620	738		4,119
SEG ^d	1,200-2,900	500-1,700	250-800			
2007	1,180	486	0 ^e	773		2,439

^a Aerial count unless otherwise indicated.

^b No count conducted, turbid water.

^c May include Olsen, Nikoli, Coal, Straight, Bishop, Drill, and Scarp creeks.

^d Sustainable escapement goal.

^e River diverged into swamp 1/2 mi below bridge. No water in channel.

Table 15.-Sport harvest of coho salmon in the Northern Cook Inlet Management Area, by management unit, 1977-2006.

Year	Northern Cook Inlet Management Area					South-central Region Total	% by NCIMA	Alaska Total	% by NCIMA
	Knik Arm	Eastside Susitna	Westside Susitna	West Cook Inlet	Total Harvest				
1977	4,366	5,709	6,599	532	17,206	67,866	25	105,004	16
1978	7,895	8,573	10,173	378	27,019	81,990	33	131,945	20
1979	7,139	7,564	9,036	337	24,076	93,234	26	119,329	20
1980	16,030	10,368	12,141	628	39,167	127,958	31	164,302	24
1981	10,484	6,593	5,940	604	23,621	95,376	25	125,666	19
1982	13,676	10,167	10,658	745	35,246	136,153	26	195,644	18
1983	6,139	5,176	3,610	2,552	17,477	87,935	20	149,270	12
1984	23,429	13,916	9,511	2,681	49,537	166,688	30	238,536	21
1985	14,339	7,042	11,270	6,320	38,971	137,671	28	200,773	19
1986	12,361	16,190	13,117	4,222	45,890	188,872	24	255,887	18
1987	25,787	11,028	8,746	8,548	54,109	176,710	31	235,435	23
1988	40,037	19,518	16,283	7,403	83,241	225,812	37	281,450	30
1989	23,846	17,078	18,226	7,683	66,833	237,155	28	338,195	20
1990	18,762	11,743	13,883	6,016	50,404	214,114	24	325,936	15
1991	22,186	19,479	20,507	8,253	70,425	254,961	28	389,569	18
1992	25,814	33,790	16,218	7,037	82,859	237,204	35	345,513	24
1993	35,763	26,063	15,454	10,326	87,606	283,868	31	412,487	21
1994	28,539	20,870	15,361	8,247	73,017	299,849	24	502,948	15
1995	20,650	19,165	17,148	8,182	65,145	263,749	25	368,631	18
1996	24,874	24,174	17,375	11,430	77,853	328,178	24	503,413	15
1997	11,773	10,297	7,123	6,492	35,685	283,311	13	462,931	8
1998	23,750	23,086	13,235	8,160	68,231	375,742	18	600,862	11
1999	14,429	23,292	17,995	9,339	65,055	309,564	21	632,829	10
2000	32,530	37,748	23,262	11,712	105,252	419,835	25	624,327	17
2001	30,106	26,617	19,221	13,949	89,893	480,048	19	811,799	11
2002	44,448	27,183	14,144	13,380	99,155	488,911	20	776,033	13
2003	24,583	18,585	16,072	14,239	73,479	450,231	16	783,328	9
2004	34,298	20,484	17,785	15,769	88,746	516,183	17	861,490	10
2005	27,000	17,471	18,266	12,572	75,309	514,473	15	937,965	8
Means									
1977-2005	21,553	17,206	13,737	7,163	59,673	260,126	25	409,707	17
2001-2005	32,087	22,068	17,098	13,982	85,316	489,969	17	834,123	10
2001-2005 % of NCIMA	38	26	20	16					
2006	39,953	22,719	20,474	11,940	95,086	425,981	22	652,953	15

Table 16.-Coho salmon harvest and fishing effort from Knik Arm sport fisheries, 1977-2006.

Year	Other Knik Arm																		
	Little Susitna River		Wasilla Creek		Cottonwood Creek		Fish Creek		Eklutna Tailrace		Jim Creek ^a		Total		Other		Total		
	Harvest(Hatchery) ^b	Angler-days ^c	Harvest	Angler-days ^c	Harvest	Angler-days ^c	Harvest	Angler-days ^c	Harvest	Angler-days ^c	Harvest	Angler-days ^c	Harvest	Angler-days ^c	Harvest	Angler-days ^c	Harvest	Angler-days ^c	
1977	3,415	11,063	472	2,805									472	2,805	479	68,081	4,366	81,949	
1978	4,865	12,127	2,112	3,446									2,112	3,446	918	59,967	7,895	75,540	
1979	3,382	21,301	1,211	4,024	1,198	5,345							2,409	9,369	1,348	47,741	7,139	78,411	
1980	6,302	22,420	3,555	5,726	3,375	9,268							6,930	14,994	2,798	65,116	16,030	102,530	
1981	5,940	26,162	814	4,019	1,373	8,663					1,801	4,904	3,988	17,586	556	61,304	10,484	105,052	
1982	7,116	24,020	1,624	6,261	1,886	5,186					2,306	6,653	5,816	18,100	744	49,593	13,676	91,713	
1983	2,835	35,477	345	3,239	518	5,944					774	9,183	1,637	18,366	1,667	84,546	6,139	138,389	
1984	14,253	48,517	1,920	3,547	1,895	7,144			561	3,413	3,429	9,369	7,805	23,473	1,371	58,737	23,429	130,727	
1985	7,764	37,498	1,900	3,115	1,005	4,560	284	903	557	2,995	2,523	8,970	6,269	20,543	306	64,585	14,339	122,626	
1986	6,039	(109)	45,776	944	3,387	690	5,653	364	2,641	502	8,549	2,948	13,015	5,448	33,245	874	52,585	12,361	131,606
1987	13,003	(3,407)	35,659	1,195	2,173	1,159	2,934	833	2,898	2,318	11,663	3,676	6,990	9,181	26,658	3,603	77,850	25,787	140,167
1988	19,009	(9,638)	49,731	1,273	2,228	746	4,056	1,637	3,110	3,329	13,188	11,078	23,229	18,063	45,811	2,965	87,487	40,037	183,029
1989	14,129	(10,597)	54,708	975	2,406	876	3,069	784	3,314	1,666	10,342	4,220	11,141	8,521	30,272	1,196	61,932	23,846	146,912
1990	7,497	(2,242)	40,159	1,012	2,679	286	3,056	398	3,936	1,012	7,618	6,184	17,878	8,892	35,167	2,373	67,558	18,762	142,884
1991	16,450	(7,699)	50,838	844	2,893	176	1,623	486	3,693	631	5,892	2,920	13,736	5,057	27,837	679	67,930	22,186	146,605
1992	20,033	(3,406)	49,304	413	1,110	348	1,974	526	3,638	664	4,279	3,409	8,856	5,360	19,857	421	72,664	25,814	141,825
1993	27,610	(7,703)	42,249	1,133	1,774	736	3,077	741	2,341	1,337	4,523	2,878	6,824	6,825	18,539	1,328	57,426	35,763	118,214
1994	17,665	(6,165)	45,149	1,390	2,226	1,100	3,230	492	2,358	3,553	8,974	3,946	9,658	10,481	26,446	393	71,777	28,539	143,372
1995	14,451	(2,991)	41,119	445	1,373	340	2,598	435	2,256	990	11,453	3,549	10,893	5,759	28,573	440	56,462	20,650	126,154
1996	16,753	(3,418)	24,575	872	1,386	762	1,783	607	934	1,217	6,448	3,911	7,561	7,369	18,112	752	48,303	24,874	90,990
1997	7,756		27,883	708	1,188	372	2,070	148	1,104	728	3,835	1,786	5,349	3,742	13,546	275	54,301	11,773	95,730
1998	14,469		22,108	970	1,171	1,098	3,454	1,334	2,256	1,422	5,100	4,197	5,272	9,021	17,253	260	38,857	23,750	78,218
1999	8,864		30,437	313	990	537	3,506	233	2,182	1,453	6,150	2,612	6,860	5,148	19,688	417	62,517	14,429	112,642
2000	20,357		39,556	0	328	282	1,265	470	1,408	5,053	7,938	5,653	10,975	11,458	21,914	715	60,131	32,530	121,601
2001	17,071		33,521	0	419	647	2,627	361	1,670	3,399	10,166	8,374	13,028	12,781	27,910	254	49,596	30,106	111,027
2002	19,278		40,346	664	1,037	561	1,534	1,233	2,776	7,073	11,767	14,707	17,989	24,238	35,103	932	50,745	44,448	126,194
2003	13,672		31,993	261	757	665	2,238	112	758	3,128	8,423	6,415	13,474	10,581	25,650	330	46,335	24,583	103,978
2004	15,307		33,819	488	1,079	532	3,282	774	2,029	5,084	9,588	11,766	19,342	18,644	35,320	347	44,389	34,298	113,528
2005	10,203		27,490	347	684	668	1,484	535	1,461	4,899	19,339	10,114	19,605	16,563	42,573	234	45,700	27,000	115,763
Means																			
1977-2005	12,258		34,655	972	2,327	883	3,727	609	2,270	2,299	8,257	5,007	11,230	8,296	23,385	999	59,801	21,553	117,841
2001-2005	15,106		33,434	352	795	615	2,233	603	1,739	4,717	11,857	10,275	16,688	16,561	33,311	419	47,353	32,087	114,098
2006	12,399		28,547	857	869	789	3,867	281	948	6,104	20,465	19,259	25,271	27,290	51,420	264	34,920	39,953	114,887

Sources: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d); Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, *In prep.*

^a Includes other Knik River tributaries

^b Bartlett and Conrad 1988; Bartlett and Vincent-Lang 1989; Bartlett and Sonnichsen 1990; Bartlett and Bingham 1991, 1993; Bartlett 1992, 1994, 1996 a,b.

^c Participation directed at coho salmon represents only a portion of the annual effort.

Table 17.-Sport harvest of coho salmon from the Eastside Susitna Management Unit, by fishery, 1977-2006.

Year	Willow Creek	Little Willow Creek	Kashwitna River	Caswell Creek	Sheep Creek	Goose Creek	Montana Creek	Birch Creek	Sunshine Creek	Talkeetna River	Other ^b	Total
1977	679	225			438		1,415			1,070	1,882	5,709
1978	905	151			478		2,451			2,200	2,388	8,573
1979	462	262		624	462		1,735		774	1,248	1,997	7,564
1980	1,207	494		1,124	430		2,684		1,534	661	2,234	10,368
1981	747	29		901	326		2,261		968	422	939	6,593
1982	1,069	398		776	367		3,060		1,719	996	1,782	10,167
1983	576	52	52	408	596		1,402		722	836	532	5,176
1984	1,846	1,147	162	1,247	661	449	4,502		1,733	1,509	660	13,916
1985	1,026	528		608	478		1,972		1,205	747	478	7,042
1986	944	363	871	472	1,343	363	1,488	980	4,029	3,376	1,961	16,190
1987	2,898	561	36	453	1,068	145	1,394	163	1,612	2,608	90	11,028
1988	4,875	1,237	327	1,455	3,165	291	2,219	691	2,146	2,929	183	19,518
1989	4,218	1,388	336	834	2,231	190	2,295	281	2,159	2,775	371	17,078
1990	2,711	639	197	2,596	991	180	778		704	2,539	408	11,743
1991	4,154	1,308	167	3,819	1,544	657	1,612	322	1,761	3,435	700	19,479
1992	8,591	1,830	713	5,393	4,049	502	3,595	858	2,259	5,531	469	33,790
1993	5,743	1,213	554	2,385	2,413	428	3,496	535	2,922	5,830	544	26,063
1994	4,504	1,452	328	1,569	1,586	478	2,619	281	1,906	5,476	671	20,870
1995	3,498	992	472	1,687	1,092	152	2,385	198	1,385	6,672	632	19,165
1996	5,176	1,892	360	668	1,896	430	3,118	258	2,612	7,325	439	24,174
1997	2,401	661	202	294	1,198	166	1,692	177	443	2,815	248	10,297
1998	5,908	1,185	670	564	3,417	382	2,720	920	1,589	5,340	382	23,086
1999	5,019	871	260	1,198	3,045	440	3,382	622	1,709	5,814	932	23,292
2000	8,679	2,885	994	1,702	3,348	1,181	5,454	1,160	3,274	7,703	1,368	37,748
2001	6,835	1,936	728	1,408	2,588	683	5,023	146	1,072	5,195	1,003	26,617
2002	6,040	1,513	494	797	2,995	204	4,644	288	3,238	5,640	1,330	27,183
2003	2,918	635	1,090	938	1,908	220	3,361	421	2,508	3,984	602	18,585
2004	2,981	1,290	251	189	2,636	248	4,866	223	2,070	4,454	1,276	20,484
2005	4,255	1,103	369	340	2,337	267	2,592	288	2,493	3,359	68	17,471
Mean												
2001-2005	4,606	1,295	586	734	2,493	324	4,097	273	2,276	4,526	856	22,068
2006	5,031	1,511	1,202	780	3,602	906	2,622	281	3,460	3,224	100	22,719

^a Talkeetna River and tributaries including Clear Creek.

^b Includes lakes and streams.

Table 18.-Sport harvest coho salmon from the Westside Susitna Management Unit, by fishery, 1977-2006.

Year	Alexander Creek	Deshka River	Rabideux Creek	Peters Creek	Yentna River	Lake Creek	Fish Creek ^a	Talachulitna River	Other ^b	Total
1977	1,562	559				1,203		346	2,929	6,599
1978	2,401	1,789				2,212		88	3,683	10,173
1979	1,560	973				2,671		125	3,707	9,036
1980	999	2,290				2,351		491	6,010	12,141
1981	891	632				1,035		240	3,142	5,940
1982	1,907	2,463				1,603		524	4,161	10,658
1983	408	1,036				1,392		84	690	3,610
1984	1,509	1,646		12		2,432		486	3,426	9,511
1985	1,455	2,637				4,105		224	2,849	11,270
1986	1,352	4,256				1,575	324	402	5,208	13,177
1987	1,539	2,789				1,358	362	235	2,463	8,746
1988	1,965	7,458		18		2,110	400	418	3,914	16,283
1989	2,207	8,947	409	47	103	1,907	549	688	3,369	18,226
1990	1,973	4,959	540	33	353	2,986	793	276	1,970	13,883
1991	2,296	8,111	32	221	718	4,221	1,081	828	2,999	20,507
1992	834	7,110	543	300	275	2,632	575	405	3,544	16,218
1993	1,719	6,530		67	227	3,101	920	152	2,738	15,454
1994	2,188	5,511		72	556	2,723	714	427	3,170	15,361
1995	2,692	2,275		183	569	4,736	1,058	1,031	4,604	17,148
1996	803	4,615		57	1,198	4,445	618	805	4,834	17,375
1997	1,307	1,169		89	591	1,445	332	793	1,397	7,123
1998	1,158	3,630			299	4,353	785	905	2,105	13,235
1999	1,418	4,034		65	1,093	6,931	2,261	1,453	740	17,995
2000	2,695	8,687		157	1,050	6,297	1,320	1,347	1,709	23,262
2001	1,972	6,556		0	620	5,610	1,958	1,142	1,363	19,221
2002	1,191	3,616		177	705	4,613	1,034	1,447	1,361	14,144
2003	1,071	4,946		155	1,162	5,263	959	1,543	973	16,072
2004	1,827	4,440	586	149	1,283	6,106	1,880	959	555	17,785
2005	757	3,616	168	96	678	8,684	2,292	583	1,392	18,266
<u>Mean</u>										
2001-2005	1,364	4,635		115	890	6,055	1,625	1,135	1,129	17,098
2006	119	6,042	837	105	3,040	6,330	1,433	1,127	1,441	20,474

^a Fish Lake drainage (Yentna River drainage).

^b May include harvest from West Cook Inlet Management Unit lakes and streams.

Table 19.-Sport harvest of coho salmon from the West Cook Inlet Management Unit, by fishery, 1977-2006.

Year	Chuitna River	Beluga River	Theodore River	Lewis River	Kustatan River	Polly Creek	Big River Lakes ^a	Silver Salmon Creek	Other Susitna River-North Foreland	Other South of North Foreland	Other ^b	Total
1977	316		113	103								532
1978	277		101	0								378
1979	287		50	0								337
1980	258		370	0								628
1981	594		10									604
1982	220		115			410						745
1983	554		10		1,800	188						2,552
1984	898		137		1,646							2,681
1985	1,095		261	75	4,889							6,320
1986	815		168		3,239							4,222
1987	1,684		996	145	5,723							8,548
1988	782		400	0	6,221							7,403
1989	1,228	419	502	112	5,413						9	7,683
1990	1,113		198	33	4,584		88					6,016
1991	1,791		513	181	5,768							8,253
1992	1,547	243	421		4,494	332						7,037
1993	1,313		236	194	6,457		158			751	1,217	10,326
1994	559		521		5,259		25			268	1,615	8,247
1995	1,407		372		4,237	641	75			559	891	8,182
1996	1,263		361		6,266	170	600		741	1,858	171	11,430
1997	1,156		187		3,605		305		574	632	33	6,492
1998	2,348		380		3,999		264		650	382	137	8,160
1999	1,614		290		3,178		463		1,282	2,047	465	9,339
2000	1,872		1,161		5,699		325		1,134	1,521		11,712
2001	3,284		1,029		4,920		508		1,210	2,998		13,949
2002	2,586		1,208	200	5,795		490		1,725	761	615	13,380
2003	1,467	426	225	197	3,967	190	2,830	2269	429	1,611	628	14,239
2004	1,655	520	645	90	3,984	39	2,648	1389	225	3,471	1103	15,769
2005	972	120	229	524	3,551		3,916	1568	491	913	288	12,572
Mean												
2001-2005	1,993		667		4,443		2,078		816	1,951	659	13,982
2006	531	313	282	177	3,556	73	3,953	997	360	1,538	160	11,940

Note: Estimates as reported through the SWHS based on fewer than 30 responses, and therefore indicate only that fishing occurred in the drainages, and an approximate order of magnitude (Mills and Howe 1992).

^a Wolverine Creek and other tributaries of Big River Lakes.

^b Includes lakes and streams. Beginning in 1999 includes saltwater shoreline.

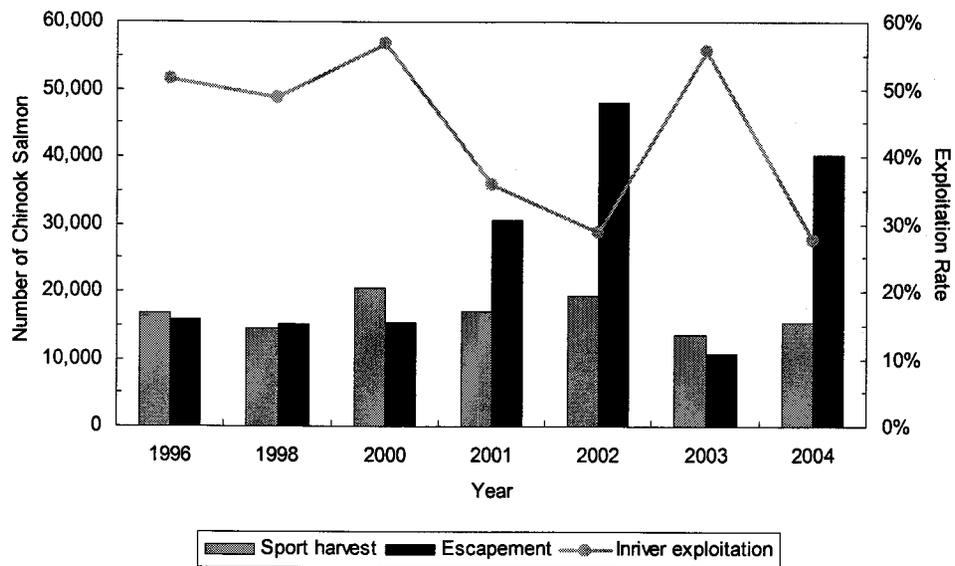
Table 20.-Coho salmon escapement counts for Knik Arm Management Unit stocks, 1981-2007.

Year	Little Susitna		Wasilla Creek Drainage Index ^a					Matanuska		Knik River Drainage Index ^a					
	Weir ^{a,b}		Fish	Cotton-	Cotton-	Wasilla/	Wasilla	Spring	Spring	Wasilla	River ^a	Matanuska	Upper	Jim Ck	
	Stocked	Total	Creek	wood Ck	wood Ck ^a	Spring Ck	Creek	Creek	Creek	Creek	Yellow	River Bend	McRoberts	Jim	
	Fish	Weir	Weir ^c	Weir	Index	Weir	Mainstem	(Upper)	(Flats)	Total	Creek	Side	Creek	Creek	Total
1981			2,382	2,436 ^h	423		238		64	302					^a
1982			5,201	2,064 ^h	737		171		105	276	^d				^d
1983			2,342		506		4		28	32	^d				^d
1984			4,510		935		876		90	966	^d				^d
1985			5,089		334		16	150	81	247	65		662		662
1986		6,999 ^e	2,166		121		^d	141	147	288	20		439		439
1987			3,871		360		251	110	42	403	58		667		667
1988	4,428	20,491	2,162		293		^d	82	30	112	110		1,911		1,911
1989	6,862	15,232	3,479		147		^d	67	39	106	226		597		597
1990	3,370	14,310	2,719		167		34	38	12	84	146		599	589	1,188
1991	8,322	37,601	1,297		158		118	16	5	139	136		484	418	902
1992	2,324	20,393	1,705		6		3	11	0	14	57		11	59	70
1993	9,615	33,378	2,328		265		^d	67	69	136	490		503	535	1,038
1994	5,124	27,820	350		232		282	76	60	418	172		506	2,119	2,625
1995	1,069	11,817	390		242		46	20	38	104	220		702	1,288	1,990
1996		15,803	682		168		84	30	29	143	101		72	439	511
1997		9,894 ^e	2,578	936	386		156	38	35	229	367		701	563	1,264
1998		15,159	5,463	2,114	537	3,614/163	120 ^f	31 ^f	25	176	302		922	560	1,482
1999		3,017 ^e	1,766	478 ^j	131 ⁱ	1,579 ^j /8	211	40	16	267	88		12	320	332
2000		15,436	5,979 ^j	1,888 ^j	876 ⁱ	6,154/0	380 ^f	224	50	654	169		657	2,561	3,218
2001		30,587	10,047 ^j	3,525 ^j	983 ⁱ	6,508/276	453	37	15	505	419		1,019	575	1,594
2002		47,938	15,187 ^j	4,270 ^j	1,191 ⁱ	12,495	933	188	75	1,196	65		2,473	1,630	4,103
2003		10,877	2,142 ^j	791 ^j	229 ⁱ	2,962	227	17	50	294	53		1,421	393	1,814
2004		40,199	3,255 ^{cj}	2,038 ^j	430 ⁱ	no weir	934	114	100	1,148	0		4,652	1,045	5,697
2005		16,839 ^e	3,836 ^{cj}	no weir	619 ⁱ		^d	^d	130	130	305		1,464	1,883	3,347
2006		8,786 ^e	5,723 ^{ci}		912 ⁱ		294 ^k	171	272	737	47		2,389	1,750	4,139
Means															
1981-2006	5,139	20,129	3,717	2,054	438		278	79	77	350	164		1,039	984	1,800
1997-2006		19,873	5,598		629		412	96	77	534	182		1,571	1,128	2,699
2002-2006		24,928	6,029		676		597	123	125	701	94		2,480	1,340	3,820
SEG Range	10,100-17,700												450-700		
2007		17,573	9,618 ^{ci}		1,024 ⁱ		380	50	0	430	50	27	725	1,150	1,875

-continued-

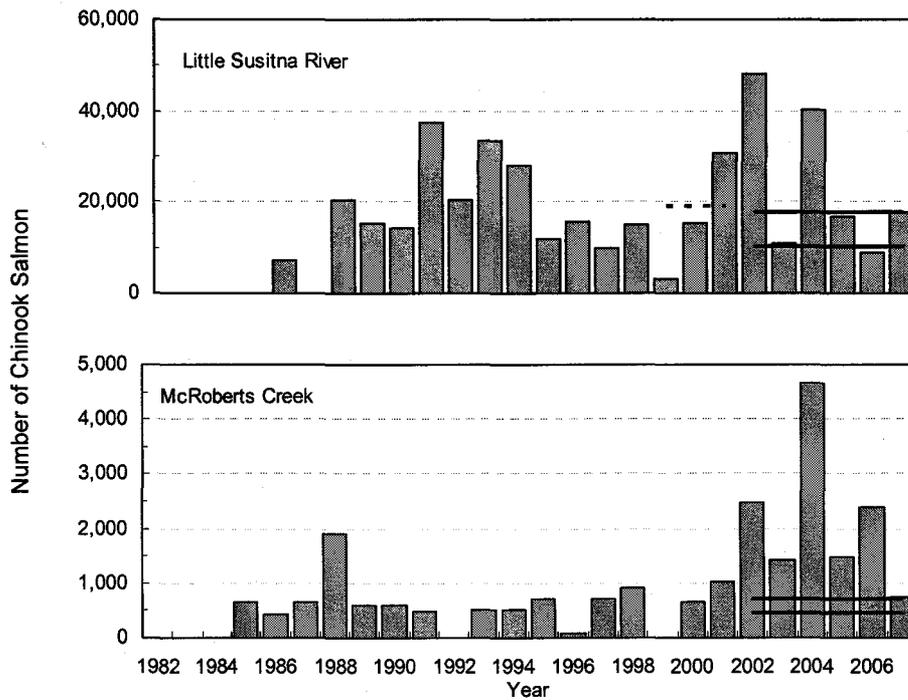
Table 20.-Page 2 of 2.

- ^a Foot surveys unless otherwise noted.
- ^b Weir located at River Mile 34 in 1986, 1988-1995; RM 71, 1996-2007.
- ^c 1982-1991 weir count plus stream survey; 1992, 1993 weir count; 1994-1996 and 2004-2007 weir was removed on August 15 before the majority of the coho run. In 1997 the weir was out on September 1.
- ^d No survey conducted.
- ^e Incomplete or partial count due to weir submersion.
- ^f Count conducted late due to high water.
- ^g Grand total includes Little Susitna index and weir, Fish Creek weir, Cottonwood Creek index, Wasilla Creek index total, Yellow Creek, McRoberts Creek/Jim Creek total and Eklutna Tailrace.
- ^h Combination weir and foot survey. Weir was removed prior to completion of coho run.
- ⁱ Beginning in 1999 highest count of three counts in a 2-week period.
- ^j Includes fish counted below weir at close of season.
- ^k Poor count conditions
- ^l Total does not represent actual escapement due to incomplete or partial count on the Little Susitna River weir.
- ^m Other historical counts including Little Susitna and Eklutna indexes and Jim Creek weir may be found in Sweet et al. 2004.



Notes: Escapement counts in 1997 and 1999 were incomplete due to flooding.

Figure 15.-Coho salmon harvest, escapement, and inriver exploitation from the Little Susitna River sport fishery for years counts were completed at a weir located at rm 71.



Notes: Y-axis scales vary by stock. Bars are escapement, solid lines represent current escapement goal ranges, and dashed lines represent previous escapement goals.

Figure 16.-Little Susitna River weir and McRoberts Creek index counts of coho salmon, 1982-2007, and escapement goals.

Table 21.-Eastside Susitna Management Unit and Westside Susitna Management Unit coho salmon escapement counts, 1981-2007.

Year	Westside Susitna Management Unit				Eastside Susitna Management Unit ^a				Susitna River ^d	Total
	Yentna River ^b	Deshka River ^c	Rabideux Creek Index	Total	Birch Creek index	Question Creek Index	Answer Creek Index	Total		
1981	17,017		^e	17,017	^e	^e	^e	^e	37,000	54,017
1982	34,089		^e	34,089	^e	^e	^e	^e	80,000	114,089
1983	8,867		^e	8,867	^e	^e	^e	^e	24,000	32,867
1984	18,172		480	18,652	236	60	57	353	^e	19,005
1985	9,181		82	9,263	30	89	9	128	^e	9,391
1986	23,457		^e	23,457	25	^e	^e	25	^e	23,482
1987	6,279		50 ^f	6,329	46	149	10	205	^e	6,534
1988	12,173		230	12,403	63	337	160	560	^e	12,963
1989	25,695		20	25,715	180	31	66	277	^e	25,992
1990	21,346		20	21,366	36	41	6	83	^e	21,449
1991	57,275		185	57,460	300	492	51	843	^e	58,303
1992	29,073		^e	29,073	167	227	181	575	^e	29,648
1993	37,752		^e	37,752	178	370	34	582	^e	38,334
1994	25,173		105	25,278	224	339	0 ^g	563	^e	25,841
1995	74,406	12,824	39	87,269	127	155	35	317	^e	87,586
1996	34,420		^e	34,420	458	238	43	739	^e	35,159
1997	13,670	8,063	114	21,847	217	186	57	460	^e	22,307
1998	24,769	6,773	56	31,598	356	519	45	920	^e	32,518
1999	37,933	4,563	169	42,665	153	128	470	751	^e	43,416
2000	40,921	26,387	354	67,662	809	1,040	899	2,748	^e	70,410
2001	47,077	29,927	656	77,660	1,470	450	371	2,291	^e	79,951
2002	75,090	24,612	^e	99,702	1,158	1,010	249	2,417	^e	102,119
2003	45,222	17,305	344	62,871	^e	407	131	538	^e	63,409
2004	92,343	62,940	^e	155,283	^e	822	111	933	^e	156,216
2005	76,890	47,887	^e	124,777	1,014	537	35	1,586	^e	126,363
2006	132,889	59,419	3063	195,371	883	299	270	1,452	^e	196,823
<u>Means</u>										
1981-2006	39,276	32,085 ^h	373	51,071	387	360	150	841	47,000	57,238
2002-2006	86,836	42,711 ^h	1,704	134,576	949	516	137	1,127		135,703
1997-2006	63,682	32,085 ^h	774	95,288	835	579	287	1,515		96,803
2007	39,957	10,575	^e	50,532	167	241	26	434	^e	50,966

^a Survey conducted by walking portions of the creek.

^b Sonar counts, dates of assessment vary; estimates for 1981-1984 encompass the entire coho salmon migration. Davis 2000. Estimates after 1984 are partial due to the sonar site closure part way through the coho return.

^c Weir count. 1995 rm 17, 1997-2000 rm 7: 1998, 1999, 2002, and 2005 weir was underwater for an extended time during coho season resulting in an incomplete count.

^d Sonar counts upstream of rm 80.

^e No survey conducted.

^f Poor survey conditions.

^g Beaver dam downstream of index area blocking passage of fish.

^h Mean includes only complete counts years at rm 7: 1997, 2000-2001, 2003-2005, and 2007.

Table 22.-Sport harvest of sockeye salmon in the Knik Arm Management Unit, by fishery, 1977-2006.

Year	Little Susitna	Knik River ^a	Eklutna Tailrace	Cottonwood Creek	Big Lake ^b	Other	Total
1977	888					688	1,576
1978	859					380	1,239
1979	1,478			1,525		613	3,616
1980	2,127			2,660		887	5,674
1981	1,619	450		3,245		766	6,080
1982	1,865	880		608		1268	4,621
1983	2,787	1,277		1,632		8601	14,297
1984	6,385	823	187	661		1184	9,240
1985	2,894	1,037	142	1,179	109	251	5,612
1986	3,616	905	28	789	39	632	6,009
1987	3,513	1,105	254	869	1,087	1,957	8,785
1988	2,310	1,928	200	346	2,037	1,255	8,076
1989	2,315	1,322	204	683	2,900	1,616	9,040
1990	891	2,219	29	271	2,238	940	6,588
1991	1,722	1,459	19	47	565	1156	4,968
1992	1,274	1,471	173	633	1,241	557	5,349
1993	2,487	1,041	211	453	598	1136	5,926
1994	1,809	1,258	133	807	476	599	5,082
1995	1,116	990	190	895	651	507	4,349
1996	2,286	1,077	84	444	68	348	4,307
1997	1,845	864	100	1,008	122	156	4,095
1998	872	1,220	57	2,906	154	290	5,499
1999	1,282	614	151	1,080	432	99	3,658
2000	3,661	1,543	764	1,118	21	429	7,536
2001	1,959	922	999	314	10	124	4,328
2002	2,133	1,268	529	319	147	223	4,619
2003	3,337	1,554	122	961	57	575	6,606
2004	2,776	2,499	491	719	400	263	7,148
2005	1,442	848	362	538	79	191	3,460
Mean							
2001-2005	2,422	1,542	376	634	171	313	5,458
2006	1,556	2,173	289	279	0	325	4,622

^a Knik River and tributaries including Jim Creek.

^b Big Lake drainage streams.

Table 23.-Sport harvest of sockeye salmon in the Eastside Susitna Management Unit, by fishery, 1977-2006.

Year	Willow Creek	Sheep Creek	Montana Creek	Sunshine Creek	Talkeetna River ^a	Other	Total
1977	831	450	978		334	1,001	3,594
1978	56	14	85		28	84	267
1979	94	31	346	157	31	361	1,020
1980	83	0	257	116	6	411	873
1981	77	105	182	220	29	220	833
1982	94	88	514	189	115	555	1,555
1983	425	370	534	685	534	673	3,221
1984	249	62	561	100	636	1,097	2,705
1985	139	30	279	249	508	260	1,465
1986	290	0	363	290	1,597	1,489	4,029
1987	254	163	163	181	580	705	2,046
1988	564	273	364	18	1,110	528	2,857
1989	414	169	296	363	617	668	2,527
1990	208	149	149	119	1,506	546	2,677
1991	397	168	44	88	1,280	920	2,897
1992	526	189	370	394	1,356	633	3,468
1993	528	39	237	183	2,560	590	4,137
1994	383	102	85	133	2,278	462	3,443
1995	430	98	481	220	2,082	371	3,682
1996	113	8	88	43	2,053	370	2,675
1997	119	190	144	60	4,931	407	5,851
1998	86	103	195	68	4,546	861	5,859
1999	162	112	248	0	3,197	889	4,608
2000	307	122	346	199	4,683	852	6,509
2001	244	269	584	48	4,797	834	6,776
2002	215	122	199	31	2,615	245	3,427
2003	147	74	267	116	1,574	556	2,734
2004	110	20	336	109	2,399	133	3,107
2005	85	84	113	24	1,280	91	1,677
<u>Mean</u>							
2001-2005	139	75	229	70	1,967	256	2,736
2006	378	18	499	44	110	363	1,412

^a Talkeetna River and tributaries including Clear Creek and Larson Creek.

Table 24.-Sport harvest of sockeye salmon from the Westside Susitna Management Unit, by fishery, 1977-2006.

Year	Alexander Creek	Deshka River	Yentna River	Lake Creek	Fish Creek ^a	Talachulitna River	Other ^b	Total
1977	349	0		658		457	1,322	2,786
1978	183	0		254		141	1,056	1,634
1979	79	0		440		47	992	1,558
1980	52	0		267		112	680	1,111
1981	67	0		211		172	958	1,408
1982	335	0		252		63	2,231	2,881
1983	69	0		726		41	2,684	3,520
1984	87	125		374		262	2,567	3,415
1985	261	50		137		50	1,804	2,302
1986	0	11		547	1,273	424	1,821	4,076
1987	72	272		435	398	290	960	2,427
1988	55	146		291	146	800	1,729	3,167
1989	260	217	139	121	165	251	1,154	2,307
1990	30	189	20	358	89	189	1,063	1,938
1991	136	262	0	262	475	78	1,870	3,083
1992	123	82	107	115	189	205	2,095	2,916
1993	45	87	103	489	412	171	854	2,161
1994	38	0	237	430	142	237	835	1,919
1995	94	42	239	392	178	191	970	2,106
1996	0	8	0	137	68	108	794	1,115
1997	61	11	410	1,656	209	335	427	3,109
1998	86	57	232	868	168	181	871	2,463
1999	205	50	324	2,604	865	337	894	5,279
2000	1,440	339	761	1,767	226	162	251	4,946
2001	544	249	397	3,149	714	159	1,099	6,311
2002	257	67	94	526	238	278	421	1,881
2003	138	0	137	6,900	162	233	1,090	8,660
2004	0	154	247	1,977	392	339	249	3,358
2005	0	70	54	1,622	410	34	29	2,219
<u>Mean</u>								
2001-2005	99	73	133	2,756	301	221	447	4,030
2006	66	92	48	214	0	195	11	626

^a Yentna River drainage.

^b May include harvest from West Cook Inlet waters.

Table 25.-Sport harvest of sockeye salmon in the West Cook Inlet Management Unit, by fishery, 1977-2006.

Year	Chuitna River	Kustatan River	Susitna River-		Other	Total
			Big River Lakes ^a	North Foreland		
1977	6				0	6
1978	0				0	0
1979	0				0	0
1980	0				0	0
1981	48				0	48
1982	10				0	10
1983	356	110			0	466
1984	62	187			0	249
1985	274	162			25	461
1986	22	0			67	89
1987	272	0			0	272
1988	437	18			18	473
1989	43	165			321	529
1990	139	10	437		50	636
1991	552	203			10	765
1992	8	131			49	188
1993	46	289	976		815	2,355
1994	0	285	1,013		623	2,035
1995	62	44	998		41	1,304
1996	228	102	2,028	127	314	2,951
1997	170	274	1,171	150	0	2,174
1998	235	314	1,282	266	137	2,522
1999	194	186	1,783	76	287	2,990
2000	58	210	3,047	210	42	4,244
2001	634	293	992	201	0	3,150
2002	585	232	664	24	354	2,019
2003	179	397	3,491	94	175	4,708
2004	23	89	2,793	294	101	3,323
2005	123	95	3,401	121	146	4,025
<u>Mean</u>						
2001-2005	228	203	2,587	133	194	3,519
2006	0	95	3,980	306	154	4,993

^a Majority of harvest occurs at the mouth of Wolverine Creek.

Table 26.-Sport harvest of sockeye salmon in the Northern Cook Inlet Management Area, by management unit, 1977-2006.

Year	Knik Arm	Eastside Susitna	Westside Susitna	West Cook Inlet	Total
1977	1,576	3,594	2,786	6	7,962
1978	1,239	267	1,634	0	3,140
1979	3,616	1,020	1,558	0	6,194
1980	5,674	873	1,111	0	7,658
1981	6,080	833	1,408	48	8,369
1982	4,621	1,555	2,881	10	9,067
1983	14,297	3,221	3,520	466	21,504
1984	9,240	2,705	3,415	249	15,609
1985	5,612	1,465	2,302	461	9,840
1986	6,009	4,029	4,076	89	14,203
1987	8,785	2,046	2,427	272	13,530
1988	8,076	2,857	3,167	473	14,573
1989	9,040	2,527	2,307	529	14,403
1990	6,588	2,677	1,938	636	11,839
1991	4,968	2,897	3,083	765	11,713
1992	5,349	3,468	2,916	188	11,921
1993	5,926	4,137	2,161	2,355	14,579
1994	5,082	3,443	1,919	2,035	12,479
1995	4,349	3,682	2,106	1,304	11,441
1996	4,307	2,675	1,115	2,951	11,048
1997	4,095	5,851	3,109	2,174	15,229
1998	5,499	5,859	2,463	2,522	16,343
1999	3,658	4,608	5,279	2,990	16,535
2000	7,536	6,509	4,946	4,244	23,235
2001	4,328	6,776	6,311	3,150	20,565
2002	4,619	3,427	1,881	2,019	11,946
2003	6,606	2,734	8,660	4,708	22,708
2004	7,148	3,107	3,358	3,323	16,936
2005	3,460	1,677	2,219	4,025	11,381
<u>Means</u>					
1977-2005	5,772	3,121	2,967	1,448	13,309
2001-2005	5,458	2,736	4,030	3,519	15,743
2006	4,622	1,412	626	4,993	11,653

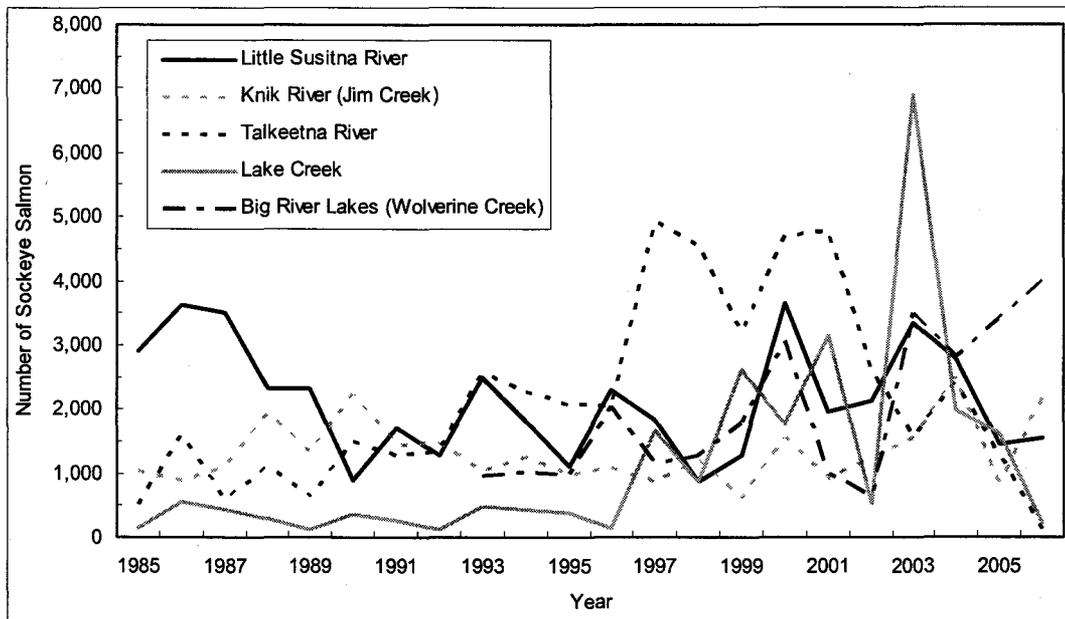


Figure 17.-Sport harvest of sockeye salmon from five major fisheries of the Northern Cook Inlet Management Area, 1985-2006.

Table 27.-Harvest, catch, and effort of sockeye salmon from Wolverine Creek as estimated by the SWHS and guide reports, 1996-2005.

Year	SWHS			Reported by Guides ^b	
	Harvest	Catch	Effort (angler-days) ^a	Harvest	Number of Anglers
1996	2,028	5,216	1,251		
1997	1,171	3,242	976		
1998	1,282	3,343	729		
1999	1,783	2,922	1,341		
2000	3,047	5,966	2,054		
2001	992	3,057	902	9,261	7,565
2002	664	1,327	678	11,366	9,090
2003	3,491	6,632	3,497	10,386	8,672
2004	2,793	6,961	3,322	10,032	7,377
2005	3,401	8,486	3,262	11,513	9,203

^a All species.

^b From reports by charter service guides.

Table 28.-Sockeye salmon counts from Yentna and Crescent River sonar, Chelatna, Hewitt, Judd and Larson lakes, Fish, Cottonwood, Wasilla, Jim and Packers creeks weirs, and the Little Susitna River weir, 1968-2006.

Year	Knik Arm Management Unit					Eastside Susitna Management Unit			Westside Susitna Management Unit					West Cook Inlet Management Unit			
	Jim Ck Weir ^a	Fish Ck Weir ^{b,c}	Little Susitna R Weir ^d	Cottonwood Ck Weir	Wasilla Ck Weir	Larson Lk Weir	Byers Lk	Stephan Lk	Yentna R Sonar	Hewitt Lk Weir	Chelatna Lk Weir	Swan Lk	Judd Lk Weir	Shell Lk Weir	Wolverine Ck ⁱ	Crescent R Sonar	Packers Ck Weir
1968		19,616 ⁿ															
1969		12,456															
1970		25,000															
1971		31,470															
1972		6,981															
1973		2,705															
1974		16,225															
1975		29,882															
1976		14,032															
1977		5,183															
1978		3,555						94,000									
1979		68,739						157,000								87,000	
1980		62,828						191,000								91,000	16,477
1981		50,479						340,000							17,822 ^j	41,000	13,024
1982		28,164						216,000							32,950 ^j	59,000	15,687
1983		118,797						112,000							18,189 ^j	92,000	18,403
1984		192,352					35,254 ^g	194,000								118,000	30,684
1985		68,577					37,874 ^g	228,000								129,000	36,850
1986		29,800					32,322 ^g	92,000						4,237 ⁿ		N/C	29,604
1987		91,215					16,753 ^g	66,000								119,000	35,401
1988		71,603	2,642					52,347								57,716	18,607
1989		67,224	6,203					96,269								71,064	22,304
1990		48,717						140,379	12,943 ^o							52,180	31,868
1991		50,500						105,000								44,500	41,275
1992		72,108						66,057								58,227	28,361
1993	3,548	117,619						141,694			20,235 ^f					37,556	40,869
1994	5,197	100,638	16,918					128,032			28,303 ^f					30,355	30,788
1995		115,101	7,129					121,479			20,104 ^f					52,250	29,473

-continued-

Table 28.-Page 2 of 3.

Year	Knik Arm Management Unit					Eastside Susitna Management Unit			Westside Susitna Management Unit					West Cook Inlet Management Unit			
	Jim Ck Weir ^a	Fish Ck Weir ^{b,c}	Little Susitna R Weir ^d	Cotton-wood Ck Weir	Wasilla Ck Weir	Larson Lk Weir	Byers Lk	Stephan Lk	Yentna R Sonar	Hewitt Lk Weir	Chelatna Lk Weir	Swan Lk	Judd Lk Weir	Shell Lk Weir	Wolverine Ck ⁱ	Crescent R Sonar	Packers Ck Weir
1996		63,164							90,781		28,684 ^f					28,729	17,767
1997		55,035		8,224		40,112			157,797		84,899 ^f					70,768	19,364
1998		22,865		27,930	840	63,514			119,623		27,284 ^f		34,416		62,257	17,732	
1999		26,725		39,572	854	18,943			99,029						68,985	16,860	
2000		19,533		16,921	245	11,822			123,749						56,599	20,151	
2001		43,498		15,229	198				83,532						78,081		
2002		90,482		6,791	1,354				78,430						62,833		
2003		91,952		4,601	757				181,404						122,909		
2004		22,157		3,127					71,281						10,541 ^m	103,183	
2005		14,215				9,959			36,921					15,625 ^{l,m}	125,787		
2006		32,562				56,305	3,074		92,045	2,507	13,266		40,630	69,747	2,000 ^{l,m}	92,533	
Means																	
Overall	4,373	51,378	8,223	15,299	708	32,286	3,074		126,753	7,725	31,825		37,523	36,992	16,188	74,537	25,312
1997-2006		41,902							104,381							84,394	
2002-2006		22,978							66,749							107,168	
SEG		20,000-70,000							90,000-160,000							25,000-50,000	15,000-25,000
OEG									75,000-180,000 ^k								
2007		27,948				47,819	1,701	4,120	79,901		11,671 ^o	5,489	58,134	26,784		79,406	

^a Bartlett *Unpublished* b and c.

^b Measured by weir (1968 excepted). Years 1980-1993 include downstream foot surveys upon removing weir.

^c Years hatchery sockeye salmon contributed to the escapement were 1979-1981, 1983-2007.

^d Bartlett and Vincent-Lang 1989; Bartlett and Sonnichsen 1990; Bartlett 1996a,b.

^e CIAA 1991.

^f CIAA 1998a.

^g CIAA 1998b.

^h A counting screen was used instead of a weir.

ⁱ Tributary of Big River Lakes. Weir operated by CIAA 1981-1983. Remote camera operated by ADG&G 2004-2006.

^j CIAA 1981-1982, 1984.

^k Optimal escapement goal takes affect when sockeye salmon returns to the Kenai River exceed 4,000,000 fish.

^l Includes 5,000 fish counted at the mouth in 2005 and 2,000 counted in 2006 on the day the camera was pulled.

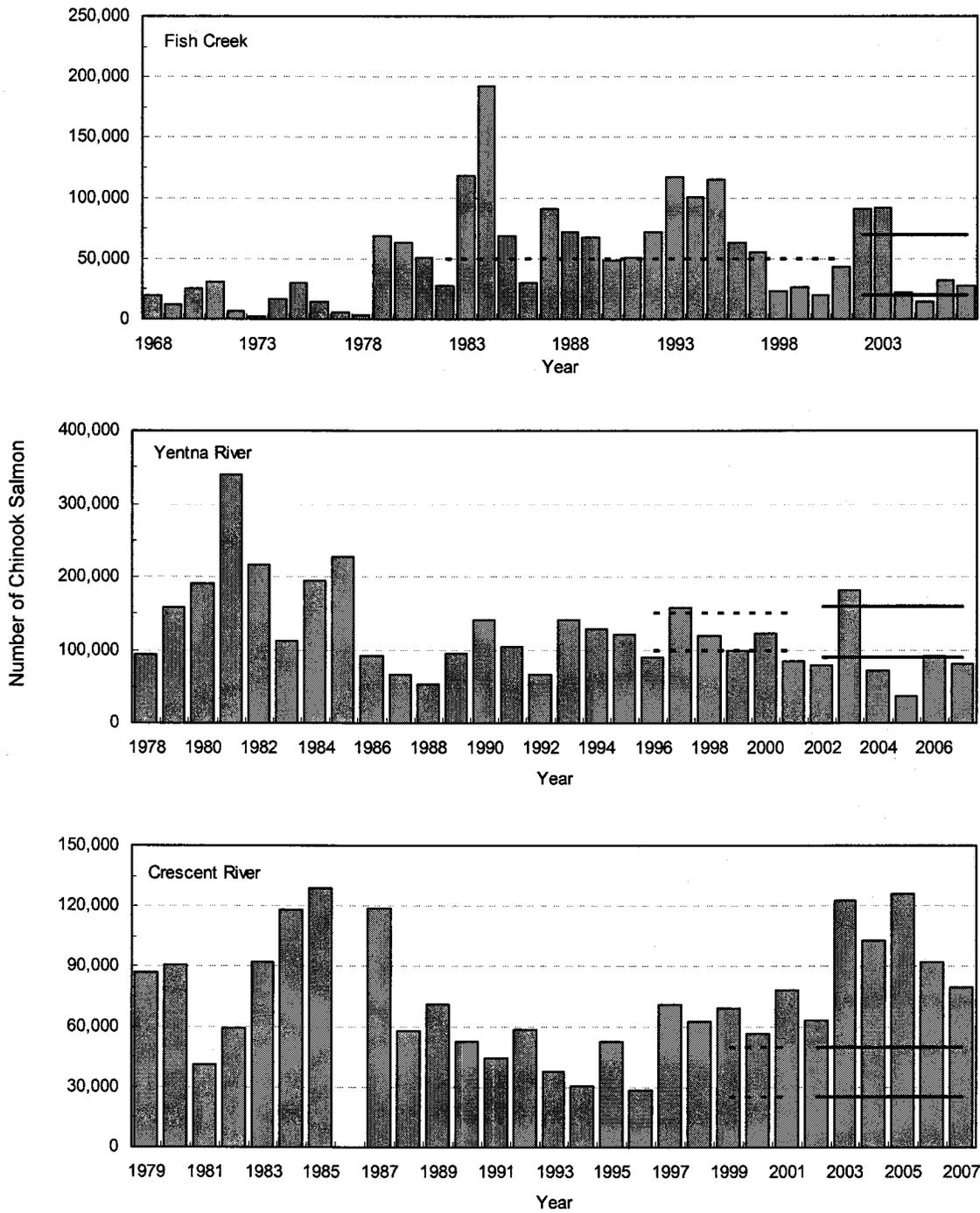
^m Incomplete count. During 2005, encountered problems with VCR tapes self-ejecting. A Digital Video Recorder (DVR) Camera system was down for two weeks during the 2005 and not operational through the majority of the 2006 run.

ⁿ CIAA 1987.

^o Incomplete count.

Table 29.-Bodenburg Creek escapement index surveys, 1968-2007.

Date	Sockeye	Chum
Aug 1968	350	0
Sep 1969	125	0
8/25/1970	83	0
9/5/1971	110	0
8/31/1972	464	0
8/27/1973	208	0
9/6/1974	169	0
9/3/1975	148	0
9/19/1975	0	3
9/8/1976	111	0
8/29/1977	178	0
8/29/1978	541	0
8/29/1979	321	0
8/25/1980	483	0
8/19/1981	260	0
9/17/1982	722	0
8/31/1983	359	0
1984	No count	
9/5/1985	232	0
9/4/1986	119	120
9/3/1987	77	1
8/8/1988	86	7
8/31/1989	190	6
9/7/1990	195	3
8/27/1991	0	1
9/6/1991	160	0
8/29/1992	54	0
9/2/1992	66	4
8/24/1993	212	14
8/25/1994	220	0
9/6/1994	0	93
8/28/1995	156	219
9/4/1996	111	0
8/28/1997	142	4
8/21/1998	156	13
8/30/1999	257	21
8/28/2000	228	5
8/29/2001	232	8
8/30/2002	320	25
8/22/2003	402	3
8/26/2004	283	0
8/29/2005	269	0
8/28/2006	367	6
8/24/2007	164	2
Mean	217	13



Notes: Y-axis scales vary by stock. Bars are escapement, solid lines represent current escapement goal ranges, and dashed lines represent previous escapement goals.

Figure 18.-Sockeye salmon counts from the Fish Creek weir, Yentna River sonar, and Crescent River sonar, and escapement goals.

Table 30.-Northern Cook Inlet Management Area sport catch and harvest of northern pike, by management unit, 1977-2005.

Northern Cook Inlet Management Area ^a														
Year	Knik Arm Management Unit ^b		Eastside Susitna Management Unit		Westside Susitna Management Unit		West Cook Inlet Management Unit		Total		Southcentral Region		Statewide	
	Catch ^c	Harvest	Catch ^c	Harvest	Catch ^c	Harvest	Catch ^c	Harvest	Catch ^c	Harvest	Harvest	% NCIMA	Number	% NCIMA
1977		0				132		0		132	321	41.1	11,982	1.1
1978		0				316		0		316	767	41.2	12,520	2.5
1979		0				382		0		382	762	50.1	12,741	3.0
1980		0				232		0		232	1,358	17.1	17,000	1.4
1981		0				125		0		125	1,411	8.9	16,536	0.8
1982		0				607		0		607	1,707	35.6	18,964	3.2
1983		0				944		0		944	2,642	35.7	21,476	4.4
1984		0				1,821		0		1,821	4,424	41.2	18,641	9.8
1985		156				1,248		0		1,404	2,240	62.7	17,943	7.8
1986		458				1,519		0		1,977	2,894	68.3	21,890	9.0
1987		924				1,540		0		2,464	4,839	50.9	19,079	12.9
1988		364				2,818		291		3,473	3,598	96.5	23,440	14.8
1989		863				2,257		0		3,120	4,434	70.4	21,659	14.4
1990	2,593	754			14,465	2,088		0	17,058	2,842	3,655	77.8	15,985	17.8
1991	7,021	2,709			11,193	3,931		0	18,214	6,640	8,704	76.3	29,611	22.4
1992	7,097	2,605			13,828	2,777		0	20,925	5,382	7,314	73.6	18,616	28.9
1993	10,141	2,102	0	0	24,077	3,619	19	0	34,237	5,721	7,131	80.2	19,366	29.5
1994	2,816	1,328	0	0	5,436	2,556	18	9	8,270	3,893	5,800	67.1	25,558	15.2
1995	825	522	0	0	15,414	3,024	0	0	16,239	3,546	5,323	66.6	19,006	18.7
1996	12,220	4,021	368	11	17,657	3,902	0	0	30,245	7,934	10,503	75.5	23,043	34.4
1997	9,137	4,858	795	95	16,266	4,026	75	45	26,273	9,024	10,489	86.0	16,603	54.4
1998	10,223	4,272	130	130	17,928	3,753	321	25	28,602	8,180	9,595	85.3	15,617	52.4
1999	14,231	6,785	441	260	14,348	3,686	334	93	29,354	10,824	13,327	81.2	19,766	54.8
2000	16,717	5,698	308	101	27,381	3,692	234	86	44,640	9,577	12,019	79.7	18,062	53.0
2001	15,457	6,544	776	55	25,147	5,479	1,042	661	42,422	12,739	16,673	76.4	23,623	53.9
2002	13,079	5,716	647	618	18,450	5,865	284	119	32,460	12,318	14,862	82.9	22,567	54.6
2003	14,094	4,026	11	0	14,818	3,816	355	182	29,278	8,024	11,282	71.1	17,388	46.1
2004	11,179	4,961	119	91	21,878	6,626	704	493	33,880	12,171	17,122	71.1	28,799	42.3
2005	11,347	6,160	513	104	25,704	4,889	330	153	37,894	11,306	13,802	81.9	24,819	45.6
Means														
1977-2005	9,886	2,270	316	113	17,749	2,678	286	74	28,124	5,073	6,862	63.9	19,734	24.5
2001-2005	13,031	5,481	413	174	21,199	5,335	543	322	35,187	11,312	14,748	76.7	23,439	48.5
2006	14,754	6,664	312	137	15,685	4,318	799	285	31,550	11,404	13,261	86.0	18,184	62.7

^a No reported catch or harvest from Eastside Susitna or West Cook Inlet management units until 1993.

^b Harvest of northern pike prior to 1985 may have been included in other fish species category.

^c Catch estimates available beginning in 1990.

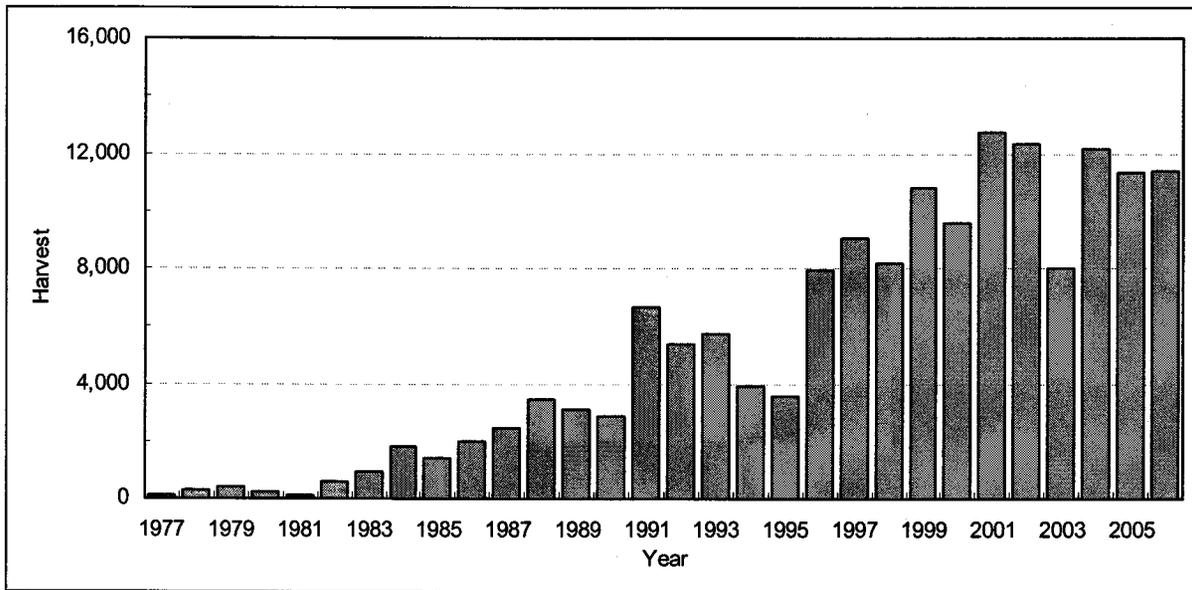


Figure 19.-Sport harvest of northern pike in the Northern Cook Inlet Management Area, 1977-2006.

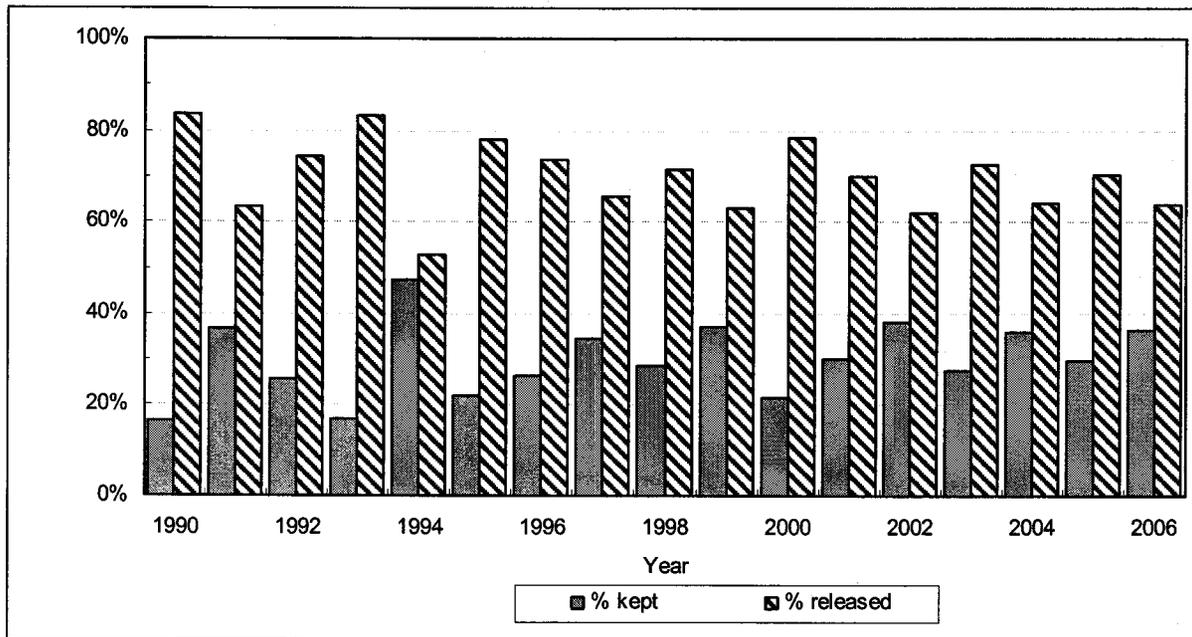


Figure 20.-Percent of sport-caught northern pike that were kept and released in the Northern Cook Inlet Management Area, 1990-2006.

Table 31.-Sport catch of northern pike in the Knik Arm Management Unit, by fishery, 1990-2006.

Year	Little Susitna	Knik River ^a	Figure 8 Lake	Cottonwood Creek	Big Lake ^b	Flathorn Lake	Nancy Lake ^c	Other ^d	Total
1990	0	0	0	0	0	66	2314	213	2,593
1991	0	0	0	0	0	560	6,385	76	7,021
1992	0	0	0	0	0	948	5,970	179	7,097
1993	0	0	0	0	0	1786	6,445	1910	10,141
1994	0	0	0	0	64	709	1846	197	2,816
1995	59	0	0	0	0	722	0	44	825
1996	0	0	0	0	13	3,852	7,210	1145	12,220
1997	0	0	1,553	0	7	3,152	3,759	666	9,137
1998	150	0	1002	0	202	4241	3,761	867	10,223
1999	0	0	2305	0	159	1321	9,336	1,110	14,231
2000	66	0	1946	0	667	3,708	8,685	1645	16,717
2001	129	0	1499	0	235	3,123	7,840	2631	15,457
2002	76	0	4078	0	0	3,869	991	4065	13,079
2003	0	0	1,388	0	48	6,676	1,312	4670	14,094
2004	150	0	3,389	0	0	1,740	5,354	546	11,179
2005	118	0	2,160	0	0	1,959	5,254	1856	11,347
Mean 2001- 2005	86	0	2,754	0	12	3,561	3,228	2,784	12,425
2006	0	0	3,141	0	71	5,744	5,606	192	14,754

^a Knik River and tributaries including Jim Creek.

^b Big Lake and drainage streams.

^c Nancy Lake complex lakes.

^d Includes lakes and streams.

Table 32.-Sport catch of northern pike in the Westside Susitna Management Unit, by fishery, 1990-2006.

Year	Alexander Creek	Deshka River	Peters Creek	Lake Creek	Fish Creek ^a	Trapper Lake	Other Streams ^b	Other Lakes ^b	Total
1990	3,149	0	0	589	3,065		691	6,971	14,465
1991	2,866	0	0	376	2,490	1,997	13	3,451	11,193
1992	3,912	0	0	196	1,170	1,349	693	6,508	13,828
1993	12,172	0	0	596	3,885	4,128	3,098	198	24,077
1994	2,306	96	0	318	839	881	832	164	5,436
1995	7,651	0	0	334	1,288	2,359	2,862	920	15,414
1996	7,814	172	0	306	1,347	6,033	1,985		17,657
1997	9,362	272	0	81	1,804	1,948	246	2,175	15,888
1998	10,386	113	0	1,015	418	1,729	556	3,704	17,921
1999	5,018	555	0	284	1,269	3,162		4,060	14,348
2000	13,834	753	0	426	1,870		2,887	7,611	27,381
2001	18,103	962	0	1,030	1,467	891	2,694	0	25,147
2002	9,627	297	0	237	2,266	999	4,142	882	18,450
2003	6,649	515	0	799	2,228	2,066	2,192	352	14,801
2004	11,833	1,645	0	444	921	1,456	4,010	1,569	21,878
2005	10,717	927	0	1,074	1,815	2,182	7,676	1,313	25,704
Mean									
2001-2005	9,707	846	0	639	1,808	1,676	4,505	1,029	20,208
2006	2,886	1,596	0	812	5,524	1,971	2,248	621	15,658

^a Fish Lake drainage (Yentna River drainage).

^b May include harvest from West Cook Inlet waters through 1995.

Table 33.-Sport harvest of burbot in the Northern Cook Inlet Management Area, by management unit, 1977-2005.

Year	Knik Arm	Eastside	Westside	Total
1977	290	619	115	1,024
1978	452	271	153	876
1979	291	427	454	1,172
1980	310	367	706	1,383
1981	87	220	211	518
1982	681	199	776	1,656
1983	597	901	807	2,305
1984	336	1,133	1,309	2,778
1985	210	1,085	560	1,855
1986	804	1,380	715	2,899
1987	325	1,175	3,640	5,140
1988	291	600	944	1,835
1989	372	395	192	959
1990	262	1,345	1,534	3,141
1991	477	407	97	981
1992	500	608	304	1,412
1993	482	909	264	1,655
1994	512	674	1,090	2,276
1995	151	517	190	858
1996	218	284	396	898
1997	709	304	861	1,874
1998	121	208	1,029	1,358
1999	369	230	672	1,271
2000	1,130	242	1,130	2,502
2001	230	214	245	689
2002	1,069	211	91	1,371
2003	438	511	397	1,346
2004	171	238	320	729
2005	805	260	292	1,357
1977-2005				
Mean	438	549	672	1,659
2001-2005				
Mean	543	287	269	1,098
2006	550	406	126	1,082

Table 34.-Sport harvest by fishery, and total catch, of burbot in the Knik Arm Management Unit, 1977-2006.

Year	Little Susitna	Knik River ^a	Fish Creek ^b	Flathorn Lake	Big Lake	Nancy L. Complex	Other Streams ^c	Other Lakes	Harvest Total	Catch Total
1977	6				73	148	63		290	
1978	9				18	145	280		452	
1979	55			0	0	9	227		291	
1980	9			0	43	34	224		310	
1981	29	0		0	0	29	29		87	
1982	10	0		0	461	210	0		681	
1983	52	0		0	94	357	31	63	597	
1984	25	0		0	75	62	37	137	336	
1985	35	0	0	0	70	105	0	0	210	
1986	22	0	0	0	335	34	0	413	804	
1987	54	0	18	0	36	217	0	0	325	
1988	36	0	0	0	55	127	0	73	291	
1989	27	0	0	0	163	82	0	100	372	
1990	82	0	0	0	82	98	0	0	262	344
1991	40	13	0	0	66	358	0	0	477	863
1992	102	0	0	0	110	118	0	170	500	771
1993	43	0	107	0	278	54	0	0	482	771
1994	10	0	140	0	279	83	0	0	512	708
1995	0	0	0	0	110	7	0	34	151	377
1996	0	0	0	163	41	14	0	0	218	339
1997	13	0	0	0	696	0	0	0	709	3,106
1998	0	0	0	0	121	0	0	0	121	478
1999	0	0	0	13	331	25	0	0	369	817
2000	359	231	291	7	0		242	0	1,130	1,797
2001	0	0	7	0	202	14	0	7	230	393
2002	0	0	0	0	765	0	0	304	1,069	1,681
2003	0	0	0	0	394	11	0	33	438	756
2004	0	0	0	0	171	0	0	0	171	321
2005	25	0	0	0	598	136	0	46	805	1,393
Mean										
2001-2005	6	0	0	0	482	37	0	96	621	1,038
2006	0	0	0	0	514	25	11	0	550	3,091

^a Knik River and tributaries including Jim Creek.

^b Big Lake drainage.

^c Includes lakes and streams, 1977-1982.

Table 35.-Sport harvest by fishery, and total catch, of burbot from the Eastside Susitna Management Unit, 1977-2006.

Year	Willow	Little	Kashwitna	Caswell	Sheep	Goose	Montana	Birch	Sunshine	Talkeetna	Other	Lakes	Harvest	Catch
	Creek	Willow	River	Creek	Creek	Creek	Creek	Creek	Creek	River ^a	Streams ^b		Total	
1977	26	0			45		110			0	438		619	
1978	9	0			18		9			27	208		271	
1979	18	0		0	64		9		45	9	282		427	
1980	0	0		26	45		13		39	32	212		367	
1981	48	0		0	0		0		115	0	57		220	
1982	63	0		0	0		0		73	0	63		199	
1983	21	0	0	31	10		0		367	84	126	262	901	
1984	0	0	12	87	648	37	75		100	62	112	0	1,133	
1985	105	175		70	0		0		0	420	315	0	1,085	
1986	0	0	109	0	0	0	0	73	835	0	290	73	1,380	
1987	0	54	18	127	18	72	72	72	344	145	253	0	1,175	
1988	18	0	18	309	18	0	0	0	73	55	0	109	600	
1989	9	18	46	18	0	9	0	65	185	9	18	18	395	
1990	84	0	34	185	34	269	0		638	67	34	0	1,345	1,864
1991	0	55	22	66	11	44	22	77	0	88	22	0	407	957
1992	0	0	0	110	0	51	0	144	68	211	16	8	608	1,132
1993	21	85	0	32	75	0	0	118	133	310	135	0	909	1,458
1994	0	17	13	228	0	0	0	31	228	74	31	52	674	1,208
1995	0	0	0	115	0	0	63	11	69	122	34	103	517	837
1996	16	0	0	33	0	0	0	0	16	89	0	130	284	602
1997	0	0	0	26	32	0	39	52	39	39	0	77	304	573
1998	12	0	8	0	12	0	9	12	71	34	0	50	208	470
1999	0	0	0	0	0	13	16	76	53	0	72	0	230	503
2000	0	0	0	0	0	0	14	0	19	180	29	0	242	457
2001	7	0	14	0	0	0	7	43	115	0	28	0	214	357
2002	0	0	0	28	36	0	43	0	104	0	0	0	211	351
2003	0	0	0	0	9	0	0	32	0	332	43	95	511	716
2004	0	0	10	10	38	0	18	0	71	0	0	91	238	403
2005	0	0	74	12	0	0	62	0	37	25	0	50	260	705
Mean														
2001-2005	0	0	21	13	21	0	31	8	53	89	11	59	305	544
2006	0	0	0	12	13	0	0	25	25	331	0	0	406	630

^a Talkeetna River and tributaries including Clear Creek.

^b Includes lakes and streams, 1977-1982.

Table 36.-Sport harvest by fishery, and total catch, of burbot in the Westside Susitna Management Unit, 1977-2006.

Year	Alexander Creek	Deshka River	Yentna River	Lake Creek	Fish Lakes ^a	Rabideux Creek	Other Streams ^b	Other Lakes ^b	Harvest Total	Catch Total
1977	0	3		42			51	19	115	
1978	0	0		0			117	36	153	
1979	36	309		64			45	0	454	
1980	0	224		0			448	34	706	
1981	29	96		29			57	0	211	
1982	84	252		0			10	430	776	
1983	0	126		283			125	273	807	
1984	12	237		100			199	761	1,309	
1985	0	140		140			105	175	560	
1986	0	257		67	89		302	0	715	
1987	18	1,123		507	145		1,738	109	3,640	
1988	36	36		327	218		127	200	944	
1989	0	96	19	0	19		58	0	192	
1990	51	118	34	556	438		84	253	1,534	1,870
1991	9	35	0	0	9	35	9	0	97	203
1992	0	42	0	0	76	76	76	34	304	709
1993	11	42	0	0	21		190	0	264	854
1994	0	115	166	45	135		598	31	1,090	1,247
1995	0	0	21	0	23		146	0	190	230
1996	0	0	0	14	16		366	0	396	860
1997	13	0	32	0	0		816	0	861	1,099
1998	0	23	0	3	4		999	0	1,029	1,207
1999	38	38	0	28	76		492	0	672	859
2000	359	231	291	7	0		242	0	1,130	1,797
2001	0	94	122	0	0		29	0	245	371
2002	0	45	31	0	15		0	0	91	441
2003	0	54	162	28	0		153	0	397	650
2004	0	30	212	0	8		60	10	320	630
2005	0	124	12	15	0		141	0	292	664
Mean										
2001-2005	0	63	104	11	6		89	3	275	596
2006	0	0	101	0	0		25	0	126	344

^a Fish Lake drainage (Yentna River drainage).

^b May include harvest from West Cook Inlet waters through 1998.

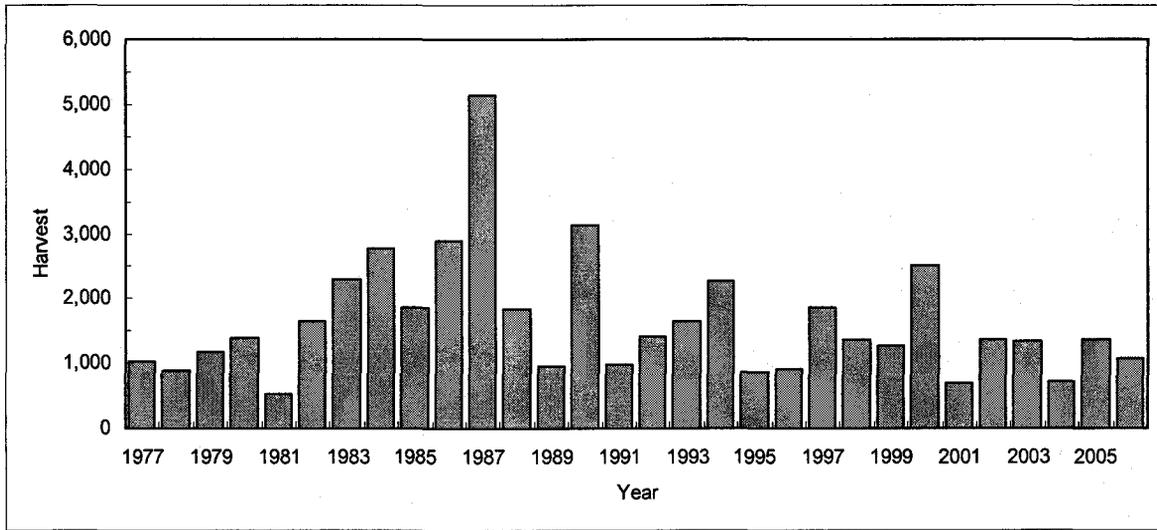


Figure 21.-Sport harvest of burbot in the Northern Cook Inlet Management Area, 1977-2006.

Table 37.-Fish Creek salmon harvests, by commercial set gillnet and personal use dip net, 1987-2006.

Year	Commercial Gillnet ^a						Personal Use Dip Net					
	Sockeye	Coho	Chum	Pink	Chinook	Total	Sockeye	Coho	Chum	Pink	Chinook	Total
1987	24,090	2,043	403	264	^b	26,800	2,200					2,200
1988	38,251	11,604	325	591	9	50,780	3,000					3,000
1989	47,925	6,075	4,979	545	4	59,528	5,000					5,000
1990	23,450	5,708	5,308	696	4	35,166	6,500					6,500
1991	10,459	1,630	961	21	^b	13,071	14,369		549	567		15,485
1992	10,748	1,817	1,289	573	^b	14,427	19,002		607	678		20,287
1993	47,751	831	990	29	^b	49,601	37,224	973	503	2,068		40,768
1994	7,528	809	357	141	0	8,835	16,012	1,336	248	632		18,228
1995	19,477	1,999	1,018	72	5	22,571	9,102	2,640	99	290		12,131
1996	35,245	1,802	448	25	0	37,520	17,260	2,414	153	331	37	20,195
1997	13,791	85	31	1	1	13,909	3,277	63	4	53	0	3,397
1998	2,597	548	105	0	0	3,250	4,036	649	29	80	1	4,795
1999	No fishery						1,083	17	0	12	0	1,112
2000	No fishery						6,925	958	29	83	0	7,995
2001	No fishery						463 ^c	13	1	4	1	482
2002	Fishery eliminated by BOF						No fishery					
2003							No fishery					
2004							No fishery					
2005							No fishery					
2006							No fishery					
Mean	23,443	2,913	1,351	247	3	27,955	9,697	1,007	202	436	7	10,772

Source: Personal use 1987-1995 from Mills 1988-1994, Howe et al. 1995, 1996; commercial harvests from 1996-2000 are estimates from returned permits.

^a Harvest from statistical area 247-50.

^b Not reported.

^c Closed by Emergency Order on July 12 at 11:00 pm (3 days of harvest).

Table 38.-Harvest of smelt in the Westside Susitna Management Unit and Knik Arm Management Unit, by fishery, 1985-2006.

Year	Westside Susitna Management Unit						Knik Arm Management Unit				
	Alexander Creek	Deshka River	Yentna River	Lake Creek	Susitna River	Total	Marine Fish Creek	Other Marine	Fresh Water	Total	Total
1985	0	0		0	1,680	1,680	0	560	0	560	2,240
1986	0	7,300		0	0	7,300	0	3,351	0	3,351	10,651
1987	0	0		0	9,265	9,265	0	0	0	0	9,265
1988	1,547	0		1,083	6,219	8,849	0	0	0	0	8,849
1989	0	0	0	785	1,539	2,324	0	0	0	0	2,324
1990	707	842	3,368	674	0	5,591	0	0	0	0	5,591
1991	3,774	245	0	0	2,113	6,132	0	0	0	0	6,132
1992	379	0	1,082	0	14,062	15,523	0	0	0	0	15,523
1993	0	2,236	0	0	4,360	6,596	0	0	0	0	6,596
1994	0	458	3,438	235	5,352	9,483	0	2,292	0	2,292	11,775
1995	0	0	1,382	0	3,167	4,549	0	0	0	0	4,549
1996	364	0	364	0	1,455	2,183	0	0	0	0	2,183
1997	0	0	2,703	0	5,812	8,515	0	0	0	0	8,515
1998	0	0	2,050	0	3,745	5,795	0	0	0	0	5,795
1999	571	6,499	3,038	0	16,923	27,031	2,708	0	0	2,708	29,739
2000	7	1,363	2,725	0	1,397	5,492	0	2,725	3,406	6,131	11,623
2001	0	0	3,935	0	4,772	8,707	0	675	899	1,574	10,281
2002	0	2,228	1,061	0	9	3,298	0	0	0	0	3,298
2003	911	0	0	0	4,554	5,465	0	1,214	364	1,578	7,043
2004	0	2,550	2,252	0	7,760	12,562	0	0	11	11	12,573
2005	0	1,979	0	0	1,089	3,068	0	0	0	0	3,068
Mean											
2001-2005	228	1,689	828	0	3,353	6,098	0	304	94	397	6,496
2006	0	0	0	0	0	0	0	0	71	71	71

**APPENDIX A. REGULATORY HISTORIES OF SELECTED
FISHERIES**

Appendix A1.-Chinook salmon regulatory history for NCIMA waters.

Chinook salmon fishing in NCIMA waters was open from statehood through 1963. During 1964 through 1966 Chinook salmon fishing in fresh water was closed. During 1967 through 1970 Alexander Creek, Clear Creek, Deshka River and Lake Creek were open in their entirety. This fishery operated over a 15-day season during the middle of June on a 250 fish, over 20 inches in length, harvest quota system. Achievement of the quota may have resulted in early season closure. A 1 fish per day 2 per season bag limit for fish over 20 inches in length was in place and a punch card was a requirement of participation in the fishery. In 1971 the harvest quota was eliminated. During 1971 and 1972, in addition to the 15-day season in Alexander Creek, Deshka River, and Lake Creek, a more restrictive fishery was allowed (few days) in Clear Creek and portions of the Little Susitna River, Ship Creek (Anchorage) and Willow Creek; however, a punch card was still required. In 1973, the area Chinook salmon fishery was closed to the harvest of Chinook salmon 20 inches or larger in length and remained so through 1978.

Selected Susitna River streams were reopened to Chinook salmon fishing in 1979 after being closed for several years because of low stock abundance. Cautious incremental expansion has characterized the area's Chinook salmon fisheries since they reopened. From 1979 through 1982 Chinook salmon fishing was permitted at Alexander Creek, Lake Creek and at the Deshka River from the fourth Saturday in May through July 6. These streams drain into the Susitna River from the west. Clear Creek, a tributary of the Talkeetna River, also had a similar Chinook salmon season. In addition, three eastside tributaries of the Susitna River, Willow, Caswell and Montana creeks, were open on Saturdays and Sundays only for 4 consecutive weekends commencing on the second Saturday in June. Harvest quotas, ranging from 200 to 7,000 Chinook salmon, governed these fisheries from 1979 through 1982. The Chuitna River, a coastal stream near Beluga, and the entire Yentna and Talkeetna river drainages were opened to Chinook salmon fishing in 1983. The opening date for Chinook salmon fisheries that provided continuous daily fishing was also changed to January 1.

In 1984 the remaining coastal streams near Beluga and all waters draining into the westside of the Susitna River downstream from the Deshka River were opened to Chinook salmon fishing. In 1986, portions of five road-accessible streams on the east side of the Susitna River opened to weekend-only fishing. These streams were Little Willow, Goose, Sunshine, Sheep and Birch creeks.

Expanded Chinook salmon fishing opportunity continued in 1987 when Monday fishing was added to all former weekend-only fisheries that drain into the Susitna River from the east. Saturday through Monday fishing was also allowed on the Susitna River and all flowing waters within one-quarter mile of the Susitna River (excluding the Kashwitna River) between the Deshka and Talkeetna rivers. These "corridor" fisheries were open for 4 continuous "weekends" similar to the previously mentioned Saturday through Monday fisheries. Chinook salmon fishing was permitted for the first time on the Susitna River drainage upstream from the Susitna River's confluence with the Talkeetna River to Devils Canyon but excluding the Chulitna River drainage. Unbaited, single-hook, artificial lures were mandatory in this area. The season extended from January 1 through July 13. The season for all Susitna River and coastal fisheries that formerly closed on July 6 was extended to July 13 in 1987.

-continued-

In 1989, Chinook salmon fishing was allowed within a one-quarter mile radius of the mouth of the Kashwitna River. That same year fishing was permitted daily at Willow Creek between January 1 and the third Monday in June and on Saturday through Monday for 2 consecutive weeks starting the fourth Saturday in June.

Bag and possession limits were 1 Chinook salmon 20 inches or over in length in 1979. The following year bag and possession limits changed to 2 Chinook salmon 20 inches or over in length but only 1 Chinook salmon could be over 28 inches in length. In 1981 the bag limit was reduced to 1 Chinook salmon 20 inches or more in length and in possession. This limit remained in effect through 1985. A 5 fish (20 inches or more in length) per year limit governed all Cook Inlet Chinook salmon fisheries from 1979 through 1985. This limit applied collectively to Northern Cook Inlet fresh water, Cook Inlet salt water and the Kenai Peninsula.

In 1986, bag and possession limits for the western drainages of the Susitna River were changed to 2 Chinook salmon, 16 inches or more in length daily and 4 in possession and remained so through 1992. Only 1 fish daily and 2 in possession could be over 28 inches. Similar limits also applied to the West Cook Inlet coastal fisheries. Bag and possession limits for eastern drainages of the Susitna River in 1986 were 1 Chinook salmon, 16 inches or more in length, and 2 in possession. The seasonal limit was 5 Chinook salmon 16 inches or more in length. Anglers were required to list their Chinook salmon harvest on nontransferable harvest records from 1979 through 1988. The date and location of harvested Chinook salmon were recorded. A \$5 permit stamp was mandatory for Chinook salmon fishing from 1980 through 1982. The harvest record and yearly limit was eliminated for all NCI Chinook salmon fisheries in 1989.

During the November 1992 BOF meeting several regulations were changed in the Susitna West-Cook Inlet Management Area to be in effect for the 1993 season. A seasonal limit of 5 Chinook salmon was established for all waters of Cook Inlet. Individuals or companies engaged in freshwater sport fish guiding were prohibited from participating or engaging in sport fishing while clients were present or within his or her control or responsibility during the Chinook salmon season except when guiding a client subject to the Americans with Disabilities Act.

In effect for the 1993 season in the West Cook Inlet area the Chinook salmon fishing season was reduced in length to end on June 30. The bag and possession limits were reduced in areas open to the retention of Chinook salmon 16 inches or more in length to 1 daily and 1 in possession.

Additionally, in the following areas of West Cook Inlet only unbaited, artificial lures could be used and Chinook salmon 16 inches or more in length could not be possessed or retained; all Chinook salmon caught had to be released immediately: (1) Chuitna River Drainage: upstream of a department marker located adjacent to the old cable crossing; (2) Theodore River Drainage: upstream of a department marker located approximately 1 mile upstream of the Beluga/Anchorage high voltage power lines; and (3) Lewis River Drainage: upstream of a department marker located approximately 1 river mile upstream of the main Beluga haul road bridge.

-continued-

Action during the November 1992 meeting also reduced the Chinook salmon bag and possession limit in the Susitna River drainage including all flowing waters draining into the west side of the Susitna River downstream of and including the Deshka River. The bag and possession limits for Chinook salmon over 16 inches were reduced to 1 daily and 2 in possession.

In addition to BOF action, legislative action during June of 1992 established provisions that prohibited resident or nonresident anglers from fishing in Alaska without a king salmon stamp beginning in 1993.

In anticipation of an inadequate return to the Deshka River, prior to the 1994 Chinook season an emergency order was issued reducing the Chinook salmon possession limit to 1 fish and eliminated the use of bait in the Deshka River May 1 through July 14. As the 1994 Chinook season progressed it became apparent a weak return was occurring in the entire Susitna River drainage and particularly in the Deshka River. In response to this an emergency order was issued closing all waters of the Deshka River to sport fishing for Chinook salmon and prohibiting the use of bait in all waters of the Susitna River drainage downstream of the Deshka River which flow into the Susitna River from the east and the Alexander Creek drainage, all waters of the Yentna River drainage, all waters of the Talkeetna River drainage, and all waters of the Chulitna River drainage, June 17 through July 13, 1994.

The BOF during its October 1994 work session choose to delegate to the department the authority to change regulations for the 1995 fishing season. These regulation changes were as follows:

1. The Deshka River and Prairie Creek are closed to fishing for Chinook salmon.
2. Alexander Creek above the confluence of Trail Creek is closed to fishing for Chinook salmon.
3. The bag and possession limits in the Susitna River and Little Susitna River drainages have been reduced to 1 Chinook salmon over 16 inches in length.
4. The use of bait throughout the NCIMA is prohibited (excluding the Anchorage Management Unit).
5. Fishing in the NCIMA is allowed only between the hours of 6:00 a.m. and 11:00 p.m. May 15 through July 13. This time restriction will not apply to that portion of the Susitna River drainage currently opened to weekend-only fishing (e.g. between, but not including, the Deshka River and the Talkeetna River) and the Anchorage Management Unit.
6. The first opening of the Northern District commercial Chinook salmon fishery will occur by emergency order. Additional opening of this fishery will be dependent upon inseason indications of run strength.

The only new regulation for the 1996 season was the closure of the Lewis River to king salmon fishing, including catch-and-release for king salmon.

-continued-

The Alaska Board of Fisheries convened in Anchorage, Alaska during November 11-17, 1996. A brief summary of regulatory changes affecting the Susitna-West Cook Inlet Area Chinook salmon fisheries as adopted by the Board of Fisheries follows.

5 AAC 21.366. Northern District King Salmon Management Plan

- To fulfill changes to the Upper Cook Inlet King Salmon Management Plan, as adopted by the Board of Fisheries, the Department of Fish and Game shall manage the Northern District commercial king salmon fishery as follows:
 1. (3) The harvest shall not exceed 12,500 king salmon.
 2. (8) The season closes on June 24, unless closed earlier by emergency order.
 3. (9) The number of regular periods shall be determined by the department based on preseason expectations of king salmon run strength.
 4. (10) The area from 1 mile south of the Theodore River to the Susitna River is closed to fishing; provisions of this paragraph do not apply after December 31, 1998.
 5. (11) If at least 90% of the biological escapement goal for the Theodore River (BEG = 750) or Chuitna River (BEG = 1,400) is not met during the 1997 fishing season, the area from 1 mile south of the Chuitna River to the Susitna River will be closed to commercial fishing during the 1998 fishing season; the provisions of this paragraph do not apply after December 31, 1998.
 6. (12) In addition to (11) above, if at least 90% of the biological escapement goal for the Chuitna River has not been met during the 1997 fishing season, the area from 1 mile south of the Chuitna River to the Susitna River will be closed to sport fishing for king salmon during the 1998 fishing season; the provisions of this paragraph do not apply after December 31, 1998.

5 AAC 61.010. Fishing Seasons:

- The Alexander Creek drainage is open to the retention (harvest) of king salmon from January 1 through June 30 downstream from an ADF&G regulatory marker at Granite Creek.

5 AAC 61.020. Bag Limits, Possession Limits, and Size Limits:

- In all waters of Alexander Creek drainage between an ADF&G regulatory marker located at Granite Creek, upstream to an ADF&G regulatory marker located 400 yards upstream of Trail Creek, king salmon 16 inches or more in length may not be possessed or retained. All king salmon caught must be released immediately.

5 AAC 61.035. Methods and Means:

- Only unbaited, single-hook, artificial lures may be used from January 1 through June 30 in all waters of the Alexander Creek drainage between an ADF&G regulatory marker located at Granite Creek to an ADF&G regulatory marker located 400 yards upstream of Trail Creek.

-continued-

5 AAC 61.050. Waters Closed to Sport Fishing:

1. Peters Creek (Susitna River drainage) is closed to sport fishing for king salmon upstream from an ADF&G regulatory marker, located approximately 1 mile upstream from its confluence with the Kahiltna River.
2. The Theodore River is closed to sport fishing for king salmon. The provisions of this paragraph do not apply after December 31, 1998.

5 AAC 61.020. Bag Limits, Possession Limits, and Size Limits:

1. In all waters of the Susitna River drainage between the confluence of the Deshka River and the confluence of the Talkeetna River: after taking a king salmon 16 inches or more in length, a person may not fish for any species of fish in any water open to king salmon fishing during that same day.
2. In the Little Susitna River from its mouth to the Parks Highway bridge at Houston: after taking a king salmon 16 inches or more in length, a person may not fish for any species of fish in any water open to king salmon fishing during that same day.
3. In all waters of the Susitna-West Cook Inlet Management Area, excluding the Susitna River between its confluence with the Deshka River and its confluence with the Talkeetna River: after taking a king salmon 16 inches or more in length, a person may not fish for king salmon during that same day.

5 AAC 61.020. Bag Limits, Possession Limits, and Size Limits:

- The bag and possession limits of king salmon 16 inches or more in length taken from the Little Susitna River drainage are 1 fish per day and in possession.

During 1997 the Deshka River was open to king salmon fishing on June 21 through July 13. Fishing was limited to the lower 2 miles of river and all Chinook salmon regulations applying to the Susitna River from its mouth to its confluence with the Deshka River were in effect for the Deshka River.

In 1998 the Deshka River was open to king salmon fishing from its confluence with the Susitna River upstream 5 miles to a Department marker. The seasonal bag limit for king salmon over 16 inches from the Deshka River was set at 2. In addition, all Chinook salmon regulations applying to the Susitna River from its mouth to its confluence with the Deshka River were in effect for the Deshka River. Inseason EOs affecting Chinook salmon fishing opened Willow Creek June 20-22 to correct an oversight in the regulations and added one Friday to Chinook fishing in the Susitna River between the Deshka River and the Talkeetna River (excluding both).

The BOF made the following changes for the 1999 season. The Deshka River will be open to king salmon fishing from its mouth upstream to Chijuk Creek a distance of approximately 17 river miles from January 1 to July 13. Other area regulations apply such as 1 fish per day bag and possession limits, a 5 fish seasonal limit, and once an angler harvests his or her king salmon they must quit fishing for king salmon the remainder of the day. Additionally fishing is allowed only between the hours of 6:00 a.m. to 11:00 p.m., no bait is allowed and guides cannot fish while guiding clients.

-continued-

The area open for retention of king salmon on Alexander Creek was extended from its mouth upstream to Trail Creek. This provides anglers with an additional 11 miles of stream from the 1997 and 1998 seasons in which they may harvest king salmon on Alexander Creek.

The Theodore River was opened to catch-and-release fishing for king salmon from January 1 through June 30, only single hook artificial lures will be allowed. Other West Cook Inlet Area regulations apply as follows: fishing is allowed only between the hours of 6:00 a.m. to 11:00 p.m., bait is prohibited, and guides cannot fish while guiding.

There will be increased fishing opportunities for the road-accessible Parks Highway streams (Eastside Susitna River tributaries) during the early part of June. The Parks Highway streams (Eastside Susitna River tributaries) will open to king salmon fishing from January 1 through the third Monday in June and for the next two consecutive 3-day weekends. This regulation identifying the fishing season is consistent with that on Willow Creek.

On the Little Susitna River, anglers will be allowed to use treble hooks year-round downstream of the Parks Highway Bridge. Existing bait restrictions were modified to allow the use of bait during the month of September.

The area open to king salmon fishing on the Kashwitna River was extended from its mouth upstream to the Parks Highway Bridge, a distance of 2 miles. The Kashwitna River, a Parks Highway stream, will be regulated under the new season regulation implemented for the Parks Highway streams.

In all waters of the Westside-Susitna River and West Cook Inlet Management Areas (excluding waters between the Deshka River and the Talkeetna River mouths), anglers will be allowed to continue to fish for king salmon (catch-and-release) once they have harvested their limit excluding Alexander Creek, Lake Creek, Deshka River, Fish Lake Creek and Clear Creek. In these streams you will be required to quit fishing for king salmon for the day once you have harvested your limit.

By EO Willow, Little Willow, Sheep and Montana creeks were open to king salmon fishing for an additional weekend, July 10 through July 12, 1999.

The 2000 season began with no regulation changes from 1999. When it was determined that the Deshka River was experiencing an exceptional return of Chinook, an EO was issued that allowed the use of bait in the first 17 miles of the Deshka River and within a ¼-mile radius of the mouth of the Deshka River with the Susitna River, June 8 through July 13, 2000. Two additional EOs were issued in 2000. One opened Willow, Little Willow, Sheep and Montana creeks to king salmon fishing for an additional day, July 4, 2000, and the other opened East Fork Chulitna River, Willow, Little Willow, Sheep and Montana creeks to king salmon fishing for an additional 3-day weekend, July 8 through July 10, 2000.

-continued-

During the January 2001 BOF meeting a "jack" king salmon was defined as any king 20 inches or less in length statewide. In all fresh waters open to king salmon fishing the bag/possession limit for "jacks" is 10. These limits are in addition to any limits for kings over 20 inches in length and do not count against annual or seasonal limits. This new definition increased the length requirement for kings that must be recorded for the five fish seasonal limit from 16 inches to 20 inches.

E.O. No. 2-KS-2-15-01 extended king salmon season in the Susitna River drainage upstream from its confluence with the Deshka River to its confluence with the Talkeetna River including Susitna River tributaries Willow Creek to Trapper Creek and the East Fork of the Chulitna River (including the first ¼ mile of Honolulu Creek only). These waters which were scheduled to close on Monday July 2 were opened through Wednesday, July 4 at 12:00 midnight.

In June of 2001 it was determined that the Deshka River was experiencing an exceptional return of Chinook. An EO was issued that allowed the use of bait in the first 17 miles of the Deshka River and within a ¼-mile radius of the mouth of the Deshka River with the Susitna River, June 12 through July 13. Three additional EOs were issued in 2001. One extended king salmon fishing on the Chuitna River downstream of the cable crossing July 1 through July 5. Another opened Willow Creek to king fishing June 29 at 12:01 a.m. adding one additional day of fishing. The last EO extended king salmon season in the Susitna River drainage upstream from its confluence with the Deshka River to its confluence with the Talkeetna River including Susitna River tributaries Willow Creek to Trapper Creek and the East Fork of the Chulitna River (including the first ¼ mile of Honolulu Creek only). These waters which were scheduled to close on Monday July 2 were opened through Wednesday, July 4 at 12:00 midnight.

A BOF meeting was held in February of 2002 resulting in the following king salmon regulations changes:

1. Allow catch-and-release fishing for kings in the East Fork of the Chulitna River January 1 through July 13. Only one single-hook, unbaited artificial lure may be used January 1 through July 13.
2. Increase possession limit to two kings for West Susitna River tributaries (excluding Alexander Creek).
3. In the Northern District King Salmon Management Plan: The commercial setnet fishery will open on the first Monday on or after May 25 and close June 24. The number of commercial periods will depend upon expected northern Cook Inlet king salmon run strengths and there shall be no more than three commercial openings targeting kings. The area from an ADF&G marker located 1 mile south of the Theodore River to the Susitna River is open to fishing in the second regular period only. If the Theodore, Lewis or Ivan rivers are closed to sport fishing, the area from an ADF&G regulatory marker located 1 mile south of the Theodore River to the Susitna River is closed to commercial king salmon fishing for the remainder of the directed king salmon fishery. If the Deshka River is closed to sport fishing, the commercial king salmon fishery throughout the Northern District is closed for the remainder of the directed king salmon fishery. If the Chuitna River is closed to sport fishing, the area from an ADF&G marker located 1 mile south of the Chuitna River to the

-continued-

Susitna River is closed to commercial king salmon fishing for the remainder of the directed king salmon fishery.

4. Allow a catch-and-release fishery in the entire Theodore and Lewis rivers. No bait, single hook only.

These regulations were not signed into law prior to the start of the 2002 season. Because of this delay the following EOs were issued to allow the new regulations to be in effect during the beginning of the fishing season:

1. Increased the possession limit to two king salmon in all Westside Susitna River tributaries except Alexander Creek.
2. Opened the entire Theodore and Lewis rivers to catch-and-release for king salmon through June 30. Single hook, no bait.
3. Allowed the use of bait in the first 17 miles of the Deshka River and within a ¼ mile radius of the mouth of the Deshka River with the Susitna River, June 8 through July 13, 2002.

All regulations became effective midway through the season. As in past years an EO was issued which extended king salmon season in Willow, Sheep and Montana creeks 3 days, July 5-7 from 6:00 a.m. to 11:00 p.m.

In 2003 there were no new regulations. As in past years an EO was issued which extended king salmon season in Willow, Sheep and Montana creeks 3 days, July 4-6 from 6:00 a.m. to 11:00 p.m. In mid June when an exceptional return was realized for Deshka River, an EO was issued to increase the bag and possession limit of king salmon greater than 20 inches in the Deshka River from one per day and two in possession to two per day and four in possession.

During 2004, two EO's were issued to liberalize the Deshka River Chinook salmon fishery. The first EO allowed use of bait in the first 17 miles of the river May 28 through July 13. The second EO increased the daily bag and possession limits from one per day and two in possession to two per day and four in possession on that portion of river open to Chinook salmon fishing (first 17 miles). An EO was issued to open the Chinook salmon fishery at Eklutna Tailrace on April 15.

A BOF meeting was held January 2005. Sport fish regulatory changes included:

1. Anglers were allowed to use bait earlier in the Deshka River commencing May 15th.
2. The Parks Highway streams were opened for an additional 3-day weekend for king salmon fishing. For 2005 the Parks Highway streams were open from January 1 – June 20 and on June 25-27, July 2-4 and July 9-11.
3. The area open to king salmon fishing on the Kashwitna River was increased by approximately one mile, from the Parks Highway Bridge to the Alaska Railroad Bridge.
4. Anglers may no longer fish for king salmon 20" or less in waters closed to king salmon fishing.

-continued-

5. Eklutna Tailrace and all waters within a ½ mile radius of its confluence with the Knik River were opened to fishing for king salmon from January 1st through December 31st. Once an angler retains a bag limit of king salmon 20" or longer they may not fish in any water open to king salmon fishing on that same day.

Commercial fish regulatory changes included:

1. The Northern District King Salmon Management Plan was altered by limiting fishing periods to a maximum of three and increasing fishing time per period from six hours to 12 hours. The gear restriction of two nets from August 1 to August 10 was removed.
2. The Big River Sockeye Salmon Management Plan was amended to allow fishing in a portion of the Kalgin Island Subdistrict along the western shore from Light Point (60° 29.00' N. lat., 151° 50.50' W. long.) to the Kalgin Island Light on the southern end of the island at 60° 20.80' N. lat., 152° 05.09' W. long. Note: this fishery is closed if 1,000 Chinook salmon are harvested.

Two EO's were issued inseason to liberalize the Deshka River Chinook salmon fishery:

1. On May 27, the daily bag and possession limit for Chinook salmon was increased from one per day, two in possession to two per day, four in possession. Fishing time was increased to 24 hours per day.
2. The fishery was extended from July 14 through July 31.

In 2006, an EO increased the bag limit and fishing time on the Deshka River, effective on May 26. The daily bag and possession limit was increased to two per day, four in possession and fishing time was increased to 24 hours per day.

On May 25, 2007, an EO increased the bag limit and fishing time on the Deshka River. The daily bag and possession limit was increased to two per day, four in possession and fishing time was increased to 24 hours per day.

Appendix A2.-Deshka River Chinook salmon regulatory changes, 1977-2007.

Year	Fishery dates	Area and time restrictions	Method/Gear restrictions	Bag & possession	Seasonal NCI limit	Other requirements
1977	closed to adults			20" or less only		
1978	closed to adults			20" or less only		
1979	4th Sat. in May - July 6	mouth to Laub's Homestead marker		1/day over 20" & 1 possession 2/day over 20", only 1 over 28" & 2 possession	5 over 20"	Punch card required
1980	4th Sat. in May - July 6	mouth to forks			5 over 20"	Punch card required
1981	4th Sat. in May - July 6	mouth to forks		1/day over 20" & 2 possession	5 over 20"	Harvest record sticker Permit stamp. Record on back of license
1982	4th Sat. in May - July 6	mouth to forks		1/day over 20" & 2 possession	5 over 20"	Harvest record back of license
1983	January 1 - July 6	mouth to forks		1/day over 20" & 2 possession	5 over 20"	Harvest record back of license
1984	January 1 - July 6	mouth to forks		1/day over 20" & 2 possession	5 over 20"	Harvest record back of license
1985	January 1 - July 6	mouth to forks		1/day over 20" & 2 possession	5 over 20"	Harvest record back of license
1986	January 1 - July 6	mouth to forks		over 16": 2/day & 4 possession, only 1/day & 2 possession over 28"	5 over 16"	Harvest record back of license
1987	January 1 - July 13	mouth to forks		over 16": 2/day & 4 possession, only 1/day & 2 possession over 28"	5 over 16"	Harvest record back of license
1988	January 1 - July 13	mouth to forks		over 16": 2/day & 4 possession, only 1/day & 2 possession over 28"	5 over 16"	Harvest record back of license
1989	January 1 - July 13	mouth to forks		over 16": 2/day & 4 possession, only 1/day & 2 possession over 28"	5 over 16"	
1990	January 1 - July 13	mouth to forks		over 16": 2/day & 4 possession, only 1/day & 2 possession over 28"	5 over 16"	
1991	January 1 - July 13	mouth to forks		over 16": 2/day & 4 possession, only 1/day & 2 possession over 28"	5 over 16"	
1992	January 1 - July 13	mouth to forks	no bait between Trapper Creek and forks on June 22 by EO	1/day over 16" & 1 possession. Release of fish over 16" between Trapper and forks on June 22 by EO	5 over 16"	

-continued-

Appendix A2.-Page 2 of 2.

Year	Fishery dates	Area and time restrictions	Method/Gear restrictions	Bag & possession	Seasonal NCI limit	Other requirements
1993	January 1 - July 13	mouth to forks	artificial only until May 15	1/day over 16" & 2 possession	5 over 16"	King stamp. Harvest record back of license
1994	closed June 17 by EO	mouth to forks	artificial only until May 16	1/day over 16" & 2 possession	5 over 16"	King stamp. Harvest record back of license
1995	Closed					
1996	Closed					
1997	opened June 21 by EO	lower 2 miles of river	artificial only	1/day over 16" & 1 possession	5 over 16" 5 over 16", only 2 from	King stamp. Harvest record back of license
1998	January 1 - July 13	lower 5 miles of river mouth to Chijuk Creek, 6 am-11 pm	artificial only	1/day over 16" & 1 possession	Deshka	King stamp. Harvest record back of license
1999	January 1 - July 13	mouth to Chijuk Creek, 6 am-11 pm	artificial only	1/day over 16" & 1 possession	5 over 16"	King stamp. Harvest record back of license
2000	January 1 - July 13	mouth to Chijuk Creek, 6 am-11 pm	bait allowed June 8 by EO	1/day over 16" & 1 possession	5 over 16"	King stamp. Harvest record back of license
2001	January 1 - July 13	mouth to Chijuk Creek, 6 am-11 pm	bait allowed June 12 by EO	1/day over 20" & 1 possession	5 over 20"	King stamp. Harvest record back of license
2002	January 1 - July 13	mouth to Chijuk Creek, 6 am-11 pm	bait allowed June 8 by regulation	1/day over 20" & 2 possession	5 over 20"	King stamp. Harvest record back of license
2003	January 1 - July 13	mouth to Chijuk Creek, 6 am-11 pm	bait allowed June 8 by regulation	2/day over 20" & 4 possession on June 18 by EO	5 over 20"	King stamp. Harvest record back of license
2004	January 1 - July 13	mouth to Chijuk Creek, 6 am-11 pm	bait allowed May 28 by EO	2/day over 20" & 4 possession on June 12 by EO	5 over 20"	King stamp. Harvest record back of license
2005	January 1-July 13. Extended through July 31 by EO.	mouth to Chijuk Creek. Opened 24-hr May 27 by EO	bait allowed May 15 by regulation	2/day over 20" & 4 possession on May 27 by EO	5 over 20"	King stamp. Harvest record back of license
2006	January 1 - July 13	mouth to Chijuk Creek. Opened 24-hr May 26 by EO.	bait allowed May 15 by regulation	2/day over 20" & 4 possession on May 26 by EO	5 over 20"	King stamp. Harvest record back of license
2007	January 1 - July 13	mouth to Chijuk Creek. Opened 24-hr May 26 by EO.	bait allowed May 15 by regulation	2/day over 20" & 4 possession on May 25 by EO	5 over 20"	King stamp. Harvest record back of license

Source: Ivey In prep.

Appendix A3.-Coho salmon regulatory history for NCIMA waters, 1991-2007.

1991

1. Little Susitna River Coho Salmon Management Plan (5 AAC 61.060). Initiated in 1991 season. One coho salmon January 1 through August 5, three coho salmon August 6 through December 31, increase to 5 coho salmon below weir and at Nancy Lake Creek when 7,500 projected above Parks Highway, quit fishing when bag limit harvested below Burma Landing. Previously there was a 3 salmon daily bag limit, all 3 of which could be coho salmon.

Emergency Orders:

1. E.O. No. 2-SS-2-27-91 closed to fishing that portion of the Little Susitna River from the fish counting weir located at River Mile 32.5 downstream for a distance of 1,500 feet. Effective July 27 through September 14, 1991.
2. E.O. No. 2-RS-1-29-91 closed sockeye salmon fishing in all waters north of the latitude of Anchor Point. Effective 7:00 a.m. July 26 through December 31, 1991.
3. E.O. No. 2-RS-2-33-91 opened the Fish Creek personal use dip net fishery. Effective July 30 through August 9, 1991.
4. E.O. No. 2-RS-2-34-91 reopened the Little Susitna River drainage and all freshwater drainages of Knik Arm to fishing for sockeye salmon. Effective noon, July 29 through December 31, 1991.
5. E.O. No. 2-RS-2-36-91 rescinded E.O. No. 2-RS-1-29-91, thereby reopening recreational sockeye salmon fisheries within waters of the Kenai Peninsula and Susitna-West Cook Inlet regulatory areas and marine waters of Cook Inlet north of Anchor Point. Effective 7:00 a.m. August 2 through December 31, 1991.
6. E.O. No. 2-CS-2-38-91 closed the Eklutna Power Plant tailrace to sport fishing from the Old Glenn Highway downstream to department markers placed approximately 100 yards upstream of the confluence of the tailrace and the Knik River. Effective noon, August 6 through December 31, 1991.
7. E.O. No. 2-SS-2-42-91 increased bag and possession limits to 5 coho salmon at the Little Susitna River downstream from the department's salmon counting weir at River Mile 32.5. Effective noon, August 14 through December 31, 1991.

1992

1. Little Susitna River Coho Salmon Management Plan modified. In effect for 1993 season. Only unbaited artificial lures may be used in the Little Susitna River from July 15 through August 5. The bag and possession limits for coho salmon 16 inches or more in length during this time period were increased to 3 daily and in possession.
2. Aimed at rainbow trout. Only unbaited artificial lures may be used in all flowing waters of the Susitna-West Cook Inlet area September 1 through May 15. Initiated in 1993 season.

-continued-

3. Changes in the Cook Inlet Personal Use Salmon Dip Net Fishery Management Plan (5 AAC 77.540) pertaining to the Fish Creek dip net fishery. 1993 was the first year coho salmon were allowed in the harvest. Daily bag and possession limit 6 salmon.
4. BOF found that most of Cook Inlet was a nonsubsistence zone and repealed the Upper Cook Inlet Subsistence Salmon Management Plan (5 AAC 01.592) thus eliminating the subsistence fishery in Upper Cook Inlet for the 1993 season (eliminated the Knik set gillnet fishery). This plan was reinstated by court action for the 1994 season. The only area that remained open to subsistence fishing in the Upper Cook Inlet area during 1993 was the Tyonek subdistrict of the Northern District on the west side of Cook Inlet.

Emergency Orders:

1. E.O. No. 2-RS-2-21-92 opened the Fish Creek personal use dip net fishery. Dip net fishing was allowed for 3 consecutive days followed by a 1 day closure on a continuing basis. Effective 6:00 a.m. July 23 through August 6, 1992.
2. E.O. No. 2-SS-2-22-92 closed to fishing that portion of the Little Susitna River from the fish counting weir located at River Mile 33 downstream for a distance of 1,500 feet. Effective July 25 through September 14, 1992.
3. E.O. No. 2-RS-2-28-92 closed the Susitna River drainage to sockeye salmon fishing. Effective July 31 through December 31, 1992.
4. E.O. No. 2-SS-2-29-92 increased bag and possession limits to 5 coho salmon 16 inches or more in length downstream from the department's counting weir at River Mile 32.5. Effective August 15 through December 31, 1992.

1993

Emergency Orders:

1. E.O. No. 2-RS-2-23-93 opened the Fish Creek personal use fishery. The dip net fishery opened 9:00 a.m. July 24 and closed midnight August 6, with the fishery being closed July 26, July 30, and August 3, 1993.
2. E.O. No. 2-SS-2-25-93 closed to fishing that portion of the Little Susitna River from the fish counting weir located at River Mile 33 downstream for a distance of 1,500 feet. Effective July 23 through September 15, 1993.
3. E.O. No. 2-SS-2-32-93 increased the bag and possession limits to 5 coho salmon at the Little Susitna River downstream from the department's counting weir at River Mile 32.5. Effective August 11 through December 31, 1993.
4. E.O. No. 2-SS-2-33-93 closed to fishing that portion of Jim Creek from the fish counting weir located at River Mile 1 downstream for a distance of 500 feet. Effective August 12 through November 1, 1993.

-continued-

1994

Emergency Orders:

1. E.O. No. 2-RS-2-28-94 opened the Fish Creek personal use fishery. The dip net fishery opened 9:00 a.m. July 27 and closed midnight August 5, with the fishery being closed July 29 and August 2, 1994.
2. E.O. No 2-RS-2-33-94 supersedes E.O. 2-RS-2-28-94 extending the Fish Creek Personal Use Dip Net Fishery through midnight August 9. Effective August 7, 1994 through August 9, 1994.
3. E.O. No. 2-KS-2-05-94 closed to fishing that portion of the Little Susitna River from the fish counting weir located at River Mile 33 downstream for a distance of 1,500 feet. Effective May 25 through September 15, 1994.
4. E.O. No. 2-SS-2-32-94 increased the bag and possession limits to 5 coho salmon at the Little Susitna River downstream from the department's counting weir at River Mile 32.5. Effective August 6 through December 31, 1994.
5. E.O. No. 2-SS-2-29-94 closed that portion of Jim Creek to fishing from the fish counting weir located at River Mile 1 downstream for a distance of 1,000 feet. Effective July 26, 1994 through November 1, 1994.

1995

1. Upper Cook Inlet Subsistence Salmon Management Plan was repealed by the BOF in 1995. BOF took action to allow subsistence fishery as a personal use fishery. The Knik set gillnet fishery was executed as a personal use fishery in 1995.

Emergency Orders:

1. E.O. No. 2-KS-2-07-95 closed to fishing that portion of the Little Susitna River from the fish counting weir located at River Mile 33 downstream for a distance of 1,900 feet. Effective May 25 through September 15, 1995.
2. E.O. No. 2-RS-02-32-95 opened the Fish Creek personal use fishery. The dip net fishery opened 5:00 a.m. July 26 and closed midnight August 8, with the fishery being closed July 28 and August 1 and August 4, 1995.
3. E.O. No. 2-SS-02-40-95 increased the bag and possession limits to 5 coho salmon at the Little Susitna River downstream from the department's counting weir at River Mile 32.5. Effective August 9 through December 31, 1995.

1996

1. The Upper Cook Inlet Personal Use Salmon Fishery Management Plan (5 AAC 77.540) establishes time, area, methods and means for taking salmon for personal use. This plan first went into effect during the 1996 season. It provides for personal use dip net fisheries in the Kenai and Kasilof rivers and Fish Creek. Additionally, limited personal use gillnet fishing opportunity is provided near the terminus of the Kasilof River. No Knik set gillnet fishery was provided.

-continued-

2. Changes were made to the Fish Creek Sockeye Management Plan (5 AAC 21.364) concerning the Fish Creek Personal Use Dipnet fishery. The dip net fishery will now run July 10 through July 31 with a bag limit of 25 salmon per head of household plus 10 salmon per each household member. A permit is required.
3. The Skwentna River Personal Use Salmon Fishery Management Plan (5 AAC 77.526) establishes a subsistence fish wheel fishery in the Yentna River downstream of its confluence with the Skwentna River. This fishery was implemented as a personal use fishery during the 1996 and 1997 seasons.
4. Little Susitna River Coho Salmon Management Plan was modified. The option to increase the bag and possession limits of coho salmon in specified areas of the Little Susitna River when the escapement goal of 7,500 nonhatchery fish upstream of the Parks Highway is projected, was repealed. The bag and possession limits of salmon other than king salmon in the Little Susitna River are 3 fish per day and in possession.
5. At the November 1996 meeting the BOF modified 5 AAC 61.035. Only unbaited, single-hook, artificial lures may be used in all flowing waters of the Alexander Creek drainage upstream of an ADF&G regulatory marker located 400 yards upstream of the confluence of Trail Creek.

1997

Emergency Orders:

1. E.O. No. 2-RS-2-25-97 closed Fish Creek dipnetting from 11:00 a.m. July 23 through 11:00 p.m. July 25, 1997.
2. E.O. No. 2-RS-2-28-97 closed Fish Creek dipnetting for the remainder of the 1997 season on July 26, 1997.
3. E.O. No. 2-SS-02-31-97 prohibited use of bait and reduced daily bag and possession limit of coho salmon to one in all waters of Cook Inlet on August 9, 1997. Areas not included were Eklutna Tailrace, Ship, Bird, and Campbell creeks.
4. E.O. No. 2-SS-2-34-97 closed Wasilla Creek downstream from the railroad bridge, including Rabbit Slough and Spring Creek, to sport fishing August 23 through October 31, 1997.

1998

1. The Upper Yentna River Subsistence Salmon Fishery (5 AAC 01.593) establishes a subsistence fish wheel fishery in the Yentna River downstream of its confluence with the Skwentna River. This fishery was implemented as a personal use fishery during the 1996 and 1997 seasons. State Supreme Court and BOF action changed it to a subsistence fishery beginning in 1998. This change did not affect coho salmon harvest.

-continued-

Emergency Orders:

1. E.O. No. 2-KS-2-14-98 closes the Deshka River to all fishing 1,200 feet downstream and 300 feet upstream of the fish counting weir.
2. E.O. No. 2-RS-2-15-98 closes Fish Creek to dipnetting effective July 25, 1998 through July 31, 1998.

1999

1. Recreational fishing time on Fish, Wasilla and Cottonwood creeks has been reduced. Fishing hours were restricted from 24-hour fishing days to 12-hour fishing days (6:00 a.m. to 6:00 p.m.) in these Saturday and Sunday only fisheries. Once an angler has harvested a bag limit of three salmon, he/she may no longer fish on this stream for the remainder of the day.
2. In all waters of West Cook Inlet South of the Susitna River (i.e. Chuitna, Lewis, Theodore & McArthur River) once an angler has harvested a bag limit of 3 coho salmon he/she may no longer fish on this stream for the remainder of the day. These same streams are closed to coho salmon fishing from October 1-December 31.
3. For the Little Susitna River existing bait restrictions were modified to allow the use of bait during the month of September.
4. Little Susitna River Coho Salmon Management Plan was modified. The escapement goal of 7,500 coho salmon was changed to an escapement range of 9,600-19,200 nonhatchery fish.

Emergency Orders:

1. E.O. No. 2-KS-2-05-99 closed the Deshka River to fishing from 1,000 yards downstream to 200 yards upstream of the fish counting weir.
2. E.O. No. 2-RS-2-15-99 closed Fish Creek to dipnetting on July 26, 1999.
3. E.O. No. 2-SS-2-20-99 reduced the bag limit to 1 coho salmon and no bait for Cottonwood, Wasilla and Fish creeks and the Little Susitna River, on August 19, 1999.

2000

During the BOF meeting in February 2000 the following recreational fishery restrictions were put in place to address coho salmon conservation concerns.

The coho bag and possession limits in the Knik Arm (excluding the stocked coho fishery in the Eklutna Tailrace) and the Susitna River were reduced to 2. The West Cook Inlet bag and possession limits north of the West Foreland were reduced to 2 daily and 4 in possession. South of the West Foreland they remained at 3 daily and 6 in possession.

Wasilla Creek, Jim Lake, Upper Jim Creek and McRoberts Creeks were closed to coho fishing.

After taking a limit of coho from Fish and Cottonwood creeks a person may not fish that same day in Fish and Cottonwoods creeks in waters open to salmon fishing.

-continued-

The sockeye return to Fish Creek was poor again this year and the dip net fishery was closed early by EO.

Emergency Orders: The two coho daily bag limit caused some confusion on the Little Susitna River so an EO was issued to clarify the new regulation.

1. E.O. No. 2-SS-2-17-00 stated after keeping 2 coho below RM 32.5 Little Susitna River, an angler must quit fishing in the Little Susitna River for the remainder of the day, July 28-December 31.
2. E.O. No. 2-RS-2-16-00 closed Fish Creek to dipnetting on July 26, 2000.

2001

There were no new regulations concerning coho for the 2001 season.

Emergency Orders: Only one EO was issued affecting coho salmon harvest.

1. E.O. No. 2-RS-2-17-01 closed Fish Creek to dipnetting on July 12 at 11:00 p.m.

2002

The BOF met in February 2002 and adopted new regulations affecting coho.

1. The Larson Creek drainage upstream of a marker $\frac{1}{4}$ mile upstream from its mouth is closed to sport fishing for all salmon year-round.
2. Nancy Lake Creek drainage upstream of a marker $\frac{1}{4}$ mile upstream from its mouth is closed to all salmon fishing including catch-and-release.
3. The Clearwater and Roscoe creek drainages are closed year-round to all fishing upstream from a marker $\frac{1}{2}$ mile upstream of their confluences with the Chinitna River.
4. Open Fish Creek personal use fishery by EO when escapement goal is projected.
5. Open Wasilla Creek from its mouth to the Alaska Railroad bridge for salmon fishing (excluding king salmon). Saturday and Sunday only from 6:00 a.m.–6:00 p.m. only.
6. Eliminate use of bait on Little Susitna River July 14, upstream of the Little Susitna Public Use Facility.

Emergency Orders: Only one EO was issued affecting coho salmon harvest.

1. E.O. No. 2-SS-2-29-02 in Fish Creek increased coho bag limit to 3 per day and allowed 24-hour per day fishing on Saturdays and Sundays beginning August 17 at 12:01 a.m. through December 31.

2003

No new regulations adopted for 2003 and no EOs issued.

2004

No new regulations adopted for 2004 and no EOs issued.

-continued-

2005

The BOF met January 2005. Sport fish regulatory changes included:

1. A person may no longer fish in waters open to salmon fishing the same day they take a limit of salmon 16 inches or greater from Wasilla Creek.
2. Excluding Alexander Creek, the bag and possession limit for coho salmon on Westside Susitna streams was increased from two per day, four in possession to three per day, six in possession.
3. Anglers may no longer fish for other salmon (coho, pinks, chums) 16" or less in waters closed to fishing for other salmon.

The BOF adopted the following commercial fishery regulations:

1. Central District Drift Gillnet Fishery Management Plan (5 AAC 21.353)
 - The drift fishery opens the third Monday in June or June 19 whichever is later.
 - From July 9 through July 15,
 - Drift gillnet fishing is restricted for two regular fishing periods to the Kenai and Kasilof Sections and Drift Area One described below.
 - In runs of over 2 million sockeye salmon to the Kenai River there may be one additional 12-hour period in the Kenai and Kasilof Sections of the Upper Subdistrict and in Drift Area One.
 - From July 16 through July 31,
 - In runs of less than 2 million sockeye salmon to the Kenai River there will be two regular 12-hour fishing periods restricted to the Kenai and Kasilof Sections of the Upper Subdistrict and Drift Area one;
 - In runs of between 2 and 4 million sockeye salmon to the Kenai River; there will be two regular 12-hour fishing periods restricted to the Kenai and Kasilof Sections of the Upper Subdistrict and in Drift Areas One & Two;
 - In runs of over 4 million sockeye salmon to the Kenai River, there are no mandatory restrictions.
 - From August 11 until closed by emergency order,
 - Drift Areas three & Four are open for regular periods;
 - Chinitna Bay may be opened by emergency order.

New Drift Fishing Areas:

- (1) Drift Area One: includes those waters of the Central District south of Kalgin Island at 60° 20.43' N. lat.;
- (2) Drift Area Two: includes those waters of the Central District enclosed by a line from 60° 20.43' N. lat., 151° 54.83' W. long. to a point at 60° 41.08' N. lat., 151° 39.00' W. long. to a point at 60° 41.08' N. lat., 151° 24.00' W. long. to a point at 60° 27.10' N. lat., 151° 25.70' W. long. to a point at 60° 20.43' N. lat., 151° 28.55' W. long.;

-continued-

- (3) Drift Area Three; includes those waters of the Central District within one mile of mean lower low water (zero tide) south of a point on the West Foreland at 60° 42.70' N. lat., 151° 42.30' W. long.;
- (4) Drift Area Four; includes those waters of the Central District enclosed by a line from 60° 04.70' N. lat., 152° 34.74' W. long. to the Kalgin Buoy at 60° 04.70' N. lat., 152° 09.90' W. long. to a point at 59° 46.15' N. lat., 152° 18.62' W. long. to a point on the western shore at 59° 46.15' N. lat., 153° 00.20' W. long., not including the waters of the Chinitna Bay Subdistrict.

Other commercial fishery regulatory changes included:

- Up to 50 fathoms of the 150 fathoms of allowable drift gillnet gear per boat may be monofilament mesh; you must register with ADF&G prior to using monofilament gear.
- Spotter planes are allowed during the fishing period.
- Pink salmon fishery during even years was reauthorized; mesh size restriction was removed.
- Up to 35 fathoms of set gillnet gear per permit may be monofilament mesh with no more than one net per permit having monofilament mesh; you must register with ADF&G prior to using monofilament gear.

No emergency orders were issued affecting coho salmon fisheries in 2005.

2006

No new regulations adopted in 2006.

Emergency orders:

1. E.O. No. 2-SS-2-41-06 increased the daily bag limit of coho salmon to three daily in that portion of the Little Susitna River open to salmon fishing beginning August 19.
2. E.O. No. 2-SS-2-44-06 increased salmon fishing time on Wasilla Creek to 24 hours per day while keeping the Saturday and Sunday, weekend only restriction and increased the bag limit for coho salmon to three daily in those waters open to salmon fishing on August 19.
3. E.O. No. 2-SS-43-06 increased salmon (other than king salmon) fishing time on Fish Creek to 24 hours per day while keeping the Saturday and Sunday, weekend only restriction and increased the bag limit for coho salmon to three daily in those waters open to salmon fishing on August 19.
4. E.O. No. 2-SS-2-42-06 increased salmon fishing time on Cottonwood Creek to 24 hours per day while keeping the Saturday and Sunday, weekend only restriction and increased the bag limit for coho salmon to three daily in those waters open to salmon fishing on August 19.

2007

No new regulations adopted in 2007.

Emergency orders:

1. E.O. No. 2-SS-2-36-07 Prohibits retention of Coho salmon while sport fishing in the Kink Arm Management Area, excluding Eklutna Tail Race and fish creek effective September 4.
2. E.O. No. 2-SS-2-37-07 rescinded E.O. No. 2-SS-2-36-07 on September 11.

Appendix A4.-Northern Pike regulatory history for NCIMA waters.

1989

1. The board adopted a proposal to establish a bag limit of 10 per day 10 in possession on Northern Pike in Susitna-West Cook Inlet Area.

1997

2. Sport fishing for northern pike using five (5) lines is allowed in specified lakes of the Susitna-West Cook Inlet Area provided: hooks are single hooks with a gap between the point and shank no smaller than three-quarters inch, the lines are closely attended, and all species of fish other than northern pike are immediately released. Specified lakes include: Alexander Lake, Sucker Lake, Trapper Lake, Flathorn Lake, Whiskey Lake, Hewitt Lake, Donkey Lake, Three Mile Lake (Beluga area), Neil Lake, Kroto Lake, and lakes of the Nancy Lake Recreation Area excluding Nancy and Big No Luck Lake.
3. The 10 fish bag and possession limits on northern pike in the Susitna-West Cook Inlet Area were repealed.

1998

4. Established a slot limit for northern pike in Alexander and Trapper lakes. No bag and possession limits are in effect for pike less than 22 inches in length. Northern pike between 22 inches and 30 inches in length may not be retained. The bag and possession limits for pike 30 inches or greater in length are 1 per day and 1 in possession. Additionally, the action taken for Alexander and Trapper lakes reduced the number of lines allowed when fishing through the ice for northern pike from 5 lines to 2 lines, and prohibited the use of spears and bow and arrows for taking of northern pike.
5. Action resulted in allowing the use of bow and arrow for taking northern pike in NCI waters.
6. Action resulted in eliminating the 3/4-inch single-hook size restriction when fishing through the ice on select northern Cook Inlet lakes where 5 lines are allowed.

2002

1. The use of five lines while ice fishing for pike apply to seven additional lakes in Northern Cook Inlet: Trapper Lake, Big No Luck Lake, Figure Eight Lake, Cabin Lake, Lower Vern Lake, Upper Vern Lake and Lockwood Lake. On Trapper Lake, there is no longer a "slot limit" for pike; bait, multiple hooks, spears, and bow and arrow gear are now allowed. For the purposes of sport fishing, legal bow and arrow gear includes crossbows. When fishing through the ice for pike, anglers may use two hooks on a single line, provided that both hooks are attached to one single piece of bait.

**APPENDIX B. PRESENCE OF NORTHERN PIKE IN WATERS
OF THE NORTHERN COOK INLET MANAGEMENT AREA**

Appendix B1.-Confirmed and suspected presence of northern pike in waters of the Northern Cook Inlet Management Area.

Primary classification	Secondary Classification	Site	Presence Documented	Presence Suspected
Susitna Basin Lakes	Alexander Creek	Alexander Lake	X	
Susitna Basin Lakes	Alexander Creek	Sucker Lake	X	
Susitna Basin Lakes	Alexander Creek	Trail Lake	X	
Susitna Basin Lakes	Alexander Creek	Rabbit Lake	X	
Susitna Basin Lakes	Lower Susitna	Flathorn Lake	X	
Susitna Basin Lakes	Lower Susitna	Figure 8 Lake	X	
Susitna Basin Lakes	Mid Susitna	Witsoe Lake	X	
Susitna Basin Lakes	Mid Susitna	Witsol Lake	X	
Susitna Basin Lakes	Mid Susitna	Lockwood Lake	X	
Susitna Basin Lakes	Mid Susitna	Lady Slipper	X	
Susitna Basin Lakes	Mid Susitna	Unnamed	X	
Susitna Basin Lakes	Mid Susitna	Unnamed	X	
Susitna Basin Lakes	Mid Susitna	Unnamed	X	
Susitna Basin Lakes	Mid Susitna	Vern Lake	X	
Susitna Basin Lakes	Mid Susitna	Ding Dong	X	
Susitna Basin Lakes	Mid Susitna	Yensus Lake		X
Susitna Basin Lakes	Yentna River	Whiskey Lake	X	
Susitna Basin Lakes	Yentna River	Bulchitna Lake	X	
Susitna Basin Lakes	Yentna River	Fish Creek Lake 1	X	
Susitna Basin Lakes	Yentna River	Fish Creek Lake 2	X	
Susitna Basin Lakes	Yentna River	Fish Creek Lake 3	X	
Susitna Basin Lakes	Yentna River	Fish Creek Lake 4	X	
Susitna Basin Lakes	Yentna River	Donkey Lake	X	
Susitna Basin Lakes	Yentna River	Hewitt Lake	X	
Susitna Basin Lakes	Yentna River	No Name (Big Bend)	X	
Susitna Basin Lakes	Yentna River	Chelatna Lake	X	
Susitna Basin Lakes	Yentna River	Cabin Lake (Big Bend)	X	
Susitna Basin Lakes	Yentna River	Pear Lake (Upper Skwentna)	X	
Susitna Basin Lakes	Yentna River	Stickleback Lake	X	
Susitna Basin Lakes	Skwentna River	Eight Mile Lake	X	
Susitna Basin Lakes	Skwentna River	Seven Mile Lake	X	
Susitna Basin Lakes	Skwentna River	No Name (Herk Strip)	X	
Susitna Basin Lakes	Skwentna River	One Stone Lake	X	
Susitna Basin Lakes	Skwentna River	Shell Lake	X	
Susitna Basin Lakes	Deshka River	Parker Lake	X	
Susitna Basin Lakes	Deshka River	Trapper Lake	X	
Susitna Basin Lakes	Deshka River	No Name Lake	X	
Susitna Basin Lakes	Deshka River	Ambler Lake	X	
Susitna Basin Lakes	Deshka River	Rocky Lake	X	
Susitna Basin Lakes	Deshka River	Neil Lake	X	
Susitna Basin Lakes	Deshka River	Kroto Lake	X	
Susitna Basin Lakes	Deshka River	No Name 1mi SW Parker	X	

-continued-

Appendix B1.-Page 2 of 4.

Primary classification	Secondary Classification	Site	Presence Documented	Presence Suspected
Susitna Basin Lakes	Deshka River	No Name 2 mi SW Parker	X	
Susitna Basin Lakes	Upper Susitna	Kashwitna Lake		X
Susitna Basin Lakes	Upper Susitna	Caswell Lake		X
Susitna Basin Lakes	Upper Susitna	Fish Lake (Birch Ck)		X
Susitna Basin Lakes	Upper Susitna	Sawmill Lake		X
Susitna Basin Lakes	Upper Susitna	Swan Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Nancy Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Redshirt Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Lynx Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Cow Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Little Chicken Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Big No Luck Lake	X	
Susitna Basin Lakes	Nancy Lake Area	South Rolly Lake	X	
Susitna Basin Lakes	Nancy Lake Area	North Rolly Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Denaina Lake (Tanaina)	X	
Susitna Basin Lakes	Nancy Lake Area	Milo Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Frazer Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Little Frazer Lake	X	
Susitna Basin Lakes	Nancy Lake Area	James Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Owl Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Char Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Ardaw Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Phoebe Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Chicken Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Echo Pond #1	X	
Susitna Basin Lakes	Nancy Lake Area	Echo Pond #2	X	
Susitna Basin Lakes	Nancy Lake Area	Echo Pond #3	X	
Susitna Basin Lakes	Nancy Lake Area	Candle Stick Lake	X	
Susitna Basin Lakes	Nancy Lake Area	Bains Pond #1	X	
Susitna Basin Lakes	Nancy Lake Area	Bains Pond #2	X	
Susitna Basin Lakes	Nancy Lake Area	Bains Pond #3	X	
Susitna Tributaries		Fish Creek (Flathorn)	X	
Susitna Tributaries		Fish Creek (Kroto)	X	
Susitna Tributaries		Lake Creek	X	
Susitna Tributaries		Fish Lake Creek	X	
Susitna Tributaries		Alexander Creek	X	
Susitna Tributaries		Trappers Creek	X	
Susitna Tributaries		Sucker Creek	X	
Susitna Tributaries		Montana Creek	X	
Susitna Tributaries		Rolly Creek	X	
Susitna Tributaries		Moose Creek	X	
Susitna Tributaries		Bottle Creek	X	
Susitna Tributaries		Hewitt Creek	X	

-continued-

Appendix B1.-Page 3 of 4.

Primary classification	Secondary Classification	Site	Presence Documented	Presence Suspected
Susitna Tributaries		Donkey Creek	X	
Susitna Tributaries		Indian Creek (Yentna)	X	
Susitna Tributaries		Indian (Chulitna)		X
Susitna Tributaries		Rabideux Creek	X	
Susitna Tributaries		Fish Lake Creek	X	
Susitna Tributaries		Kutna Creek (Yentna)	X	
Susitna Tributaries		Shell Creek	X	
Susitna Tributaries		Eightmile Creek	X	
Susitna Tributaries		Caswell Creek	X	
Susitna Tributaries		Witsoe Creek	X	
Susitna Tributaries		Trapper (Talkeetna)		X
Susitna Tributaries		Talachulitna Creek		X
Susitna Tributaries		Johnson Creek	X	
Susitna Tributaries		Otter Creek	X	
Susitna Tributaries		Unnamed (Lower Su)	X	
Susitna Tributaries		Sunshine Creek		X
Susitna Tributaries		Anderson Creek		X
Susitna Tributaries		Wiggel Creek		X
Susitna Tributaries		Birch Creek		X
Susitna Tributaries		Yentna River	X	
Susitna Tributaries		Skwentna River	X	
Susitna Tributaries		Chulitna River		X
Susitna Tributaries		Tokositna	X	
Susitna Tributaries		Deshka River	X	
Knik Arm Drainage	Big Lake Drainage	Fish Creek (Big Lake)		X
Knik Arm Drainage	Big Lake Drainage	Meadow Creek (Big Lake)		X
Knik Arm Drainage	Big Lake Drainage	Big Lake	X	
Knik Arm Drainage	Big Lake Drainage	Blodgett Lake		X
Knik Arm Drainage	Big Lake Drainage	West Beaver Lake		X
Knik Arm Drainage	Big Lake Drainage	Rainbow Lake		X
Knik Arm Drainage	Cottonwood Creek	Cottonwood Creek		X
Knik Arm Drainage	Cottonwood Creek	Cottonwood Lake		X
Knik Arm Drainage	Cottonwood Creek	Andersen Lake	X	
Knik Arm Drainage	Cottonwood Creek	Wasilla Lake		X
Knik Arm Drainage	Cottonwood Creek	Mud Lake		X
Knik Arm Drainage		Little Susitna River	X	
Knik Arm Drainage	Little Susitna River	Horseshoe Lake (Little-Su)		X
Knik Arm Drainage	Knik River	Swan Lake		X
Knik Arm Drainage	Knik River	Jim Lake/Jim Creek		X
Knik Arm Drainage		Knik Lake	X	
Knik Arm Drainage		Mink Creek	X	
Knik Arm Drainage		Fire Creek	X	
West Cook Inlet		Chuit River	X	

-continued-

Appendix B1.-Page 4 of 4.

Primary classification	Secondary Classification	Site	Presence Documented	Presence Suspected
West Cook Inlet		Chuitbunga Lake	X	
West Cook Inlet		Threemile Creek	X	
West Cook Inlet	Threemile Creek	Threemile lakes	X	
West Cook Inlet		Tukallah Lake	X	
West Cook Inlet		Nikolai River	X	
Mat-Valley Lakes		Big Lake cut-off Lake	X	
Mat-Valley Lakes		Crystal Lake (Willow)	X	
Mat-Valley Lakes		Shirley Lake (Willow)		X
Mat-Valley Lakes		Long Lake (Willow)	X	
Mat-Valley Lakes		Prator Lake	X	
Mat-Valley Lakes		Memory Lake	X	
Mat-Valley Lakes		Finger Lake		X
Mat-Valley Lakes		Wallace Lake	X	
Anchorage Lakes		Sand Lake	X	
Anchorage Lakes		Delong Lake	X	
Anchorage Lakes		Lower Fire Lake	X	
Anchorage Lakes		Upper Fire Lake	X	