Fishery Management Report No. 10-53

Area Management Report for the Recreational Fisheries of Anchorage, 2009 and 2010

by

Dan Bosch

December 2010

Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

Symbols and Abbreviations

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Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	*e*
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	*E*
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	log_2, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

FISHERY MANAGEMENT REPORT NO. 10-53

AREA MANAGEMENT REPORT FOR THE RECREATIONAL FISHERIES OF ANCHORAGE, 2009 AND 2010

by

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TABLE OF CONTENTS

Page

LIST OF TABLES iv

LIST OF FIGURES v

LIST OF APPENDICES vi

ABSTRACT 1

INTRODUCTION 1

AREAWIDE OVERVIEW 1

Areawide Effort 1
Areawide Catch and Harvest 2

STOCKED LAKES FISHERIES 3

Fishery Description 3
Historical Catch, Harvest and Effort 3
Fishery Performance in 2009 and 2010 4
Fishery Management and Objectives 4

CHINOOK SALMON FISHERIES 5

Areawide Overview 5
Areawide Historical Catch, Harvest and Effort 5

Ship Creek Chinook Salmon Fishery 6
Fishery Description 6

Stocking Program 7

Historical Catch, Harvest, Effort and Escapement 7

Fishery Performance and Escapement in 2009 and 2010 8

Fishery Management and Objectives 8

Eagle River Chinook Salmon Fishery 9
Fishery Description 9

Stocking Program 10

Historical Catch, Harvest and Effort 10

Fishery Performance and Escapement in 2009 and 2010 10

Fishery Management and Objectives 11

Campbell Creek Chinook Salmon Fishery 11
Fishery Description 11

Stocking Program 12

Historical Catch, Harvest and Effort 12

Fishery Performance and Escapement in 2009 and 2010 12

Fishery Management and Objectives 12

Other Chinook Salmon Fisheries 12
Fishery Description 12

Stocking Program 13

TABLE OF CONTENTS (Continued)

Page

Fishery Management and Objectives 13

COHO SALMON FISHERIES 13

Areawide Overview 13
Areawide Historical Catch, Harvest and Effort 13

Ship Creek Coho Salmon Fishery 14
Fishery Description 14

Stocking Program 15

Historical Catch, Harvest and Effort 15

Fishery Performance and Escapement in 2009 and 2010 16

Fishery Management and Objectives 16

Campbell Creek Coho Salmon Fishery 16
Fishery Description 16

Stocking Program 17

Historical Catch, Harvest and Effort 18

Fishery Performance and Escapement in 2009 and 2010 18

Fishery Management and Objectives 18

Bird Creek Coho Salmon Fishery 19
Fishery Description 19

Stocking Program 19

Historical Catch, Harvest and Effort 20

Fishery Performance and Escapement in 2009 and 2010 20

Fishery Management and Objectives 20

Turnagain Arm Coho Salmon Fisheries 20
Fishery Description 20

Stocking Program 21

Historical Catch, Harvest and Effort 21

Fishery Performance and Escapement in 2009 and 2010 21

Fishery Management and Objectives 22

Other Coho Salmon Fisheries 22
Fishery Description 22

Stocking Program 22

Historical Catch, Harvest and Effort 22

Fishery Management and Objectives 22

PINK SALMON FISHERIES 23

Areawide Overview 23
Areawide Historical Catch, Harvest and Effort 23

TABLE OF CONTENTS (Continued)

Page

Bird Creek Pink Salmon Fishery 23
Fishery Description 23
Stocking Program 23
Historical Catch, Harvest and Effort 24
Fishery Performance and Escapement in 2009 and 2010 24
Fishery Management and Objectives 24
Other Pink Salmon Fisheries 24
Fishery Description 24
Stocking Program 24
Historical Catch, Harvest and Effort 24
Fishery Performance in 2009 and 2010 25
Fishery Management and Objectives 25
OTHER FISHERIES 25
Sockeye Salmon 25
Chum Salmon 26
Steelhead Trout 26
Rainbow Trout 27
Arctic Char/Dolly Varden 28
Arctic Grayling 28
Northern Pike 29
Eulachon 30
SUMMARY OF PERFORMANCE AND ESCAPEMENT 30
REFERENCES CITED 31
TABLES AND FIGURES 35
APPENDIX A. REGULATION SUMMARIES 59
APPENDIX B. ESCAPEMENT COUNTS 67
APPENDIX C. HISTORICAL STOCKING TABLES 77

LIST OF TABLES

Table **Page**

1. Sport fishing effort expended in the Anchorage Management Area compared to Southcentral Alaska and statewide, 1990–2009. 38
2. Saltwater, lake, and stream sport fishing effort, Anchorage Management Area, 1990–2009. 40
3. Angler sport fishing effort for streams in the Anchorage Management Area, 1990–2009..... 41
4. Angler sport fishing effort for lakes in the Anchorage Management Area, 1990–2009..... 42
5. Sport fish catch and harvest of anadromous salmon, Anchorage Management Area, 1990–2009..... 43
6. Freshwater catch and harvest of landlocked salmon, Dolly Varden/Arctic char, and rainbow trout, Anchorage Management Area, 1990–2009. 44
7. Freshwater catch and harvest of Arctic grayling, northern pike, and lake trout; and personal use eulachon harvest, Anchorage Management Area 1990–2009. 45
8. Lake sport fish catch and harvest, Anchorage Management Area, 1990–2009..... 47
9. Chinook (king) salmon sport fish catch and harvest, Anchorage Management Area, 1990–2009..... 48
10. Coho salmon sport fish catch and harvest, Anchorage Management Area, 1990–2009..... 49
11. Pink salmon sport fish catch and harvest, Anchorage Management Area, 1990-2009..... 51
12. Sockeye salmon sport fish catch and harvest, Anchorage Management Area, 1990–2009..... 52
13. Chum salmon sport fish catch and harvest, Anchorage Management Area, 1990–2009. 53
14. Rainbow trout sport fish catch and harvest, Anchorage Management Area, 1990–2009..... 54
15. Dolly Varden sport fish catch and harvest, Anchorage Management Area, 1990–2009..... 55
16. Arctic grayling sport fish catch and harvest, Anchorage Management Area, 1990–2009. 56
17. Northern pike sport fish catch and harvest, Anchorage Management Area, 2000–2009. 57
18. Eulachon personal use harvest, Anchorage Management Area, 1990–2009..... 58

LIST OF FIGURES

Figure **Page**

1. Anchorage Management Area (AMA) delimited for sport fisheries. 37
2. Overall angler effort, Anchorage Management Area, 2000–2009. 39
3. Angler fishing effort for all streams in the Anchorage Management Area, 2000–2009 41
4. Angler fishing effort for lakes in the Anchorage Management Area, 2000–2009 42
5. Sport fish catch and harvest of anadromous salmon, Anchorage Management Area, 2000–2009. 43
6. Map of stocked lakes in the Anchorage Management Area. 46
7. Lake sport fish catch and harvest, Anchorage Management Area, 2000–2009. 47
8. Chinook (king) salmon sport fish catch and harvest, Anchorage Management Area, 2000–2009. 48
9. Coho salmon sport fish catch and harvest, Anchorage Management Area, 2000–2009 49
10. Lower Campbell Creek showing areas open to coho salmon sport fishing. 50
11. Pink salmon sport fish catch and harvest, Anchorage Management Area, 2000–2009. 51
12. Sockeye salmon sport fish catch and harvest, Anchorage Management Area, 2000–2009. 52
13. Chum salmon sport fish catch and harvest, Anchorage Management Area, 2000–2009. 53
14. Rainbow trout sport fish catch and harvest, Anchorage Management Area, 2000–2009. 54
15. Dolly Varden sport fish catch and harvest, Anchorage Management Area, 2000–2009. 55
16. Arctic grayling sport fish catch and harvest, Anchorage Management Area, 2000–2009. 56
17. Northern pike sport fish catch and harvest, Anchorage Management Area, 2000–2009. 57
18. Eulachon personal use harvest, Anchorage Management Area, 2000–2009. 58

LIST OF APPENDICES

Appendix **Page**

A1. Sport fishing regulations for Ship Creek, 1957–2010. 61
A2. Sport fishing regulations for Eagle River, 1957–2010. 63
A3. Sport fishing regulations for Campbell Creek, 1957–2010. 65
B1. Ship Creek salmon escapement estimates, Anchorage Management Area, 1990–2010..... 69
B2. Eagle River salmon escapement estimates, Anchorage Management Area, 1990–2010. 70
B3. Campbell Creek salmon escapement estimates, Anchorage Management Area, 1986–2010. 71
B4. Bird Creek salmon escapement estimates, Anchorage Management Area, 1990–2010..... 72
B5. Turnagain Arm coho salmon aerial survey escapement estimates, Anchorage Management Area, 1994–2010..... 73
B6. Sixmile Creek salmon escapement estimates, Anchorage Management Area, 1990–2010..... 74
B7. Rabbit Creek salmon escapement estimates, Anchorage Management Area, 1990–2010. 75
C1. Arctic char stocking in Anchorage Management Area by year (1990–2010) and lake. 79
C2. Chinook (king) salmon stocking in Anchorage Management Area by year (1990–1999) and site. 80
C3. Chinook (king) salmon stocking in Anchorage Management Area by year (2000–2010) and site. 81
C4. Coho salmon stocking in Anchorage Management Area by year (1990–1999) and site. 82
C5. Coho salmon stocking in Anchorage Management Area by year (2000–2010) and site. 83
C6. Other fish stocking in the Anchorage Management Area by species, year and site. 84
C7. Rainbow trout stocking in Anchorage Management Area by year (1990–2000) and site. 85
C8. Rainbow trout stocking in Anchorage Management Area by year (2001–2010) and site. 87
C9. Arctic grayling stocking in Anchorage Area by year (1990–2010) and site. 88

ABSTRACT

This report provides a detailed summary of sport fisheries in the Anchorage Management Area for which the Alaska Board of Fisheries (BOF) is considering proposals in February 2011. Included are a description and historical overview of each sport fishery, how each fishery is managed, and the performance and escapement for each fishery in 2009 and 2010.

Key words: Anchorage Management Area, Area Management Report, Alaska Board of Fisheries, sport fisheries overview.

INTRODUCTION

This report provides a detailed summary of sport fisheries in the Anchorage Management Area (AMA) for which the Alaska Board of Fisheries (BOF) is considering proposals in February 2011. Included are a description and historical overview of each sport fishery, how each fishery is managed, and the performance (catch and harvest in 2009) and escapement (in 2010) for each fishery.

The Anchorage Sport Fish Management Area (AMA) consists of all waters flowing into eastside Knik Arm and northside Turnagain Arm from the Eklutna River drainage in the north to Ingram Creek in the south (Figure 1). Local communities within the area include Anchorage, Eagle River, Chugiak, Birchwood, Peters Creek, Eklutna, Indian, Bird, Girdwood, Portage; and two military reservations—Elmendorf Air Force Base, and Fort Richardson Army Post, now combined by the military and called Joint Base Elmendorf Richardson (JBER). Of Alaska's 710,231 residents (U. S. Census Bureau 2010 data), 40% or 286,174 people reside in the AMA. Access to AMA sport fisheries is primarily by road. AMA land managers include private individuals, Municipality of Anchorage (MOA), Alaska Railroad Corporation (ARRC), Alaska Department of Natural Resources (ADNR), U.S. Forest Service (USFS), U.S. Bureau of Land Management (BLM), U.S. Department of Defense (DOD), and Alaska Native organizations. Management and research functions for AMA sport fisheries are conducted by Alaska Department of Fish and Game (ADF&G), Division of Sport Fish (SF) staff from the Anchorage regional office.

Codified regulations for AMA sport fisheries are found in the Anchorage Section under Chapter 59 of the Alaska Administrative Code (AAC). For the purposes of effort, harvest, and catch reporting, the Statewide Harvest Survey (SWHS) is used (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, 2009a-b, 2010a-b, *In prep*). Catch was estimated by the SWHS beginning in 1990. AMA fisheries fall under Area L in the SWHS. Estimates presented in the text of this report are rounded to the nearest 10 fish; tables present estimates to the nearest 1 fish to maintain consistency with the SWHS. Estimates of effort, catch, and harvest from the SWHS are available through 2009; escapement counts are available through 2010.

AREAWIDE OVERVIEW

AREAWIDE EFFORT

In 2009, angler effort in the Anchorage Management Area (AMA) was estimated at 79,743 angler-days, which was about 4% of the total statewide sport fishing effort and 5% of the total Southcentral Alaska effort (Table 1). Overall angler effort in the AMA has declined since 2000 (Figure 2). Streams accounted for 62% of the total 2009 AMA fishing effort, lakes accounted for 35%, and saltwater angling represented about 3% (Table 2). Effort expended in AMA streams

grew during the 1990s mostly as a result of ADF&G's urban coho salmon *Oncorhynchus kisutch* and Chinook salmon *O. tshawytscha,* stocking programs; however, effort dropped again between 2000 and 2009 (Table 3, Figure 3). The Ship Creek salmon sport fishery has been the most popular stream fishery in the AMA. In 2009, Ship Creek accounted for 48% of the AMA stream effort, up from 19% in 1985 before stocked fish became available in the fishery. Other AMA streams that received substantial effort were Bird Creek (28% of 2009 total stream effort), Campbell Creek (6%), and Twentymile River (4%). Bird Creek angler effort increased after previous years (2002–2004) of low effort due to construction of a new parking area and a break in ADF&G's Bird Creek stocking program. Coho salmon were not stocked from 2001 through 2003 to avoid attracting anglers to Bird Creek during a construction project just north of the creek along the Seward Highway.

Effort expended in AMA lakes declined from a peak of 85,720 angler-days in 1990 (Table 4) and has continued to decline from 2000 to 2009 (Figure 4). The recent 5-year (2005–2009) average effort for area lakes was 33,070 angler-days (Table 4). ADF&G hatcheries lost heated water and the ability to rear fish to catchable-size, or proper smolt size (a catchable sized fish is about 8 inches in length) in 2005. Then, in 2007, pathology concerns at Elmendorf Hatchery prompted ADF&G to reduce the number of stocked water bodies (lakes and streams) in the AMA from 28 to 14. This reduction in stocking is reflected by a continued drop in angler effort since that time (Figure 4). When the William Jack Hernandez State Fish Hatchery opens in 2012, all 28 lakes and streams in the AMA, once stocked by ADF&G, will be stocked with catchable-size resident fish again. The most popular area lakes in 2009 were Jewel Lake (13% of total lake effort), Mirror (7%), Clunie (5%), Otter (5%), and Sixmile (4%) lakes (Table 4). Other lakes combined accounted for 58% of the angler effort for lakes in the AMA. Effort on lakes located on the Joint Base Elmendorf Richardson (JBER) has dropped since increased security after September 11, 2001 limited civilian access to those lakes.

AREAWIDE CATCH AND HARVEST

Anadromous salmon catch in the AMA has increased in the past 5 years (2005–2009) with a peak in total catch in 2009 (Figure 5). This increased catch is driven by an increase in wild pink salmon in the AMA. In these same 5 years, anadromous salmon harvest has varied between 17,345 and 25,706 fish (Table 5, Figure 5) The ability of ADF&G hatcheries to produce smolt that meet the target release size has influenced AMA anadromous stocked fisheries in Ship, Campbell, and Bird creeks. The loss of hot water at both hatcheries resulted in Chinook salmon smolt smaller than the 12 gram release target size, and coho salmon smolt smaller than the 20 gram target release size. Smaller smolt likely had lower marine survival rate, and thus fewer salmon returning to stocked streams. During the last 5 years (2005–2009) pink salmon *O. gorbuscha* comprised the largest anadromous salmon catch (32,400 per year on average) by AMA anglers (Table 5), followed by coho salmon (24,700), Chinook salmon (6,100), chum salmon *O. keta* (4,350), and sockeye salmon *O. nerka* (900). Rainbow trout *O. mykiss* (39,700 per year on average between 2005 and 2009) dominated the freshwater species catch followed by landlocked salmon (Chinook salmon, 7,950), Dolly Varden *Salvelinus malma*/Arctic char *S. arcticus* (6,333), and Arctic grayling *Thymallus arcticus* (1,331) (Tables 6 and 7). From 2005 through 2009, anglers released on average most of their catch including chum salmon (94% released), pink salmon (91%), Arctic grayling (76%), rainbow trout (80%), Dolly Varden/Arctic char (78%), and landlocked salmon (70%) (Tables 5, 6, and 7). Anglers released 69% of their

sockeye salmon catch, 54% of their Chinook salmon catch, and 39% of their coho salmon catch (Table 5).

STOCKED LAKES FISHERIES

FISHERY DESCRIPTION

Few Anchorage Management Area (AMA) lakes supported resident fish populations of recreational interest before the initiation of stocking efforts. Most lakes are landlocked and threespine stickleback *Gasterosteus aculeatus* was the only fish species present. In the 1960s, ADF&G began a rainbow trout stocking program to increase sport fishing opportunities within the AMA. AMA lakes are now stocked with only catchable-sized fish, and AMA lakes are the biggest receiver of catchable-sized fish from state hatcheries. Fish species stocked into AMA lakes are rainbow trout, Arctic char, Arctic grayling, and landlocked Chinook salmon. Locations of stocked lakes can be found in Figure 6.

In order to evaluate the stocking program, a creel survey was conducted during 1986 on four AMA lakes (Havens et al. 1987). Results of this survey indicated that youths and adult males were the primary recreational anglers. The main objective of the survey was to determine if a single annual spring release of a large number of rainbow trout was suitable for anglers using AMA lakes. Data indicated that catch rates remained high for 2 to 6 weeks after stocking, and then dropped to below one fish per angler-hour. It was recommended, and adopted, that initial stocking would occur after ice-out and then a second stocking would be repeated after 4 to 6 weeks. Multiple stocking of high use lakes appeared to increase fishing success throughout the open water season. The AMA stocked lakes and streams program has increased sport fishing opportunities for the general public, including the development of educational fishing classes for youths and adults, an annual ice fishing jamboree for disabled and underprivileged anglers, and the Ship Creek King Salmon Derby that benefits the Downtown Soup Kitchen.

Daily bag and possession limits for stocked AMA lakes vary by species. For rainbow trout, limits are 5 per day, 5 in possession, of which only 1 can be 20 inches or more in length. Anglers must immediately record rainbow trout 20 inches or more in length on the back of their sport fishing license, and for all Cook Inlet waters combined, there is a seasonal limit of 2 rainbow trout 20 inches or more in length. Dolly Varden/Arctic char limits are 5 per day, 5 in possession with no size limit in stocked lakes. Arctic grayling limits in stocked lakes are 5 per day, 5 in possession. Landlocked salmon limits are 10 per day, 10 in possession with no size restrictions.

HISTORICAL CATCH, HARVEST AND EFFORT

News releases and weekly fishing reports outlining lake stocking efforts have helped to keep anglers up to date on the status of AMA lakes. Stocked AMA lakes have provided significant urban angling opportunities throughout the year and have supported an average 34% of the annual AMA sport fishing effort from 2005 through 2009 (Table 2). The most popular AMA lakes include Jewel and Cheney in the Anchorage bowl, Otter, Clunie and Sixmile lakes on Joint Base Elmendorf Richardson (JBER), and Mirror Lake in Peters Creek (Table 4).

An economic study prepared by Northern Economics (Northern Economics Inc. 2004) estimated the AMA stocked lakes fishery provided the Anchorage area with an annual benefit of more than $3,000,000.

Effort, catch, and harvest in AMA stocked lakes has dropped considerably since 2005 when both state hatcheries lost hot water, and thus the ability to rear fish to catchable size (Figure 4). In spring 2011, the William Jack Hernandez State Fish Hatchery is scheduled to take in its first rainbow trout eggs. This new facility will have heated water and the ability to rear catchable-sized fish in 1 year. All previously stocked AMA lakes will be stocked for the first time since 2007 and for the first time with catchable-sized fish since 2005. The first catchable-sized fish will be released in 2012 and it is anticipated that effort, catch, and harvest in AMA lakes will return to historic levels.

FISHERY PERFORMANCE IN 2009 AND 2010

The total numbers of sport fish caught and harvested in 2009 in AMA lakes were 42,167, and 10,577, respectively (Table 8). Total catch and harvest in AMA lakes has decreased from its peak in 2000 of 198,200 and 44,240, respectively (Figure 7). In 2009, more rainbow trout were caught and harvested (31,391 caught; 5,706 harvested) in AMA lakes than landlocked salmon (4,972 caught, 1,948 harvested), Arctic grayling (1,124 caught, 194 harvested), or Arctic char (1,797 caught, 653 harvested) (Table 8). Effort, catch and harvest has varied in AMA lakes in the past, but due to issues at ADF&G hatcheries, the 5-year average (2005–2009) of annual catch and harvest of sport fish has dropped to 52,958 and 12,325, respectively compared to the prior 10-year average (1995–2004) of 142,134 and 37,258, respectively (Table 8).

Statewide Harvest Survey (SWHS) estimates for 2010 sport fishery performance will not be available until fall 2011. AMA stocking levels, onsite observations and angler reports from inseason stocked lake fisheries monitoring suggest that effort, catch and harvest has followed current trends and has continued to drop. Reductions in the number and/or size of fish available for release in local stocked lakes have had detrimental effects on the popularity and productivity of local stocked lakes fisheries. For the years 2010 and 2011, all fish for AMA lakes had to be stocked at once, during the spring and early summer of 2010, due to the closure of Elmendorf State Fish Hatchery. Only 20,159 rainbow trout and 434 Arctic char of catchable size were available to stock. However there were quite a number of fingerling fish to stock. It is yet to be seen if AMA lakes will be good grow-out lakes for these small fish, or if these fish will even survive. There were 226,410 rainbow trout, 8,458 Arctic char, and 10,919 Arctic grayling fingerlings stocked. To conserve these catchable sized fish and to help ensure angler opportunity throughout the fishing season, an emergency order (EO 2-R-2-11-10) was issued to reduce the bag limit from 5 per day per species to 2 per day per species with only one fish over 12 inches allowed. The new William Jack Hernandez State Fish Hatchery is being constructed on the same site as the Elmendorf facility and is scheduled to take in its first fish eggs in the spring of 2011. The catchable fish program was operated at the Elmendorf facility, so all catchable-sized fish were stocked into AMA waters when the facility closed, and no catchable product will be available for stocking into AMA waters until 2012.

FISHERY MANAGEMENT AND OBJECTIVES

The management objective for AMA lakes is to maintain 75,000 angler-days of effort annually. The 2009 Anchorage lake effort was estimated at 27,910 angler-days, the lowest on record (Table 4). This drop in effort is likely due to the loss of hot water and other issues affecting production capacity at the two ADF&G hatcheries. These problems have resulted in dramatic reductions in stocking levels of many popular AMA sport fisheries, including those for rainbow

trout, landlocked salmon, and Arctic grayling. Stocking goals, public information programs, news releases, and community school classes are used to attain the management objective.

Northern pike have also been illegally introduced and documented in six AMA lakes. The presence and spread of these invasive northern pike have been identified as top concerns by area mangers and regional staff. The northern pike management program began in 2003 with sampling of Lower Fire, Sand, and Cheney lakes using 30 and 48 ft variable mesh gillnets, baited hoop traps, fyke nets, and spears. The presence of ADF&G staff, targeting northern pike in area lakes, captured the attention of local anglers and media who reported the sampling trips and helped increase public awareness of the local northern pike problem. Educating the public and encouraging anglers to harvest northern pike is a crucial component in ADF&G's efforts to control northern pike in AMA lakes. ADF&G staff has continued to set gillnets and hoop traps in Lower Fire, Sand, Campbell, and Cheney lakes and to monitor reports of northern pike presence in other systems. In October of 2008, Cheney Lake was treated with rotenone and ADF&G monitored the lake all winter. During May 2009, gillnet sampling failed to find northern pike in Cheney Lake, however many invertebrate species were collected and apparently continued to thrive. Cheney Lake was once again stocked with catchable-sized fish and in 2009 was the second most fished lake in the AMA. A grass roots effort by residents around Sand Lake helped ADF&G start northern pike removal from this lake too. In October of 2009, Sand Lake was treated with rotenone and spring sampling in 2010 failed to find any northern pike. Sand Lake was stocked with catchable fish and residents around the lake reported good rainbow trout fishing once more. AMA lakes will continue to be monitored for the presence of northern pike and removal methods will be determined on a case-by-case basis.

CHINOOK SALMON FISHERIES

AREAWIDE OVERVIEW

Areawide Historical Catch, Harvest and Effort

Although several Anchorage Management Area (AMA) streams support wild Chinook salmon stocks, few are large enough to support a recreational fishery without stocking. As a result, sport fishing for Chinook salmon in streams has been closed with few exceptions. Wild Chinook salmon runs are found in Campbell, Bird, Indian, Rabbit, California (a tributary to Glacier Creek in Girdwood), Peters, Portage, and Ship creeks and Eagle, Eklutna, Glacier, Carmen, Twentymile, and Placer rivers. Chinook salmon return to AMA streams from late May through early July. Due to the timing of these returns, commercial catches of Chinook salmon bound for AMA streams are assumed to be small and occur primarily in the June Northern District commercial setnet fishery.

The Campbell Creek Youth Fishery targets wild stocks and was created in 2005 when the Alaska State Legislature gave the Board of Fisheries the authority to create fisheries for youths 15 years of age and younger (youths are not required to obtain a sport fishing license). Youths may fish for Chinook salmon on Campbell Creek between Dimond Boulevard and the Old Seward Highway between 6:00 a.m. and 10:00 p.m. daily on the last Saturday and Sunday of June of each year. Campbell Creek is closed to fishing for Chinook salmon the rest of the year.

Eagle River was first stocked with Chinook salmon smolt of Ship Creek origin in 1991 in an attempt to create another urban Chinook salmon fishery and opened to sport fishing in 1992 (Appendix C2). As minimal harvest and participation were documented for Eagle River from

1992 through 1994 (catch averaged 108 fish, harvest averaged 51; calculated from Table 9), the stocking program was eliminated in early 1995. The Eagle River Chinook salmon season was reduced in time and area beginning in 1996. The area around the Glenn Highway Bridge remains open to Chinook salmon sport fishing for four "3-day weekends" (Saturday, Sunday, and Monday) beginning Memorial Day weekend. This fishery now targets wild fish.

By far the largest Chinook salmon fishery in the AMA is the stocked Ship Creek fishery (Appendices C2, C3). This fishery began to develop in 1987, with 2-days per week openings (Appendix A1) to allow stocked Chinook salmon returns to build to harvestable levels. The fishery was expanded to 7 days per week in 1991, resulting in a catch of over 1,600 Chinook salmon and a harvest of over 1,100 Chinook salmon during that year (Table 9). Small salt water Chinook salmon fisheries occur near the mouths of Ship and Bird creeks. Average catch and harvest (2005–2009) for these fisheries has been 242 and 148 Chinook salmon, respectively, (Table 9) although catch and harvest for 2009 are lower than previous years (Figure 8).

AMA Chinook salmon fisheries are largely driven by the Ship Creek fishery. Ship Creek Chinook and coho salmon fisheries account for an average (2005–2009) of 55% of the total angler effort in Anchorage streams each year (Table 3). Chinook salmon catches in the AMA have averaged 6,053 for the 5-year period from 2005 through 2009 and the average harvest for this period is 2,855 Chinook salmon, or about 47% of the estimated catch (Table 9).

The sport fishing bag and possession limits for Chinook salmon less than 20 inches are currently 10 per day, 10 in possession. The limits for Chinook salmon 20 inches or longer in length from Ship Creek and Eagle River are currently 1 per day, 1 in possession. A signed Chinook salmon stamp, or a Permanent Identification Card, is required to fish for Chinook salmon. Harvest must be immediately recorded in ink on the back of the angler's sport fishing license or harvest record card, and counts toward the Cook Inlet seasonal limit of 5 Chinook salmon. Chinook salmon less than 20 inches in length do not need to be recorded on the back of the sport fishing license and do not count toward the Cook Inlet seasonal limit.

SHIP CREEK CHINOOK SALMON FISHERY

Fishery Description

Before World War II, the Ship Creek wild stock Chinook salmon run supported sport, personal use, and subsistence fisheries. However, four dams were constructed in the lower 11 miles of the creek during the 1940s and 1950s for power generation and as a water source for both the Municipality of Anchorage (MOA) and the military bases. These dams reduced Ship Creek wild salmon runs. Attempts to enhance Ship Creek salmon runs occurred from 1966 through 1980 when Chinook salmon were stocked of Alaska and Oregon origin (Miller 1990; Stratton and Cyr 1995). During this period, eggs obtained from these stocks were incubated at Fire Lake Hatchery. The fry were reared to smolt in the Fort Richardson Hatchery before release. These releases were generally unsuccessful, as consistent numbers of returning adults could not be established. A more successful hatchery enhancement program was established in 1987 using smolt releases from the Elmendorf Hatchery and Ship Creek Chinook salmon broodstock.

Ship Creek was open to Chinook salmon sport fishing from 1957 through 1959, but was closed from 1960 through 1969 (Appendix A1). Chinook salmon fishing was allowed during selected periods in Ship Creek downstream of the Chugach Power Plant Dam from 1970 through 1972. From 1973 through 1986, the creek was closed to Chinook salmon sport fishing due in part to

low Chinook salmon abundance throughout Northern Cook Inlet. Beginning in 1987, as returns increased from annual stocking efforts, the lower portion of Ship Creek downstream of the Chugach Power Plant Dam was reopened to Chinook salmon sport fishing 2 days per week for 5 consecutive weeks in June and July. The season was expanded to 7 days per week, January 1 through July 13, in 1990. Nighttime closures from 11:00 p.m. to 6:00 a.m. were issued by emergency order to help address enforcement issues, and passed into regulation in 2001. The fishery now occurs during late May through early July in the lower 1 mile of Ship Creek, downstream of the Chugach Power Plant Dam. The shoreline of the area open to Chinook salmon fishing is owned and managed by Alaska Railroad Corporation (ARRC) and the MOA. The Ship Creek King Salmon Derby began in 1993 and has become an annual event currently sponsored by Grace Alaska to benefit their Downtown Soup kitchen.

The current bag and possession limits for Chinook salmon in those waters of Ship Creek open to salmon fishing are 1 per day,1 in possession for Chinook salmon 20 inches or greater; and 10 per day, 10 in possession for Chinook salmon less than 20 inches. After taking a Chinook salmon 20 inches or longer, a person may not fish for any species that same day in waters open to Chinook salmon sport fishing. Chinook salmon 20 inches or longer harvested in Ship Creek must be immediately recorded on the back of the angler's sport fishing license or harvest record card and counts towards the annual limit of 5 Chinook salmon from the salt or fresh waters of Cook Inlet north of Bluff Point. Chinook salmon less than 20 inches in length do not need to be recorded on the back of the sport fishing license and do not count toward the Cook Inlet seasonal limit. Please refer to the Alaska Fish and Game Laws and Regulations Annotated Chapter 59, or the current Southcentral Sport Fishing Regulations Summary for more details.

Stocking Program

Hatchery-produced Chinook salmon runs in Ship Creek provide a unique opportunity for sport anglers to participate in quality fisheries in an urban setting. The Chinook salmon run is the result of an annual release of 315,000 smolt raised at Elmendorf Hatchery. Adding the average escapement (including broodstock; Appendix B1) and the estimated harvest (Table 9) for the previous 5 years (2005–2009), gives a conservative estimated annual return of about 3,900 adult Chinook salmon to Ship Creek. Chinook salmon typically spend 2 to 4 years feeding in the ocean before returning to their natal stream to spawn, so in any given year, the return will be made up of multiple year classes. A summary of the stocking program can be found in Loopstra 2007.

Historical Catch, Harvest, Effort and Escapement

Angling effort targeting all species in Ship Creek peaked at over 51,000 angler-days in 1995, then dropped and peaked again at over 62,000 angler-days in 2000 (Table 3). Between 2001 and 2005, angler effort averaged 43,770 angler-days per year. In 2005, hatcheries lost warm water, smolt size decreased, and the returns from these smaller smolt decreased and average annual angler effort between 2005 and 2009 decreased by about 10,000 days of effort to 33,822 angler-days. The sport catch and harvest of Chinook salmon in Ship Creek peaked in 1999 with 14,280 fish caught and 5,200 harvested (Table 9). From 1995 to 2004 the Ship Creek sport fishery produced an annual average catch and harvest of 8,805 and 3,666 Chinook salmon, respectively. The most current 5-year average (2005–2009) catch and harvest is now only 4,816 and 2,636, respectively. The growth and success of this fishery is largely due to ADF&G stocking and the

popularity of the annual Ship Creek King Salmon Derby. Runs to Ship Creek are expected to average about 5,000 Chinook salmon annually.

Total Chinook salmon escapement in Ship creek in 2010 was an estimated 368 salmon (including 30 fish used for hatchery broodstock) based on stream surveys conducted during June and July (Appendix B1). Broodstock needs were very minimal for 2010 because the new William Jack Hernandez State Fish Hatchery is not due to come on line until 2011. This new hatchery will be able to once again produce 0-check smolt, and move away from rearing smolt for 2 years before release. The salmon not used for broodstock spawned naturally near the hatchery and provided an opportunity for the public to view spawning Chinook salmon. Unofficial tallies at Elmendorf Hatchery have counted more than 60,000 viewers each year watching salmon in Ship Creek adjacent to the hatchery (Bob McFadden, hatchery manager, personal communication).

Recently, the small returns have made collecting enough broodstock for the Ship Creek Chinook salmon fishery a challenge; however, sufficient brood has been collected since 2000 to meet egg-take goals and to produce not only the 315,000 smolt released for Ship Creek, but also provide for other Southcentral releases.

Fishery Performance and Escapement in 2009 and 2010

In 2009, the sport catch and harvest of Chinook salmon in Ship Creek was poor compared to other years with an estimated catch and harvest of 1,869 and 884 Chinook salmon, respectively (Table 9). This represents the lowest catch since 1991 and the lowest harvest since 1990. Small hatchery smolt size and low marine survival (depressed wild Chinook salmon runs also occurred throughout Southcentral Alaska) both conspired to produce a very small run. On June 26, 2009 emergency order EO 2-R-2-16-09 was issued that closed all of Ship Creek to all fishing. This was put into place to allow the hatchery to collect enough broodstock for all Chinook salmon stocking programs. The lower reach, below the Chugach Power Plant Dam (CPP Dam), was opened to fishing on July 14 for salmon other than Chinook salmon, but the remainder of Ship Creek remained closed until October 1, 2009. Onsite observations and angler reports suggest that Chinook salmon fishing on Ship Creek in 2010 was also well below average. Ship Creek between the CPP Dam and Reeves Boulevard was closed to all fishing by EO 2-R-2-06-10, starting April 26, to help conserve both coho and Chinook salmon broodstocks, and to protect wild rainbow trout that spawn in this reach of stream. Due to these measures, broodstock needs were met in 2009 and 2010 (Appendix B1). SWHS estimates for 2010 fishery performance will not be available until fall 2011.

Fishery Management and Objectives

The three management objectives for the Ship Creek Chinook salmon fishery are (1) to maintain or increase current angler effort through smolt stocking, (2) to generate at least 50,000 angler-days of annual sport fishing opportunity directed at stocked Chinook and coho salmon in Ship Creek, and (3) to produce a return to Ship Creek of 6,000 to 9,000 adult Chinook salmon to assure 750 adult salmon are available (having passed above the Chugach Power Plant Dam) for natural spawning, fish viewing, and meeting egg-take needs. In 2009, Ship Creek produced an estimated return of 3,189 Chinook salmon and supported 23,663 angler-days of effort (Table 3). Over 1,300 adult Chinook salmon passed through the fishery to provide broodstock viewing and some natural spawning. Present regulations combined with emergency order authority allowed Alaska Department of Fish and Game (ADF&G) to achieve these management objectives.

In fall 2005, ADF&G received funding from U.S. Fish and Wildlife Service (USFWS) for a study evaluating the feasibility of restoring fish passage to Ship Creek upstream of the Elmendorf and Ft. Richardson dams. The report was completed in February 2007 and lists alternatives for each dam site ranging from "do nothing" to "total removal." Each alternative was described in terms of impacts and pros and cons for issues such as effectiveness of restoring fish passage, effects to water tables, sediment, creek shoreline stability, and costs. The report also identified issues outside the scope of this initial study (such as social issues) and issues that may require further study. This report was presented to the U.S. Department of Defense (DOD) as the landowner, and to agencies, organizations and the public in order to help choose a course of action that would achieve the goal of restoring fish passage on Ship Creek. DOD stated concerns about allowing fish passage upstream of the Elmendorf Hatchery citing BASH (bird air strike hazard), safety issues concerned with new housing built along the banks of Ship Creek, and potential groundwater issues.

EAGLE RIVER CHINOOK SALMON FISHERY

Fishery Description

The Eagle River drainage originates in the Chugach Mountains with most of its flow contributed by Eagle Glacier. The lower portion of the river flows through flats on Fort Richardson; these flats were historically used as a large-weapon-test firing range and impact area. Access to Eagle River from the mouth upstream to Bravo Bridge, approximately 2 miles, is restricted by the military due to the presence of unexploded ordinance, and this reach of river is closed to all sport fishing year round. The portion of Eagle River upstream from Bailey Bridge to the Glenn Highway Bridge is accessed through Fort Richardson. Upstream of the Glenn Highway, the river meanders through dedicated greenbelt as part of Chugach State Park. Developed public access points on Eagle River are limited. These access sites include (1) the Glenn Highway campground located immediately upstream of Glenn Highway, (2) a day use area upstream of Briggs Bridge, and (3) a parking area and unimproved small boat launch site located at Mile 7.4 of Eagle River Road. The Eagle River drainage is largely used for hiking, camping, and white-water float trips.

Eagle River is only open to fishing for Chinook salmon from the Bailey Bridge on Fort Richardson upstream to ADF&G markers in the Chugach State Park Eagle River Campground on Saturdays, Sundays and Mondays for 4 consecutive weeks beginning on the Saturday before Memorial Day. The current bag and possession limits for Chinook salmon in those waters of Eagle River open to salmon fishing are 1 per day, 1 in possession for Chinook salmon 20 inches or longer; and 10 per day, 10 in possession for Chinook salmon less than 20 inches in length. After taking a Chinook salmon 20 inches or longer, a person may not fish for any species that same day in waters open to Chinook salmon sport fishing. Chinook salmon 20 inches or longer harvested in Eagle River must be immediately recorded on the back of the angler's sport fishing license or harvest record card and count towards the annual limit of 5 Chinook salmon from the fresh waters of Cook Inlet. Chinook salmon less than 20 inches in length do not need to be recorded on the back of the sport fishing license or harvest record card, and do not count towards the Cook Inlet seasonal limit. Please refer to the Alaska Fish and Game Laws and Regulations Annotated Chapter 59, or the current Southcentral Sport Fishing Regulations Summary for more details.

Stocking Program

The Eagle River drainage was closed to Chinook salmon fishing from 1964 through 1991 (Appendix A2). A small run of wild Chinook salmon returns to the Eagle River drainage during June and early July. Due to the glacial nature of this drainage, the inability to enumerate fish, and the human population growth in the surrounding area, ADF&G sought to address the problem of limited sport fishing opportunities in the Eagle River area by creating a stocked Chinook salmon run. The Eagle River Chinook salmon stocking program was designed to generate 6,000 angler-days of effort directed at Chinook salmon annually in Eagle River. In 1990, an annual stocking program was initiated in Eagle River with approximately 105,000 Chinook salmon smolt of Ship Creek origin (Stratton and Cyr 1995). Due to poor returns and difficult fishing conditions, the stocking program was discontinued in 1995. A summary of the stocking program can be found in Loopstra 2007.

Historical Catch, Harvest and Effort

Before the Chinook salmon fishery opening in 1992 in Eagle River, angler effort, targeting other salmon and resident species, averaged about 2,300 angler-days from 1982 through 1991 (Stratton and Cyr 1997) In 1992, the first year of the Chinook salmon fishery, effort was estimated at about 4,910 angler-days for all species (Table 3); Chinook salmon catch was estimated at 110, and harvest was estimated at 50 (Table 9). Approximately 300 wild Chinook salmon and 1,000 hatchery Chinook salmon were projected to be available to sport anglers. Effort was estimated at about 3,400 angler-days in 1993 (Table 3), catch was estimated at 90, and harvest was estimated at 50 (Table 9). The low harvest in 1993 was surprising as over 2,300 hatchery Chinook salmon were expected to be available. As the hatchery run failed to materialize and the estimated angler-days of effort were at pre-stocking levels, the stocking program was eliminated in 1995. Practically no effort was noted once water levels increased in mid-June. The fishery was reconfigured by the Alaska Board of Fisheries (BOF) in spring 1996. The area open to Chinook salmon fishing was restricted to the portion of the Eagle River near the Glenn Highway campground. This small area was only open for four 3-day weekends (Saturday, Sunday, Monday) beginning Memorial Day weekend. Effort was estimated at only 108 angler-days in 2009 (Table 3). It is thought that this limited fishery will not impact natural Chinook salmon runs.

Fishery Performance and Escapement in 2009 and 2010

Total angler effort in Eagle River was estimated at 108 angler days in 2009 (Table 3), and much of that was likely targeted at Dolly Varden. The 2009 Eagle River angler effort accounts for less than 1% of angler effort in all AMA streams for that year and is the lowest ever estimated for Eagle River. No Chinook salmon were reported caught or harvested in Eagle River in 2009 (Table 9). A small run of Chinook salmon (poor conditions did not allow for reliable Chinook salmon surveys; Appendix B2), the failure to enhance the fishery with hatchery releases, and typically poor fishing conditions with high, fast water during the season open to Chinook salmon fishing, all likely contributed to low angler effort and success. Statewide Harvest Survey estimates for 2010 fishery performance will not be available until fall 2011. Onsite observations, angler reports and observations of fishery performance in season suggest the 2010 catch and harvest estimates will continue to remain low, but photographic evidence from hidden trail cameras suggest that illegal harvest is likely greater than the legal harvest.

Fishery Management and Objectives

Eagle River is managed to allow small levels of opportunity for Chinook salmon fishing while ensuring wild populations are not impacted. The primary species targeted in Eagle River is Dolly Varden. In addition, the fishery is managed to maintain historical Chinook salmon escapement levels, continue natural production, and provide viewing opportunities. Eagle River no longer has a sustainable escapement goal range (SEG) for Chinook salmon (Munro and Volk 2010).

CAMPBELL CREEK CHINOOK SALMON FISHERY

Fishery Description

Campbell Creek, the largest free flowing stream in the Anchorage metropolitan area, supports a small wild Chinook salmon run. This run has averaged 752 fish annually from 1990 through 2010 (Appendix B3). The upper reach of Campbell Creek is composed of two tributaries, North and South forks, which drain from the Chugach Mountains east of Anchorage. Both forks flow through canyons in their upper reaches that are impassable to upstream fish migration. Downstream of the canyons, these tributary streams flow approximately 10 miles through the largely undeveloped forests and wetlands of Chugach State Park and Far North Bicentennial Park before converging near Piper Street. Campbell Creek flows through MOA greenbelt and private property from the confluence of the forks downstream to Cook Inlet. The greatest impacts from urbanization have occurred in this reach of Campbell Creek.

MOA has made an effort to obtain and preserve the riparian habitat of Campbell Creek from Lake Otis Parkway downstream to Campbell Lake and to improve water quality. In 1981, the Bureau of Land Management (BLM) transferred title to the 4,000-acre Campbell Tract (Bicentennial Park) to the MOA. This area comprises the primary spawning and rearing habitat for Chinook salmon. Recent run sizes suggest that Campbell Creek Chinook salmon runs are rebounding.

Chinook salmon sport fishing has not been permitted in Campbell Creek since statehood in 1959 (Appendix A3). The small wild run of Chinook salmon has not been enhanced with hatchery releases and cannot provide a sustainable harvest in such a heavily urbanized location. However in 2005, the Alaska State Legislature gave the BOF the authority to create fisheries for youths 15 years of age and younger (youths are not required to obtain a sport fishing license). The BOF created the Campbell Creek Youth Fishery to give area youths access to a Chinook salmon fishery where they would not have to compete with adult anglers on Ship Creek. Youths may fish for Chinook salmon on Campbell Creek between Dimond Boulevard and the Old Seward Highway between 6:00 a.m. and 10:00 p.m. daily on the last Saturday and Sunday of June of each year. Campbell Creek is closed to fishing for Chinook salmon the rest of the year. The current bag and possession limits for Chinook salmon during the Campbell Creek Youth Fishery are 1 per day, 1 in possession for Chinook salmon 20 inches or longer; and 10 per day, 10 in possession for Chinook salmon less than 20 inches long. After taking a Chinook salmon 20 inches or longer, a person may not fish for any species that same day in waters open to Chinook salmon sport fishing. Chinook salmon 20 inches or longer harvested in Campbell Creek must be immediately recorded on the back of the youth's harvest record card and count towards the annual limit of 5 Chinook salmon from the fresh waters of Cook Inlet. Chinook salmon less than 20 inches in length do not need to be recorded on the back of the sport fishing license or harvest record card, and do not count toward the Cook Inlet seasonal limit. Please refer to the Alaska

Fish and Game Laws and Regulations Annotated Chapter 59, or the current Southcentral Sport Fishing Regulations Summary for more details.

Stocking Program

There have not been any stockings of Chinook salmon in Campbell Creek. ADF&G has no plans to develop a Chinook salmon stocking plan for Campbell Creek.

Historical Catch, Harvest and Effort

Campbell Creek has been closed to Chinook salmon fishing since statehood so no legal historical catch or harvest has occurred.

Fishery Performance and Escapement in 2009 and 2010

The Youth Fishery began in 2005, however, because it is only open to youths 15 years old and younger (who do not require Alaska sport fishing licenses), none are eligible to receive a Statewide Harvest Survey, from which catch and harvest are estimated. Furthermore, even if other members of the household received a survey, it is likely the Youth Fishery effort was underreported. In 2005, the first year of the fishery, an estimated 750-1,000 youth anglers and adult chaperons participated in the fishery and harvested 150-200 Chinook salmon. No annual estimates of participation have been made for this Youth Fishery. Participation, effort, and success may reflect run strength and weather conditions during the fishery.

The 2009 and 2010 escapement estimates for Campbell Creek Chinook salmon were 554 and 290 salmon, respectively (Appendix B3). These estimates are based on foot surveys conducted along the length of the creek after the Youth Fishery occurred.

Fishery Management and Objectives

The management objectives for Campbell Creek Chinook salmon are to manage and protect the wild Chinook salmon run and to achieve a sustainable escapement goal (SEG) threshold of 380 Chinook salmon. The SEG threshold for Campbell Creek Chinook salmon was developed in 2010 and includes the 2010 data in the analysis to develop this goal. Campbell Creek was previously managed for a SEG with a range of 50 to 700 fish (Munro and Volk 2010)

In 2006, the Campbell Lake Homeowners Association and MOA were permitted to lower Campbell Lake down to the original creek level for three months in order to winterkill aquatic vegetation in the lake. ADF&G staff expressed concern that Campbell Lake, as the only significant deep water body in the Campbell Creek drainage, likely provides significant habitat for the stocks of wild Chinook and sockeye salmon, the hatchery-enhanced runs of coho salmon, and resident species in the watershed. Permit requests to extend the refill date of May 15, 2007 by a week were filed, but denied. In 2010 the Campbell Lake Homeowners Association and MOA were permitted to draw down Campbell Lake in order to finish the dredging project started in 2006.

OTHER CHINOOK SALMON FISHERIES

Fishery Description

Small, wild stock Chinook salmon runs are found in Bird, Indian, Rabbit, California (a tributary to Glacier Creek in Girdwood), Peters, Glacier, and Portage creeks, and Glacier (tributary to Twentymile River), Carmen, Twentymile, and Placer rivers. Most of these streams support

annual Chinook salmon runs of less than 100 fish each and all are closed to Chinook salmon fishing. The Rabbit Creek Chinook salmon run provides viewing opportunities for Potter Marsh visitors in June and July.

ADF&G foot survey counts of Chinook salmon returning to Bird Creek and its tributary, Penguin Creek, indicate an average annual return of 180 Chinook salmon from 1996 through 2005 with a range of 30 to 500 Chinook salmon (Appendix B4). However, this run continues to decrease and the most recent 5-year average of escapement is only 110 Chinook salmon. These fish have a habit of holding very visibly in the Bird Creek estuary and can be easily seen while driving by from the Seward Highway. Bird Creek is open at this time to fishing, but is closed to Chinook salmon fishing. Poaching of these fish is reported every year. A waterfall in Bird Creek approximately 1/2 mile above the Penguin Creek confluence presents a complete barrier to upstream migration. Most Chinook salmon are observed within 1/4 mile of the first waterfall in Bird Creek and the lower mile of Penguin Creek. This area comprises the primary spawning and rearing habitat for Chinook salmon.

Stocking Program

Approval to stock Bird Creek with Chinook salmon was given by the Chugach State Park Citizens Advisory Board in fall 1995 and spring 1998 meetings. ADF&G staff worked with Alaska Department of Natural Resources (DNR) staff in 1997 to test the feasibility of using Bird Creek Chinook salmon for egg takes. A weir was constructed and ADNR volunteers maintained the weir and counted Chinook salmon passing the Penguin Creek site. While about one-half of the Chinook salmon observed in the Bird Creek drainage spawn in Penguin Creek, it does not appear economically feasible to collect Bird Creek drainage Chinook salmon for egg takes. Bird and other area creeks will continue to be considered for Chinook salmon stocking once the new ADF&G hatchery is online and additional hatchery fish are available for stocking.

A summary of the stocking program can be found in Loopstra 2007.

Fishery Management and Objectives

The management objectives and goals for wild stocks of Chinook salmon considered too small to support a harvestable surplus is to maintain historical Chinook salmon escapement levels, continue natural production, and provide viewing opportunities. Escapement goals have not been set for these streams.

COHO SALMON FISHERIES

AREAWIDE OVERVIEW

Areawide Historical Catch, Harvest and Effort

Streams supporting runs of coho salmon include Campbell, Rabbit, Bird, Ship, Peters, Glacier, California, and Portage creeks and Eagle, Eklutna, Twentymile, and Placer rivers. The largest Anchorage Management Area (AMA) coho salmon sport fisheries occur in Bird, Campbell, and Ship creeks and Twentymile River. Ship Creek and Bird Creek contribute significantly to the AMA average catch and harvest (Table 10). Twentymile River supports wild coho salmon, while Bird, Campbell, and Ship Creek runs are primarily hatchery produced. Coho salmon typically spend only 1 year feeding in the ocean before returning to their natal stream to spawn.

Coho salmon return to AMA streams from mid-July through mid-October. Stocked stream runs peak in mid-August, while Turnagain Arm runs peak in mid-September. Detailed estimates of stocked coho salmon caught in selected Upper Cook Inlet commercial fisheries can be found in Hoffmann and Hasbrouck (1994), Stratton et al. (1996), Cyr et al. (1997-1999, 2001), and Bosch and Evans (2006). In the fresh waters open to fishing for coho salmon, bag and possession limits for salmon other than Chinook salmon 16 inches or greater in length, are 3 per day and 3 in possession, only 2 of which may be coho salmon except in stocked streams. Limits for salmon less than 16 inches in length are 10 per day, 10 in possession. Potter and Sixmile creeks are totally closed to all sport fishing, and portions of Rabbit, Campbell, and Ship creeks are also closed.

Prior to the urban coho stocking program, which was initiated in 1991, the greatest total coho salmon harvest (6,730 coho salmon) occurred in 1988. For the 10 years from 1995 through 2004, an estimated average 36,081 coho salmon were caught annually in AMA sport fisheries and 22,809 of those fish were harvested (Table 10). The peak catch between 2000 and 2009 was 63,870 coho salmon in 2001 (Figure 9). The increase in AMA coho salmon sport harvest was directly related to increased sport fishing effort on Ship, Campbell, and Bird creeks, which were enhanced with hatchery stocking, and increased effort on Twentymile River, which has natural stocks.

Poor returns of coho salmon to many systems in Upper Cook Inlet from 1997 until 2000 resulted in closures of the Upper Cook Inlet commercial fisheries, reductions to bag and possession limits and bait restrictions to the sport fisheries, and a conservative approach to coho salmon management regionwide. These 3 years of weak runs were followed by record returns from 2000 through 2002. The 2000–2002 estimated catches of coho salmon in the AMA are three of the four highest years ever recorded. The areawide catch of 17,736 coho salmon in 2009 was below the most recent 5-year average, and is similar to other low areawide catches in 1999 and 2007 (Table 10).

SHIP CREEK COHO SALMON FISHERY

Fishery Description

Ship Creek's wild coho salmon run supported sport, personal use, and subsistence fisheries before World War II. The dams constructed in the lower 11 miles of Ship Creek for power generation and as a water source for the Municipality of Anchorage (MOA) and the military installments during the 1940s and 1950s reduced Ship Creek salmon runs. To rebuild these runs, the creek was stocked annually with coho salmon smolt from 1968 through 1977. These efforts proved unsuccessful in providing consistent numbers of returning adults. Nine different broodstocks from Ship Creek, Bear Lake (near Seward), Kodiak, Washington, and Oregon were used (Miller 1990). Eggs obtained from these stocks were incubated at Fire Lake Hatchery (located on Upper Fire Lake in Eagle River) and the resultant fry were reared to smolt at Fort Richardson Hatchery. No coho salmon smolt were released in Ship Creek from 1978 through 1986. From 1987 through 1994, ADF&G stocked coho salmon smolt in Ship Creek using fish of Ship Creek origin reared at Elmendorf Hatchery. While these efforts have provided consistent coho salmon runs, these runs tend to enter the system slowly throughout the fall. Ideally, coho runs that appeal to sport anglers exhibit a compressed run timing with large numbers of fish available in a relatively short time period. The decision was made to change broodstock for Ship

Creek to Little Susitna River origin fish, which exhibit the preferred condensed run timing. The first release of Little Susitna River origin coho salmon smolt occurred in 1995.

Ship Creek was open to coho salmon sport fishing from 1957 through 1959, and again from 1964 to present (Appendix A1). Currently, only the reach downstream of the Chugach Power Plant Dam is open to salmon fishing. The bag and possession limits on Ship Creek for salmon (other than Chinook salmon) 16 inches or greater in length are 3 per day, 3 in possession, of which all 3 may be coho salmon. Limits for salmon (other than Chinook salmon) less than 16 inches in length are 10 per day, 10 in possession.

This popular fishery takes place in a highly industrialized area of the city and concentrates anglers in the lower ½ mile of the creek creating crowding, sanitation, and parking problems along the creek and on adjacent Alaska Railroad Corporation (ARRC) and MOA properties. A Ship Creek Silver Salmon Derby began in 1995, and was last sponsored and run by Grace Alaska to benefit the Downtown Soup Kitchen, but has not been held since 2007.

The potential for conflict exists between sport anglers and land managers including ARRC and MOA. Sanitation and parking facilities in place for the Chinook salmon fishery remain in place for the coho salmon fishery. Development proposed for lower Ship Creek includes access improvements, parking, and trails. Habitat improvements that block sensitive areas and funnel anglers down stairways have helped impede habitat degradation in this intertidal fishery.

Stocking Program

Hatchery-produced coho salmon runs in Ship Creek provide a unique opportunity for sport anglers to participate in quality fisheries in an urban setting. The coho salmon run is the result of an annual release of 240,000 smolt raised at Elmendorf Hatchery. The three objectives for the Ship Creek coho salmon Statewide Stocking Plan (Loopstra 2007) are (1) to produce a return of 12,000 adult coho salmon to Ship Creek, (2) assure that 1,000 coho salmon are available (past the Chugach Power Plant Dam, as counted by foot survey) for natural spawning, fish viewing and providing for egg-take needs, and (3) to maintain or increase current angler effort to at least 50,000 angler-days of annual sport fishing opportunity directed at stocked Chinook and coho salmon in Ship Creek. Adding the average escapement (including broodstock; Appendix B1) and the average estimated harvest (Table 10) for the 5-year period from 2005 through 2009 gives a conservative estimated annual return of 6,532 adult coho salmon to Ship Creek. This is a decline of about 4,000 coho since 2005.

Historical Catch, Harvest and Effort

Angling effort targeting all species in Ship Creek peaked at 51,090 angler days in 1995, then dropped and peaked again to 62,100 angler days in 2000 (Table 3). Angler effort has dropped since 2000 with the recent 5-year average (2005–2009) of 33,822 angler days. The Ship Creek coho salmon sport fishery has been reduced in recent years with poor returns resulting in the lowest catches and harvests since 1993. The recent 5-year average (2005–2009) of 8,883 and 5,710 coho salmon caught and harvested, respectively, is well off the previous 10-year average (1995–2004) of 16,002 and 10,393 coho salmon caught and harvested, respectively (Table 10). The annual Ship Creek coho salmon sport harvest has ranged from less than 100 fish in the pre-stocking years of 1983 and 1986, to 26,420 fish in 2001.

Fishery Performance and Escapement in 2009 and 2010

The 2009 estimated sport catch and harvest of Ship Creek coho salmon was only 4,014 and 2,974, respectively (Table 10). These numbers fall well below catches in the record years of 2000–2002, and they are about half the most recent 5-year average for catch and harvest (2004–2008; 10,189 and 6338), and are the lowest on record since 1993. In 2009, ADF&G foot surveys conducted in Ship Creek estimated 1,066 coho salmon upstream of the boundaries of the sport fishery (Appendix B1). In order to meet brood goals, 853 of those were harvested at the Elmendorf hatchery for egg take leaving 213 to spawn naturally in the creek. In 2010, 446 coho salmon were collected for broodstock and an unknown number spawned in the creek.

Statewide Harvest Survey (SWHS) estimates for 2010 fishery performance will not be available until fall 2011. Onsite observations, angler reports and observations of fishery performance in season suggest the 2010 catch and harvest estimates of Ship Creek coho salmon will be poor. Although early fishery performance in the AMA and throughout Southcentral suggested a decent coho salmon return in 2010, returns to stocked fisheries were likely lower than returns to wild fisheries.

Fishery Management and Objectives

The Ship Creek coho salmon fishery management objectives are identical to the Ship Creek coho salmon Stocking Plan (see above). Adding the coho salmon harvest of 2,974 (Table 10) and the total escapement (including broodstock) of 1,066 (Appendix B1) gives a conservative estimate that 4,040 coho salmon returned in 2009. An estimated 23,663 angler-days of effort were directed at stocked Chinook and coho salmon in Ship Creek in 2009 (Table 3). Present regulations provide for the harvest of coho salmon in excess of spawning and viewing requirements and allow optimum utilization of Ship Creek coho salmon.

In fall 2005, ADF&G received funding from the U.S. Fish and Wildlife Service (USFWS) for a study evaluating the feasibility of restoring fish passage to Ship Creek upstream of the Elmendorf and Ft. Richardson dams. The report was completed in February 2007 and lists alternatives for each dam site ranging from “do nothing” to “total removal.” Each alternative was described in terms of impacts and pros and cons for issues such as effectiveness of restoring fish passage, effects to water tables, sediment, creek shoreline stability, and costs. The report also identified issues outside the scope of this initial study (such as social issues) and issues that may require further study. This report was presented to the Department of Defense (DOD) as the landowner, and to agencies, organizations and the public in order to help chose a course of action that would achieve the goal of restoring fish passage on Ship Creek. DOD stated concerns about allowing fish passage upstream of the Elmendorf Hatchery citing BASH (bird air strike hazard), safety issues concerned with new housing built along the banks of Ship Creek, and potential ground water issues.

CAMPBELL CREEK COHO SALMON FISHERY

Fishery Description

Although wild coho salmon historically returned to Campbell Creek in August and September, the number of returning adults was insufficient to support a viable sport fishery. Currently, coho salmon start to enter Campbell Creek in mid-July and are first seen during ADF&G Chinook salmon surveys. This early component of the Campbell Creek coho salmon run does not stay long in the area of Campbell Creek below Piper Street (the only area open to salmon fishing).

These fish all appear go up the North Fork of Campbell Creek above Campbell Airstrip Road. Coho that return in August tend to hold in Campbell Lake, which is closed to all fishing, before moving into the creek. This later component migrate upstream of Lake Otis Parkway, and spawn in both North and South Forks. From 1986 to 1992, before the returns of hatchery fish commenced, Campbell Creek coho salmon escapement surveys averaged 159 fish annually (Appendix B3). Campbell Creek historically supported annual coho salmon runs greater than observed in the early 1990s. The reduction of Campbell Creek coho salmon runs was likely a result of urbanization and development along the creek which reduced the number and size of wetlands and associated rearing habitat, an influx of pollutants and silt from storm drain runoffs, and poaching.

The current coho salmon run is the result of an annual release of 75,000 smolt raised at Elmendorf Hatchery that supports an average harvest (2005–2009) of 1,207 coho salmon and an average escapement (2006–2010) of 467 coho salmon (Table 10; Appendix B3). Campbell Creek was opened to coho salmon fishing in 1993 for the first time since 1971 (Appendix A3). A map of lower Campbell Creek showing areas open to coho salmon sport fishing can be found in Figure 10. This fishery opens on a series of different dates depending on location. Campbell Creek from Dimond Boulevard to C Street opens to coho fishing on July 25, while the section from C Street to the Forks Located near Piper Street does not open until August 5 each year. These staggered dates do cause confusion among anglers. The bag and possession limit on Campbell Creek for coho salmon, 16 inches or greater in length are 3 per day, 3 in possession. Limits for coho salmon less than 16 inches in length are 10 per day, 10 in possession.

The Campbell Creek greenbelt includes a major segment of the MOA bike trail system and provides excellent public access to the creek from the confluence of North and South Forks downstream to Campbell Lake. This bike trail access and proximity to neighborhoods makes the Campbell Creek fisheries a popular summer pastime for youths in the area.

Stocking Program

Hatchery-produced coho salmon runs in Campbell Creek provide a unique opportunity for sport anglers to participate in quality fisheries in an urban setting. The annual stocking of 150,000 coho smolt of Little Susitna River origin was initiated in 1992 to increase coho salmon runs to Campbell Creek. This stocking is part of the urban coho salmon project aimed at increasing coho salmon angling opportunities in the AMA. The number of coho smolt stocked annually was reduced to 75,000 in 1996. The two Campbell Creek coho salmon objectives stated in the Statewide Stocking Plan (Loopstra 2007) are (1) to produce a return of 3,500 adult returning coho salmon to Campbell Creek while maintaining the historic level of natural coho salmon spawning, and (2) to generate 7,500 angler-days of annual sport-fishing opportunity directed at stocked coho salmon in Campbell Creek.

Adding the average escapement 710 (Appendix B3) and the average annual estimated harvest of 1,207 (Table 10) for the 5-year period from 2005 through 2009 gives a conservative estimated annual return of 1,917 adult coho salmon to Campbell Creek. This estimated annual return is less than that calculated for the period 1995 through 2004 (2,321 escapement + 1,259 harvest = 3,580 return). The size of the most recent average return has diminished since the loss of warm water at Elmendorf hatchery and the ability of the hatchery to hit target release sizes for smolt.

Historical Catch, Harvest and Effort

Campbell Creek was closed to all salmon fishing prior to 1993 when it was opened to fishing for coho salmon. A biological escapement goal of 200 fish was set for Campbell Creek coho salmon (it was changed to a sustainable escapement goal (SEG) of 100 to 500 wild coho salmon in 2001), and a weir was operated on Campbell Creek from 1993 to 1994 to count returning adult salmon. There is currently no escapement goal for coho salmon on Campbell Creek as the old SEG was dropped. An escapement of 2,300 fish was observed during 1993 weir operations and 3,050 were counted in 1994 (Appendix B3). Catch was estimated at 6,890 coho salmon and harvest was estimated at 3,940 the first year of the fishery (Table 10). Catch estimates decreased to about 1,880 coho salmon in 1999 and 2000, but began increasing in 2001. The recent 5-year (2005–2009) estimates of catch and harvest for the Campbell Creek coho salmon fishery are 2,393 and 1,207, respectively.

Fishery Performance and Escapement in 2009 and 2010

The sport catch and harvest of coho salmon in Campbell Creek in 2009 was only 577 and 364, respectively. This was well below recent Campbell Creek coho fishery performance (see above). ADF&G stream surveys conducted on Campbell Creek estimated 766 adult coho salmon in the stream for escapement in 2009 and 157 in 2010 (Appendix B3). Only 15,400 coho smolt were stocked into Campbell Creek in 2009, and these fish were small, thus few, if any, survived to return in 2010. There is currently no escapement goal for Campbell Creek coho salmon. ADF&G coded wire tag (CWT) studies indicated wild stocks consistently contributed about 20% of the total return (Bosch and Evans 2006).

SWHS estimates for 2010 fishery performance will not be available until fall 2011. Onsite observations, angler reports and observations of fishery performance in season suggest the 2010 catch and harvest estimates of Campbell Creek coho salmon very low. Although early fishery performance in the AMA and throughout Southcentral Alaska suggested a good coho salmon return in 2010, stocked smolt were very small and likely had poor marine survival, or stayed in streams to grow to smolt size.

Fishery Management and Objectives

The Campbell Creek coho salmon fishery was established to provide additional angler opportunities in Anchorage by producing a return of 3,500 adult coho salmon to Campbell Creek while maintaining historic levels of natural coho spawning; and to generate 7,500 angler-days of annual sport fishing opportunity directed at stocked coho salmon in Campbell Creek. The fishery will continue to be managed to maintain historic escapement levels and to provide continued natural production and viewing opportunities. In 2009, the fishery generated an estimated 2,774 angler-days of effort (Table 3). This estimate is likely low due to the large number of anglers under 16 years of age that utilize this fishery. The SWHS estimates are based on household mail-in surveys sent to anglers who purchased sport fishing licenses and young anglers are likely underrepresented. The return is estimated conservatively at 1,130 adult coho salmon in 2009 (364 harvested + 766 escapement) (Table 10, Appendix B3).

BIRD CREEK COHO SALMON FISHERY

Fishery Description

Little historic information is available for Bird Creek coho salmon. The first foot surveys were conducted in 1986 and three coho salmon were observed. Foot surveys from 1990 through 1992 indicated escapements ranging from 10 to 100 coho salmon (Appendix B4). The well-developed access, proximity to Anchorage, and lack of natural coho salmon production made Bird Creek an ideal candidate for enhancement. The annual stocking of 150,000 coho smolt of Little Susitna River origin was initiated in 1992 to increase the number of coho salmon for sport anglers. Smolt released in 1992 returned as adults to the Bird Creek fishery in 1993. Due to reductions in ADF&G hatchery production, the current stocking level of Bird Creek coho salmon is 100,000 (Loopstra 2007). This stocking is part of the urban coho salmon project aimed at increasing coho salmon angling opportunities in the AMA.

Bird Creek is open to sport fishing from ADF&G markers approximately 500 yards upstream of the Seward Highway Bridge downstream to the mouth of the creek. A marker approximately 400 yards upstream of the Seward Highway Bridge marks public/private property boundary. The open area was expanded in 1993 by approximately 100 yards as a result of a pending land exchange between the Alaska Department of Natural Resources (DNR), MOA, and private landowners. To date, this land exchange has not occurred. Once the land swap is completed, the marker will be moved upstream. Bird Creek, upstream of this reach, is closed to all salmon fishing. The area open to salmon sport fishing in Bird Creek is the intertidal reach and coho salmon are harvested from late July through mid-September. The remainder of the drainage is closed year-round to salmon fishing. The bag and possession limits on Bird Creek for salmon (other than Chinook salmon) 16 inches or greater in length are 3 per day, 3 in possession. All 3 may be coho salmon. Limits for salmon (other than Chinook salmon) less than 16 inches in length are 10 per day, 10 in possession.

In 2005, construction of the new parking and access project was completed. The rock taken from this parking lot construction was used to move both the railroad bed and Seward Highway road bed out of the avalanche zone at Bird Flats. The enhanced coho salmon fishery had grown in popularity since the initial return in 1993 and quickly outgrew existing facilities for anglers. This project provided off-road parking for over 125 vehicles and developed camping, safe access for anglers and spectators, and sanitation facilities.

Stocking Program

Stocking of coho salmon smolt was initiated at Bird Creek in 1992 to increase the number of coho salmon for sport anglers because natural production is very low. Because Bird Creek historically produced few coho salmon, there were no genetic concerns with stocking and no attempts were made to collect wild Bird Creek coho salmon for broodstock. Thus, Little Susitna River coho salmon broodstock (now collected at Elmendorf Hatchery site) have been and are currently used for Bird Creek stocking. Initially, 150,000 fish were stocked annually. Due to hatchery surplus, nearly 300,000 coho salmon smolt were released in 1997. Reductions in ADF&G hatchery production resulted in the current Bird Creek coho salmon stocking level of 100,000 fish. Coho salmon smolt releases were suspended from 2001 through 2003 while the Bird Creek parking area was under construction.

Historical Catch, Harvest and Effort

The first returns from hatchery stockings in 1993 resulted in a catch and harvest of 7,800 and 6,200 coho salmon, respectively (Table 10). The fishery grew to a peak catch and harvest of 33,550 and 22,410 coho salmon, respectively, in 1998. Fishery performance is linked closely to the number of properly-sized hatchery-reared smolt released. Nearly 300,000 coho salmon smolt were released in 1997 (Appendix C4) resulting in high catch rates the following year. The fishery continued to do well until 2002, when the catch dropped to 1,500 coho salmon of which 1,050 were harvested. This decline in fishery performance was due to Bird Creek not being stocked in 2001. Construction of the new parking area north of Bird Creek was scheduled to begin in 2002, and in order to conduct a safe and orderly fishery, Bird Creek was not stocked from 2001 through 2003. The loss of the stocking program for those 3 years corresponded to poor fishery performance from 2002 through 2004 (Table 10).

Fishery Performance and Escapement in 2009 and 2010

The sport catch and harvest of coho salmon in Bird Creek in 2009 reflects the return of hatchery fish from 2008 releases. The catch and harvest in 2009 was 6,020 and 3,296 coho salmon, respectively (Table 10), which fall within the range of performance in previous years when this fishery was stocked. Based on ADF&G stream surveys, Bird Creek coho salmon escapements were 278 salmon in 2009 and only 19 in 2010 (Appendix B4). High water, and poor coho returns in 2010 conspired to make survey conditions poor. Because this fishery relies largely on hatchery enhancement, the previous 5-year (2005–2009) escapement estimates (19 to 619 adult coho salmon; Appendix B4) are difficult to use as a meaningful index.

Harvest estimates for 2010 are not yet available but observations during the coho salmon sport fishery indicate that fishery performance was poor. Most stocked Southcentral coho fisheries were affected by the release of small coho salmon smolt and this impacted Bird Creek effort and success as well. ADF&G is coordinating with other agencies and the DNR (the landowner below the markers) to post signs warning the public of the presence of bears and educating anglers on how to fish safely and responsibly when bears are present.

Fishery Management and Objectives

The Bird Creek coho salmon fishery was established to provide additional angler opportunities in the AMA; specifically, to produce a return of 5,000 adult coho salmon to Bird Creek, and generate 7,500 angler-days of annual sport fishing opportunity directed at stocked coho salmon in Bird Creek. The 10-year average (2000–2009) annual effort expended at Bird Creek was 10,400 angler-days, with an estimate of 13,605 for 2009 (Table 3). The limited information available for natural coho salmon production in Bird Creek suggests that few coho salmon spawn in the system, therefore no escapement goal has been established for Bird Creek. The sport fishery is managed to fully utilize returns from hatchery stockings.

TURNAGAIN ARM COHO SALMON FISHERIES

Fishery Description

Upper Turnagain Arm (south of Bird Creek) is unique in that it supports diverse sport and personal use activities in close proximity to Anchorage, primarily targeting eulachon *Thaleichthys pacificus*, Dolly Varden, and coho salmon. Some fisheries are accessible by highway while others are limited to jet boat access. Angler activities on these streams range

from low to high use. Turnagain Arm produces the largest wild stock coho salmon runs in the Anchorage Management Area with coho salmon returning to several streams from late July through mid-September. In some systems fresh fish are available into October.

The Twentymile River drainage supports the largest and most popular recreational coho salmon fishery in Turnagain Arm. Only about the first 10 miles of the Twentymile River are open to fishing after July 13. The Glacier River is only open to its confluence with Carmen River. The upper reaches of Twentymile River, Glacier River, and Carmen River are closed by regulation to Sport Fishing after July 14, and are always closed to salmon fishing. These rivers are heavily influenced by the summertime glacial runoff and fishing typically takes place in or near fresh-water sloughs that feed these streams.

In the Placer River drainage, Skookum and Lower Explorer creeks, sport fishing effort is minimal at this time. Spawning areas in Lower Explorer and Skookum creeks are closed to sport fishing by regulation after July 14. Coho salmon are also harvested in California, Glacier, Ingram, Peterson, and Placer creeks and several Portage Valley streams. Angler participation and harvest of wild stocks have increased in many Turnagain Arm systems in recent years and should be monitored to insure sustainability.

In waters of Turnagain Arm open for fishing for coho salmon (please refer to the current Southcentral sport fishing regulation book) the bag and possession limits for salmon (other than Chinook salmon) 16 inches or greater in length are 3 per day, 3 in possession. Only 2 may be coho salmon. Limits for salmon (other than Chinook salmon) less than 16 inches in length are 10 per day, 10 in possession.

Stocking Program

With the exception of the Bird Creek coho salmon enhancement program described above, there are currently no coho salmon stocking programs in Turnagain Arm.

Historical Catch, Harvest and Effort

The coho salmon fishery in the Twentymile River has remained fairly steady with a 10-year average (2000–2009) catch of 3,725 coho salmon and a harvest of 2,287 (Table 10). The fishery peaked with two strong years in 2000 and 2001 and again in 2008 with estimated catches of over 5,000 and harvests of around 3,000 coho salmon (Table 10). The fishery performance remained strong through 2004. Other Turnagain Arm fisheries are too small to be accurately reported in the SWHS and are included in "Other Freshwater" in Table 10. ADF&G aerial surveys of selected Turnagain Arm streams began in 1994 to index escapements of these systems (Appendix B5). Due to small coho runs and conditions that are often less than optimal for aerial surveys, there is a large range in the yearly escapement estimates.

Fishery Performance and Escapement in 2009 and 2010

The sport catch of coho salmon in the Twentymile River in 2009 was 2,052 with 1,329 of those salmon harvested (Table 10). The previous 5-year (2004–2008) averages of 3,463 coho salmon caught and 2,184 harvested are greater than the 2009 estimates. Coho salmon fishery performance in "Other Freshwater" systems was better in 2009, than the most recent 5-year average. Performance in nearby stocked coho fisheries at Bird and Campbell creeks was weak suggesting that wild coho smolt may have had better natural overwinter survival. Although

harvest estimates for 2010 are not yet available, observations during the coho salmon sport fishery indicate that fishery performance was good in wild coho fisheries.

Fishery Management and Objectives

The management objective for Turnagain Arm coho salmon fisheries is to provide angler opportunities while ensuring adequate spawning escapement. No escapement goals have been set for these systems. Large areas of streams at the head of Turnagain Arm are closed to all sport fishing after July 13 to protect spawning salmon.

OTHER COHO SALMON FISHERIES

Fishery Description

Several other AMA streams support small runs of coho salmon. Rabbit and Sixmile creeks are closed to all sport fishing for salmon, while portions of Peters, Glacier, California, and Portage creeks and Eagle and Eklutna rivers are open to salmon fishing. Harvests from these streams are low, and escapement surveys are not conducted. It is recommend that surveys of these AMA streams be conducted as time and budget allow to determine coho salmon distribution and relative abundance, evaluate the capability of these streams to support sport fishing, and identify potential sites for future stocking efforts.

Chester Creek supports a native Dolly Varden population and is stocked annually with sterile catchable-sized rainbow trout. In 2010, a project funded by MOA and Alaska Sustainable Salmon Fund (AKSSF) to revitalize fish passage to Chester Creek was completed. The project replaced the tunnel that ran under the railroad embankment near Westchester Lagoon and connected Westchester Lagoon to Cook Inlet with a bridge spanning the creek. The new design brought the outlet stream back above ground and created a wetland mixing zone to help acclimate outmigrating smolt. There are no plans to stock salmon into Chester Creek.

Stocking Program

Other than Ship, Bird, and Campbell creeks, there are currently no plans to stock other area streams with coho salmon. A summary of the stocking program can be found in Loopstra 2007.

Historical Catch, Harvest and Effort

Portions of Peters, Glacier, California, and Portage creeks and Eagle and Eklutna rivers are open to salmon fishing. Harvests from these streams are low, and escapement surveys are not conducted.

Fishery Management and Objectives

The management objective and goal for wild stocks of coho salmon in systems considered too small to support a harvestable surplus is to maintain historical escapement levels, continue natural production, and provide viewing opportunities. Angler opportunity should be provided in those streams with a harvestable surplus. Escapement goals have not been set for these streams.

PINK SALMON FISHERIES

AREAWIDE OVERVIEW

Areawide Historical Catch, Harvest and Effort

Pink salmon return annually to Anchorage Management Area (AMA) streams in July and August, although the largest runs occur in even-numbered years. The 10-year average (2000–2009) is 24,220 pink salmon caught with a harvest of 2,270 (Table 11). Pink salmon fisheries have the second highest annual catch (estimated coho salmon catch from 2000 through 2009 averages over 32,163 salmon; Table 10) and share the distinction of most often released fish (an annual average of 90% of pink salmon and 92% of chum salmon were released from 2000 through 2009) in AMA fisheries (Table 5). Bird Creek supports the largest pink salmon sport fishery in the AMA with an average (2000–2009) catch and harvest of 14,665 and 1,283 pink salmon, respectively (Table 11). Other area streams with significant pink salmon harvests include Ship Creek and Twentymile River. Reported harvests from California, Fish, Glacier, Indian, Ingram, Peters creeks, and Eagle, Eklutna, and Placer rivers are included in "Other Freshwater" on Table 11. Rabbit and Sixmile creeks are closed to all salmon fishing and Campbell Creek is closed to pink salmon fishing.

BIRD CREEK PINK SALMON FISHERY

Fishery Description

Bird Creek flows into Turnagain Arm approximately 25 miles south of Anchorage and supports the primary AMA pink salmon sport fishery. Improvements in parking areas and access trails have increased Bird Creek's popularity as a fishing destination for both local and nonresident anglers. Pink salmon return to Bird Creek from mid-July to mid-August each year. Historically, the number of returns during even-numbered years was significantly higher than the number of returns during odd-numbered years. These differences in relative abundance significantly influenced annual angler effort and pink salmon harvest levels in Bird Creek. Although the pink salmon stocks in Bird Creek are wild, beginning in 1992, the Alaska Department of Fish and Game (ADF&G) began releasing hatchery-reared coho salmon smolt, making Bird Creek even more popular with most anglers. Bird Creek is open to sport fishing from ADF&G markers located approximately 500 yards upstream of the Seward Highway Bridge and downstream to the mouth of the creek. The open area was expanded in 1993 by approximately 100 yards as a result of a pending land exchange between the Alaska Department of Natural Resources (DNR), the Municipality of Anchorage (MOA), and private landowners. To date, this land exchange has not occurred. Bird Creek upstream of this reach is closed to all salmon fishing.

In those waters of Bird Creek open to fishing for salmon, the bag and possession limits for salmon (other than Chinook salmon) 16 inches or longer are 3 per day, 3 in possession; all 3 may be coho salmon. The limits for salmon (other than Chinook salmon) under 16 inches are 10 per day, 10 in possession.

Stocking Program

Pink salmon have not been stocked in Bird Creek. A summary of the stocking program can be found in Loopstra 2007.

Historical Catch, Harvest and Effort

The 5-year (2005–2009) average catch and harvest of pink salmon on Bird Creek is 20,834 and 1,725, respectively (Table 11). The catches during these years are similar to peak catches that took place in the 1990s and 2000 when catch estimates ran as high as 20,060 pink salmon. Angler effort in Bird creek has once again risen and the recent 5-year average (2005–2009) of 12,261 angler-days is similar to effort between 1992 and 2001 (Table 3). This increase is likely due to the resumption of the coho stocking program, put on hold while the new parking area and facilities were under construction, indicating effort on Bird Creek is largely linked to the coho fishery.

Fishery Performance and Escapement in 2009 and 2010

The sport catch and harvest of pink salmon in Bird Creek in 2009 was 37,299 and 3,812, respectively, which is the highest fishery performance seen at Bird Creek since catch records have been kept (Table 11). Stream surveys conducted on Bird Creek are not timed to estimate the size of the pink salmon run, but are timed to count Chinook and coho salmon. In 2009, a survey was timed to estimate the pink salmon run during its peak. The escapement count for 2009 was 32,100 pink salmon (Appendix B4). This is an unusually high run for an odd year in Upper Cook Inlet for a species that is typically an even-year fish. Although harvest estimates for 2010 are not yet available, observations during the pink salmon sport fishery suggest fishery performance was only fair.

Fishery Management and Objectives

The Bird Creek pink salmon fishery is managed to allow angler opportunity on a harvestable surplus of salmon while assuring sustained yield.

OTHER PINK SALMON FISHERIES

Fishery Description

Most AMA streams support annual pink salmon runs but run size is often small and doesn't support a recreational harvest. Other area streams with reported pink salmon harvests include California, Campbell, Fish, Glacier, Indian, Ingram, Peters, and Ship creeks, and Eagle, Eklutna, Placer, and Twentymile rivers. Rabbit and Sixmile creeks are closed to all salmon fishing and Campbell Creek is closed to pink salmon fishing. Military personnel from Elmendorf have operated a weir on Sixmile Creek since 1988 (Appendix B6).

In those waters of the AMA open to fishing for salmon, the bag and possession limits for salmon (other than Chinook salmon) 16 inches or longer is 3 per day, 3 in possession; only 2 of which may be coho salmon (see regulations for exceptions). The limits for salmon (other than Chinook salmon) under 16 inches are 10 per day, 10 in possession

Stocking Program

Pink salmon have not been stocked in AMA streams. A summary of the stocking program can be found in Loopstra 2007.

Historical Catch, Harvest and Effort

Bird, Ship and Twentymile creeks provide the only pink salmon fishery of any significance in the AMA. Other pink salmon fisheries are included in "Other Freshwater" in Table 11. Fishery

performance for all AMA pink salmon fisheries has improved over the last 5 years (2005–2009) and the majority of the catch continues to be released (Table 11, Figure 11).

Fishery Performance in 2009 and 2010

The sport catch and harvest of pink salmon in "Other Freshwater" Anchorage creeks in 2009 was 17,733 and 1,755, respectively, which represented the best fishery performance reported (Table 11). Although harvest estimates for 2010 are not yet available, observations during the pink salmon sport fishery suggest fishery performance was only fair.

Fishery Management and Objectives

The AMA pink salmon fisheries are managed to allow angler opportunity on a harvestable surplus of salmon while assuring sustained yield.

OTHER FISHERIES

SOCKEYE SALMON

The primary Anchorage Management Area (AMA) streams that support sockeye salmon runs are Sixmile Creek and Twentymile River. The most significant fisheries are reported in "Other Freshwater" streams (likely Portage Valley streams) and from saltwater (mouth of Sixmile Creek). Other AMA streams that support sockeye salmon runs include Ship, Campbell, and Portage Valley streams. The 2009 AMA estimated sockeye salmon sport catch was 663 fish of which only 192 were harvested (Table 12). The 5-year average (2005–2009) is 861 sockeye salmon caught and 244 harvested. Harvest and catch for 2009 is neither the highest nor the lowest for the past 5 years (Figure 12).

In Campbell Creek, most sockeye salmon spawn in North Fork and are thought to utilize beaver ponds for rearing. Campbell Creek has no natural lake system accessible to salmon, only the man-made lake near the creek mouth. Sockeye salmon in Campbell Creek have similar run timing as Chinook salmon, so foot survey counts are used to estimate escapement. Since 2000, sockeye escapement has ranged from 1,857 to 42 fish, with the most recent 5-year average of 230 fish (Appendix B3). The 2002–2003 escapements were historically high for sockeye salmon in the North Fork of Campbell Creek (Appendix B3). Beaver ponds that existed in the North Fork drainage drained naturally several years ago, but have since been built back up. Campbell Lake was drained in the winter of 2006–2007 to winterkill aquatic vegetation along the shoreline. Because it is unknown to what degree sockeye salmon utilize the lake for overwinter rearing, escapements will need to be closely monitored. During this past winter (2010) Campbell Lake was once again drained to complete the dredging project started over the 2006–2007 winter. Campbell Creek is closed to sockeye salmon sport fishing, and remains closed to all fishing downstream of Dimond Blvd.

Elmendorf Air Force Base (now called Joint Base Elmendorf-Richardson) personnel have operated a weir in Sixmile Creek since 1988 (Appendix B6). The Alaska Department of Fish and Game (ADF&G) operated this weir in 2009 and 2010 under contract with the Joint Base. In 1998, this weir was moved upstream near the lake outlet. Annual counts of returning sockeye salmon from 2001 through 2010 have averaged 2,219 fish. While Sixmile Creek is presently closed to sport fishing, fishing is allowed in the intertidal area below the high tide mark near the creek mouth and in Sixmile and Upper Sixmile lakes. The intertidal site, marked with a steel cable across the stream and ADF&G markers, is growing in popularity and contributes to most of

the AMA saltwater harvest. This fishery is likely even larger as some of the sockeye salmon reported in "saltwater fisheries" are probably harvested at the mouth of Sixmile Creek (Table 12).

Carmen Lake and its inlet tributaries are the primary sockeye salmon spawning areas in the Twentymile River drainage; mainstem spawning has been documented (Stratton et al. 1994). Sockeye salmon returning to Placer River spawn in Luebner Lake. Sockeye returning to Portage Creek primarily spawn in the artificially created channel in Williwaw Creek where a viewing platform and information kiosk were installed and are maintained by U.S. Forest Service (USFS).

In those freshwaters of the AMA open to fishing for salmon, the bag and possession limits for salmon (other than Chinook salmon) 16 inches or longer are 3 per day, 3 in possession; only 2 of which may be coho salmon (see regulations for exceptions). The limits for salmon (other than Chinook salmon) under 16 inches are 10 per day, 10 in possession. In saltwater, the limits for salmon, (other than Chinook salmon) are 6 per day, 6 in possession. Only 3 per day, 3 in possession may be coho salmon.

CHUM SALMON

Chum salmon do not return in significant numbers to AMA streams. Anglers targeting pink and coho salmon harvest most of the chum salmon. The 2009 AMA estimated chum salmon sport catch was 5,945 fish of which 386 were harvested (Table 13). The majority of the catch (4,205) and harvest (316) were from Bird Creek. Chum salmon are also harvested in California, Fish, Glacier, Indian, Peters, and Ship creeks, and Eagle, Eklutna, Placer, and Twentymile rivers. While chum salmon harvests remain relatively low, catches hit a peak of 6,540 in 2002 and have tapered back to the current 5-year average (2005–2009) of 4,350 fish (Figure 13). Chum salmon are counted during Chinook salmon escapement surveys although no directed chum salmon counts are conducted by ADF&G staff (Appendices B2-B4, B6-B7). ADF&G does not currently monitor chum salmon escapements.

In those freshwaters of the AMA open to fishing for salmon, the bag and possession limits for salmon (other than Chinook salmon) 16 inches or longer is 3 per day, 3 in possession; only two of which may be coho salmon (see regulations for exceptions). The limits for salmon (other than Chinook salmon) under 16 inches are 10 per day, 10 in possession. In saltwater, the limits for salmon, (other than Chinook salmon) are 6 per day, 6 in possession. Only 3 per day, 3 in possession may be coho salmon.

STEELHEAD TROUT

Although steelhead trout are not indigenous to the AMA, there has been public interest in developing a steelhead run in one or more AMA streams. In 1956, 50,000 eyed steelhead trout eggs from Kodiak were placed in egg trays and planted in Campbell Creek. There was no reported harvest from this release. In 1985 and 1986, steelhead smolt of Anchor River origin, hatched and reared at Elmendorf Hatchery, were stocked in Campbell Creek in an effort to establish an AMA steelhead trout run (Appendix C6). A weir was operated at the Campbell Lake outlet in 1986 and 1987 during August and September. No steelhead trout were observed in 1986 and only 3 steelhead trout were captured during 1987. The stocking program was discontinued in 1987 due to the poor return.

RAINBOW TROUT

Two AMA streams, Campbell and Chester creeks, are stocked with sterile (triploid [3N]) rainbow trout. These sterile fish are incapable of spawning and do not participate in any spawning behavior. Rainbow trout were first stocked in Campbell Creek in 1983 and are released annually between Lake Otis Parkway and the confluence of North and South Forks. Stocking of Chester Creek began in 1971. Due to hatchery concerns neither of these streams has been stocked since 2006 (Appendices C7-C8). Both of these streams have natural populations of rainbow trout that spawn in areas within easy sight of paved bike paths. Once spawning is complete these fish disperse to locations throughout these drainages and are no longer as vulnerable to anglers. To protect these wild fish when no stocking has taken place, emergency orders (EOs) have been issued annually since 2007 (2-RT-2-05-07, 2-RT-04-08, 2-RT-04-09) that prohibit retention of rainbow trout. During the 2009 season, ADF&G observed and received reports of anglers keeping rainbow trout despite the non-retention EO. In 2010 both streams were closed to all fishing during the spawning season and were then open to non-retention fishing for rainbow trout (2-R-2-04-10). This EO aided in the enforcement of non-retention and protected spawning rainbow trout at a vulnerable time. This same protection was provided to the spawning rainbow trout in Ship Creek in 2010, and in the Sixmile drainage on the Joint Base. ADF&G will continue to close these fisheries by EO until stocking resumes, and will continue to close these streams to all fishing during the vulnerable spawning season.

At the fall 1986 meetings, the Alaska Board of Fisheries (BOF) created a trophy rainbow trout area in the upper reaches of Campbell Creek (Appendix A3). Both the North and South Forks were restricted to single hook, artificial lure fishing only, and the retention of rainbow trout was prohibited. The North and South Forks of Campbell Creek are currently managed as trophy areas for rainbow trout and reports of 24-inch rainbow trout caught above the Campbell Airstrip Road have been recorded. Bag and possession limits for rainbow trout in stocked waters (Figure 6) of the AMA are 5 per day, 5 in possession, only 1 fish 20 inches or more in length. In other waters open to rainbow trout sport fishing, limits are 2 per day, 2 in possession, only 1 of which may be 20 inches or more in length. Rainbow trout 20 inches or more in length must be immediately recorded on the back of the sport fishing license, and the Cook Inlet seasonal limit for rainbow trout 20 inches or more in length is 2.

For 2009, Statewide Harvest Survey (SWHS) estimates of catch and harvest of rainbow trout from AMA streams and lakes were 32,120 and 5,716 fish, respectively (Table 14). Nearly all of this catch (31,391) and harvest (5,706) were taken from AMA lakes. The average annual catch of rainbow trout in the AMA during the 2000s is about half of what it was during the 1990s (Table 14) and the catch estimate for 2009 continues a downward trend from 2000 (Figure 14). Most recently, the hatcheries have not been able to produce a catchable-sized rainbow trout, even after rearing these fish for 2 years. Prior to the decommissioning of the power plants on Fort Richardson and Elmendorf Air Force Base, the two hatcheries had free warm water to rear fish. A catchable-sized 8-inch fish could easily be reared in 1 year. Then pathology concerns at Elmendorf Hatchery forced ADF&G to evaluate stocking and reduce the stocking to only closed-water systems (lakes without an outlet). This effectively cut the number of stocking locations in the AMA in half (Appendix C7-8). The most productive AMA streams for rainbow trout are Ship, Campbell and Chester creeks. Rainbow trout harvests from Campbell Creek (1999–2004) averaged a catch of 5,125 rainbow trout and a harvest of 348 fish. The catch for the most recent

5-year average (2005–2009) has now been reduced to only 823. The Ship Creek catch estimate for that same 5-year period (2005–2009) is now only 439 rainbow trout (Table 14).

Although Ship Creek is not stocked with rainbow trout, the rainbow trout found in this reach are likely hatchery escapees, and their naturally-produced offspring. The number of fish in this naturalized population is unknown but assumed to be small. These rainbow trout likely spend some of the year in closed waters, either in the hatchery settling pond or upstream of Reeve Boulevard. These rainbow trout move out of the pond into Ship Creek in late February to spawn. By late-April and June, they migrate back into closed waters. Conditions in this area are optimal for rainbow trout and fish over 30 inches in length have been observed.

ARCTIC CHAR/DOLLY VARDEN

Several area streams and lakes support small populations of resident Dolly Varden. The 2009 estimated catch was 4,548 of which 1,127 were harvested (Table 15). This level of catch and harvest is lower than the previous 5-year average (2004–2008) of 7,668 and 1,854, respectively (Table 15; Figure 15). On average, Campbell Creek has supported the largest catch estimates for the 5-year period (2005–2009) with 1,221 Dolly Varden caught and only 25 harvested. Dolly Varden have been reported in Bird, Campbell, Ingram, and Ship creeks, and Placer and Twentymile rivers.

Beginning in 2002, ADF&G began stocking Arctic char into seven AMA lakes (Appendix C1). While these char were active in cold water temperatures and added to the stocked lakes program, they did not do well in warmer waters and high mortalities were reported in shallow area lakes in the summer of 2003. In response, ADF&G evaluated the stocking program and currently stocks hatchery-reared Arctic char into two area lakes—Sand Lake and Campbell Point Lake.

ADF&G daily bag and possession limits for Arctic char/Dolly Varden in stocked waters are 5 per day, 5 in possession. In all other waters the limits are 5 per day, 5 in possession, only 1 may be 12 inches or longer.

ARCTIC GRAYLING

Arctic grayling are not known to naturally occur in the AMA; however, grayling are occasionally reported harvested in Eagle River and a few other non-stocked waters. Catch is typically relatively small with a record catch of 4,620 Arctic grayling estimated in 2002 of which 750 were harvested (Table 16; Figure 16). This record represents the highest catch of grayling reported in the AMA and the highest harvest since 1988. The vast majority of these grayling were from stocked lakes (Appendix C9). The 2009 catch and harvest estimates were 1,124 and 194 grayling, respectively (Table 16). All of these grayling were likely harvested from Symphony Lake. This lake was stocked twice with grayling, once in 2001 with catchable-sized fish and again in 2003 with fingerling fish. Symphony Lake is an alpine lake in Chugach State Park, and is not currently stocked. This lake, at the end of a 6-mile trail, is a popular destination for hikers, back packers, berry pickers, and anglers. The natural reproduction of grayling in this lake has been confirmed, and a two-period mark-recapture study conducted in the summer of 2010 showed a population of grayling nearing the limits of lake capacity. Bag and possession limits for Arctic grayling in the AMA are 2 per day, 2 in possession in flowing waters; and 5 per day, 5 in possession in stocked lakes.

NORTHERN PIKE

Northern pike do not occur naturally in AMA waters but have been illegally introduced into AMA lakes. ADF&G staff began getting reports of pike and sampled two canals in Sand Lake with gillnets and spears in May 1996 and 1997. In addition to Sand Lake, pike have been confirmed in Cheney Lake, Campbell Creek, Otter Lake, Sand Lake, Taku-Campbell Lake, and Lower Fire Lake. The presence of pike in AMA lakes has affected stocking programs as numbers of rainbow trout, grayling, and landlocked salmon released into "pike lakes" have been greatly reduced or eliminated. The ADF&G has been able to curb the spread of pike in Anchorage waters by treating Cheney and Sand lakes with rotenone to kill all pike. Both of these lakes, once removed from stocking or on a reduced stocking program, are now being stocked with rainbow trout, Arctic grayling and landlocked salmon.. However, there is an attempt to evaluate AMA stocked lakes, and follow up on pike reports each year.

In response to the pike problem and broader statewide issues with other invasive species, ADF&G has developed an Invasive Species Policy. This document is available through ADF&G offices or online at http://www.adfg.state.ak.us/special/invasive/invasive.php and outlines department policy on strategies that will be used to combat invasive species.

In addition to reducing or eliminating stocking programs in affected Anchorage lakes, in 2003 AMA ADF&G staff revived the spring netting and trapping project to target adult pike as they move into the shallows to spawn. ADF&G staff netted Lower Fire, Cheney and Sand lakes collecting information on the size structure of the pike population, catch per unit effort (CPUE), spawning locations, and habitat preference. Information collected during these ventures was used when ADF&G treated both Cheney and Sand Lake with rotenone. All fish captured in the lake prior to treatment were either donated to Beans Café, or donated to the ADF&G educational program to be used in classroom dissections. Each of these lakes was treated in October, with the anticipation that the lake would freeze over and rotenone would persist over the winter to maximize its effect. Each lake was monitored all winter by collecting water and sediment samples to track the concentration of rotenone as it declined over the winter. By spring ice-out, the waters of both lakes were rotenone free. Each lake was then sampled with ten 120 ft variable mesh gill nets to determine if the lakes were pike free, and no pike were caught. However, each lake still appeared to support abundant and healthy populations of invertebrates, a good base of food for stocked fish.

The natural resources staff at Joint Base Elmendorf-Richardson have also been netting pike in Otter Lake with plans to net Gwen, Clunie, Thompson, and Walden lakes. Informing the public on the effects of illegally stocking pike and encouraging harvest in AMA lakes has been the ADF&G's most effective tool. Estimated pike catch and harvest by recreational anglers peaked in 2009 with a harvest of 2,040 pike, but the catch peaked in 2001 at 4,848 (Table 17; Figure 17). The high catch and harvest in 2009 can be attributed to the effort the ADF&G made to encourage anglers to catch and harvest as many pike as possible from Sand Lake prior to treatment. As a result a record 2,069 pike were caught and 1,989 were harvested from Sand Lake in 2009.

Media coverage, presentations by staff to sportsman's groups and shows, a pike video describing pike fishing techniques (archery, spear, ice-fishing, etc.), and a series of Public Service Announcements have all helped educate and inform the public on the invasive pike problem in the AMA and how they can help. There are no bag, possession, or size limits on AMA northern pike.

EULACHON

Turnagain Arm supports a large eulachon (hooligan or candlefish) personal use dip net fishery. By regulation, this fishery is limited to Alaska residents only, and a valid sport fishing license must be in possession. Dipnetting is allowed in salt water from January 1 through May 31, and in fresh water from January 1 through June 15. The primary fishing sites are in Twentymile River and from rocky beaches along the north side of Turnagain Arm adjacent to the Seward Highway. The fishery occurs from mid-May through June 15. Eulachon have also been reported harvested in Bird Creek, Placer River, and Portage Valley streams. Experienced dippers maintain that a 25-foot tide, as measured in Anchorage, is the minimum required to bring water and eulachon into the east end of Turnagain Arm. The extreme tides and muddy substrate in Turnagain Arm limit the number of sites available to anglers. The reported 2009 harvest was only 28,953 eulachon (Table 18), all of which were reported taken out of Turnagain Arm (most likely at the mouth of Twentymile River). While the 2005 harvest was the lowest estimated by the SWHS and was significantly below the previous 10-year (1995–2004) harvest of 34,460, harvest during the last several years has been building (Table 18, Figure 18).

SUMMARY OF PERFORMANCE AND ESCAPEMENT

The effort, catch, and harvest of sport fish in the Anchorage Management Area (AMA) have shown several trends over the past 5 years (2005–2009). Overall angler effort has continued to decline since 2000 (Figure 2). In the past 5 years, catch of anadromous salmon has increased but harvest has varied relatively little (Figure 5). Pink salmon comprised the largest anadromous salmon catch followed by coho, Chinook, chum, and sockeye salmon (Table 5). More rainbow trout were caught and harvested on average per year (2005–2009) in AMA freshwaters than landlocked salmon, Arctic char, Arctic grayling, northern pike, or lake trout combined(Tables 6 and 7), although this average is much smaller than the previous 10-year average (1995–2004). The most recent 5-year average of annual lake sport fish catch and harvest (52,958 and 12,325) is much lower than the 10-year average from 1995–2004 (142,134 and 37,258; Table 8). Chinook salmon catch and harvest in 2009 was the lowest of the previous 5 years (Figure 8). Coho salmon catch and harvest in 2009 was similar to previous years but not as great as 2000 through 2002 (Figure 9). Fishery performance for pink salmon has improved over the past 5 years and most of the pink salmon caught are released (Figure 11). The sockeye salmon catch and harvest was neither the highest or lowest for the past 5 years (Figure 12) and the chum salmon catch continues to be relatively high (Figure 13). The estimated catch of rainbow trout and Dolly Varden for 2009 continues a decline since 2000 (Figure 14; Figure 15) Personal use harvest of eulachon has been building from a 10-year low (Figure 18).

Escapement estimates for 2010 for both Chinook and coho salmon were lower than the annual average for the previous 5 years (2005–2009) for all surveyed drainages in the AMA (Appendices B1-B4, B6-B7). Estimated sockeye escapement for 2010 was similar to the annual average for the previous 5 years (2005–2009) for Campbell Creek, greater than the average for Sixmile Creek, and less than the average for Rabbit Creek (Appendices B3, B6-B7).

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TABLES AND FIGURES

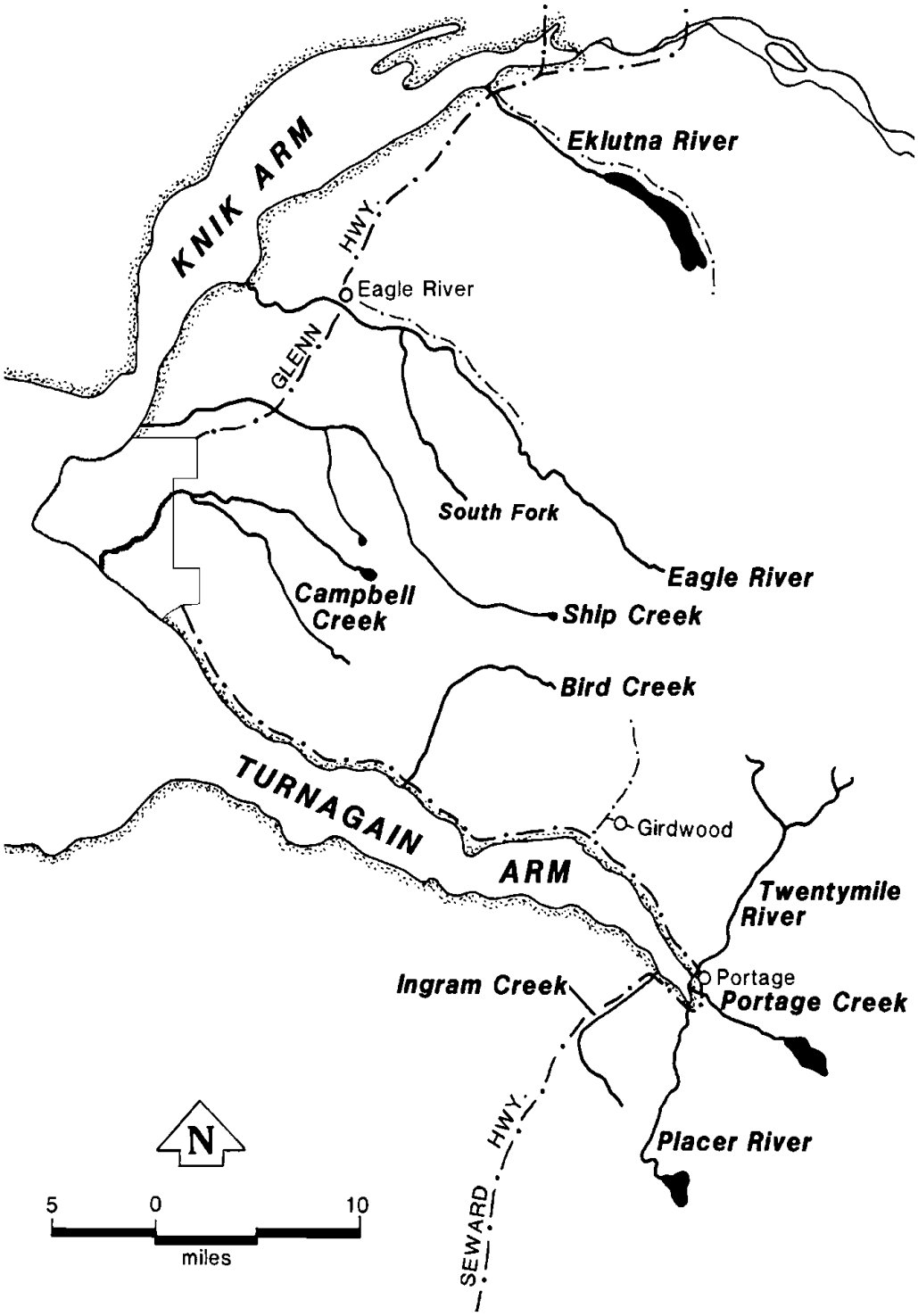

Figure 1.-Anchorage Management Area (AMA) delimited for sport fisheries.

Table 1.-Sport fishing effort expended in the Anchorage Management Area compared to Southcentral Alaska and statewide, 1990–2009.

Year	Statewide Effort	Southcentral Effort	Anchorage		
			Effort	% of Statewide	% of Southcentral
1990	2,453,284	1,745,110	126,722	5%	7%
1991	2,456,328	1,782,055	118,517	5%	7%
1992	2,540,374	1,889,930	142,830	6%	8%
1993	2,559,408	1,867,233	144,823	6%	8%
1994	2,719,911	1,966,985	142,277	5%	7%
1995	2,787,670	1,985,539	176,401	6%	9%
1996	2,006,528	1,434,943	126,325	6%	9%
1997	2,079,514	1,400,983	139,549	7%	10%
1998	1,856,976	1,258,782	125,513	7%	10%
1999	2,499,152	1,659,966	146,789	6%	9%
2000	2,627,805	1,844,824	167,499	6%	9%
2001	2,261,941	1,560,562	135,359	6%	9%
2002	2,259,091	1,569,513	111,694	5%	7%
2003	2,219,398	1,535,501	104,004	5%	7%
2004	2,473,961	1,709,671	101,943	4%	6%
2005	2,463,929	1,712,610	101,041	4%	6%
2006	2,297,961	1,605,852	103,800	5%	6%
2007	2,543,674	1,799,352	91,881	4%	5%
2008	2,315,601	1,622,920	111,121	5%	7%
2009	2,216,445	1,522,345	79,743	4%	5%
2005–2009 average	2,367,522	1,652,616	97,517	4%	6%

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

Note: "effort" = number of angler-days.

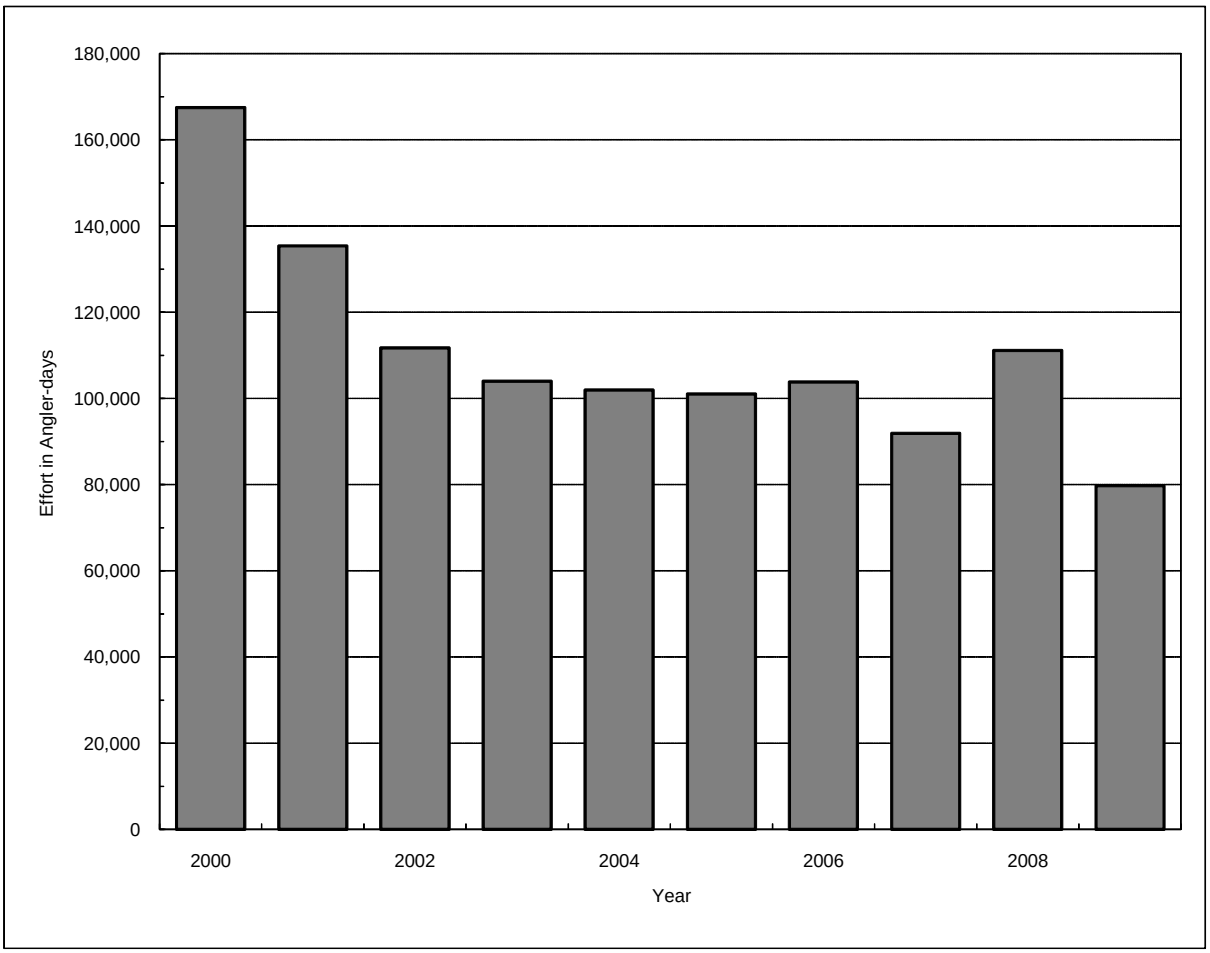

Figure 2.-Overall angler effort, Anchorage Management Area, 2000–2009.

Table 2.-Saltwater, lake, and stream sport fishing effort, Anchorage Management Area, 1990–2009.

	Saltwater		Lake		Stream		Anchorage
Year	Effort	Percent	Effort	Percent	Effort	Percent	Total Effort
1990	2,186	2%	85,715	68%	38,821	31%	126,722
1991	2,828	2%	66,596	56%	49,093	41%	118,517
1992	3,271	2%	71,194	50%	68,365	48%	142,830
1993	5,413	4%	64,997	45%	74,413	51%	144,823
1994	3,602	3%	65,115	46%	73,560	52%	142,277
1995	4,726	3%	79,198	45%	92,477	52%	176,401
1996	870	1%	54,699	43%	70,756	56%	126,325
1997	1,449	1%	64,331	46%	73,769	53%	139,549
1998	2,921	2%	43,905	35%	78,687	63%	125,513
1999	2,916	2%	66,312	45%	77,561	53%	146,789
2000	2,197	1%	69,607	42%	95,695	57%	167,499
2001	2,277	2%	47,384	35%	85,698	63%	135,359
2002	3,493	3%	40,201	36%	68,000	61%	111,694
2003	3,243	3%	40,552	39%	60,209	58%	104,004
2004	1,251	1%	47,539	47%	53,153	52%	101,943
2005	2,670	3%	36,833	36%	61,538	61%	101,041
2006	1,540	1%	35,741	34%	66,519	64%	103,800
2007	5,542	6%	28,833	31%	57,506	63%	91,881
2008	2,977	3%	35,984	32%	72,160	65%	111,121
2009	2,616	3%	27,910	35%	49,217	62%	79,743
2005–2009 average	3,069	3%	33,060	34%	61,388	63%	97,517

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

Note: "effort" = number of angler-days.

Table 3.-Angler sport fishing effort for streams in the Anchorage Management Area, 1990–2009.

	Ship Creek		Bird Creek		Campbell Creek		Twentymile River		Eagle River		Other		Stream
Year	Effort	Percent	Effort	Percent	Effort	Percent	Effort	Percent	Effort	Percent	Effort	Percent	Total Effort
1990	15,112	39%	9,138	24%	3,983	10%	4,537	12%	2,002	5%	4,049	10%	38,821
1991	29,768	61%	7,551	15%	1,977	4%	4,178	9%	1,106	2%	4,513	9%	49,093
1992	40,513	59%	11,352	17%	1,515	2%	4,257	6%	4,908	7%	5,820	9%	68,365
1993	40,815	55%	12,852	17%	9,073	12%	3,480	5%	3,396	5%	4,797	6%	74,413
1994	40,727	55%	12,357	17%	8,036	11%	4,772	6%	2,937	4%	4,731	6%	73,560
1995	51,087	55%	15,947	17%	10,457	11%	4,758	5%	4,922	5%	5,306	6%	92,477
1996	42,454	60%	12,003	17%	5,225	7%	3,823	5%	3,499	5%	3,752	5%	70,756
1997	47,826	65%	12,136	16%	5,897	8%	3,170	4%	2,059	3%	2,681	4%	73,769
1998	44,670	57%	20,797	26%	4,834	6%	2,805	4%	1,023	1%	4,558	6%	78,687
1999	52,294	67%	13,033	17%	4,446	6%	3,370	4%	2,096	3%	2,322	3%	77,561
2000	62,101	65%	17,550	18%	3,918	4%	3,620	4%	1,998	2%	6,508	7%	95,695
2001	56,402	66%	13,662	16%	6,222	7%	4,161	5%	1,214	1%	4,037	5%	85,698
2002	46,955	69%	5,540	8%	4,561	7%	2,869	4%	1,538	2%	6,537	10%	68,000
2003	40,380	67%	3,691	6%	4,937	8%	3,418	6%	1,382	2%	6,401	11%	60,209
2004	35,524	67%	2,239	4%	5,674	11%	3,826	7%	1,289	2%	4,601	9%	53,153
2005	39,610	64%	8,365	14%	6,933	11%	2,554	4%	1,130	2%	2,946	5%	61,538
2006	34,557	52%	15,220	23%	6,235	9%	2,299	3%	1,591	2%	6,617	10%	66,519
2007	30,676	53%	13,247	23%	5,779	10%	2,749	5%	955	2%	4,100	7%	57,506
2008	40,605	56%	10,866	15%	6,267	9%	4,874	7%	1,541	2%	8,007	11%	72,160
2009	23,663	48%	13,605	28%	2,774	6%	1,729	4%	108	0%	7,338	15%	49,217
2005–2009 average	33,822	55%	12,261	20%	5,598	9%	2,841	5%	1,065	2%	5,802	10%	61,388
2000–2009 average	41,047	61%	10,399	15%	5,330	8%	3,210	5%	1,275	2%	5,709	9%	66,970

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep*.

Note: "effort" = number of angler-days.

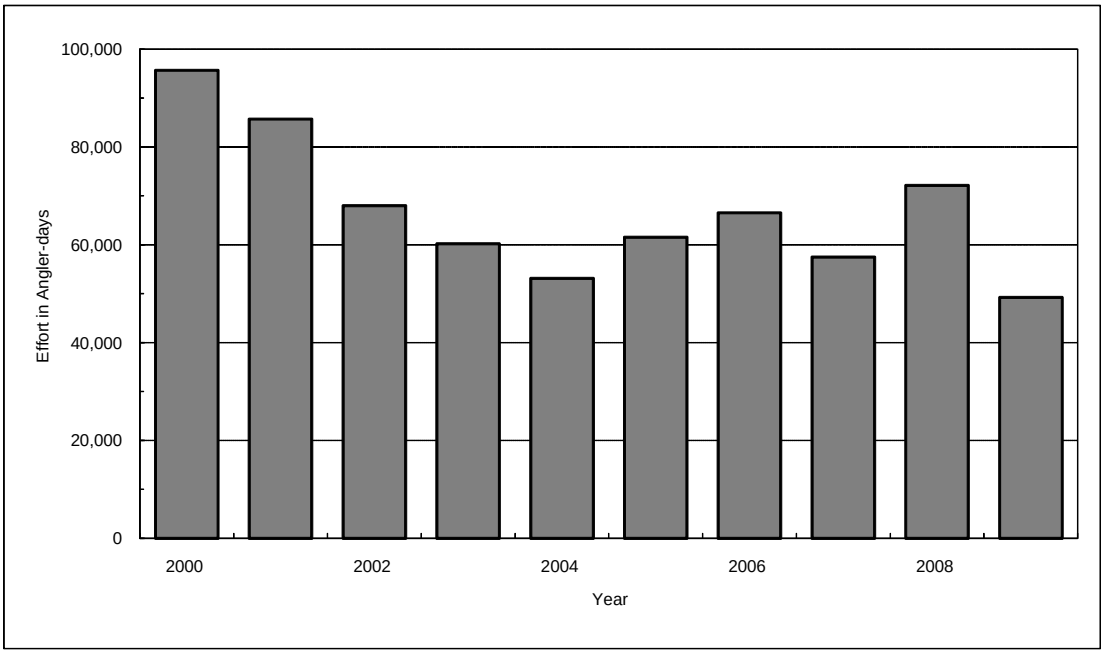

Figure 3.-Angler fishing effort for all streams in the Anchorage Management Area, 2000–2009.

Table 4.-Angler sport fishing effort for lakes in the Anchorage Management Area, 1990–2009.

	Otter Lake		Jewel Lake		Sixmile Lake		Cheney Lake		Clunie Lake		Mirror Lake		Other Lakes		Lakes
Year	Effort	%	Effort	%	Effort	%	Effort	%	Effort	%	Effort	%	Effort	%	Total Effort
1990	9,542	11%	10,235	12%	6,539	8%	6,326	7%	6,592	8%	5,740	7%	40,741	48%	85,715
1991	8,076	12%	7,294	11%	4,446	7%	4,189	6%	4,379	7%	4,993	7%	33,219	50%	66,596
1992	6,423	9%	8,290	12%	6,765	10%	6,594	9%	4,108	6%	5,249	7%	33,765	47%	71,194
1993	7,619	12%	7,412	11%	5,295	8%	5,013	8%	4,980	8%	4,007	6%	30,671	47%	64,997
1994	9,365	14%	5,339	8%	5,675	9%	7,032	11%	5,169	8%	5,294	8%	27,241	42%	65,115
1995	7,993	10%	8,222	10%	4,114	5%	6,225	8%	6,585	8%	6,346	8%	39,713	50%	79,198
1996	7,035	13%	4,343	8%	3,923	7%	4,789	9%	4,465	8%	4,292	8%	25,852	47%	54,699
1997	6,265	10%	6,283	10%	4,659	7%	5,280	8%	4,636	7%	4,378	7%	32,830	51%	64,331
1998	4,005	9%	5,373	12%	2,867	7%	2,703	6%	2,921	7%	3,874	9%	22,162	50%	43,905
1999	4,090	6%	7,814	12%	5,928	9%	3,933	6%	4,843	7%	3,843	6%	35,861	54%	66,312
2000	5,048	7%	6,173	9%	5,101	7%	3,935	6%	5,850	8%	4,052	6%	39,448	57%	69,607
2001	3,293	7%	5,755	12%	3,248	7%	1,630	3%	4,550	10%	6,989	15%	21,919	46%	47,384
2002	2,577	6%	6,632	16%	1,072	3%	1,616	4%	1,130	3%	5,384	13%	21,790	54%	40,201
2003	3,670	9%	5,531	14%	1,683	4%	1,104	3%	2,268	6%	2,987	7%	23,309	57%	40,552
2004	2,983	6%	7,956	17%	1,323	3%	317	1%	6,289	13%	4,103	9%	24,568	52%	47,539
2005	1,510	4%	6,321	17%	1,979	5%	915	2%	2,037	6%	3,927	11%	20,144	55%	36,833
2006	1,318	4%	4,774	13%	1,562	4%	838	2%	1,115	3%	3,965	11%	22,169	62%	35,741
2007	1,273	4%	4,925	17%	1,620	6%	604	2%	1,266	4%	2,751	10%	16,394	57%	28,883
2008	2,515	7%	3,477	10%	1,184	3%	1,044	3%	3,513	10%	3,071	9%	21,180	59%	35,984
2009	1,375	5%	3,551	13%	1,076	4%	2,307	8%	1,390	5%	2,060	7%	16,151	58%	27,910
2005–2009 average	1,598	5%	4,610	14%	1,484	4%	1,142	4%	1,864	6%	3,155	9%	19,208	58%	33,070

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep*.

Note: "effort" = number of angler-days.

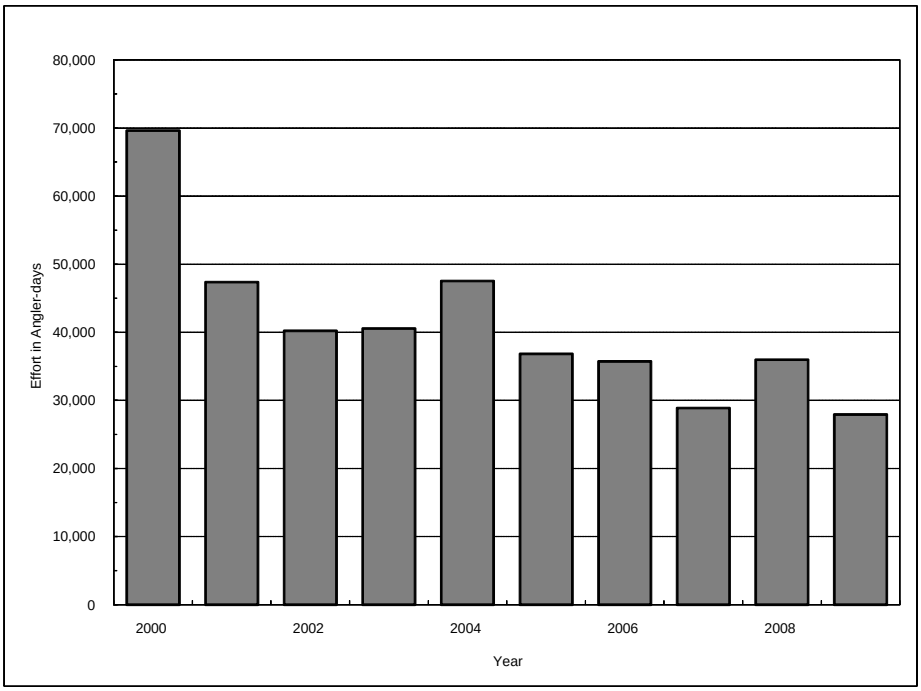

Figure 4.-Angler fishing effort for lakes in the Anchorage Management Area, 2000–2009.

Table 5.-Sport fish catch and harvest of anadromous salmon, Anchorage Management Area, 1990–2009.

	Chinook (king)			Sockeye			Coho			Pink			Chum			Total	
Year	Catch	Harvest	Percent released	Catch	Harvest	Percent released	Catch	Harvest	Percent released	Catch	Harvest	Percent released	Catch	Harvest	Percent released	Catch	Harvest
1990	1,192	457	62%	624	254	59%	3,967	2,488	37%	13,362	4,932	63%	1,530	315	79%	20,675	8,446
1991	1,996	1,169	41%	933	749	20%	5,926	4,393	26%	5,623	1,986	65%	1,281	360	72%	15,759	8,657
1992	4,308	2,448	43%	3,395	1,315	61%	9,665	5,698	41%	27,287	8,901	67%	1,664	297	82%	46,319	18,659
1993	7,824	3,041	61%	6,052	3,085	49%	23,462	16,387	30%	11,124	2,767	75%	1,359	383	72%	49,821	25,663
1994	5,504	2,708	51%	4,276	1,594	63%	22,542	13,948	38%	8,480	1,979	77%	1,546	174	89%	42,348	20,403
1995	7,869	4,054	48%	1,524	381	75%	22,323	13,267	41%	18,802	3,099	84%	2,989	439	85%	53,507	21,240
1996	11,187	4,456	60%	2,349	884	62%	27,726	17,795	36%	19,189	2,862	85%	4,522	607	87%	64,973	26,604
1997	9,799	4,616	53%	2,445	1,023	58%	30,192	20,578	32%	5,120	843	84%	1,588	248	84%	49,144	27,308
1998	6,022	2,156	64%	2,100	1,271	39%	64,522	42,219	35%	28,138	3,205	89%	5,154	513	90%	105,936	49,364
1999	15,118	5,462	64%	1,507	542	64%	17,834	12,266	31%	5,462	721	87%	2,304	129	94%	42,225	19,120
2000	11,848	4,752	60%	1,182	537	55%	46,888	28,191	40%	38,236	3,123	92%	3,936	340	91%	102,090	36,943
2001	11,843	4,452	62%	2,292	894	61%	63,865	40,693	36%	12,988	783	94%	4,631	470	90%	95,619	47,292
2002	7,070	2,421	66%	694	330	52%	41,219	26,260	36%	11,651	1,168	90%	6,540	472	93%	67,174	30,651
2003	9,480	3,678	61%	1,791	943	47%	20,762	13,375	36%	9,461	1,600	83%	4,121	313	92%	45,615	19,909
2004	7,713	3,160	59%	1,012	286	72%	25,474	13,447	47%	7,897	1,272	84%	2,185	306	86%	44,281	18,471
2005	9,202	4,329	53%	997	551	45%	25,937	15,063	42%	10,739	677	94%	2,376	234	90%	49,251	20,854
2006	6,857	3,165	54%	341	91	73%	35,854	19,863	45%	23,926	2,345	90%	4,427	242	95%	71,405	25,706
2007	6,142	3,106	49%	595	172	71%	17,806	10,692	40%	34,318	3,278	90%	2,968	97	97%	61,829	17,345
2008	5,464	2,647	52%	1,719	223	87%	26,124	17,996	31%	30,004	2,032	93%	6,033	283	95%	69,344	23,181
2009	2,655	1,027	61%	663	192	71%	17,736	10,805	39%	62,996	6,426	90%	5,945	386	94%	89,995	18,836
2005–2009 average	6,064	2,855	54%	863	246	69%	24,691	14,884	39%	32,397	2,952	91%	4,350	248	94%	68,365	21,184
2000–2009 average	7,827	3,274	58%	1,129	422	63%	32,167	19,639	39%	24,222	2,270	90%	4,316	314	92%	69,660	25,919

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

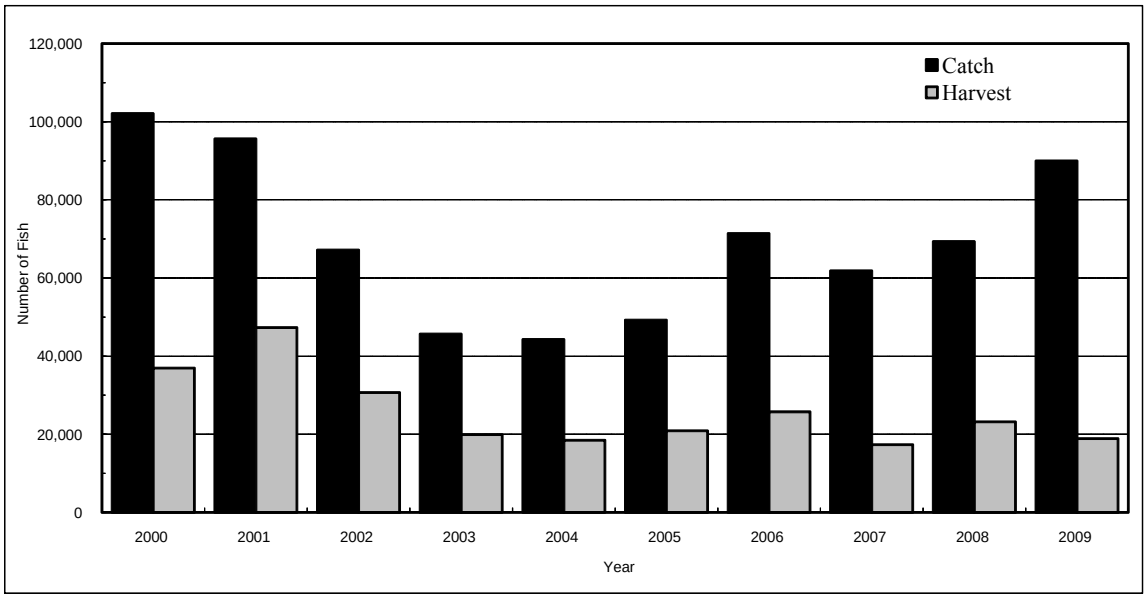

Figure 5.-Sport fish catch and harvest of anadromous salmon, Anchorage Management Area, 2000–2009.

Table 6.-Freshwater catch and harvest of landlocked salmon, Dolly Varden/Arctic char, and rainbow trout, Anchorage Management Area, 1990–2009.

	Landlocked Salmon			Dolly Varden/Arctic Char			Rainbow Trout		
Year	Catch	Harvest	Percent released	Catch	Harvest	Percent released	Catch	Harvest	Percent released
1990	27,767	6,775	76%	9,246	2,257	76%	169,250	58,435	65%
1991	15,578	10,817	31%	5,127	2,558	50%	122,646	49,303	60%
1992	28,990	13,985	52%	7,048	3,351	52%	109,208	33,317	69%
1993	36,072	17,489	52%	7,661	1,793	77%	107,465	29,112	73%
1994	28,648	13,280	54%	8,729	2,500	71%	100,373	23,631	76%
1995	17,554	6,034	66%	6,652	1,633	75%	126,866	32,874	74%
1996	32,682	13,280	59%	7,703	1,994	74%	139,058	36,148	74%
1997	21,490	8,913	59%	5,886	1,590	73%	171,325	37,245	78%
1998	25,313	12,601	50%	9,397	1,895	80%	93,443	19,761	79%
1999	17,372	7,854	55%	4,799	2,047	57%	163,010	28,776	82%
2000	36,723	6,952	81%	14,687	1,416	90%	161,811	35,587	78%
2001	25,157	9,638	62%	17,258	901	95%	109,620	21,311	81%
2002	17,915	6,093	66%	6,786	1,402	79%	91,744	22,478	75%
2003	9,952	3,460	65%	10,804	2,085	81%	62,219	18,522	70%
2004	16,790	8,468	50%	11,585	4,252	63%	81,121	23,276	71%
2005	16,900	4,850	71%	9,977	1,358	86%	55,868	13,876	75%
2006	4,295	1,595	63%	4,807	1,761	63%	37,184	7,845	79%
2007	7,864	1,463	81%	6,589	1,267	81%	29,611	5,305	82%
2008	5,721	1,479	74%	5,742	821	86%	43,646	8,437	81%
2009	4,972	1,948	61%	4,548	1,127	75%	32,120	5,716	82%
2005–2009 average	7,950	2,267	70%	6,333	1,267	78%	39,686	8,236	80%

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

Table 7.-Freshwater catch and harvest of Arctic grayling, northern pike, and lake trout; and personal use eulachon harvest, Anchorage Management Area 1990–2009.

	Arctic Grayling			Northern Pike			Lake Trout			Eulachon
Year	Catch	Harvest	Percent released	Catch	Harvest	Percent released	Catch	Harvest	Percent released	Harvest
1990	1,449	576	60%							133,027
1991	1,550	238	85%							69,257
1992	3,554	413	88%							42,964
1993	1,362	233	83%							29,865
1994	2,283	634	72%							49,279
1995	573	89	84%							34,058
1996	2,214	293	87%	893	183	80%				21,212
1997	4,555	68	99%	433	220	49%				39,071
1998	1,582	59	96%	551	337	39%				33,637
1999	1,467	158	89%	726	243	67%	5,226	921	82%	44,597
2000	122	10	92%	1,685	1,274	24%	1,335	198	85%	13,488
2001	510	62	88%	4,848	1,166	76%	650	173	73%	35,909
2002	4,623	747	84%	2,151	1,190	45%	199	199	0%	57,079
2003	2,332	221	91%	2,363	1,078	54%	1,797	779	57%	35,841
2004	363	90	75%	1,473	663	55%	593	0	100%	9,987
2005	630	166	74%	1,413	611	57%	688	64	91%	8,885
2006	152	55	64%	1,053	364	65%	253	39	85%	9,927
2007	1,340	386	71%	1,975	1,285	35%	0	0	0%	16,527
2008	3,409	444	87%	1,267	205	84%	307	246	20%	20,047
2009	1,124	194	83%	2,560	2,040	20%	323	36	89%	28,953
2005–2009 average	1,331	249	76%	1,654	901	52%	314	77	57%	16,868

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

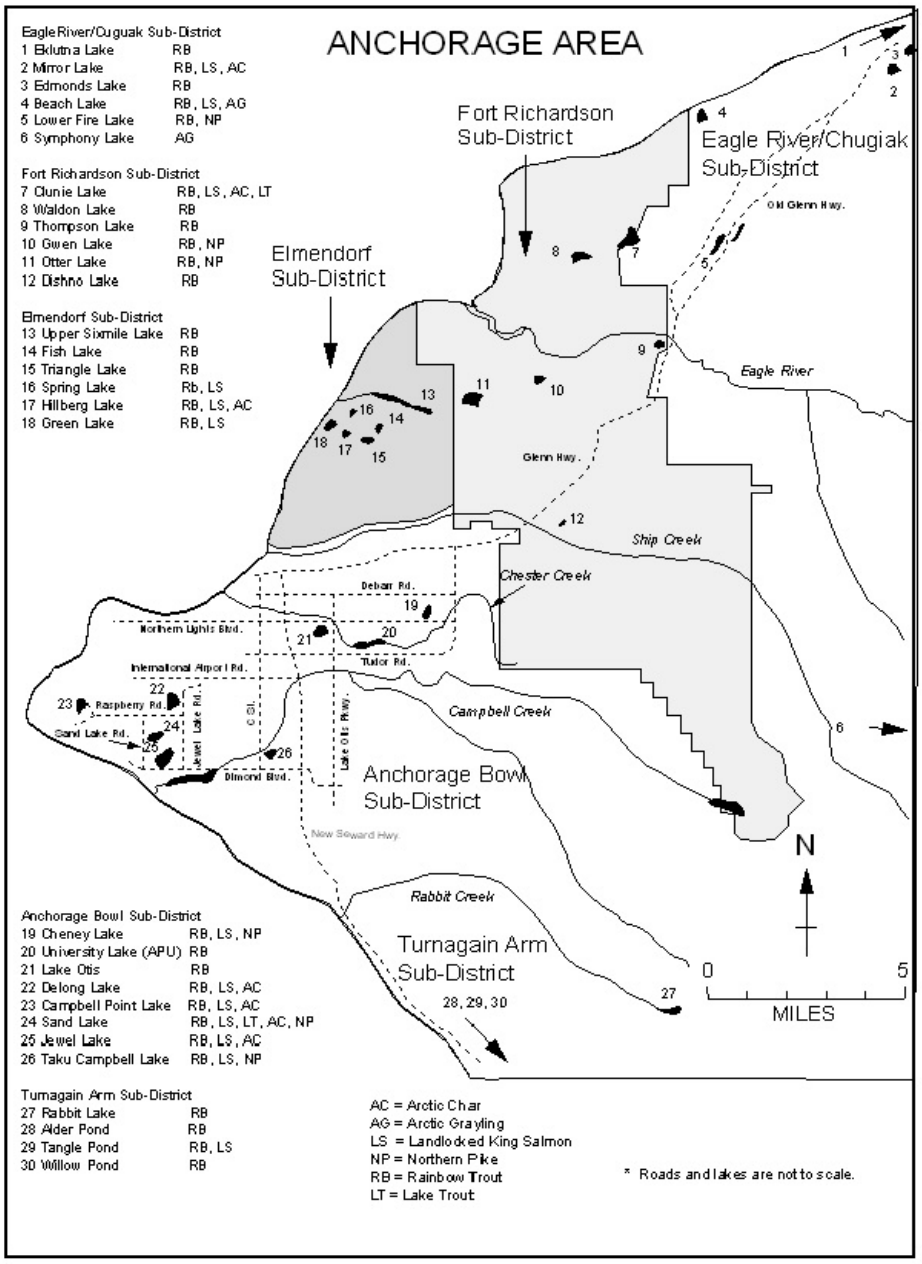

Figure 6.-Map of stocked lakes in the Anchorage Management Area.

Table 8.-Lake sport fish catch and harvest, Anchorage Management Area, 1990–2009.

	Rainbow Trout		Landlocked Salmon		Arctic Grayling		Arctic Char		Northern Pike		Lake Trout		Lake Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1990	160,005	56,277	27,767	6,775	889	527	2,291	643					190,952	64,222
1991	119,668	48,818	15,578	10,817	1,480	188	1,596	798					138,322	60,621
1992	107,324	32,708	28,990	13,985	3,554	413	2,345	1,615					142,213	48,721
1993	103,477	28,621	36,072	17,489	1,362	233	1,974	867					142,885	47,210
1994	96,657	23,108	28,648	13,280	2,224	585	1,499	933					129,028	37,906
1995	123,142	31,922	17,554	6,034	511	62	1,754	761					142,961	38,779
1996	134,690	34,986	32,682	13,280	2,103	182	2,698	1,010	893	183			173,066	49,641
1997	167,746	36,625	21,490	8,913	4,555	68	1,736	559	433	220			195,960	46,385
1998	84,886	18,975	25,313	12,601	1,077	59	2,961	988	551	337			114,788	32,960
1999	158,680	27,874	17,372	7,854	1,351	158	1,362	1,092	726	243	5,226	921	184,717	38,142
2000	153,431	35,203	36,723	6,952	122	10	4,949	604	1,685	1,274	1,290	198	198,200	44,241
2001	91,521	20,610	25,157	9,638	412	43	947	290	4,822	1,140	650	173	123,509	31,894
2002	86,742	21,999	18,352	6,093	4,463	747	2,135	355	2,151	1,190	199	199	114,042	30,583
2003	53,203	17,782	9,614	3,206	2,192	221	2,851	1,205	2,351	1,066	1,797	779	72,008	24,259
2004	77,479	22,998	16,790	8,468	363	90	5,391	3,476	1,473	663	593	0	102,089	35,695
2005	55,868	13,876	16,900	4,850	630	166	9,977	1,358	1,413	611	688	64	85,476	20,925
2006	35,417	7,321	4,295	1,595	152	55	1,817	641	1,053	364	253	39	42,987	10,015
2007	26,167	5,212	7,689	1,463	1,340	386	2,849	667	1,975	1,285	0	0	40,020	9,013
2008	41,236	8,295	5,721	1,479	3,409	444	2,201	425	1,267	205	307	246	54,141	11,094
2009	31,391	5,706	4,972	1,948	1,124	194	1,797	653	2,560	2,040	323	36	42,167	10,577
1995–2004 average	113,152	26,897	22,105	8,304	1,715	164	2,678	1,034	1,676	702	1,626	378	142,134	37,258
2005–2009 average	38,016	8,082	7,915	2,267	1,331	249	3,728	749	1,654	901	314	77	52,958	12,325

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep*.

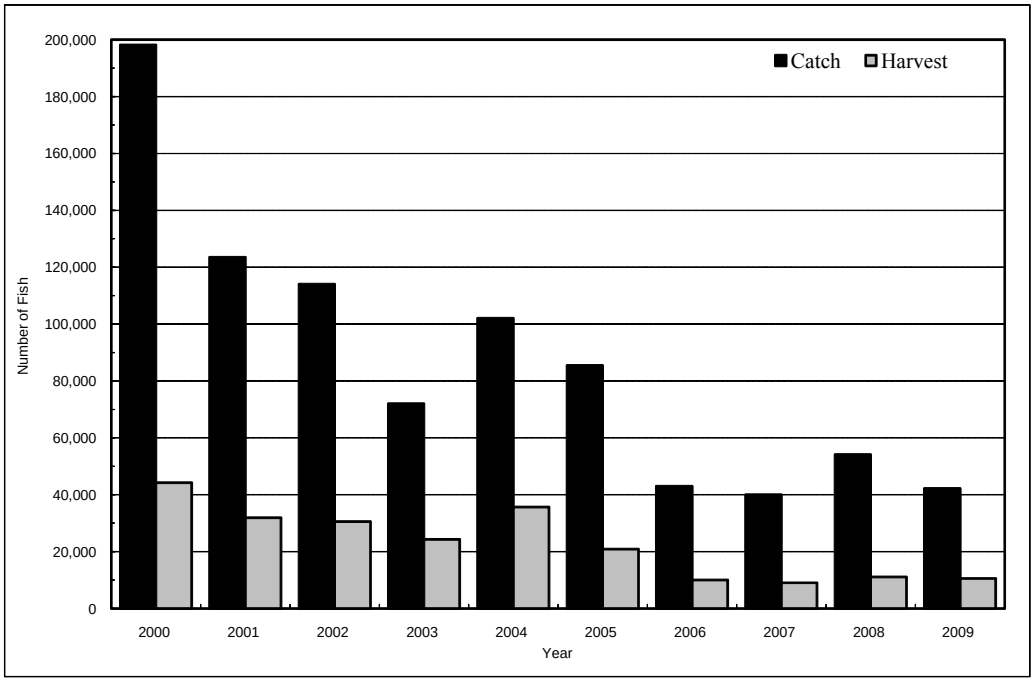

Figure 7.-Lake sport fish catch and harvest, Anchorage Management Area, 2000–2009.

Table 9.-Chinook (king) salmon sport fish catch and harvest, Anchorage Management Area, 1990–2009.

	Ship Creek		Eagle River		Salt Water		Other		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1990	946	445	0	0	89	12	157	0	1,192	457
1991	1,607	1,127	6	6	30	30	353	6	1,996	1,169
1992	4,019	2,282	109	48	125	109	55	9	4,308	2,448
1993	7,104	2,872	88	47	172	71	460	51	7,824	3,041
1994	4,950	2,445	128	59	330	204	96	0	5,504	2,708
1995	6,769	3,583	296	194	438	277	366	0	7,869	4,054
1996	9,354	3,774	586	309	21	0	1,226	373	11,187	4,456
1997	9,045	4,456	306	140	30	20	418	0	9,799	4,616
1998	5,382	2,099	64	19	121	38	455	0	6,022	2,156
1999	14,275	5,204	48	22	201	167	594	69	15,118	5,462
2000	11,090	4,593	132	109	60	20	566	30	11,848	4,752
2001	10,656	4,286	132	58	262	108	793	0	11,843	4,452
2002	5,967	2,287	162	34	164	94	777	6	7,070	2,421
2003	8,667	3,588	76	25	78	52	659	13	9,480	3,678
2004	6,840	2,790	51	24	104	58	718	288	7,713	3,160
2005	7,578	4,081	25	25	183	108	1,416	115	9,202	4,329
2006	5,464	3,060	251	60	32	32	1,057	13	6,804	3,165
2007	4,888	2,615	125	47	695	366	434	78	6,142	3,106
2008	4,279	2,540	46	0	92	92	1,047	15	5,464	2,647
2009	1,869	884	0	0	209	143	577	0	2,655	1,027
1995–2004 average	8,805	3,666	185	93	148	83	657	78	9,795	3,921
2005–2009 average	4,816	2,636	89	26	242	148	906	44	6,053	2,855

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

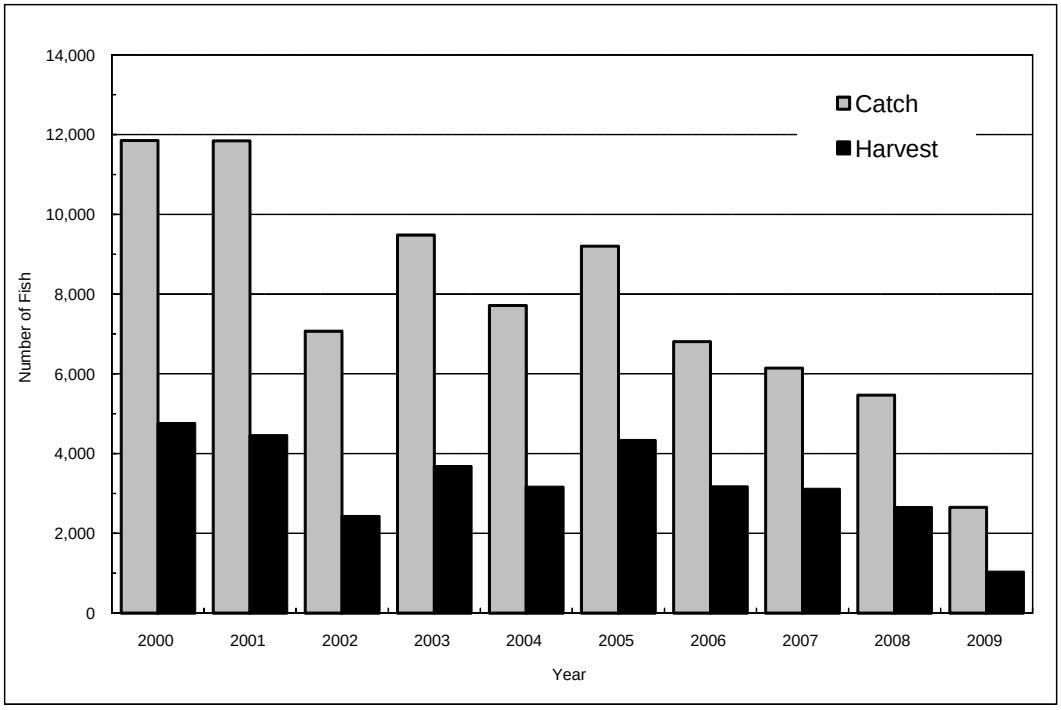

Figure 8.-Chinook (king) salmon sport fish catch and harvest, Anchorage Management Area, 2000–2009.

Table 10.-Coho salmon sport fish catch and harvest, Anchorage Management Area, 1990–2009.

	Ship Creek		Bird Creek		Campbell Creek		Twentymile River		Other Freshwater		Saltwater		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1990	1,220	818	811	535	0	0	1,283	787	543	269	110	79	3,967	2,488
1991	1,384	1,168	1,372	1,099	89	25	2,032	1,308	915	659	134	134	5,926	4,393
1992	3,142	1,911	1,279	785	24	8	2,559	1,684	2,500	1,182	161	128	9,665	5,698
1993	3,876	2,579	7,799	6,195	6,894	3,942	2,636	1,986	1,920	1,462	337	223	23,462	16,387
1994	4,239	3,011	7,169	5,425	4,725	1,256	3,882	2,846	2,057	1,058	470	352	22,542	13,948
1995	5,482	3,222	5,639	4,121	4,910	1,947	3,729	2,347	2,287	1,363	276	267	22,323	13,267
1996	7,710	5,369	9,675	6,934	3,474	1,458	3,767	2,597	2,775	1,199	325	238	27,726	17,795
1997	13,448	9,413	9,097	6,771	3,006	1,651	2,664	1,332	1,498	1,168	479	243	30,192	20,578
1998	21,733	14,049	33,546	22,406	2,624	1,167	3,354	2,541	1,998	1,196	1,267	860	64,522	42,219
1999	7,064	4,649	6,284	4,611	1,880	1,341	1,457	1,051	979	456	170	158	17,834	12,266
2000	20,890	11,858	15,799	10,741	1,873	555	5,025	3,094	2,710	1,655	591	288	46,888	28,191
2001	39,615	26,419	11,563	8,449	2,748	813	5,724	2,742	3,483	1,807	732	463	63,865	40,693
2002	24,699	16,751	1,504	1,053	2,998	1,144	4,101	2,672	6,905	4,053	1,012	587	41,219	26,260
2003	8,831	6,094	1,117	776	2,873	1,457	3,039	2,116	4,035	2,491	867	441	20,762	13,375
2004	10,543	6,110	1,064	611	3,468	1,056	5,048	3,012	5,015	2,515	336	143	25,474	13,447
2005	10,922	6,830	5,331	3,281	4,552	1,989	1,632	1,334	3,027	1,156	473	473	25,937	15,063
2006	14,881	8,079	9,530	5,889	3,622	1,767	2,299	1,739	5,172	2,169	316	220	35,820	19,863
2007	5,845	3,934	7,461	3,287	1,051	758	998	719	1,458	1,079	993	915	17,806	10,692
2008	8,755	6,735	3,817	3,030	2,164	1,155	7,336	4,116	4,052	2,960	0	0	26,124	17,996
2009	4,014	2,974	6,020	3,296	577	364	2,052	1,329	4,789	2,635	284	207	17,736	10,805
2005–2009 average	8,883	5,710	6,432	3,757	2,393	1,207	2,863	1,847	3,700	2,000	413	363	24,685	14,884
1995–2004 average	16,002	10,393	9,529	6,647	2,985	1,259	3,791	2,350	3,169	1,790	606	369	36,081	22,809
2000–2009 average	14,900	9,578	6,321	4,041	2,593	1,106	3,725	2,287	4,065	2,252	560	374	32,163	19,639

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

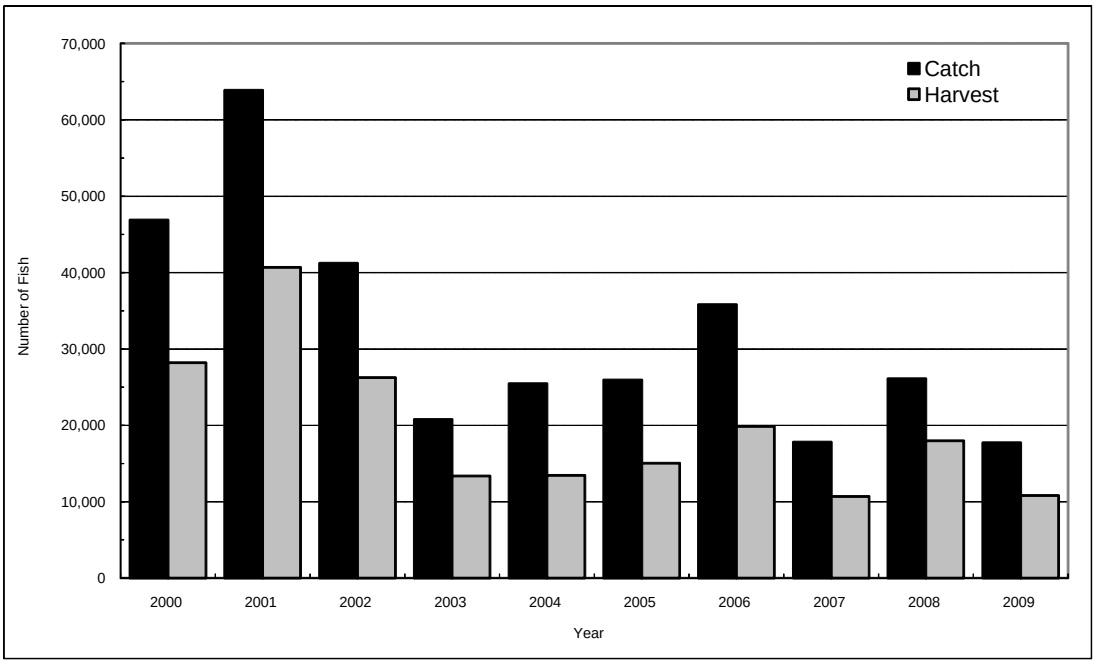

Figure 9.-Coho salmon sport fish catch and harvest, Anchorage Management Area, 2000–2009.

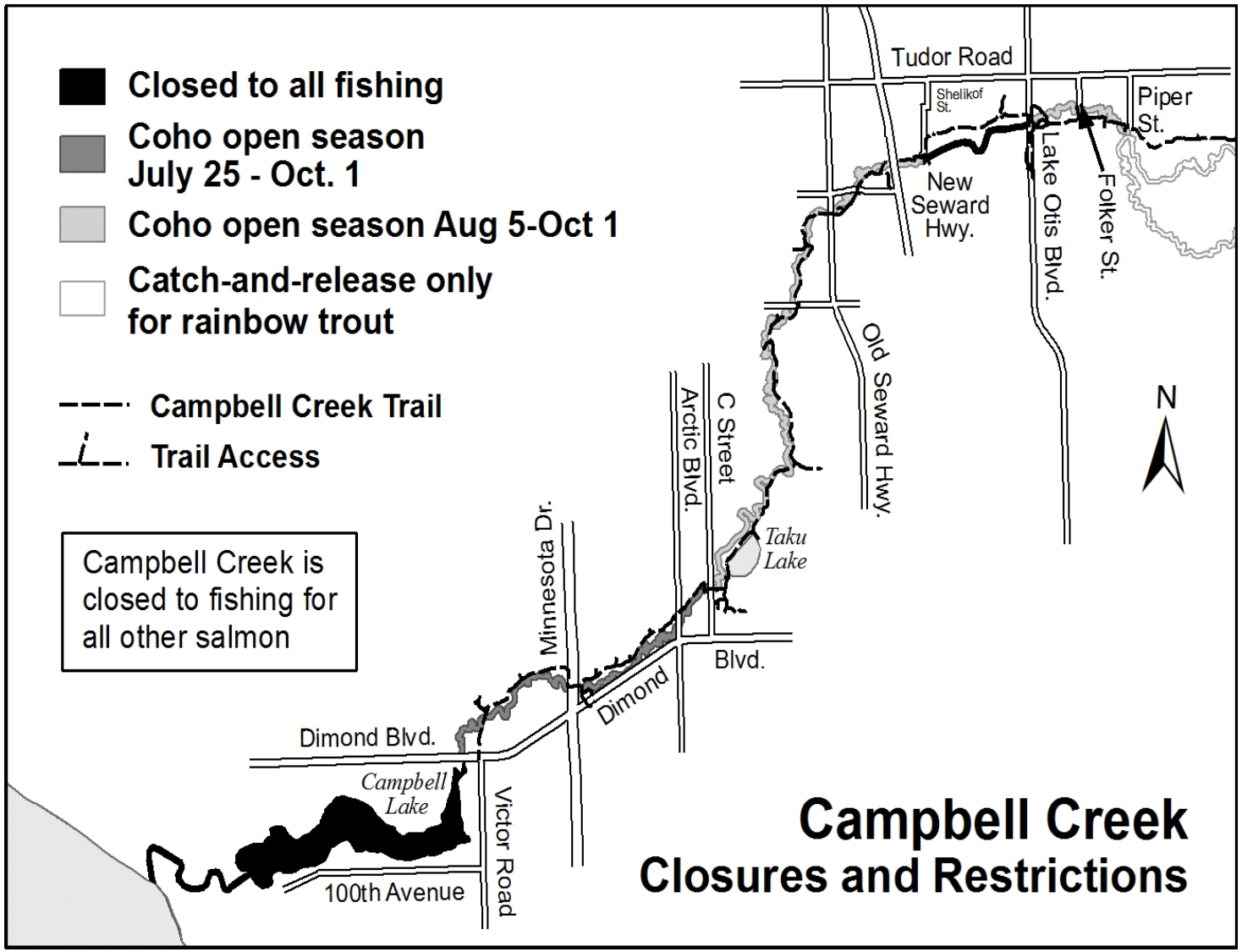

Figure 10.-Lower Campbell Creek showing areas open to coho salmon sport fishing.

Table 11.-Pink salmon sport fish catch and harvest, Anchorage Management Area, 1990-2009.

	Bird Creek		Ship Creek		Twentymile River		Other Freshwater		Saltwater		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1990	9,327	3,815	686	81	500	81	2,338	815	511	140	13,362	4,932
1991	3,953	1,513	742	353	585	46	269	65	74	9	5,623	1,986
1992	16,845	5,899	5,881	1,346	870	73	2,546	1,126	1,145	457	27,287	8,901
1993	6,206	1,745	747	163	173	0	2,186	556	1,812	303	11,124	2,767
1994	3,460	1,101	1,185	119	762	9	2,630	528	443	222	8,480	1,979
1995	15,201	2,593	1,851	267	494	19	1,151	183	105	37	18,802	3,099
1996	14,218	2,419	1,258	214	1,464	91	1,789	79	460	59	19,189	2,862
1997	3,038	535	1,484	80	72	32	398	187	128	9	5,120	843
1998	18,595	1,941	5,152	454	301	34	2,436	523	1,654	253	28,138	3,205
1999	3,913	507	789	80	80	0	495	94	185	40	5,462	721
2000	20,055	1,335	6,841	853	297	10	10,080	577	963	348	38,236	3,123
2001	7,662	333	2,815	190	234	23	1,956	173	321	64	12,988	783
2002	5,931	758	2,724	155	709	29	2,234	219	53	7	11,651	1,168
2003	6,152	1,033	1,055	291	109	0	1,148	126	997	150	9,461	1,600
2004	2,677	751	1,668	61	163	16	2,505	363	884	81	7,897	1,272
2005	8,624	433	839	108	93	46	1,098	66	85	24	10,739	677
2006	16,182	1,574	1,755	288	384	0	5,482	483	108	0	23,911	2,345
2007	25,861	1,717	3,559	405	299	88	3,312	325	1,287	743	34,318	3,278
2008	16,205	1,088	1,492	191	2,043	63	10,124	550	140	140	30,004	2,032
2009	37,299	3,812	7,620	785	185	0	17,733	1,755	159	74	62,996	6,426
2005–2009 average	20,834	1,725	3,053	355	601	39	7,550	636	356	196	32,394	2,952
2000–2009 average	14,665	1,283	3,037	333	452	28	5,567	464	500	163	24,220	2,270

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

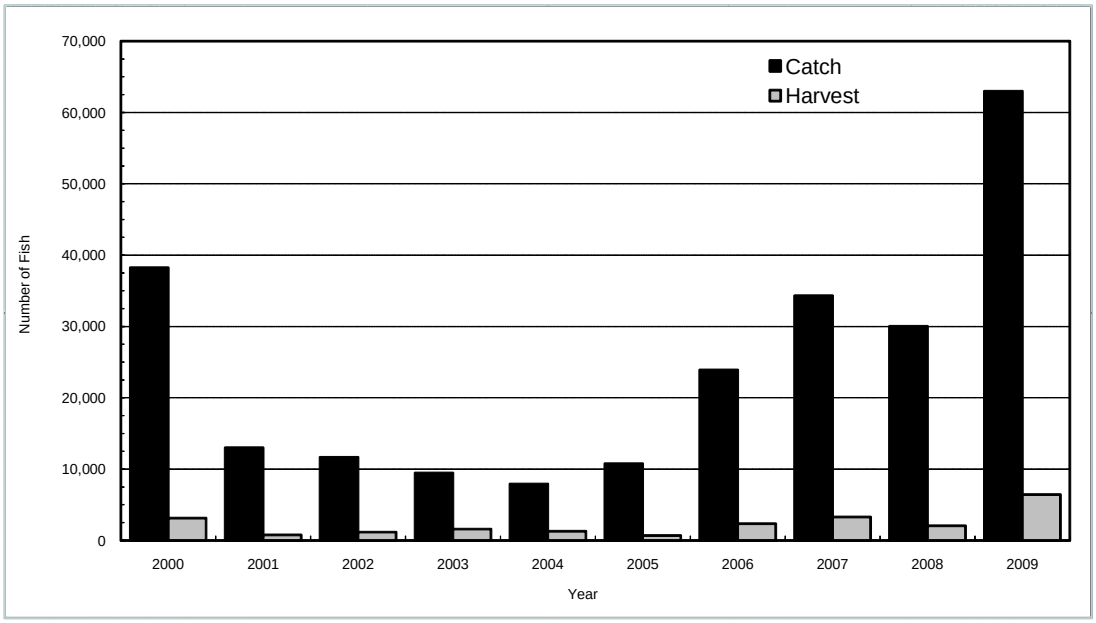

Figure 11.-Pink salmon sport fish catch and harvest, Anchorage Management Area, 2000–2009.

Table 12.-Sockeye salmon sport fish catch and harvest, Anchorage Management Area, 1990–2009.

	Bird Creek		Twentymile River		Other Freshwater		Saltwater		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1990	233	97	49	19	244	89	98	49	624	254
1991	87	78	401	331	201	166	244	174	933	749
1992	353	173	296	214	1,808	386	938	542	3,395	1,315
1993	157	109	164	125	1,584	1,002	4,147	1,849	6,052	3,085
1994	479	130	596	299	2,559	874	642	291	4,276	1,594
1995	501	95	422	89	569	187	32	10	1,524	381
1996	467	184	233	26	1,464	540	185	134	2,349	884
1997	220	98	70	10	2,045	865	110	50	2,445	1,023
1998	574	448	84	61	847	399	595	363	2,100	1,271
1999	78	56	42	10	605	228	782	248	1,507	542
2000	678	446	42	0	403	53	59	38	1,182	537
2001	316	263	176	97	970	263	830	271	2,292	894
2002	0	0	288	95	315	158	91	77	694	330
2003	0	0	84	36	1,361	608	346	299	1,791	943
2004	0	0	291	88	393	88	328	110	1,012	286
2005	0	0	139	106	413	0	445	445	997	551
2006	0	0	22	11	297	58	11	11	330	80
2007	0	0	172	81	363	31	60	60	595	172
2008	0	0	275	0	1,294	87	150	136	1,719	223
2009	0	0	156	48	459	144	48	0	663	192
2005–2009 average	0	0	153	49	565	64	143	130	861	244

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

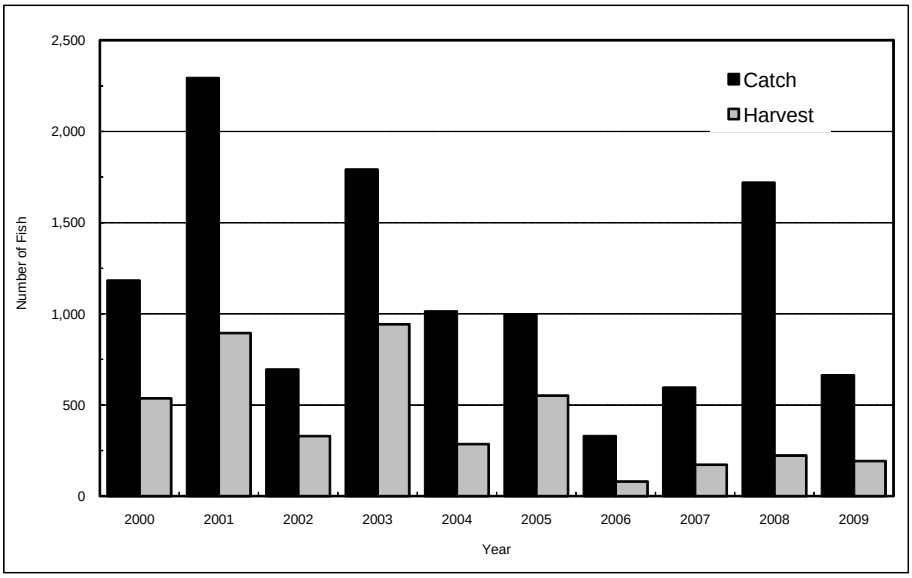

Figure 12.-Sockeye salmon sport fish catch and harvest, Anchorage Management Area, 2000–2009.

Table 13.-Chum salmon sport fish catch and harvest, Anchorage Management Area, 1990–2009.

	Bird Creek		Ship Creek		Twentymile River		Other Freshwater		Saltwater		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1990	442	136	238	11	352	102	464	55	34	11	1,530	315
1991	304	120	160	16	633	120	168	88	16	16	1,281	360
1992	478	129	243	61	562	38	350	61	31	8	1,664	297
1993	1,013	283	129	28	65	9	119	55	33	8	1,359	383
1994	744	102	334	22	153	7	227	36	88	7	1,546	174
1995	1,694	296	626	95	467	18	180	30	22	0	2,989	439
1996	2,416	232	497	155	384	33	926	187	299	0	4,522	607
1997	1,014	209	229	24	87	0	113	15	145	0	1,588	248
1998	3,628	236	508	93	342	17	474	111	202	56	5,154	513
1999	1,156	99	354	16	81	14	244	0	469	0	2,304	129
2000	2,549	158	853	73	48	0	389	73	97	36	3,936	340
2001	1,489	87	1,347	218	357	35	1,270	130	168	0	4,631	470
2002	3,056	406	807	66	1,400	0	1,238	0	39	0	6,540	472
2003	1,857	155	1,014	67	357	25	349	66	544	0	4,121	313
2004	1,233	117	516	44	103	70	305	75	28	0	2,185	306
2005	1,548	116	338	100	0	0	420	18	70	0	2,376	234
2006	2,952	203	677	26	253	0	545	13	0	0	4,427	242
2007	2,027	61	425	22	102	0	295	0	119	14	2,968	97
2008	2,505	239	351	0	926	0	2,236	29	15	15	6,033	283
2009	4,205	316	517	40	69	11	1,154	19	0	0	5,945	386
2005-2009 average	2,647	187	462	38	270	2	930	16	# 41	6	4,350	248

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep*.

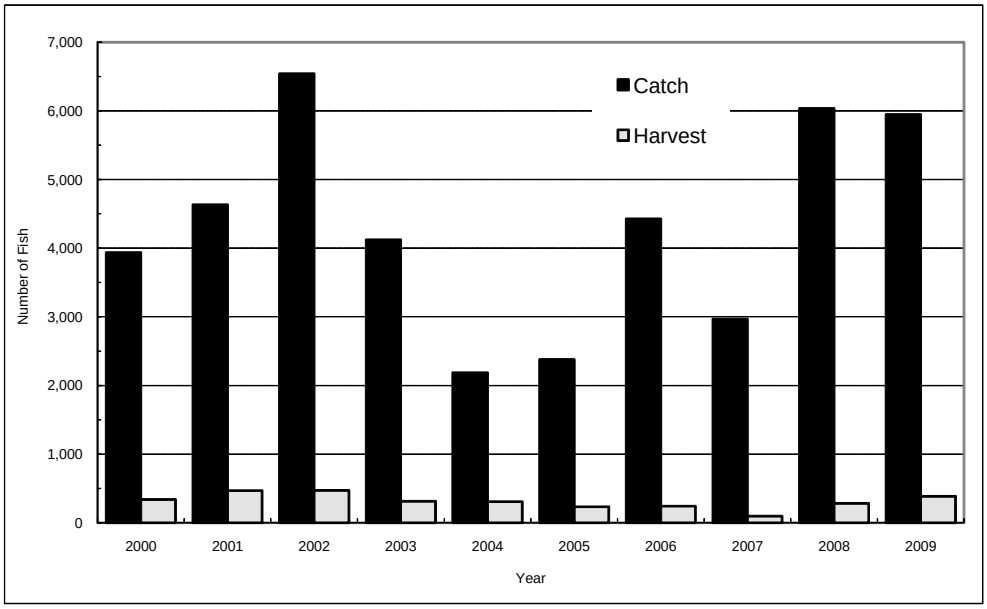

Figure 13.-Chum salmon sport fish catch and harvest, Anchorage Management Area, 2000–2009.

Table 14.-Rainbow trout sport fish catch and harvest, Anchorage Management Area, 1990–2009.

	Campbell Creek		Ship Creek		Other Creeks		Stream Total		Lakes Total		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1990	5,801	1,697	132	0	3,312	461	9,245	2,158	160,005	56,277	169,250	58,435
1991	2,417	199	162	62	399	224	2,978	485	119,668	48,818	122,646	49,303
1992	982	277	87	47	815	285	1,884	609	107,324	32,708	109,208	33,317
1993	1,673	267	146	47	2,169	177	3,988	491	103,477	28,621	107,465	29,112
1994	1,809	271	38	14	1,869	238	3,716	523	96,657	23,108	100,373	23,631
1995	2,416	300	242	99	1,066	553	3,724	952	123,142	31,922	126,866	32,874
1996	2,622	531	229	53	1,517	578	4,368	1,162	134,690	34,986	139,058	36,148
1997	2,988	215	84	84	507	221	3,579	520	167,746	36,625	171,325	37,145
1998	3,603	272	144	0	4,810	514	8,557	786	84,886	18,975	93,443	19,761
1999	2,874	711	94	47	1,362	144	4,330	902	158,680	27,874	163,010	28,776
2000	4,766	216	1,106	85	1,891	61	8,380	384	153,431	35,203	161,811	35,587
2001	14,952	369	1,094	0	2,053	332	18,099	701	91,521	20,610	109,620	21,311
2002	2,950	418	1,245	0	807	61	5,002	479	86,742	21,999	91,744	22,478
2003	3,177	257	2,359	0	3,480	483	9,016	740	53,203	17,782	62,219	18,522
2004	2,032	117	937	0	673	161	3,642	278	77,479	22,998	81,121	23,276
2005	1,455	99	1,312	0	1,034	463	3,801	562	52,067	13,314	55,868	13,876
2006	720	24	334	0	713	500	1,767	524	35,417	7,321	37,184	7,845
2007	888	11	231	0	2,325	82	3,444	93	26,167	5,212	29,611	5,305
2008	740	0	215	0	1,455	142	2,410	142	41,236	8,295	43,646	8,437
2009	310	0	105	0	314	10	729	10	31,391	5,706	32,120	5,716
2005-2009 average	823	27	439	0	1,168	239	2,430	266	37,256	7,970	39,686	8,236
1999-2004 average	5,125	348	1,139	22	1,711	207	8,078	581	103,509	24,411	111,588	24,992

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

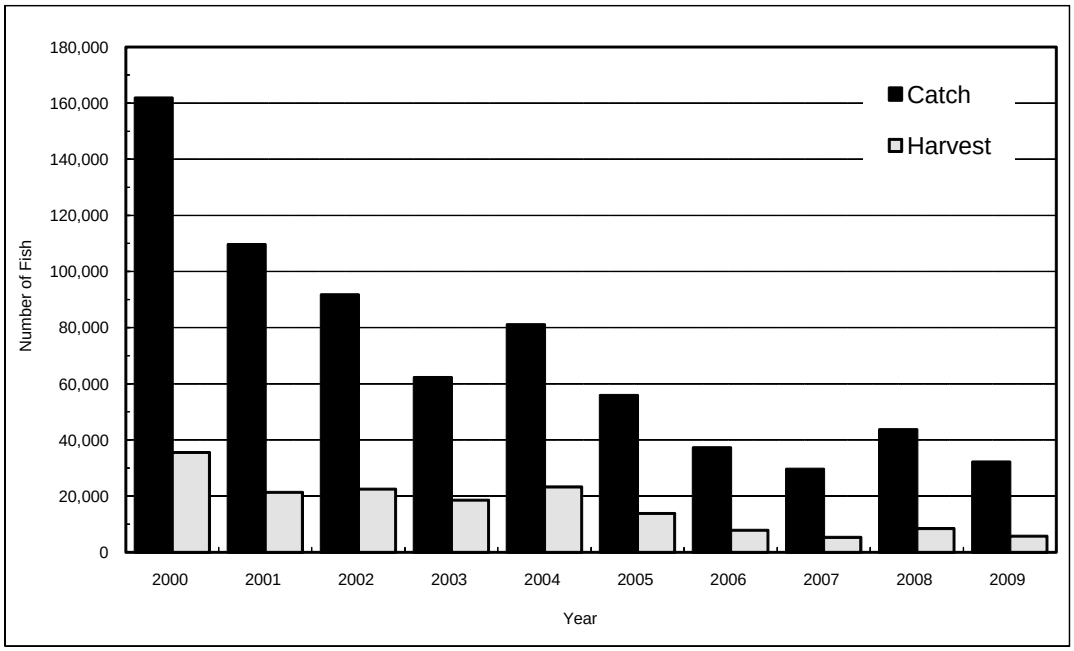

Figure 14.-Rainbow trout sport fish catch and harvest, Anchorage Management Area, 2000–2009.

Table 15.-Dolly Varden sport fish catch and harvest, Anchorage Management Area, 1990–2009.

	Eagle River		Campbell Creek		Ship Creek		Bird Creek		Twentymile River		Other Streams		Stream Total		Lake Total		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1990	2,192	330	1,516	445	297	82	165	33	1,038	396	1,731	312	6,939	1,598	2,291	643	9,230	2,241
1991	788	584	788	107	428	350	19	10	837	185	632	505	3,492	1,741	1,596	798	5,088	2,539
1992	1,704	573	246	49	303	33	213	147	803	311	1,000	443	4,269	1,556	2,345	1,615	6,614	3,171
1993	2,091	492	1,382	195	427	58	302	28	644	78	796	65	5,642	916	1,974	867	7,616	1,783
1994	1,302	521	1,975	283	568	161	662	108	637	99	2,059	395	7,203	1,567	1,499	933	8,702	2,500
1995	1,261	426	1,267	87	528	98	378	86	783	153	534	22	4,751	872	1,754	761	6,505	1,633
1996	1,497	389	1,832	85	170	73	85	12	583	194	777	170	4,944	923	2,698	1,010	7,642	1,933
1997	804	378	938	0	256	32	162	14	1,154	243	836	364	4,150	1,031	1,736	559	5,886	1,590
1998	303	160	3,633	226	134	17	243	34	607	169	1,392	212	6,312	818	2,961	988	9,273	1,806
1999	814	97	1,693	626	44	22	90	0	190	99	331	89	3,162	933	1,362	1,092	4,524	2,025
2000	1,275	409	5,161	83	184	0	137	0	935	154	1,536	118	9,228	764	4,949	604	14,177	1,368
2001	87	0	12,760	238	648	33	22	0	2,027	189	767	151	16,311	611	947	290	17,258	901
2002	507	190	2,339	369	589	0	17	0	482	0	1,116	424	5,050	983	2,135	355	7,185	1,338
2003	820	0	2,568	228	536	10	70	50	702	153	3,257	439	7,953	880	2,851	1,205	10,804	2,085
2004	777	281	3,386	200	912	13	27	13	271	27	754	175	6,127	709	5,391	3,476	11,518	4,185
2005	953	0	4,116	35	584	0	39	13	260	81	391	142	6,343	271	3,634	1,087	9,977	1,358
2006	476	127	701	0	127	0	177	14	514	119	944	822	2,939	1,082	1,868	679	4,807	1,761
2007	225	115	710	15	599	0	59	0	1,177	218	970	252	3,740	600	2,849	667	6,589	1,267
2008	396	15	379	76	246	0	92	0	878	31	1,259	153	3,250	275	2,201	425	5,451	700
2009	0	0	198	0	28	0	79	33	1,174	57	1,272	384	2,751	474	1,797	653	4,548	1,127
2005–2009 average	410	51	1,221	25	317	0	89	12	801	101	967	351	3,805	540	2,470	702	6,274	1,243

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

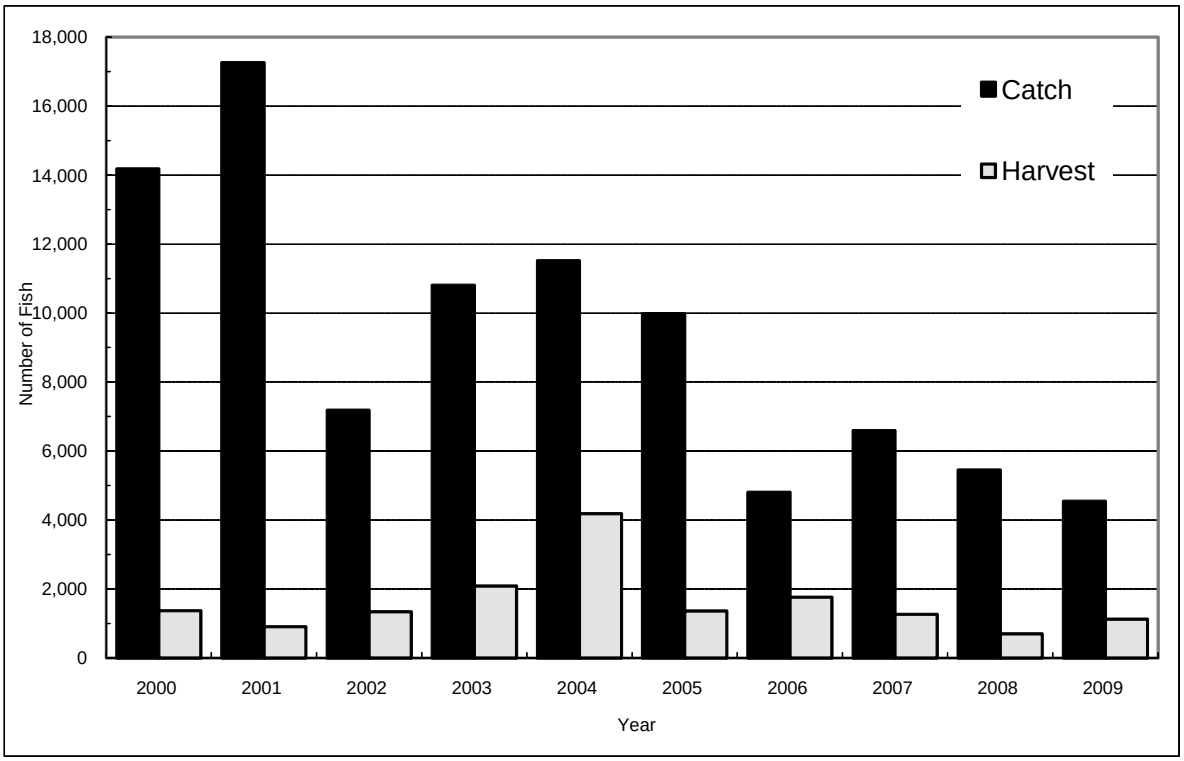

Figure 15.-Dolly Varden sport fish catch and harvest, Anchorage Management Area, 2000–2009.

Table 16.-Arctic grayling sport fish catch and harvest, Anchorage Management Area, 1990–2009.

	Lakes		Streams		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest
1990	889	527	560	49	1,449	576
1991	1,480	188	70	50	1,550	238
1992	3,554	413	0	0	3,554	413
1993	1,362	233	0	0	1,362	233
1994	2,224	585	59	49	2,283	634
1995	511	62	62	27	573	89
1996	2,103	182	111	111	2,214	293
1997	4,555	68	0	0	4,555	68
1998	1,077	59	505	0	1,582	59
1999	1,351	158	116	0	1,467	158
2000	105	10	17	0	122	10
2001	412	43	98	19	510	62
2002	4,463	747	160	0	4,623	747
2003	2,192	189	140	32	2,332	221
2004	363	90	0	0	363	90
2005	281	102	351	64	632	166
2006	152	55	0	0	152	55
2007	1,340	376	0	0	1,340	376
2008	3,409	444	0	0	3,409	444
2009	1,124	194	0	0	1,124	194
2005-2009 average	1,261	234	70	13	1,331	247

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

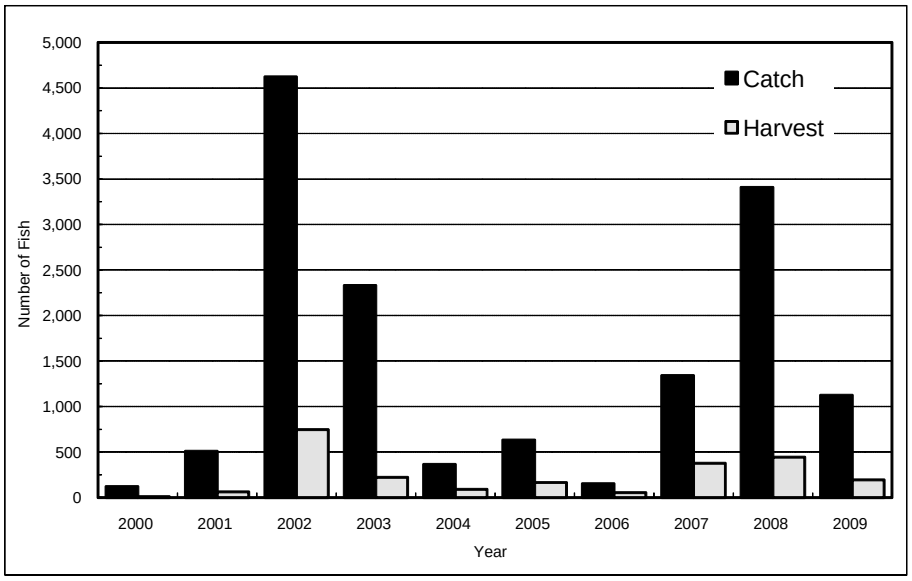

Figure 16.-Arctic grayling sport fish catch and harvest, Anchorage Management Area, 2000–2009.

Table 17.-Northern pike sport fish catch and harvest, Anchorage Management Area, 2000–2009.

	Lower Fire Lake		Sand Lake		Cheney Lake		Other Lake/Streams		Area Total	
Year[a]	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
2000	1,209	853	352	297	38	38	86	86	1,685	1,274
2001	3,917	749	285	78	375	258	271	81	4,848	1,166
2002	1,331	783	149	58	508	186	163	163	2,151	1,190
2003	1,988	812	61	61	121	85	193	120	2,363	1,078
2004	976	241	270	195	[b]	[b]	227	227	1,473	663
2005	597	220	486	191	318	200	12	0	1,413	611
2006	422	39	406	159	160	111	65	55	1,053	364
2007	293	128	1,652	1,127	30	30	0	0	1,975	1,285
2008	221	12	786	73	108	36	152	84	1,267	205
2009	317	18	2,069	1,989	0	0	174	33	2,560	2,040
2005–2009 average	370	83	1,080	708	123	75	81	34	1,654	901

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep.*

[a] Prior to 1996, SWHS reported pike with "other" fish

[b] Reported with "Other Lake/Streams"

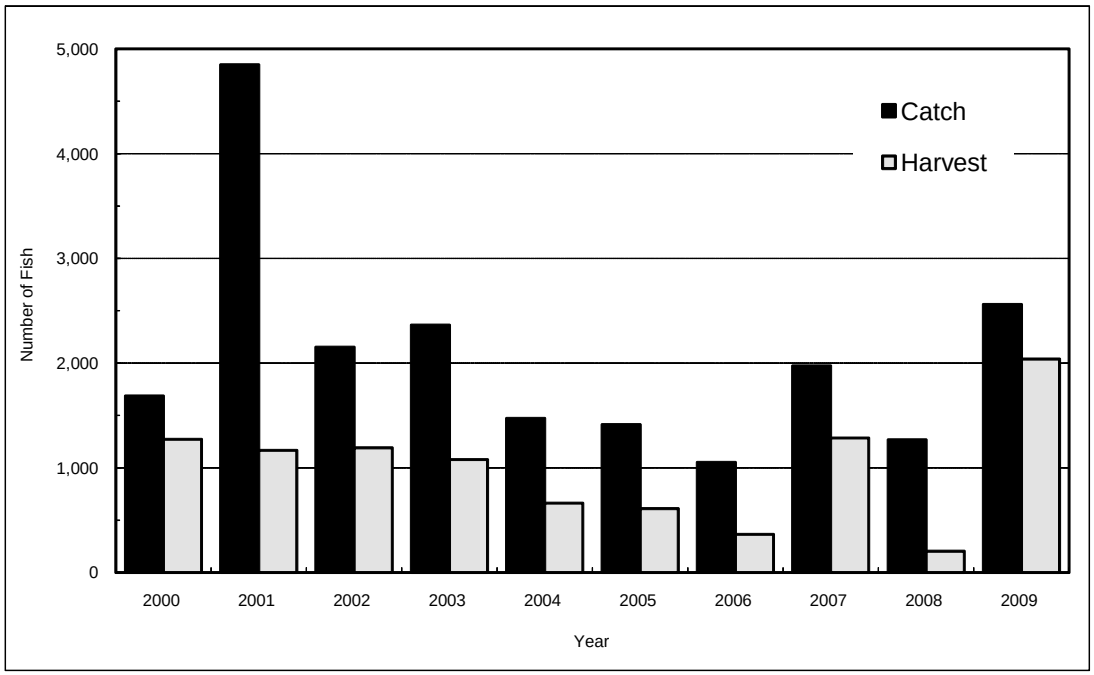

Figure 17.-Northern pike sport fish catch and harvest, Anchorage Management Area, 2000–2009.

Table 18.-Eulachon personal use harvest, Anchorage Management Area, 1990–2009.

Year	Saltwater Total	Freshwater Twentymile R.	Freshwater Other	Freshwater Total	Area Total
1990	7,663	125,100	264	125,364	133,027
1991	4,229	63,365	1,663	65,028	69,257
1992	7,290	35,674	0	35,674	42,964
1993	5,479	24,386	0	24,386	29,865
1994	4,562	44,037	680	44,717	49,279
1995	1,449	31,342	1,267	32,609	34,058
1996	1,163	20,049	0	20,049	21,212
1997	12,306	26,765	0	26,765	39,071
1998	6,725	26,912	0	26,912	33,637
1999	14,926	29,346	325	29,671	44,597
2000	7,625	5,556	307	5,863	13,488
2001	12,584	22,763	562	23,325	35,909
2002	51,077	25,180	542	25,722	76,799
2003	29,769	0	6,072	6,072	35,841
2004	9,919	0	68	68	9,987
2005	8,885	0	0	0	8,885
2006	10,717	0	0	0	10,717
2007	16,527	0	0	0	16,527
2008	20,047	0	0	0	20,047
2009	28,953	0	0	0	28,953
2005-2009 average	17,026	0	0	0	17,026
1995-2004 average	14,754	18,791	914	19,706	34,460

Source: Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995-1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, 2009a-b, 2010a-b, *In prep*.

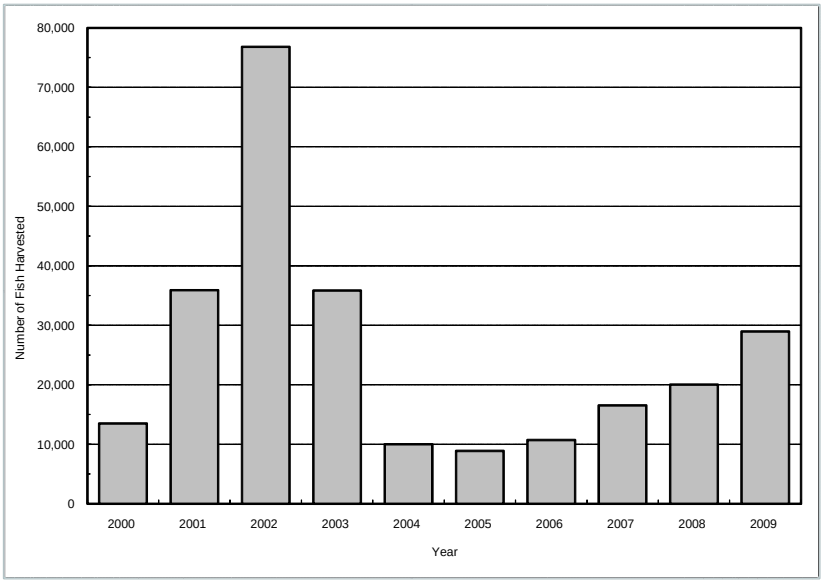

Figure 18.-Eulachon personal use harvest, Anchorage Management Area, 2000–2009.

APPENDIX A. REGULATION SUMMARIES

Appendix A1.-Sport fishing regulations for Ship Creek, 1957–2010.

Year	Sport Fishing Regulations- Ship Creek
1957–1959	Closed to sport fishing from April 1 through May 27. Bag limit of 10 trout daily or in possession, only two 20 inches or more in length. No salmon fishing regulations.
1960	Closed to all sport fishing.
1961–1962	Closed to salmon fishing. Closed to sport fishing from April 1 through May 27. Bag limit of 10 trout daily or in possession, only two 20 inches or more in length. Anglers allowed up to 20 resident fish if excess were Dolly Varden.
1963	Closed to sport fishing from April 1 through May 25.
1964–1965	Closed to sport fishing from April 1 through the third Friday in May. Open to salmon fishing (except Chinook salmon) downstream of a marker 300 feet below Chugach Power Plant Dam. Bag limit of three chum, sockeye, or pink salmon with an additional three coho salmon allowed.
1966–1967	Legal gear was defined as a single-hook-only with gap between point and shank of ½ inch or less.
1968	Closed to all fishing from January 1 through August 31. Anglers allowed three salmon. Closed to Chinook salmon fishing.
1969	From September 1 through December 31 anglers allowed three salmon. Removed excess Dolly Varden from resident fish bag limit.
1970	Closed to all fishing from January 1 through August 31 except for a Chinook salmon opening from July 4 through July 19. Bag limit of one Chinook salmon per day and two per season. From September 1 through December 31, anglers allowed three salmon.
1971–1972	Closed to all fishing from January 1 through August 31 except for Chinook salmon openings on June 10 through June 11 and June 17 through June 18. A Chinook salmon punch card was required and bag limit was one Chinook salmon per day and two per season. From September 1 through December 31, anglers were allowed three salmon.
1973–1981	Closed to all fishing from January 1 through August 17. Closed to Chinook salmon fishing. From August 18 through December 31, anglers were allowed three salmon. Legal gear was single-hook-only with a gap between point and shank of ½ inch or less.
1982–1984	Same as 1973–1981. In addition, rainbow trout daily bag limit was reduced to five fish, only one 20 inches or more in length.
1985–1986	Closed to all fishing from January 1 through July 31. Single-hook-only restriction lifted. Anglers allowed three salmon other than Chinook salmon from August 1–December 31.

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Appendix A1.-Page 2 of 2.

Year	Sport Fishing Regulations- Ship Creek
1987–1990	The area opened to salmon fishing was downstream of a marker located 100 feet below the Chugach Power Plant Dam. In addition, the creek was open to all fishing (including Chinook salmon) on Tuesdays and Wednesdays for 5 consecutive weeks commencing the second Tuesday in June. Chinook salmon bag and possession limits were one and two with no seasonal limit.
1991–1992	King salmon fishing was allowed from January 1 through July 13. Daily bag and possession limits were one and two and no seasonal limit. Fishing for other salmon was allowed year-round with bag and possession limits of three and three. In addition, fishing for Dolly Varden, rainbow trout, and other species was allowed year-round.
1993	A seasonal limit of five Chinook salmon in Cook Inlet waters was added.
1997	The possession limit for Chinook salmon was reduced to one and a regulation went into effect that prohibited anglers from continuing to sport fish in waters open to Chinook salmon fishing after harvesting a Chinook salmon.
1999	King salmon bag and possession limit is one per day and in possession, and anglers may not fish in Ship Creek for the remainder of the day after harvesting a Chinook salmon 20 inches or longer. For salmon other than Chinook salmon, 16 inches or longer in length, bag/possession limit is three and all three can be coho salmon. Reeve Boulevard upstream to 300 ft upstream of Elmendorf Dam is closed to all fishing.
2001	Bag and possession limit for Chinook salmon less than 20 inches in length, and other salmon less than 16 inches in length is ten. Fishing is open all year for these small salmon. In waters open to fishing for Chinook salmon 20 inches or more in length, fishing is not allowed between 11:00 p.m. and 6:00 a.m. from May 15 through July 13. Statewide regulation defines the bag and possession limit for Chinook salmon in fresh waters open to Chinook salmon less than 20 inches in length (jack salmon) as 10 per day/10 in possession.
2005	Closed waters to fishing for salmon less than 20 inches in length in waters closed to fishing for salmon 20 inches or more

Appendix A2.-Sport fishing regulations for Eagle River, 1957–2010.

Year	Sport Fishing Regulations- Eagle River
1957–1959	Closed to sport fishing from April 1 through May 27. Bag limit was 10 trout daily or in possession, only two 20 inches or more in length. No salmon regulations.
1960	Closed to salmon fishing upstream of 1/4 mile above Glenn Highway bridge. Bag limits were 10 salmon or trout daily, three could be salmon greater than 16 inches in length, and two could be Chinook salmon.
1961–1962	Anglers were allowed up to 20 resident fish if the excess were Dolly Varden.
1963	Closed season was from April 1 through May 25. Closed to salmon fishing upstream of 1/4 mile above Glenn Highway bridge. Bag limit was six coho salmon; three pink, chum or sockeye salmon; one Chinook salmon. Resident fish bag limits were 10 trout daily, only two over 20 inches. Anglers were allowed up to 20 resident fish if the excess were Dolly Varden.
1964–1967	Closed season was from April 1 through the third Friday in May.
1968	No closed season. Bag limit of three salmon 16 inches or greater in length. Closed to Chinook salmon fishing.
1969–1981	Dolly Varden in bag limit was removed in 1969.
1982–1986	Rainbow trout bag limit was reduced to five per day, only one 20 inches or greater in length in 1982. Bag limits were 10 for other resident fish.
1987–1991	South Fork Eagle River below the falls was closed to all fishing from June 1 through August 14.
1993–1996	Regulations restricted Chinook salmon fishing to a 30-day period commencing the Saturday before Memorial Day. Fishing was restricted to that portion of Eagle River upstream of Bailey Bridge on Fort Richardson to an ADF&G marker located approximately adjacent to Mile 7.4 of Eagle River Road. The area located approximately 100 yards on either side of the confluence of South Fork Eagle River was closed to fishing from June 1 through August 14. North Fork Eagle River upstream from an ADF&G marker located near its confluence with Eagle River was closed to all fishing during the Chinook salmon season. Passes were required to fish on Fort Richardson.

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Appendix A2.-Page 2 of 2.

Year	Sport Fishing Regulations- Eagle River
1999–2001	Areas open for fishing Chinook salmon less than 20 inches in length and other salmon 16 inches in length or less are open all year. Bag and possession limit for these small salmon is 10.
	Statewide regulation defines the bag and possession limit for Chinook salmon in fresh waters open to Chinook salmon less than 20 inches in length (jack salmon) is 10 per day/10 in possession.
2005	Closed waters to fishing for salmon less than 20 inches in length in waters closed to fishing for salmon 20 inches or more.

Appendix A3.-Sport fishing regulations for Campbell Creek, 1957–2010.

Year	Sport Fishing Regulations- Campbell Creek
1957–1959	Closed to sport fishing from April 1 through May 27. Bag limit was 10 trout daily or in possession, only two 20 inches or more in length. No salmon fishing regulations.
1960	Campbell Creek was open to salmon fishing, except Chinook salmon, from August 22 through September 23. Bag limits were 10 salmon or trout daily, only three could be salmon greater than 16 inches in length and only two trout over 20 inches in length.
1961–1962	Anglers were allowed up to 20 resident fish if excess were Dolly Varden.
1963	Closed to sport fishing April 1 through May 25. Bag limit was six coho salmon; three pink, chum or sockeye salmon. Resident fish bag limits were 10, only two over 20 inches..
1964–1967	Closed to sport fishing from April 1 through the third Friday in May. Open to salmon fishing (except Chinook salmon) from August 1 through September 30. Closed to salmon fishing above the Seward Highway. Bag limit was six coho, and three chum, sockeye, or pink salmon.
1968	Open to salmon fishing (except Chinook salmon) from August 1 through September 30. Closed to salmon fishing above the Seward Highway. Bag limit was three salmon 16 inches or greater in length. No closed season for resident fish.
1969–1970	Excess Dolly Varden removed from bag limit in 1969.
1971–1981	Closed to fishing above the Seward Highway and closed to salmon fishing throughout the drainage.
1982–1984	Rainbow trout bag limit was reduced to five per day, only one 20 inches or greater in length in 1982.
1985	Closed to all fishing above the Forks, and closed to salmon fishing below the Forks.
1986	Entire drainage open to fishing but closed to salmon fishing.

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Appendix A3.-Page 2 of 2.

Year	Sport Fishing Regulations- Campbell Creek
1987–1992	Only unbaited, artificial lures could be used upstream of the Forks, and rainbow trout could not be kept.
1993–1994	Open to coho salmon fishing from July 25 through October 15, with fishing limited to that portion of Campbell Creek upstream from Dimond Boulevard to an ADF&G marker located in the vicinity of Folker Street. Bag and possession limits for coho salmon were three and three. Fishing for all other salmon was closed. Campbell Lake was closed to all fishing in 1993.
1996–1998	That portion of Campbell Creek that flows through Wickersham subdivision between Lake Otis Parkway and Shelikof Street was closed to all sport fishing year-round. Coho salmon fishing was allowed from July 25 through October 1 from Dimond Boulevard upstream to C Street. Coho salmon fishing was allowed from August 5 through October 1 upstream of C Street to markers near Piper Street except for the Wickersham closed area.
1999–2001	Regulations same as those established BOF during 1996–1998.
2005	Closed waters to fishing for salmon less than 20 inches in length in waters closed to fishing for salmon 20 inches or more.
	ADF&G created a Youth Only fishery on Campbell Creek for Chinook salmon

APPENDIX B. ESCAPEMENT COUNTS

Appendix B1.-Ship Creek salmon escapement estimates, Anchorage Management Area, 1990–2010.

	Chinook (king)			Coho		
Year	Brood	Survey	Escapement	Brood	Survey	Escapement
1990	100	761	861		71	71
1991	108	318	426		412	412
1992	131	134	265		55	55
1993	132	706	838		338	338
1994	164	247	411		654	654
1995	235	505	740		858	858
1996	171	503	674		1,013	1,013
1997	108	447	555		1,205	1,205
1998	103	360	463		1,090	1,090
1999	328	516	1212	434	585	786
2000	341	323	1130	277	815	538
2001	257	541	284	633	968	1,176
2002	408	1,492	1,084	665	4,225	3,560
2003	283	2,198	1,915	216	1,143	927
2004	348	1,606	1,258	484	1,262	778
2005	322	1,485	1,163	594	466	594 [a]
2006	280	1,431	1,151	613	1,431	818
2007	256	1,475	1,219	228	254	26
2008	418	833	415	843	891	48
2009	413	916	503	853	1,066	213
2010	30	368	338	446	189	446 [a]
2006–2010 average	279	1,005	725	597	766	310
2005–2009 average	338	1,228	890	626	822	340

Note: These surveys are a combination of trap collection counts and foot surveys. Trap collection was designed to capture broodstock and not to enumerate fish. Foot surveys were designed to manage the fishery and ensure that the hatchery collected the required broodstock. After 2001, all surveys were foot only.

[a] More brood was collected than counted in the survey, so brood was used as the escapement number.

Appendix B2.-Eagle River salmon escapement estimates, Anchorage Management Area, 1990–2010.

Year	Chinook (king)	Coho	Sockeye	Pink	Chum
1990	326	2			1
1991	513	3			
1992	336				
1993	378				
1994	440				
1995	447	9			
1996	141 [a]				
1997	412				
1998	163 [b]				
1999	224				
2000	[c] [b]				
2001	77 [b]			19	
2002	27 [b]				
2003	167 [b]				
2004	157 [d]				
2005	122 [d]				
2006	101 [d]				
2007	117 [d]				
2008	156 [d]				
2009	152 [d]				
2010	10				
2006–2010 average	107				
2005–2009 average	130				

Note: Estimates are from foot surveys designed for Chinook salmon only.

[a] Survey conducted after spawning occurred.

[b] High water and poor visibility.

[c] No survey conducted.

[d] Surveys include Meadow Creek.

Appendix B3.-Campbell Creek salmon escapement estimates, Anchorage Management Area, 1986–2010.

Year	Chinook (king)	Coho	Sockeye	Pink	Chum
1986	733	99	877		
1987	571	132	545		
1988					
1989	218		51		
1990	458	126	317		2
1991	590	282	844		
1992	931	157	575		
1993	937	2,312 [a]	493	13 [a]	3 [a]
1994	1,076	3,054 [a]	756	6 [a]	15 [a]
1995	734	1,423	460		
1996	369	1,612	349		
1997	1,119	1,007	294		
1998	761	2,968	646		
1999	1,035	537	435		
2000	591	3,196	109		
2001	717	2,377 [b]	163		
2002	744	7,574	1,473		
2003	745	1,799	1,857		
2004	964	713	776		
2005	1,097	1,130	654		
2006	1,052	542	589	3	1
2007	588	[c]	203		
2008	439	403 [d]	42		
2009	554	766	69		
2010	290	157	249		
2006–2010 average	585	467	230	3	1
2005–2009 average	746	710	311	3	1
1990–2010 average	752	1,607	541	7	5

Note: Estimates are from foot surveys designed for Chinook, sockeye, and coho salmon.

[a] Weir count.

[b] Only South Fork and Main Stem from Forks to Folker Street counted.

[c] No survey conducted.

[d] Only North Fork, South Fork, and Main Stem from Forks to Folker Street counted.

Appendix B4.-Bird Creek salmon escapement estimates, Anchorage Management Area, 1990–2010.

Year	Chinook (king)	Coho	Sockeye	Pink	Chum
1990	109	9		[a]	[a]
1991	156	50		[a]	
1992	142	101		[a]	
1993	72	593			60
1994	289	277		401	30
1995	145	139	2	4,491	9
1996	212	169		987	214
1997	231	603		8	18
1998	131	1,446		7	5
1999	497	279		1,255	75
2000	117	703		1,873	12
2001	88	1,554	7	2,828	228
2002	48	66		1,341	633
2003	140	4	8	2,925	242
2004	307	376	4	1,902	234
2005	29	619	0	450	1
2006	[b]	442			
2007	173	[b]	2	[b]	[b]
2008	106	115		5,357	62
2009	148	278	2	32,100	179
2010	12	19		[b]	
2006–2010 average	110	214	2	18,729	121
1996–2005 average	180	582	5	1,358	166

Note: Estimates are from foot surveys designed for Chinook and coho salmon.

[a] Observed but not counted.

[b] No survey conducted.

Appendix B5.-Turnagain Arm coho salmon aerial survey escapement estimates, Anchorage Management Area, 1994–2010.

Drainage	1994	1995	1996	1997	1998	1999	2000	2001[e]	2002	2003	2004	2005	2006	2007	2008	2009	2010	1998–2008 average	2004–2008 average
Twentymile River																			
Ahjo Creek	75	65	0	0	60	0	0	NS	6	12	34	6	10	NS	NS	NS	NS	10	17
NE Fork	75	210	275	140	260	110	975	NS	110	238		168	141	NS	NS	NS	NS	290	155
Mainstem	780	560	940	770	2,500	470	1,920	NS	77	NC	5,070	121	212	NS	NS	NS	NS	1,559	1,801
Beaver Pond	NC[a]	120	30	90	80	260	110	NS	NS	0			42	NS	NS	NS	NS	103	42
Glacier River	50	0	NC[a]	NC[a]	40	NC[a]	NC[a]	NS	208	12		49	0	NS	NS	NS	NS	67	25
Upper Carmen River	0	0	0	NC[a]	14	NC[a]	0	NS	25	20		2		NS	NS	NS	NS	12	2
South Fork Carmen River	6	0	0	NC[a]	0	NC[a]	0	NS	50	0	754	149	532	NS	NS	NS	NS	248	478
Total	986	955	1,245	1,000	2,954	840	3,005		476	282	5,858	495	937	NS	NS	NS	NS	1,699	2,430
Portage Creek																			
Mainstem	NC[a]	NC[a]	NC[a]	NC[a]	NC[a]	NC[a]	NC[a]	NS	NC[a]	0		10	25	NS	NS	NS	NS	12	18
Upper Railroad Slough	0	210	120	NC[b]	540	NC[c]	50	NS	NS	0	453	80	280	NS	NS	NS	NS	173	271
Lower Railroad Slough	0	40	60	75	330	NC[c]	180	NS	150	10		10		NS	NS	NS	NS	88	10
Placer Creek	0	57	10	5	NC[d]	0	0	NS	107	16	159	48	NC[c]	NS	NS	NS	NS	55	104
Total	0	307	190	80	870	0	230		257	26	612	148	305	NS	NS	NS	NS	225	355
Placer River																			
Sloughs and Mainstem	55	90	45	110	370	70	280	NS	2,283	492	3,620	1,758	1,850	NS	NS	NS	NS	1,479	2,409
Skookum Creek	750	720	410	420	1,480	310	1,225	NS	1,820	200	2,170	720	1,620	NS	NS	NS	NS	1,152	1,503
Total	805	810	455	530	1,850	380	1,505		2,698	692	5,790	2,478	3,470					2,430	3,913

Note: NS - No Survey due to staffing or weather.

Note: NC - No Count.

[a] Glacial, no count possible.

[b] Creek and slough dry, no water.

[c] High winds, zero visibility.

[d] Fog, no visibility.

[e] Twentymile and Placer River Drainages were not surveyed this year due to foul weather and early freeze-up.

Appendix B6.-Sixmile Creek salmon escapement estimates, Anchorage Management Area, 1990–2010.

Year	Chinook (king)	Coho	Sockeye	Pink	Chum
1990			1,415	1,678	
1991			1,845	597	
1992		2	711	199	
1993		101	5,021	1,013	5
1994			1,407	243	
1995		14	4,462	2,116	18
1996		[a]	2,549	884	[a]
1997		10	2,158	457	
1998	[b]	1	1,777	1,309	
1999		[c]	748 [d]	[c]	[c]
2000			2,186		
2001			4,005		
2002		120	2,800	1,900	
2003		34	2,964	1,340	3
2004		86	1,625	175	3
2005		31	1,353	1,362	4
2006		97	1,194	1,654	2
2007		25	915	1,733	1
2008		31	1,461	2,355	0
2009		197	3,342	3,075	0
2010		22	2,533	492	5
2006-2010 average		74	1,889	1,862	2
2005-2009 average		76	1,653	2,036	1
2001-2010 average		71	2,219	1,565	2

Note: Estimates are a combination of weir counts and foot surveys.

[a] A total of 51 coho and chum passed the weir but were not tallied by species.

[b] Weir was moved upstream of fish ladder near lake.

[c] No count was possible due to beaver dam located downstream of weir.

[d] Count is low due to beaver dam obstructing upstream migration.

Appendix B7.-Rabbit Creek salmon escapement estimates, Anchorage Management Area, 1990–2010.

Year	Chinook (king)	Coho	Sockeye	Pink	Chum
1990	10	10	5	400	5
1991	64		2		
1992	38			2	
1993-1996 [a]					
1997	31				
1998	41	309		43	
1999-2000 [a]					
2001	64	697	300 [b]	7	
2002	9	1,243	0	1,004	
2003	7	348	0	33	
2004	55	1,448	0	234	
2005	73	7	71	257	
2006	39	24	275	118	
2007 [a]					
2008	15	109	4	1,562	1
2009	36	1,725	1	524	0
2010	16	7	15	0	0
2006-2010 average	27	466	74	551	0
2005-2009 average	41	466	88	615	1

Note: Estimates are from foot surveys designed for Chinook and coho salmon.

[a] No survey conducted.

[b] Estimated from boardwalk at Potter Marsh.

APPENDIX C. HISTORICAL STOCKING TABLES

Appendix C1.-Arctic char stocking in Anchorage Management Area by year (1990–2010) and lake.

	Lake										
Year	Campbell Point	Cheney	Clunie	Delong	Gwen	Jewel	Mirror	Sand	Tangle Pond	Thompson	Total
1990	1,000	0	500	0	500	0	500	0	0	500	3,000
1991	2,000	0	1,250	0	1,250	0	1,250	0	0	0	5,750
1992	0	0	2,000	0	1,000	0	1,000	0	0	0	4,000
1993	0	0	1,000	0	0	0	1,000	0	0	0	2,000
1994	1,250	0	1,250	0	0	0	2,500	0	0	0	5,000
1995	0	0	0	0	0	0	2,402	0	0	0	2,402
1996	0	0	0	0	0	0	0	0	0	0	0
1997	1,000	0	1,000	0	0	0	2,000	0	0	0	4,000
1998	852	40	2,133	0	0	0	3,908	0	0	0	6,933
1999	0	0	0	0	0	0	0	0	0	0	0
2000	1,027	0	0	0	0	0	2,012	0	0	0	3,039
2001	0	0	0	0	0	0	0	0	0	0	0
2002	2,094	0	4,387	14,820	0	4,000	4,845	2,522	503	0	33,171
2003	1,796	0	4,496	4,400	0	4,035	6,117	4,522	503	0	25,869
2004	2,096	0	0	0	0	0	0	2,603	0	0	4,699
2005	1,928	0	0	0	0	0	0	2,194	0	0	4,122
2006	2,904	0	0	0	0	1	0	4,332	0	0	7,237
2007	1,142	0	0	0	0	258	0	6,121	0	0	7,521
2008	2,102	0	0	0	0	0	0	3188	0	0	5,290
2009	2,017	0	0	0	0	0	0	0	0	0	2,017
2010	1,533	0	0	0	0	0	0	7,434	0	0	8,967

Note: all stocking information is from hatchery records.

Note: unless otherwise noted, releases are of catchable-sized Arctic char.

Appendix C2.-Chinook (king) salmon stocking in Anchorage Management Area by year (1990–1999) and site.

	Year									
Site	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Catchable Releases [a]										
Beach Lake	3,104	3,076	3,037	3,168	6,346	8,115 [b]	2,989	2,000	7,123	2,744
Campbell Pt Lake	1,587	1,617	1,986	1,711	1,552	1,534	1,588	1,000	4,072	0
Cheney Lake	3,030	5,206	7,398	3,029	5,489	9,905	4,880	4,191	11,358	643
Clunie Lake	4,096	4,232	3,937	4,320	4,103	4,291	4,023	2,767	6,000	6,228
Delong Lake	5,051	5,068	7,626	5,066	7,432	10,146 [c]	5,020	4,032	12,537	4,045
Green Lake	0	1,007	1,043	1,051	989	1,562	1,558	1,586	4,032	5,644
Gwen Lake	2,090	0	2,004	0	0	0	0	0	0	0
Hillberg Lake	0	512	1,071	1,156	989	1,468	1,587	1,586	4,124	1,956
Jewel Lake	38,130	7,027	19,664	7,611	17,325	17,562 [d]	13,929	7,325	22,261	3,938
Mirror Lake	6,880	4,981	10,263	4,798	10,264	9,257	8,191	0	14,550	0
Otter Lake	5,014	7,314	15,106	5,400	6,954 [e]	8,528	6,776	5,500	0	0
Sand Lake	9,973	10,014	15,302	9,968	9,542	6,033	3,929	4,000	10,811	7,749
Spring Lake	0	516	0	505	990	1,012	998	1,000	2,000	5,867
Taku Campbell Lake	0	0	0	0	0	1,948	1,985	2,231	9,219	500
Tangle Pond	0	0	0	0	0	0	1,154	1,651	2,016	3,052
U Six Mile Lake	0	0	423	0	0	0	0	0	0	0
Total	78,955	50,570	88,860	47,783	71,975	81,361	58,607	38,869	110,103	42,366
Smolt Releases										
Eagle River	0	102,100	107,695	121,066	107,547	0	0	0	0	0
Ship Creek	102,523	211,268	176,380	217,557	199,830	229,799	228,000	325,891	204,741	197,168

Note: all stocking information is from hatchery records.

[a] "catchable" size = about 8 inches in length.

[b] 5,117 were 51 g sub-catchable size.

[c] 5,082 were 51 g sub-catchable size.

[d] 4,976 were 51 g sub-catchable size.

[e] 1,639 were 20 g sub-catchable size.

Appendix C3.-Chinook (king) salmon stocking in Anchorage Management Area by year (2000–2010) and site.

	Year										
Site	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Catchable Releases [a]											
Beach Lake	10,709	4,139	3,838	4,040	4,078	3,925	0	0	0	0	0
Campbell Pt Lake	0	3,807	2,000	1,975	2,302	3,158	25,723	6,500	3,375	10,190	0
Cheney Lake	Discontinued due to presence of Northern pike									0	0
Clunie Lake	8,819	8,360	8,004	3,822	2,981	2,981	0	3,118	2,950	3,060	0
Delong Lake	5,348	5,966	6,207	6,055	5,931	5,982	26,277	10,530	8,031	14,838	0
Green Lake	2,149	998	1,086	1,190	1,261	1,100	0	1,070	1,100	921	0
Gwen Lake	0	0	0	0	0	0	0	0	0	0	0
Hillberg Lake	2,058	3,308	981	1,144	1,261	1,100	0	1,117	1,050	987	0
Jewel Lake	9,741	21,792	12,538	24,243	21,978	15,828	60,497	15,795	7,005	14,838	0
Mirror Lake	15,399	10,272	9,683	7,142	7,396	6,958	29,043	11,565	10,700	0	0
Otter Lake	0	0	0	0	0	0	0	0	0	0	0
Sand Lake	5,119	4,945	4,930	5,133	4,650	6,122	0	0	0	0	0
Spring Lake	1,031	0	0	0	0	0	0	0	0	0	0
Taku Campbell Lake	0	0	0	0	0	3,058	0	0	0	0	0
Tangle Pond	0	0	0	0	0	0	0	0	0	0	0
U Six Mile Lake	0	0	0	0	0	0	0	0	0	0	0
Total	60,373	63,587	49,267	54,744	51,838	50,212	141,540	49,695	34,211	44,834	0
Smolt Releases											
Eagle River	0	0	0	0	0	0	0	0	0	0	0
Ship Creek	265,582	254,924	290,501	329,416	320,226	358,029	176,055	333,940	341,495	282,735	332,597

Note: all stocking information is from hatchery records.

[a] "catchable" size = about 8 inches in length.

Appendix C4.-Coho salmon stocking in Anchorage Management Area by year (1990–1999) and site.

	Year									
Site	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Catchable releases [a]										
Cheney Lake	0	0	30,529	discontinued						
Clunie Lake	0	0	0	17,600	0	0	0	0	0	0
Delong Lake	0	8,593	discontinued							
Green Lake	0	0	0	10,180	discontinued					
Hillberg Lake	0	6,112	0	8,000	discontinued					
Ingram Creek	80,000	0	0	0	discontinued					
Jewel Lake	102,000	8,593	163,533	discontinued						
Spring Lake	0	4,000	0	8,000	discontinued					
Triangle Lake	0	6,268	discontinued							
Walden Lake	0	0	0	5,000	discontinued					
Total	182,000	33,566	194,062	48,780	0	0	0	0	0	0
Smolt releases										
Bird Creek[a]	0	0	100,924	140,382	84,643	154,753	147,618	294,565	164,211	111,430
Campbell Creek	0	0	97,076	140,797	87,686	157,241	75,943	71,519	83,317	42,046
Ship Creek	64,006	57,800	67,178	54,764	75,799	158,981	227,914	232,066	232,765	165,388
Total	64,006	57,800	265,178	335,943	248,128	470,975	451,475	598,150	480,293	318,864

Note: all stocking information is from hatchery records.

[a] "catchable" size = about 8 inches in length.

Appendix C5.-Coho salmon stocking in Anchorage Management Area by year (2000–2010) and site.

	Year										
Site	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Catchable releases [a]											
Cheney Lake	discontinued previously										
Clunie Lake	0	0	53,790	discontinued							
Delong Lake	discontinued previously										
Green Lake	discontinued previously										
Hillberg Lake	discontinued previously										
Ingram Creek	discontinued previously										
Jewel Lake	discontinued previously										
Spring Lake	discontinued previously										
Triangle Lake	discontinued previously										
Walden Lake	discontinued previously										
Total	0	0	53,790								
Smolt releases											
Bird Creek [b]	97,409	0	0	0	109,949	100,605	104,974	104,979	113,035	113,300	157,534
Campbell Creek	63,730	69,836	69,836	78,576	85,790	60,387	78,805	82,138	83,421	15,400	50,214
Ship Creek	260,070	233,563	212,639	234,716	241,006	251,446	252,775	255,380	245,490	287,825	252,319
Total	421,209	303,399	282,475	313,292	436,745	412,438	436,554	442,497	441,946	416,525	460,067

Note: all stocking information is from hatchery records.

[a] "catchable" size = about 8 inches in length.

[b] Bird Creek was not stocked from 2001 to 2003 due to construction of the parking area just north of the creek.

Appendix C6.-Other fish stocking in the Anchorage Management Area by species, year and site.

	Year								
Site	1985	1986	1987	1988	1989	1999	2000	2001	2002
Pink Salmon									
Ingram Creek	0	0	259,200	252,975	325,380	discontinued			
Lake Trout									
Clunie Lake	0	0	0	0	0	2,150	0	2,000	discontinued
Sand Lake	0	0	0	0	0	2,022	0	1,296	discontinued
Steelhead Trout									
Campbell Lake	35,196	44,873	discontinued						
Cheney Lake	0	0	4,054	discontinued					
Delong Lake	0	0	4,143	discontinued					
Gwen Lake	0	0	3,169	discontinued					
Jewel Lake	0	0	5,842	discontinued					
Sand Lake	0	0	6,000	discontinued					
Salmon Hybrids									
Campbell Lake	0	0	0	0	0	0	1,902	discontinued	
Delong Lake	0	0	0	0	0	0	2,907	discontinued	
Jewel Lake	0	0	0	0	0	0	1,930	discontinued	

Note: all stocking information is from hatchery records.

Appendix C7.-Rainbow trout stocking in Anchorage Management Area by year (1990–2000) and site.

	Year										
Site	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Catchable Releases[a]											
Alder Lake	0	0	0	8,491	5,118	5,747	5,081	2,592	4,002	1,434	2,072
Beach Lake	4,572	4,497	4,311	3,249	4,437	4,947	4,410	4,244	4,056	9,862	10,133
Campbell Creek	7,277	5,428	8,010	6,071	6,634	5,058	5,104	2,686	0	3,030	4,563
Campbell Pt Lake	5,175	5,194	5,017	3,299	5,099	6,022	5,039	2,906	2,172	0	5,452
Cheney Lake [b]	10,323	7,503	10,307	11,547	10,998	13,549	10,254	8,946	355	6,074	13,668
Chester Creek [c]	5,011	2,458	7,700	4,349	4,641	8,135	4,975	2,611	1,000	1,000	852
Clunie Lake	8,290	5,076	8,106	4,918	7,094	9,167	9,244	7,662		9,346	4,669
Delong Lake	10,437	8,235	12,818	10,968	10,549	13,090	10,246	6,207	7,300	9,904	16,282
Dishno Lake	0	0	0	0	0	542	512	515	0	483	0
Eagle River	1,010	0	0	0	0	0	0	0	0	0	0
Edmonds Lake	0	0	0	0	506	0	985	1,017	0	0	500
Elmendorf-Swan	0	0	0	0	0	0	0	136,388	0	0	0
Fish Lake	0	0	1,021	822	1,016	1,006	0	1,054	0	1,201	1,135
Green Lake	2,006	2,048	2,049	1,600	1,995	3,307	3,076	2,729	0	2,870	3,151
Gwen Lake	4,776	3,316	4,985	3,855	4,688	2,771	4,993	5,299	3,929	3,969	4,807
Hillberg Lake	1,500	1,557	1,500	1,200	1,502	3,116	3,393	3,054	2,984	0	4,802
Jewel Lake	14,297	12,950	18,671	17,282	13,627	16,239	11,086	10,189	6,974	16,344	15,546
Lake Otis	1,500	1,566	1,485	1,307	1,510	1,570	1,573	1,155	0	0	500
Lower Fire Lake	5,220	5,501	5,181	5,329	6,706	8,052	5,170	3,081	3,350	1,672	3,000
Mirror Lake	10,273	7,841	10,243	8,520	10,429	14,068	10,079	9,771	0	11,299	12,107
Otter Lake	11,150	10,532	11,730	6,139	13,403	12,010	9,304	12,767	106	4,901	10,941
Rabbit Lake	0	0	0	0	0	0	2,553	0	0	1,994	0
Sand Lake	7,211	5,225	11,413	6,684	7,273	7,380	6,069	3,646	0	1,466	4,096
Six Mile Lake	1,498	800	0	0	0	0	0	0	0	0	0
Spring Lake	0	0	1,065	784	1,000	1,026	1,063	917	500	0	500
Taku Campbell Lake [b]	4,246	4,242	4,536	3,382	4,119	5,126	4,163	3,022	101	2,351	7,637
Tangle Pond	0	0	0	0	5,000	1,115	3,004	1,247	1,181	983	1,000
Thompson Lake	2,019	2,017	1,982	1,408	0	1,992	1,979	1,969	978	939	0
Triangle Lake	1,028	984	1,006	674	1,032	1,062	1,448	989		10,133	707
Upper Six Mile Lake	0	696	1,510	1,272	1,529	3,096	3,110	3,000	0	4,103	5,066
Walden Lake	4,050	0	4,146	3,348	4,065	1,995	2,006	2,034	1,005	0	1,000
Willow Airstrip Pond	0	0	0	0	0	0	985	0	0	0	1,497
Willow Lake	0	0	0	14,300	0	0	0	0	0	1,000	0
Total	122,869	97,666	138,792	130,798	133,970	151,188	213,390	241,697	162,366	106,358	135,683

-continued-

Appendix C7.–Page 2 of 2.

Site	Year										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Subcatchable releases [d]											
Beach Lake	0	0	0	0	17,748	0	0	0	0	29,844	discontinued
Campbell Pt Lake	0	0	0	0	0	0	0	0	0	0	discontinued
Cheney Lake [b]	0	0	0	0	0	0	0	0	5,440	0	discontinued
Chester Creek [c]	0	0	0	0	0	0	0	0	0	0	discontinued
Clunie Lake	0	0	0	102,734	58,094	91,604	0	0	4,152	46,138	discontinued
Delong Lake	0	0	0	0	0	0	0	51,088	0	2,769	discontinued
Dishno Lake	0	0	0	0	0	0	0	0	125	0	discontinued
Eagle River	0	0	0	0	0	0	0	0	2,462	0	discontinued
Edmonds Lake	0	0	0	0	0	0	0	0	1,195	0	discontinued
Fish Lake	0	0	0	0	0	0	0	0	1,500	0	discontinued
Green Lake	0	0	0	0	0	43,077	0	0	2,088	0	discontinued
Gwen Lake	0	0	0	0	0	0	0	0	39,298	0	discontinued
Hillberg Lake	0	0	0	0	0	0	0	0	2,984	0	discontinued
Jewel Lake	0	0	0	0	0	0	0	53,919	7,060	6,772	discontinued
Lake Otis	0	0	0	0	0	0	0	0	1,000	0	discontinued
Lower Fire Lake	0	0	0	0	0	0	0	0	0	1,284	discontinued
Mirror Lake	0	0	0	0	0	3,000	0	3,510	7,032	38,254	discontinued
Otter Lake	55,976	0	93,723	148,418	81,815	53,884	0	0	6,888	55,921	discontinued
Sand Lake	0	0	0	0	0	0	0	0	1,098	0	discontinued
Six Mile Lake	0	0	0	0	0	0	0	0	0	0	discontinued
Taku Campbell Lake [b]	0	0	0	0	0	0	0	0	1,797	0	discontinued
Tangle Pond	0	0	0	0	0	0	80,375	0	0	0	discontinued
Thompson Lake	0	0	0	0	0	0	0	0	0	0	discontinued
Triangle Lake	0	0	0	0	0	0	0	0	1,000	10,133	discontinued
Upper Six Mile Lake	0	0	0	0	0	0	0	0	2,234	0	discontinued
Willow Lake	0	0	0	0	14,803	14,300	14,490	0	12,900	12,494	discontinued
Total	55,976	0	93,723	251,152	172,460	205,865	94,865	108,517	100,253	203,609	

Note: all stocking information is from hatchery records.

[a] Catchable releases includes catchable-sized and broodstock rainbow trout. "Catchable size" = about 8 inches in length.

[b] Cheney and Taku Campbell lakes were not stocked starting in 2001 due to illegal introduction of northern Pike.

[c] Includes fish stocked in University (Alaska Pacific University) Lake.

[d] Subcatchable releases includes fry, smolt, subcatchable-sized fish, and eyed eggs.

Appendix C8.-Rainbow trout stocking in Anchorage Management Area by year (2001–2010) and site.

	Year									
Site	2001	2002	2003	2004	2005 [a]	2006 [a]	2007	2008	2009	2010
Catchable Releases [b]										
Alder Lake	1,906	2,019	2,455	2,295	1,098	507	0	0	0	0
Beach Lake	8,087	10,095	9,614	11,893	7,527	2,802	0	0	0	0
Campbell Creek	3,909	2,291	4,264	1,560	1,697	1,522	0	0	0	0
Campbell Pt Lake	5,047	2,561	2,456	5,829	1,442	837	4,050	6,200	25,271	14,137
Cheney Lake [c]	Discontinued due to presence of Northern pike								9,942	28,918
Chester Creek [d]	2,335	2,036	1,779	976	613	326	0	0	0	0
Clunie Lake	7,804	3,932	4,613	6,027	4,895	2,060	14,857	9,136	12,259	21,125
Delong Lake	12,840	1,231	10,182	17,205	11,363	4,319	9,577	11,596	30,883	28,616
Dishno Lake	0	0	0	0	0	0	0	0	0	0
Eagle River	0	0	0	0	0	0	0	0	0	0
Edmonds Lake	1,000	1,723	1,967	1,474	943	395	0	0	0	0
Elmendorf-Swan	0	0	0	0	0	0	0	0	0	0
Fish Lake	300	250	532	309	218	100	842	1,004	806	2,025
Green Lake	2,546	1,500	1,359	1,005	889	408	900	1,188	1,990	16,855
Gwen Lake	5,153	2,073	4,994	5,001	3,002	1,364	6,526	4,644	5,973	7,375
Hillberg Lake	1,645	1,532	1,889	1,840	1,744	676	2,588	3,116	4,843	19,455
Jewel Lake	23,862	14,057	17,344	20,160	12,656	4,999	20,408	13,089	36,946	30,926
Lake Otis	500	500	250	554	458	275	1,856	4,236	771	2,970
Lower Fire Lake	3,018	2,976	2,713	2,109	1,663	864	0	0	0	0
Mirror Lake	19,595	9,299	7,402	10,812	9,855	4,424	19,131	7,880	0	0
Otter Lake	10,159	5,418	7,342	3,738	3,618	1,827	0	0	0	0
Rabbit Lake	0	920	0	0	400	0	0	0	0	0
Sand Lake	6,201	3,074	2,105	4,983	2,680	2,098	5,400	572	0	48,941
Six Mile Lake	0	0	0	0	0	0	0	0	0	0
Spring Lake	0	500	500	505	370	180	687	621	741	1,014
Taku Campbell Lake [c]	0	2,869	1,804	3,490	2,225	2,674	0	0	0	0
Tangle Pond	1,713	1,031	1,021	1,607	1,075	510	0	0	0	0
Thompson Lake	977	0	0	0	0	0	0	0	0	0
Triangle Lake		500	500	505	370	180	687	527	741	2,025
Upper Six Mile Lake	2,256	2,001	2,241	1,898	1,210	480	0	0	0	0
Walden Lake	4,615	3,208	1,149	0	864	375	2,250	2,150	0	2,375
Willow Airstrip Pond	1,938	2,200	1,866	1,671	1,281	616	0	0	0	0
Willow Lake	0	0	0	0	0	0	0	0	0	0
Total	127,406	79,796	92,341	107,446	74,156	34,818	89,759	65,959	131,166	226,757
Subcatchable releases [e]	discontinued previously									

Note: all stocking information is from hatchery records.

[a] Hatchery switched to cold water rearing, so it takes 2 years to rear a catchable-sized rainbow trout from this point on. This would create a year with no fish, so in 2005 2/3 of catchables are stocked, and in 2006 1/3 stocked.

[b] Catchable releases includes catchable-sized and broodstock rainbow trout. "Catchable size" = about 8 inches in length.

[c] Cheney and Taku Campbell lakes were not stocked starting in 2001 due to illegal introduction of northern Pike.

[d] Includes fish stocked in University (Alaska Pacific University) Lake.

[e] Subcatchable releases include fry, smolt, subcatchable-sized fish, and eyed eggs.

Appendix C9.-Arctic grayling stocking in Anchorage Area by year (1990–2010) and site.

	Site								
Year	APU[a] Lake	Beach Lake	Lower Fire Lake	Tangle Pond	Sand Lake	Walden Lake	Willow Lake	Symphony Lake	Total
1990	40,000 [b]	4,000	7,000	0		4,000	31,500	0	86,500
1991	discontinued	4,000	7,000	0		0	14,300	0	25,300
1992		0	0	0		0	14,300	0	14,300
1993		4,000	7,000	2,000		0	discontinued	0	13,000
1994		4,000	7,000	2,000		4,000		0	17,000
1995		4,000	7,000	discontinued		discontinued		0	11,000
1996		8,000	7,500					0	15,500
1999		1,048	discontinued					0	1,048
2000		0						0	0
2001[c]		4,749						2,936	7,685
2002[c]		4,199						0	4,199
2003		7,081 [d]						4,239	11,320
2004		4,489						0	4,489
2005		279						0	279
2006		4,080						0	4,080
2007		5,668						0	5,668
2008		0						0	0
2009		3,192						0	3,192
2010		3,034			7,885			0	10,919

Note: all stocking information is from hatchery records.

Note: unless otherwise noted, all releases are grayling fingerlings.

[a] APU = Alaska Pacific University.

[b] Emergent fry were stocked Alaska Pacific University Lake in 1990.

[c] Catchable-sized grayling (about 8 inches) were stocked in 2001and 2002.

[d] Includes fish stocked in University (Alaska Pacific University) Lake.