Fishery Management Report No. 04-07

Area Management Report for the Recreational Fisheries of Anchorage, 2003

by

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and

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September 2004

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

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

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 Department of Fish and Game	ADF&G
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)

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

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 SERIES NO. 04-07

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

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INTRODUCTION

This report is divided into two sections. Section I presents an introductory overview of the Anchorage Sport Fish Management Area (AMA). Included in this section are a general geographic and organizational description of the management area; an overview of the Alaska Board of Fisheries process and schedules for the management area; an inventory of available fishery resources; a historical perspective of recreational angler effort and harvest within management area waters; a discussion of the economic value of recreational fisheries; and a general description of stocking, research, management, partnership, aquatic education, viewing, and access activities being conducted in the management area. Also included are summaries of the major fishery and social issues that presently occur in the AMA as well as recommendations for addressing them including, but not limited to, research, management, access, regulatory changes, aquatic education, partnership, stocking, or habitat options.

Section II provides a more detailed summary of all major fisheries that occur in the AMA. Included in this section are a description and historical perspective of each fishery, the management objective(s) for each fishery, a description of recent fishery performance, a description of recent Board of Fisheries actions, a description of any social or biological issues surrounding each fishery, and a description of ongoing or recommended research or management activities for each fishery.

SECTION I: AREA OVERVIEW

AREA DESCRIPTION

The Anchorage Sport Fish Management Area (AMA) consists of all waters flowing into eastside Knik Arm and north-side 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, and Portage; and two military reservations, Elmendorf Air Force Base, and Fort Richardson Army Post. Of Alaska's 626,932 residents (U. S. Census Bureau 2000 data), 42% or 260,283 people reside in the Anchorage area. Access to area sport fisheries is primarily by road. Anchorage area land managers include private individuals, Municipality of Anchorage (MOA), Alaska Railroad (ARR), Alaska Department of Natural Resources (ADNR), U.S. Forest Service (USFS), U.S. Bureau of Land Management (BLM), U.S. military, and 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 staff from the Anchorage regional office. Activities in the AMA are directed by a Fisheries Biologist III Area Management Biologist, and a Fisheries Biologist II, Assistant Area Management Biologist; and involve seasonal Fish and Wildlife Technicians, and staff from Elmendorf and Ft. Richardson hatcheries.

Codified regulations for Anchorage area sport fisheries are found in the Susitna-West Cook Inlet Section under Chapter 61 of the Alaska Administrative Code (AAC). For the purposes of effort and harvest reporting, the Statewide Harvest Survey (SWHS) by Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep* are used. AMA fisheries are summarized under Area L in these reports.

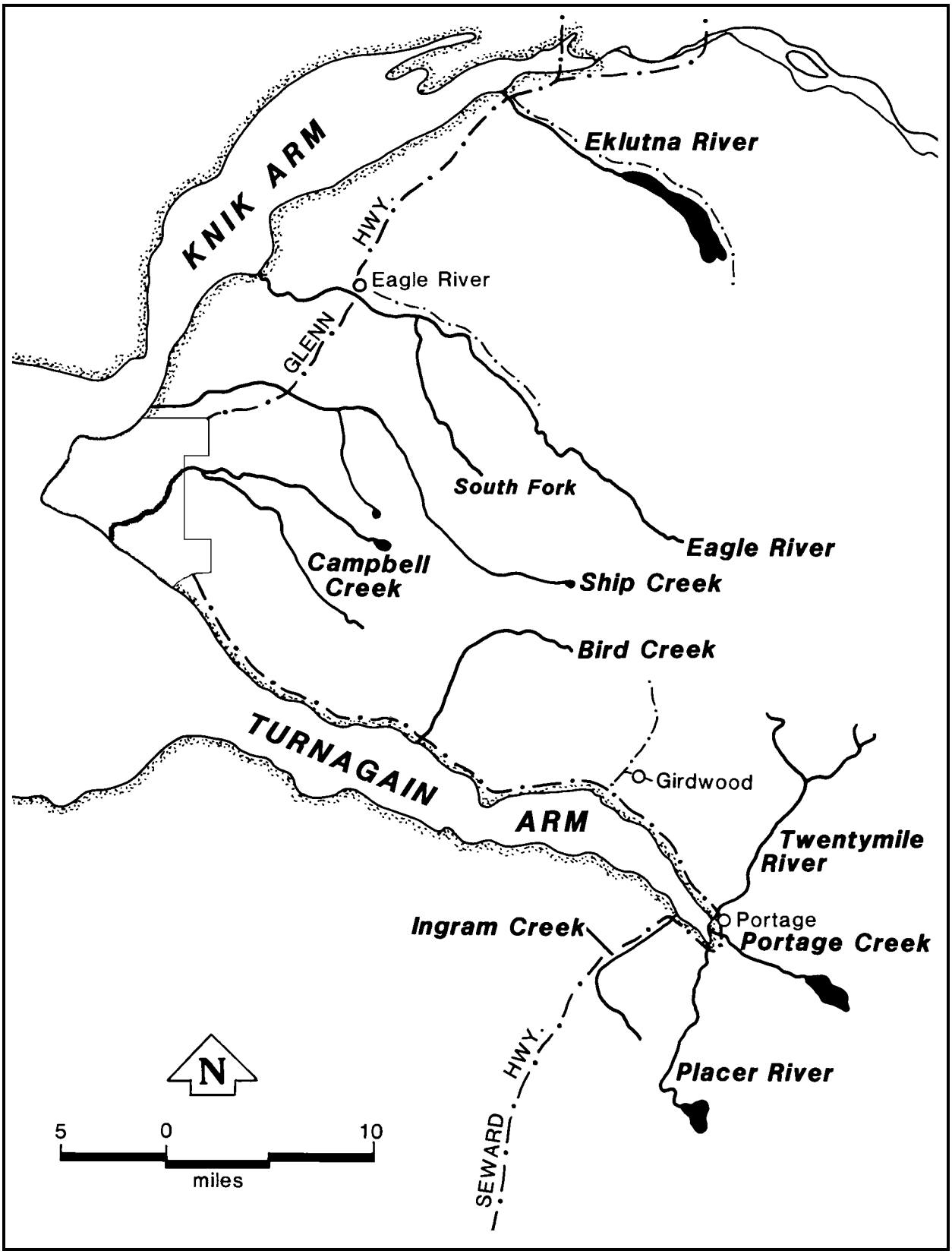


Figure 1.-The Anchorage Management Area.

FISHERIES RESOURCES

The Anchorage area offers unique and diverse recreational fishing opportunities in an urban environment. Major area sport fisheries occur in fresh water and target three species of salmon (chinook or king *Oncorhynchus tshawytscha*, coho or silver *O. kisutch*, and pink or humpy *O. gorbuscha*), rainbow trout *O. mykiss*, landlocked (chinook and coho) salmon, and Dolly Varden *Salvelinus malma*. Wild stock salmon sport fisheries occur in several Turnagain Arm streams including Bird Creek (pink salmon) and Twentymile River (coho salmon). Sport fisheries have been established in Ship Creek with stocked chinook and coho salmon. Eagle River was stocked with chinook salmon from 1990-1994 in an attempt to develop another urban king salmon sport fishery. Stocked coho salmon fisheries have been established in Campbell and Bird creeks. Turnagain Arm supports a large personal use eulachon *Thaleichthys pacificus* (hooligan or smelt) fishery. The Anchorage area stocked lake program includes over 25 lakes stocked with rainbow trout; some of these lakes are also stocked with landlocked salmon, Arctic char *Salvelinus alpinus*, and Arctic grayling *Thymallus arcticus*. Two streams, Campbell and Chester creeks, are stocked with rainbow trout. Several area lakes including Sand, Lower Fire, Cheney and Otter lakes have established populations of northern pike *Esox lucius* from illegal introductions. Alaska blackfish *Dallia pectoralis* are also found in most Anchorage area lakes.

ALASKA BOARD OF FISHERIES ACTIVITIES

The development of fishing regulations for AMA sport fisheries occurs within the Alaska Board of Fisheries (BOF) process. This process provides for public input concerning regulatory changes and allocation issues through local fish and game advisory committee participation and testimony to BOF. Local advisory committees have been established throughout Alaska to assist BOF with assessing fisheries and wildlife issues. Active committees usually meet in the fall before BOF meetings. ADF&G staff from all divisions are often invited to the advisory committee meetings. In this way, advisory committee meetings allow for direct public interaction with staff involved with local resource issues. The Anchorage Fish and Game Advisory Committee serves the Anchorage area. Under the current operating schedule, BOF meets on a 3-year cycle. Proposals regarding Anchorage area fisheries were last discussed by BOF at their winter 2001 meeting. Anchorage area fisheries will next be considered by BOF in 2004/2005. More information is available on the ADF&G Board Support page at www.boards.adfg.state.ak.us/fishinfo/index.php.

Historic regulation summaries for Campbell Creek, Eagle River, and Ship Creek are presented in Appendix A.

RECREATIONAL ANGLER EFFORT

In 2002, angler effort in the AMA was estimated at 111,694 angler days (Table 1, Figures 2 and 3), about 5% of the total statewide sport fishing effort and 7% of the total southcentral Alaska effort.

Streams accounted for 61% of the total 2002 AMA fishing effort, lakes accounted for 36%, and saltwater angling represented about 3% (Table 2). Effort expended in Anchorage area streams has more than doubled since 1990 mostly as a result of ADF&G's urban coho and chinook salmon stocking programs (Table 3, Figure 4). The Ship Creek salmon sport fishery is the most popular area stream fishery. In 2002, Ship Creek accounted for 69% of the Anchorage area stream effort, up from 19% in 1985 before stocked fish became available in the fishery. Other Anchorage area streams

Table 1.-Number of angler-days expended in the Anchorage area compared to Southcentral and Statewide, 1983-2002.

Year	Statewide Effort	Southcentral Effort	Anchorage Effort	Anchorage % of Statewide	Anchorage % of S. Central
1983	1,732,528	1,212,916	75,596	4%	6%
1984	1,866,837	1,341,658	120,206	6%	9%
1985	1,943,069	1,406,419	96,985	5%	7%
1986	2,071,412	1,518,712	103,672	5%	7%
1987	2,152,886	1,556,050	115,652	5%	7%
1988	2,311,291	1,679,939	115,999	5%	7%
1989	2,264,079	1,583,547	108,593	5%	7%
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%

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.

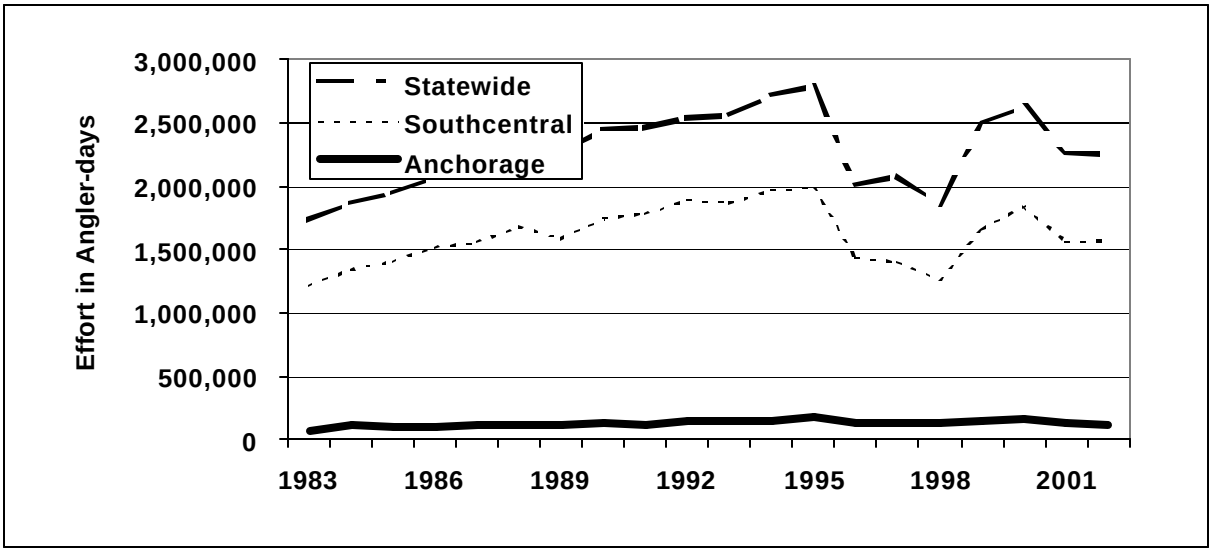


Figure 2.-Number of angler-days expended in the Anchorage area compared to Southcentral and Statewide, 1983-2002.

Table 2.-Components of Anchorage area sport fishing effort, 1983-2002.

	Saltwater		Lake		Stream		Anchorage
Year	Effort	Percent	Effort	Percent	Effort	Percent	Total Effort
1983	3,308	4%	56,554	75%	15,734	21%	75,596
1984	5,755	5%	88,887	74%	25,564	21%	120,206
1985	3,103	3%	68,495	71%	25,387	26%	96,985
1986	1,721	2%	70,517	68%	31,434	30%	103,672
1987	1,587	1%	84,444	73%	29,621	26%	115,652
1988	1,190	1%	75,314	65%	39,495	34%	115,999
1989	1,163	1%	74,118	68%	33,312	31%	108,593
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

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep* .

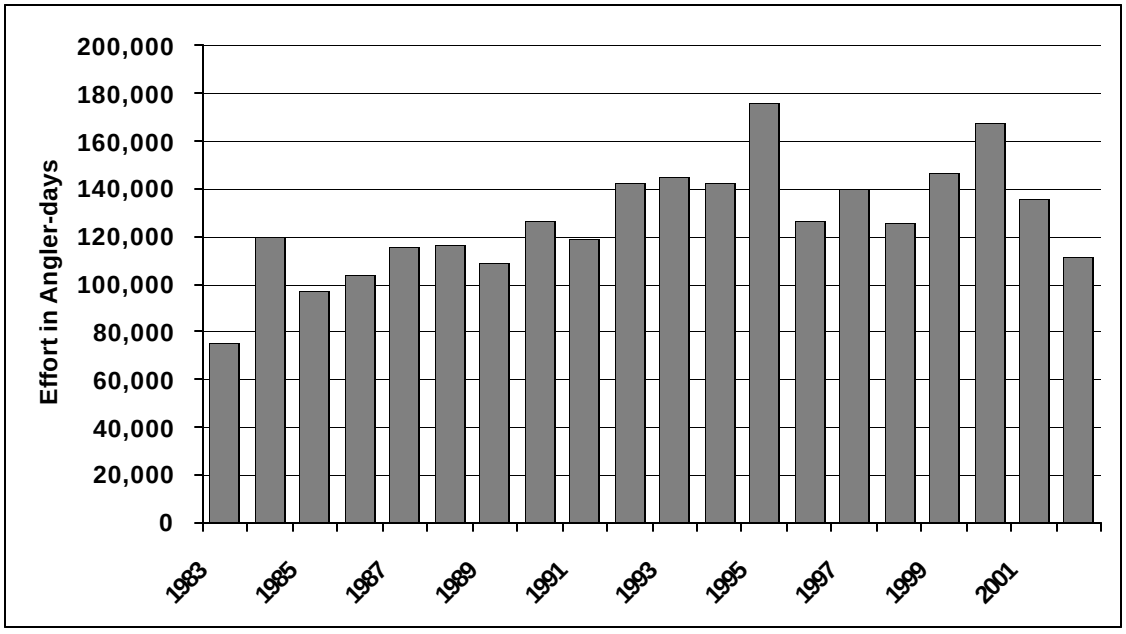
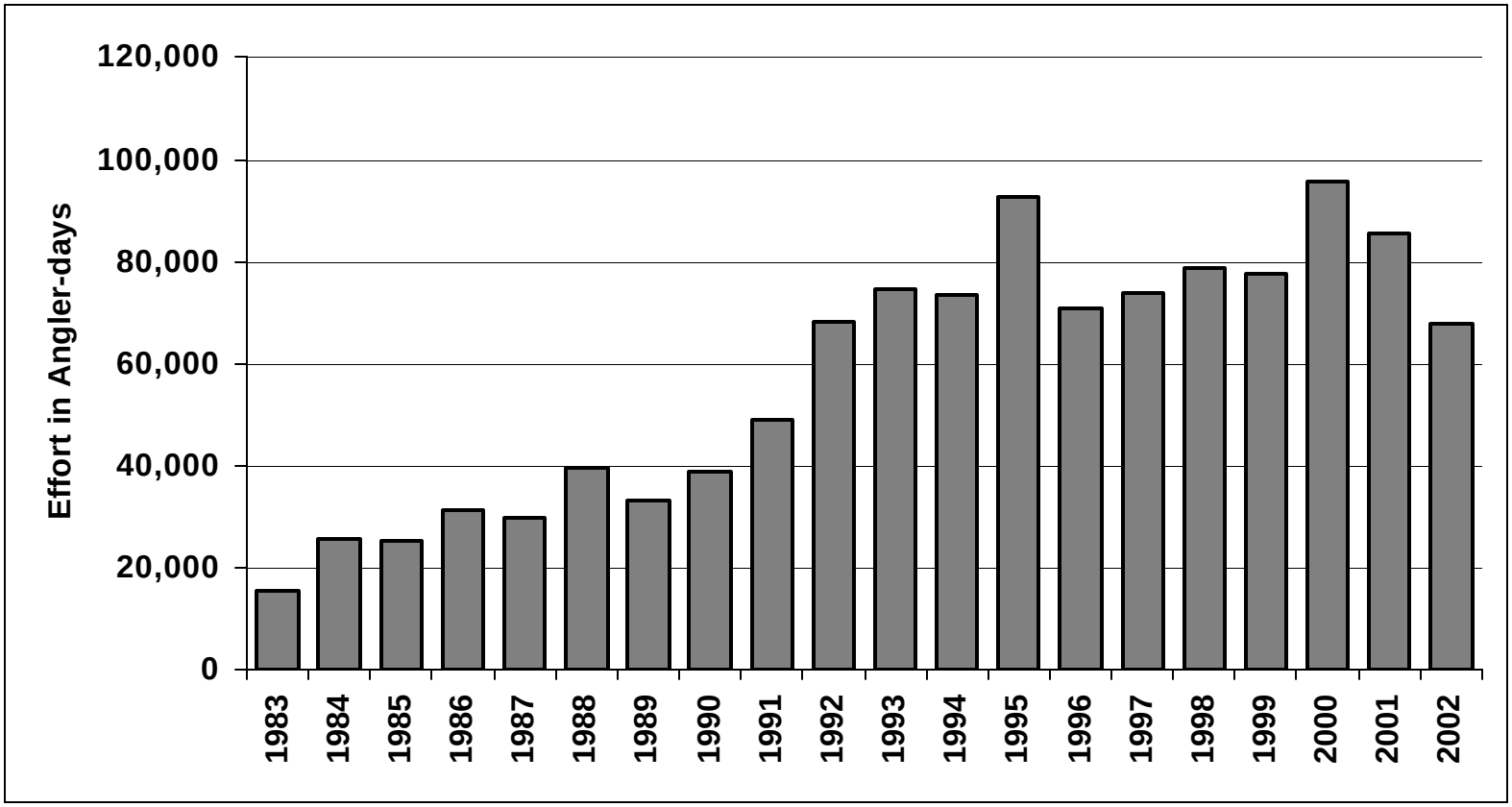


Figure 3.-Angler effort in Anchorage area fisheries, 1983-2002.

Table 3.-Angler effort in Anchorage area streams, 1983-2002.

	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
1983	1,844	12%	3,325	21%	1,017	6%	4,790	30%	2,205	14%	1,929	12%	15,734
1984	3,647	14%	6,843	27%	1,824	7%	6,207	24%	5,387	21%	1,422	6%	25,564
1985	4,890	19%	8,497	33%	2,272	9%	6,676	26%	1,838	7%	989	4%	25,387
1986	4,618	15%	12,507	40%	2,217	7%	6,452	21%	2,645	8%	2,475	8%	31,434
1987	11,989	40%	5,614	19%	1,485	5%	5,505	19%	1,684	6%	2,837	10%	29,621
1988	14,115	36%	9,532	24%	4,729	12%	4,820	12%	1,273	3%	3,850	10%	39,495
1989	16,424	49%	5,844	18%	1,942	6%	4,043	12%	2,017	6%	2,062	6%	33,312
1990	15,112	39%	9,138	24%	3,983	10%	4,537	12%	2,002	5%	3,176	8%	38,821
1991	29,768	61%	7,551	15%	1,977	4%	4,178	9%	1,106	2%	3,776	8%	49,093
1992	40,513	59%	11,352	17%	1,515	2%	4,257	6%	4,908	7%	4,561	7%	68,365
1993	40,815	55%	12,852	17%	9,073	12%	3,480	5%	3,396	5%	3,466	5%	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%	3,506	4%	85,698
2002	46,955	69%	5,540	8%	4,561	7%	2,869	4%	1,538	2%	6,537	10%	68,000
93-02 Avg	48,533	61%	13,588	17%	6,267	8%	3,683	5%	2,468	3%	4,337	5%	79,062

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.



Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.

Figure 4.-Angler effort in Anchorage area streams, 1983-2002.

that receive substantial effort are Bird Creek (8% of 2002 total stream effort), Campbell Creek (7%), and Twentymile River (4%). Bird Creek effort was down from a 5-year average (1997-2001) of 19% due to a break in the department's Bird Creek stocking program. Coho salmon were not stocked in 2001-2003 to avoid attracting anglers to Bird Creek during construction of a parking lost just north of the creek along the Seward Highway.

Effort expended in AMA lakes peaked in 1984 at almost 89,000 angler-days (Table 4, Figure 5). Effort stabilized around 71,100 angler-days from 1985-1997, and averaged 53,500 angler-days for the 5-year period from 1998-2002. Angler effort appears to be fairly well distributed among the Anchorage stocked lakes. The most popular area lakes in 2002 were Jewel Lake (16% of total lake effort), Mirror (13%), Otter (6%), Clunie (3%), and Sixmile (3%) lakes. Other lakes combined accounted for 54% of the angler effort in the Anchorage area. Effort on lakes located on the two military bases, Elmendorf Air Force Base and Fort Richardson, has dropped since increased security after September 11, 2001 limited civilian access to those lakes.

Anadromous salmon catch and harvest in the AMA has varied in the past 10 years (1993-2002) with a peak in 1998 (Figure 6). Coho salmon comprised the largest anadromous catch (41,200 coho salmon caught) by area anglers in 2002 (Table 5), followed by pink salmon (11,700), chinook salmon (7,000), chum salmon (6,500), and sockeye salmon (700). Rainbow trout (91,700) dominated the freshwater species catch followed by landlocked salmon (17,900), Dolly Varden/Arctic char (6,800), and Arctic grayling (reporting the highest catch ever estimated) at 4,600 (Table 6 and Figure 7). In 2002, anglers released most of their catch including chum salmon (93% released), pink salmon (90%), Arctic grayling (84%), rainbow trout (75%), Dolly Varden/Arctic char (79%), and landlocked salmon (66%) (Tables 5 and 6). Anglers released 52% of their sockeye salmon catch, 66% of their chinook salmon catch, and 36% of their coho salmon catch (Table 5).

Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1-B20.

OTHER USER GROUPS

Anchorage area commercial, subsistence, recreational, and personal use salmon fisheries are prosecuted under guidelines described in 5 AAC 21.363. *Upper Cook Inlet Salmon Management Plan*. The only Anchorage area commercial fishery is the Northern District set gillnet salmon fishery. Prior to the 2002 commercial salmon season the BOF adopted changes to the *Northern District Salmon Management Plan* which changed the opening date for the Northern District commercial set gillnet fishery to the first Monday on or after May 25 and cannot exceed three fishing periods. An area from an ADF&G regulatory marker located 1 mile south of the Theodore River to the Susitna River is only open for a second regular Monday period, in 2002 that period was June 3. In 2002 this fishery harvested 1,900 chinook salmon, 33,100 sockeye, 50,300 coho, 6,200 pinks and 5,000 chum salmon (Fox and Shields 2003). Harvests were generally within the range of the previous 5-year (1997-2001) averages. *The Northern District Salmon Management Plan* is described in 5 AAC 21.358.

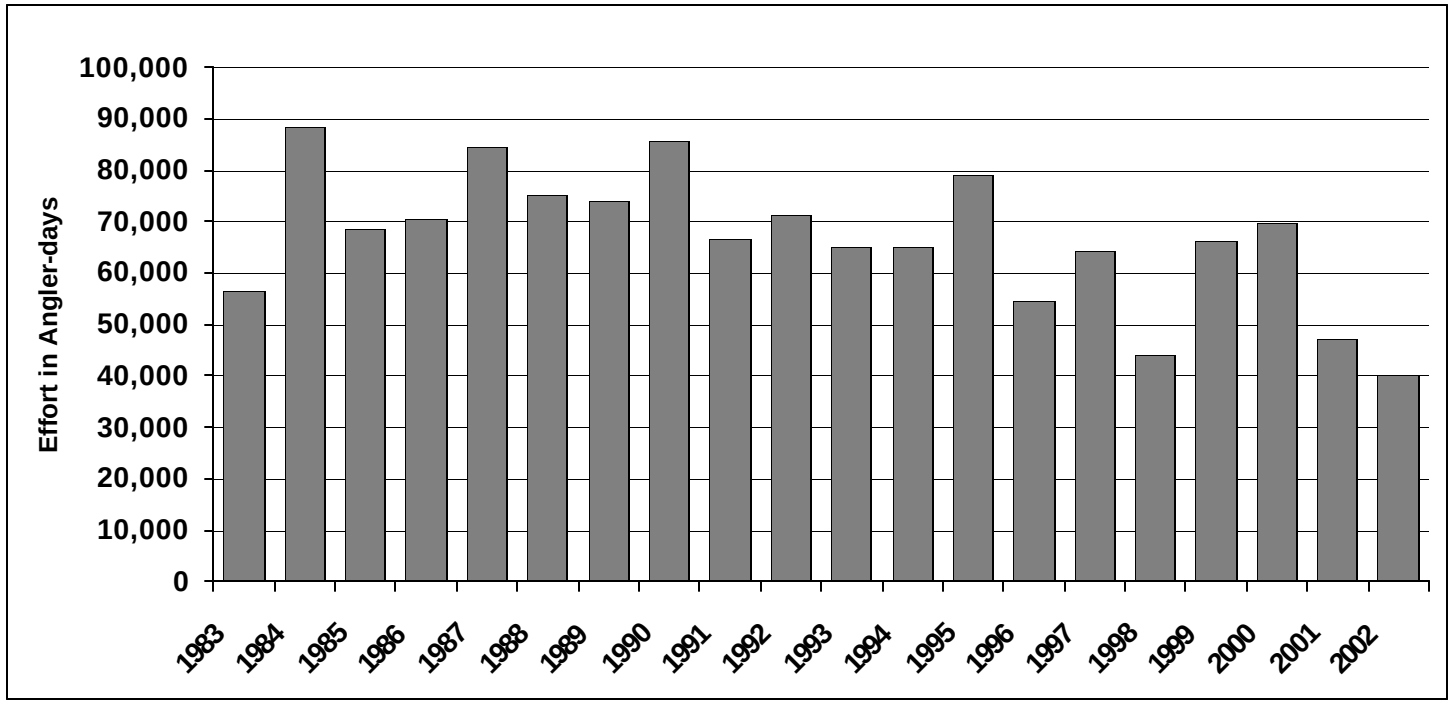
ECONOMIC VALUE OF SPORT FISHERIES

Evaluation of an activity from an economical standpoint is useful for comparing that value to other resource uses and/or community activities. These comparisons provide a cost/benefit basis for

Table 4.-Angler effort in Anchorage area lakes, 1983-2002.

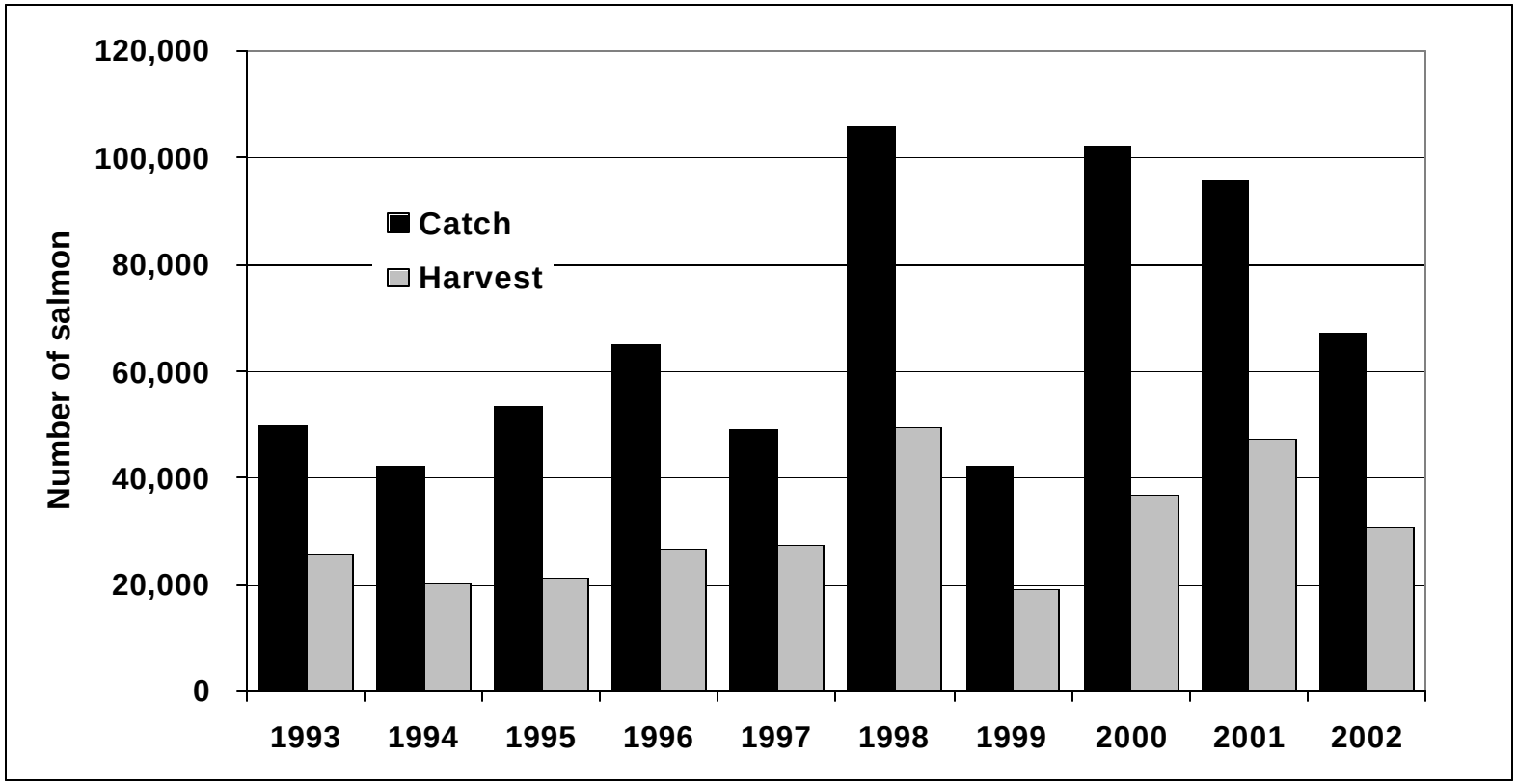
	Otter Lake		Jewel Lake		Sixmile Lake		Cheney Lake		Clunie Lake		Mirror Lake		Other Lakes		Lakes
Year	Effort	Percent	Effort	Percent	Effort	Percent	Effort	Percent	Effort	Percent	Effort	Percent	Effort	Percent	Total Effort
1983	5,445	10%	9,339	17%	6,341	11%	3,446	6%	4,032	7%	4,118	7%	23,833	42%	56,554
1984	13,375	15%	10,289	12%	11,075	13%	6,558	7%	6,659	8%	4,183	5%	36,388	41%	88,527
1985	5,150	8%	7,179	10%	9,069	13%	9,104	13%	3,000	4%	1,717	3%	33,276	49%	68,495
1986	9,036	13%	4,587	7%	12,278	17%	1,468	2%	5,076	7%	2,920	4%	35,152	50%	70,517
1987	13,275	16%	4,908	6%	12,677	15%	5,089	6%	6,574	8%	5,505	7%	36,416	43%	84,444
1988	5,402	7%	7,785	10%	8,822	12%	6,676	9%	7,185	10%	4,002	5%	35,442	47%	75,314
1989	7,570	10%	9,099	12%	5,046	7%	7,523	10%	5,384	7%	3,255	4%	36,241	49%	74,118
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
93-02 Avg	5,729	10%	6,335	11%	4,188	7%	4,216	7%	4,513	8%	4,846	8%	29,749	50%	59,575

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.



Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.

Figure 5.-Angler effort in Anchorage area lakes, 1983-2002.



Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.

Figure 6.-Anchorage area average sport catch and harvest (1993-2002) of anadromous salmon.

Table 5.-Anchorage area sport catch (1990-2002) and sport harvest (1983-2002) of anadromous salmon.

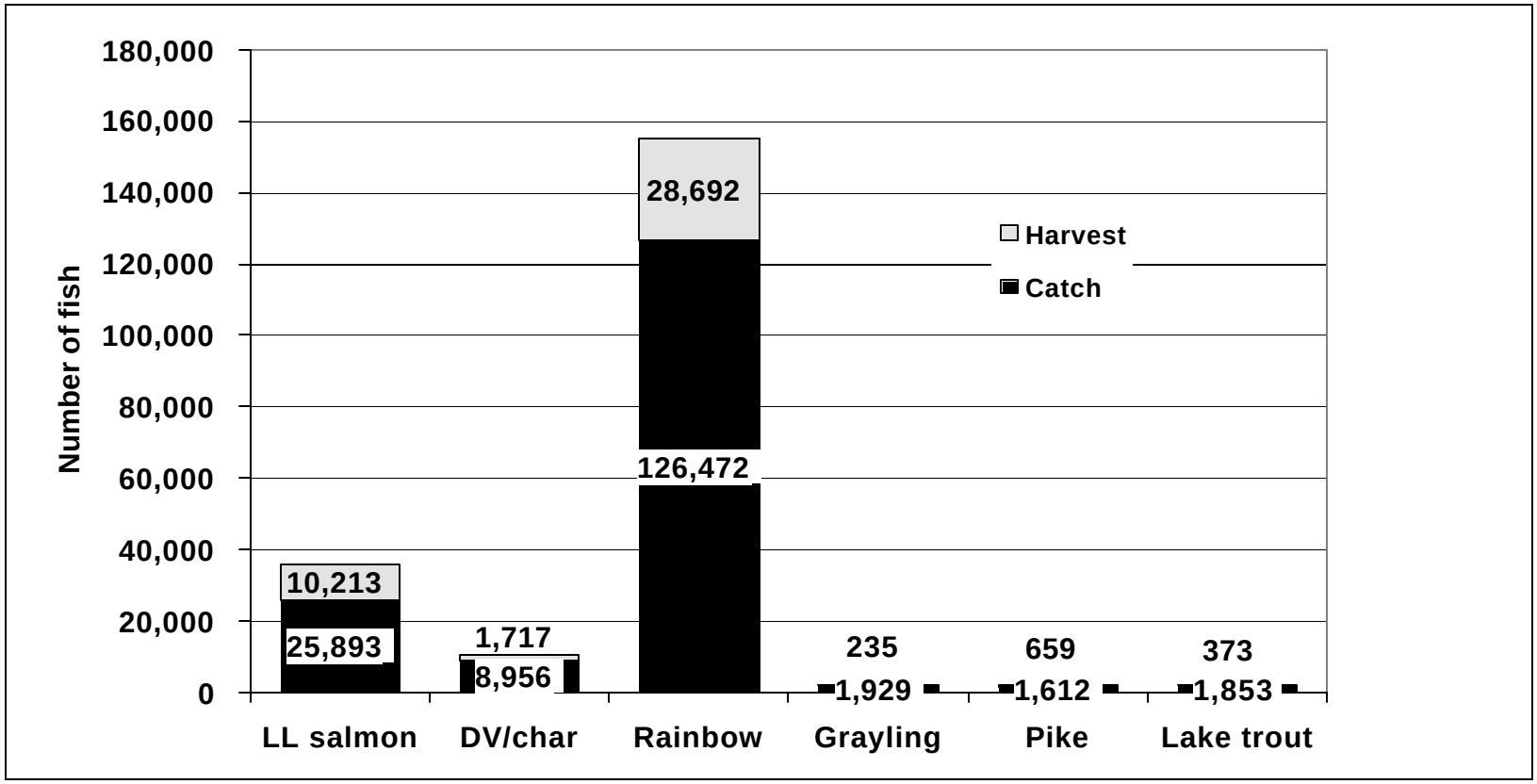
	Chinook			Sockeye			Coho			Pink			Chum			Total	
Year	Catch	Harvest	% Release	Catch	Harvest	% Release	Catch	Harvest	% Release	Catch	Harvest	% Release	Catch	Harvest	% Release	Catch	Harvest
1983		2			603			1,905			1,122			0			3,632
1984		74			598			2,843			3,992			162			7,669
1985		61			721			2,052			1,866			634			5,334
1986		33			609			3,458			11,664			960			16,724
1987		485			1,507			3,096			2,282			579			7,949
1988		663			472			6,730			5,330			691			13,886
1989		950			564			4,940			1,631			1,015			9,100
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
93-02 Avg	9,408	3,812	59%	2,442	1,054	57%	36,057	23,160	36%	15,919	2,055	87%	3,457	378	89%	67,284	30,459

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.

Table 6.-Anchorage area sport catch (1990-2002) and harvest (1983-2002) of freshwater species, and 1983-2002 personal use eulachon harvest.

	Landlocked Salmon			Dolly Varden/Arctic char			Rainbow Trout			Arctic Grayling			Northern Pike			Lake Trout			Eulachon
Year	Catch	Harvest	% Release	Catch	Harvest	% Release	Catch	Harvest	% Release	Catch	Harvest	% Release	Catch	Harvest	% Release	Catch	Harvest	% Release	Harvest
1983		524			3,020			44,678			0								95,606
1984		997			6,981			49,592			262								302,793
1985		399			2,512			43,020			0								268,135
1986		749			2,563			39,864			168								123,954
1987		2,263			2,101			35,259			18								131,584
1988		4,364			3,745			59,864			1,001								139,508
1989		14,483			2,705			53,197			66								103,881
1990	27,767	6,775	76%	9,246	2,257	76%	169,250	58,435	65%	1,449	576	60%							133,027
1991	15,578	10,817	31%	5,127	2,558	50%	122,646	49,303	60%	1,550	238	85%							69,257
1992	28,990	13,985	52%	7,048	3,351	52%	109,208	33,317	69%	3,554	413	88%							42,964
1993	36,072	17,489	52%	7,661	1,793	77%	107,465	29,112	73%	1,362	233	83%							29,865
1994	28,648	13,280	54%	8,729	2,500	71%	100,373	23,631	76%	2,283	634	72%							49,279
1995	17,554	6,034	66%	6,652	1,633	75%	126,866	32,874	74%	573	89	84%							34,058
1996	32,682	13,280	59%	7,703	1,994	74%	139,058	36,148	74%	2,214	293	87%	893	183	80%				21,212
1997	21,490	8,913	59%	5,886	1,590	73%	171,325	37,245	78%	4,555	68	99%	433	220	49%				39,071
1998	25,313	12,601	50%	9,397	1,895	80%	93,443	19,761	79%	1,582	59	96%	551	337	39%				33,637
1999	17,372	7,854	55%	4,799	2,047	57%	163,010	28,776	82%	1,467	158	89%	726	243	67%	5,226	921	82%	44,597
2000	36,723	6,952	81%	14,687	1,416	90%	161,811	35,587	78%	122	10	92%	1,685	1,274	24%	1,335	198	85%	13,488
2001	25,157	9,638	62%	17,258	901	95%	109,620	21,311	81%	510	62	88%	4,848	1,166	76%	650	173	73%	35,909
2002	17,915	6,093	66%	6,786	1,402	79%	91,744	22,478	75%	4,623	747	84%	2,151	1,190	45%	199	199	0%	57,079
93-02 Avg.	25,893	10,213	61%	8,956	1,717	81%	126,472	28,692	77%	1,929	235	88%	1,612	659	59%	1,853	373	80%	35,820

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.



Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.

Figure 7.-Anchorage area sport catch (1990-2002) and harvest (1983-2002) of freshwater species.

evaluating resource management and research activities. Unfortunately, assigning a dollar value to recreational activities is an extremely complex and subjective endeavor. Jones and Stokes Associates (1987) of Sacramento, California completed the first sport fishing economic study of southcentral Alaska for ADF&G. This study was conducted using fishery and economic data from 1986. The purpose of the study was to assess the economic importance of sport fisheries in southcentral Alaska by estimating (1) sport fishing expenditures, (2) economic impacts of angler spending, and (3) non-market values. The study found that, in 1986, anglers spent more than $127 million to participate in southcentral Alaska sport fishing activities. Of this total, $34 million was spent outside Alaska on transportation costs, $44 million was spent in the Anchorage area, $32 million was spent in the Kenai Peninsula area, and the remaining $17 million was spent in other areas of the state (primarily Fairbanks). Money spent in the Anchorage area was for purchases used at sport fishing sites all over the state; therefore it does not represent the value of fishing in the Anchorage area alone. The Anchorage area received a major portion of the money spent in southcentral Alaska because it is the transportation hub of Alaska. In 1986, sport fishing related spending accounted for over 750 jobs in the Anchorage area with $7.5 million in direct earnings. Over 65% of the money spent in Anchorage on sport fishing related goods and services were at retail outlets.

No new study has been conducted to estimate the economic impact of sport fishing in Alaska since the Jones and Stokes study in 1986. It can be assumed the impact on local economies has grown in the last 20 years.

MAJOR ISSUES

Issues currently facing Anchorage area management biologists are both biological and social in nature. As the department develops urban area recreational fisheries to keep up with increasing angler demands, potential conflicts with other resource users arise. Key issues include trespassing and habitat degradation resulting from increased angler activity and increased urbanization. A perceived lack of enforcement is a primary concern with area fisheries. The Ship Creek chinook and coho salmon fisheries, located in the middle of Anchorage's largest industrial area, are well established and continue to grow in popularity. Other social issues include identifying who is responsible for parking, litter, bathroom facilities, and crowd control after fish are stocked and the fishery is in operation.

While the Campbell Creek coho salmon fishery is located primarily within MOA green belt, portions of the stream flow through private residential areas. Some residents are concerned about trespassers and bank erosion and litter. All sections of Campbell Creek that flow through private property are closed to sport fishing year-round.

Several issues have been identified in Turnagain Arm. In the Girdwood area, particularly Glacier and California creeks, there are trespass problems in accessing favored fishing spots, high incidences of snagging, and angler conflicts with Alaska Railroad bridges. Snagging, over-limits, and confirmed cases of gillnetting have occurred in the Twentymile River drainage. Poaching and snagging are also a problem in Lower Railroad slough, and Lower Explorer and Skookum creeks. Creating regulatory closed areas in the upstream reaches of Twentymile and Placer River drainages has helped reduce these problems.

An important statewide issue observed in the Anchorage area is the illegal introduction of invasive species such as northern pike to area lakes. The presence of pike has been confirmed in eight

Anchorage area stocked lakes, and reported in four others. A pike control program, initiated in 2003, includes netting and trapping lakes to reduce pike numbers; increasing public awareness of invasive species; and reducing or eliminating stocking numbers of fish in affected area lakes. The continued presence and increased abundance of northern pike would likely lead to a reduction in recreational opportunity and harvest of stocked species.

In the early 1990s Biological Escapement Goals (BEG) were determined for chinook (250) and coho (200) salmon in Ship Creek, chinook salmon (300) in South Fork Eagle River, and chinook (250) and coho (200) salmon in Campbell Creek. The Policy for Statewide Escapement Goals (5 AAC 39.223.) was adopted in 2001 and many of the existing Anchorage area BEGs failed to meet the established criteria. The Escapement Goal Committee met and dropped or redefined the goals. Campbell Creek is currently managed for Sustainable Escapement Goal (SEG) ranges of 50-700 chinook salmon, and 100-500 coho salmon. Ship Creek chinook and coho salmon are used for brood stock and are managed for egg-take goals of 500 chinook and 1,000 coho salmon.

STOCKING PROGRAM INVENTORY

With limitations on the abundance of wild stocks and increases in fishing effort, Anchorage area sport fisheries have become increasingly reliant on hatchery-produced fish. The recreational fishery harvests fish stocked in area lakes. However, anadromous salmon stocked in area streams become part of the common property fishery and are caught by commercial, subsistence, and personal use fishers as well as sport anglers.

All stocking activities related to state-run hatcheries are conducted under guidelines established in the Statewide Stocking Plan for Recreational Fisheries (ADF&G 2004). The coordination of statewide stocking activities was developed in 1988 to (1) optimize use of hatchery facilities, (2) provide consistency, and (3) establish stocking priorities. The first plan was completed in 1989 after internal and public review and provided statewide stocking locations and schedules for 1989 through 1993 (ADF&G 1989). The current stocking plan provides statewide stocking locations and schedules for 2004-2008.

The current stocking plan calls for 49,000 chinook salmon catchables to be distributed among 11 Anchorage area lakes, and 315,000 chinook salmon smolt to be released into Ship Creek. Ship, Bird and Campbell creeks will receive a share of 415,000 coho salmon smolt. Due to construction of the parking area along the Seward Highway just north of Bird Creek, coho salmon smolt were not released in Bird Creek from 2001 through 2003. Stocking is expected to resume in 2004 with adults returning to provide a fishery in 2005. A total of 81,000 rainbow trout catchables will be distributed among 26 area lakes and two streams (Campbell and Chester creeks). About 4,000 catchable rainbow trout are allotted annually for the April Great Alaskan Sportsman's Show fishing pond. Approximately 4,000 Arctic grayling will be distributed between two Anchorage area lakes (Beach and Symphony lakes). To provide a diversity of opportunity in Anchorage stocked lakes, an arctic char program was initiated in 2002. A significant mortality in the summer of 2002 and low harvest rates of stocked char likely due to warm temperatures in Anchorage lakes suggest they may not be a suitable fish for most area lakes. Starting in 2004 the char stocking program will be reduced from 25,500 to 4,500 catchable-sized char stocked into Sand Lake and Campbell Point Lake, two of the area's deepest, coldest lakes. The individual locations and numbers of all stocked fish per site for 1999-2003 and those proposed for

2004 are listed in Table 7. Historic stocking records for the Anchorage area can be found in Appendix D.

Table 7.-Anchorage area stocking summary from 1999-2003 and proposed stocking for 2004.

	1999	2000	2001	2002	2003	Proposed 2004
Rainbow Trout Catchables						
Alder Pond	2,608	2,072	1,938	2,019	1,500	1,500
Beach Lake	10,312	10,487	8,687	10,095	8,500	10,000
Campbell Creek	3,030	4,563	3,909	2,291	3,000	5,500
Campbell Point Lake	3,027	5,652	5,533	2,561	1,500	2,500
Cheney Lake[a]	10,935	14,473	0	0	0	8,000
Chester Creek[b]	1,000	852	2,335	2,036	2,000	1,000
Clunie Lake	15,417	4,669	8,055	3,932	4,500	9,000
Delong Lake	12,673	14,606	13,190	1,231	8,250	12,250
Dishno Pond	483	0	0	0	0	0
Edmunds Lake	1,009	500	1,000	1,723	2,000	2,000
Fish Lake	2,473	4,135	300	250	250	250
Green Lake	2,870	3,151	2,546	1,500	1,000	1,000
Gwen Lake	3,969	7,394	5,153	2,073	5,000	4,000
Hillberg Lake	2,006	4,802	1,645	1,532	1,750	1,750
Jewel Lake	23,566	15,546	22,544	14,057	12,700	17,350
Lake Otis	1,000	500	500	500	250	250
Lower Fire Lake	2,956	0	3,018	2,976	0	3,000
Mirror Lake	11,299	12,469	20,195	9,299	7,000	8,000
Otter Lake	10,886	10,941	10,159	5,418	6,500	5,500
Rabbit Lake	1,994	0	0	920	0	0
Sand Lake	3,022	4,096	6,201	3,074	2,000	5,000
Spring Lake	500	500	0	500	500	500
Taku Campbell Lake[a]	3,948	7,942	0	2,869	1,000	5,000
Tangle Pond	983	1,000	1,713	1,031	1,000	1,500
Thompson Lake	939	0	977	0	0	0
Triangle Lake	1,007	0	0	500	500	500
Upper Sixmile Lake	4,103	5,066	2,256	2,001	2,000	2,000
Waldon Lake	1,275	1,000	1,574	3,208	1,000	0
Willow (Airstrip) Pond	1,018	1,000	1,906	2,200	2,000	2,000
Total	140,308	137,416	125,334	79,796	75,700	109,350
Landlocked Salmon Catchables						
Beach Lake	2,744	10,709	4,139	3,838	3,900	3,900
Campbell Point Lake	643	0	3,807	2,000	2,000	2,000
Cheney Lake[a]	6,202	0	0	0	0	0
Clunie Lake	4,045	8,819	8,360	8,004	3,000	3,000
Delong Lake	5,644	5,348	5,966	6,207	6,000	6,000
Green Lake	2,006	2,149	998	1,086	1,000	1,000
Hillberg Lake	1,932	2,058	3,308	981	1,000	1,000
Jewel Lake	9,628	9,741	21,792	7,611	16,900	16,900
Mirror Lake	7,749	15,399	10,272	9,683	7,000	7,000
Sand Lake	5,867	5,119	4,945	4,930	4,900	4,900
Taku Campbell Lake[a]	3,052	0	0	0	3,000	3,000
Total	50,012	59,342	63,587	44,340	48,700	48,700

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Table 7.-Page 2 of 2.

	1999	2000	2001	2002	2003	Proposed 2004
Arctic Char Catchables						
Campbell Point Lake	0	1,027	0	2,094	2,000	2,000
Cheney Lake	0	0	0	0	0	0
Clunie Lake	0	0	0	4,387	4,500	0
Mirror Lake	0	2,012	0	4,845	6,000	0
Delong Lake	0	0	0	14,820	4,000	0
Jewel Lake	0	0	0	4,000	4,000	0
Sand Lake	0	0	0	2,522	4,500	2,500
Tangle Pond	0	0	0	503	500	0
Total	0	3,039	0	33,171	25,500	4,500
Arctic Grayling Catchables						
Beach Lake	1,048	0	4,749	4,199	2,000	2,000
Symphony Lake	0	0	2,936	0	0	0
Total	1,048		7,685	4,199	2,000	2,000
Lake Trout Catchables [c]						
Clunie Lake	2,150	0	2,000	0	0	0
Sand Lake	2,022	0	1,296	0	0	0
Total	4,172	0	3,296	0	0	0
Chinook Salmon Smolt						
Ship Creek	197,168	265,582	254,924	290,501	315,000	315,000
Total	197,168	265,582	254,924	290,501	315,000	315,000
Coho Salmon Smolt						
Bird Creek[d]	111,105	97,409	0	0	0	95,000
Campbell Creek	41,926	63,730	69,836	61,323	75,000	50,000
Ship Creek	165,388	260,070	233,563	212,639	240,000	225,000
Total	318,419	421,209	303,399	273,962	315,000	370,000
All Species Total	711,127	886,588	758,225	725,969	781,900	849,550

[a] Cheney and Taku Campbell Lakes were not stocked in 2001 due to illegal introduction of Northern Pike.

[b] Includes fish stocked in University/APU Lake.

[c] Lake Trout stocking program ended in 2001.

[d] Bird Creek was not stocked with coho salmon in 2001-2003 because of parking lot construction.

SECTION II: FISHERIES OVERVIEW

This section discusses Anchorage area sport fisheries. For each major fishery, a discussion is presented on: (1) background and historical perspective, (2) recent fishery performance, (3) management objectives, (4) recent Board of Fisheries actions, (5) current biological and social issues, (6) ongoing research and management activities, and (7) recommended research, management, and access activities. Discussion of recent fishery performance will center on 2002. The major source of data for area fisheries is the SWHS and the most current edition covers the 2002 season. Available observations or data regarding the 2003 fisheries are also presented as available.

STOCKED LAKES

BACKGROUND AND HISTORICAL PERSPECTIVE

Few Anchorage area 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 species present. In the 1960s, the department began a rainbow trout stocking program to increase sport fishing opportunity within the Anchorage area. Approximate locations of stocked lakes can be found in Figure 8.

A creel survey to evaluate the stocking program was conducted during 1986 on four Anchorage area lakes. Results of this survey indicated that youth and adult males were the primary recreational fishers. 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 the area lakes. Data indicated that catch rates remained high for 2 to 6 weeks after stocking, then dropped to below one fish per angler-hour. It was recommended, and adopted, that initial stocking occurs after ice-out and then stocking is repeated in 4 to 6 weeks. Multiple stocking of high use lakes appears to increase fishing success throughout the open water season. The Anchorage Area stocked lakes and streams program has increased sport fishing opportunities for the general public. This increase in opportunity has led to the development of educational fishing classes for youth and adults, the annual ice-fishing jamboree for disabled and underprivileged anglers, and the Ship Creek king and coho salmon derbies that benefit the Foster Grandparents and Senior Companion programs.

Daily bag and possession limits in all stocked area 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 in 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.

RECENT FISHERY PERFORMANCE

In 2002, 113,600 fish were caught in Anchorage area lakes with an estimated harvest of 30,700 (Table 8, Figure 9). Total catch and harvest in area lakes has decreased slightly from its peak in 2000. An estimated 86,700 rainbow trout were caught in area lakes in 2002, and 22,000 were retained (Table 8). Over 18,300 landlocked salmon were caught with a harvest of 6,200 (Table 8). The sport catch of

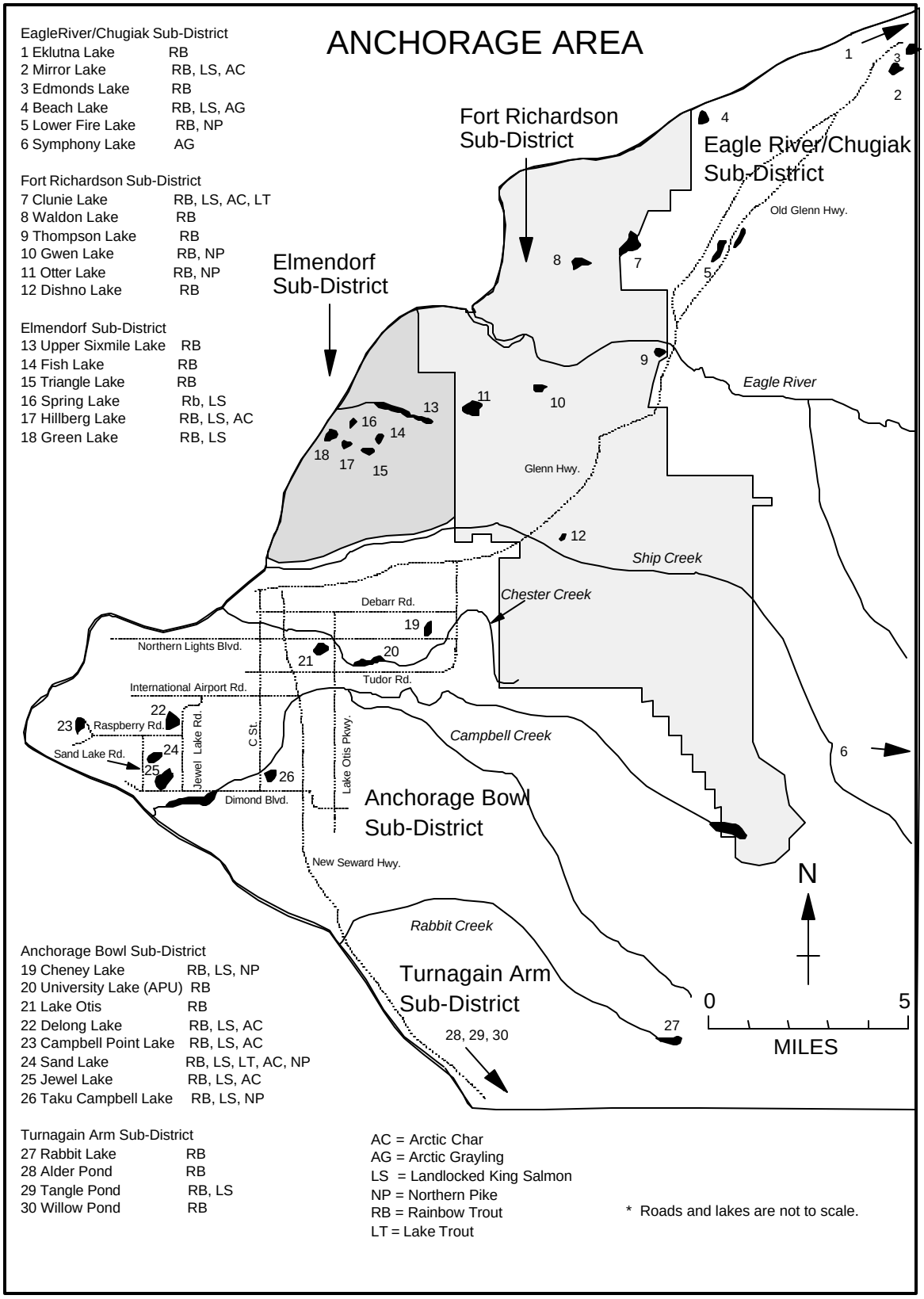
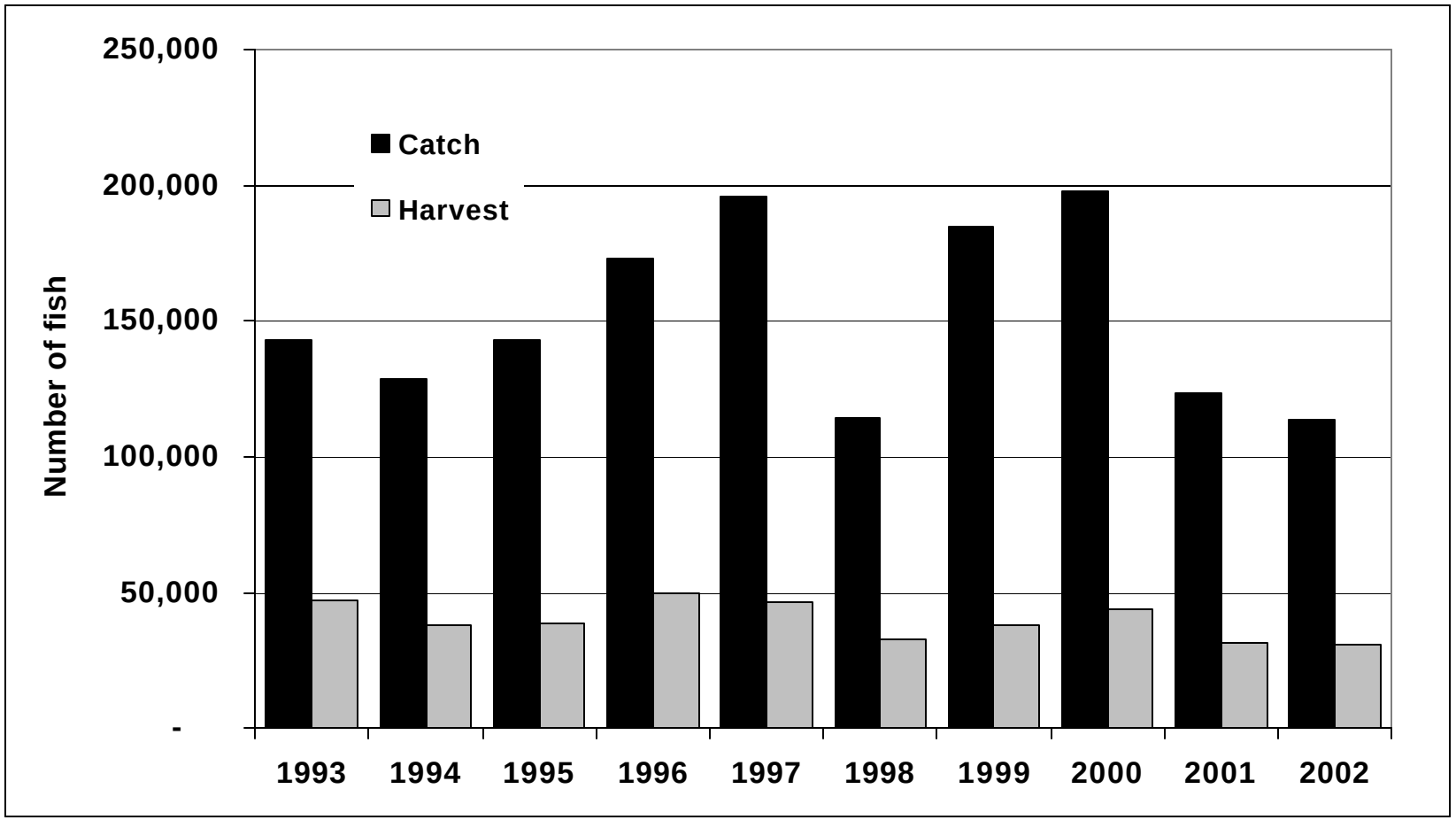


Figure 8.-Anchorage area stocked lakes.

Table 8.-Anchorage area sport catch (1990-2001) and harvest (1983-2002) from lakes by species.

	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
1983		44,311		524		0		315						45,150
1984		47,086		997		0		173						48,256
1985		40,627		399		0		69						41,095
1986		37,339		749		0		168						38,256
1987		34,549		2,263		0		36						36,848
1988		57,372		4,364		819		108						62,663
1989		52,071		14,483		66		731						67,351
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	6,245	4,463	747	2,135	355	2,151	1,190	199	199	114,042	30,735
93-02 Avg.	120,097	27,992	25,936	10,229	1,818	215	2,202	746	1,609	655	1,841	373	151,916	39,789

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.



Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.

Figure 9.-Anchorage area sport catch and harvest (1993-2002) from lakes for all species.

Arctic grayling in stocked lakes was estimated at 4,500 of which only 750 were harvested (Table 8). The 2002 Arctic char sport catch from stocked lakes was estimated at 2,100 with 360 harvested (Table 8). Effort, catch and harvest vary in Anchorage lakes, but the 10-year average (1993-2002) is 151,900 fish caught and 39,800 harvested. News releases and weekly fishing reports outlining lake stocking efforts help keep anglers up to date on the status of area lakes. Stocked lakes provide significant urban angling opportunities in the Anchorage Area throughout the year and have supported 35%-46% of the annual Anchorage area sport fishing effort from 1993-2002 (Table 2). The most popular Anchorage area lakes include Jewel and Cheney in the Anchorage bowl, Otter and Clunie on Fort Richardson, Sixmile on Elmendorf, and Mirror Lake in Peters Creek (Table 4).

Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1-B20.

MANAGEMENT OBJECTIVES

The management objective for Anchorage Area lakes is to maintain 75,000 angler-days effort annually, a goal that has only been met four times in the past 20 years (1983-2002). The 2002 Anchorage lake effort was estimated at 40,200 angler-days. This was the lowest effort since 1968 and follows a trend of decreasing angler-effort since 2000. The most likely reason for this recent drop in effort is greatly reduced stocking levels of resident fish species in all our local stocking programs. Stocking goals, public information programs, news releases, and community school classes are aggressively pursued to attain this goal.

RECENT BOARD OF FISHERIES ACTIONS

In the 2001/2002 BOF cycle meetings no proposals that would impact Anchorage area lakes were discussed.

CURRENT BIOLOGICAL AND SOCIAL ISSUES

Northern pike have been illegally introduced and documented in eight Anchorage area lakes, and reported in four others. Department staff began sampling area lakes with gillnets and spears in May 1996 to determine presence and relative abundance of pike. Pike management continued in 2003 with sampling in Lower Fire, Sand, and Cheney lakes using 30 and 48 ft variable mesh gill nets, baited hoop traps, fyke nets, and spear. Staff harvested a total of 46 northern pike (14 mature pike and 32 juvenile) from the three lakes sampled in 2003. The presence of ADF&G staff targeting 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 pike problem. Educating the public and encouraging anglers to harvest pike is crucial in the Department's efforts to control pike in area lakes. Staff will continue to set gillnets and hooptraps in Lower Fire, Sand, and Cheney lakes, and monitor reports of pike presence in other systems. Results of northern pike movements and predation studies in Cook Inlet can be found in Rutz 1996. The major concern is that additional illegal introductions may occur in other area lakes and reduce the number of stocked fish available to anglers.

Social issues include a public perception of lack of enforcement, litter, trespass, and poor or restricted access to some area lakes.

ONGOING RESEARCH AND MANAGEMENT ACTIVITIES

Aside from pike management and monitoring, no specific research activities are currently being conducted on the Anchorage area lakes. Management activities consist of fisheries stock assessment, coordinating stocking schedules with hatcheries, public information programs, news releases, community schools classes, and enforcement.

From 1995 to present, the department access staff has installed signs at area lake public access points. An Anchorage area lake manual, which includes stocking, catch, and harvest histories as well as bathymetric maps, is available at the Anchorage ADF&G office.

RECOMMENDED RESEARCH, MANAGEMENT, AND ACCESS ACTIVITIES

The success of the lake stocking program, measured in angler effort, for put-and-take fisheries is primarily dependent on catch rates. High catch rates generally lead to increased angler participation and satisfaction. The 1986 creel survey found that most anglers became dissatisfied when catch rates fell below one fish per hour. In 1992, rainbow trout stocking schedules of some high use lakes (Jewel, Delong, and Cheney) were increased to two times per year, and in 2004 Jewel, Delong, and Mirror are scheduled to be stocked three times (just before Memorial Day and 4th of July, around July 30-August 1). Cheney has not been stocked due to introduction of pike.

The area's most heavily fished lakes will continue on the current stocking schedule. The first stocking should be conducted in May with approximately one-third of the total allocation of fish. The remaining allotment of fish should be incrementally stocked in these lakes every 6 weeks. This schedule should provide an initial pulse of fish for the spring fishery. Additional stockings should maintain angler satisfaction by keeping catch rates over one fish per hour through the season.

Stocked lakes should be evaluated individually on a regular basis to determine the value of continued stocking. Other Anchorage area lakes should be evaluated for potential stocking to increase local sport fishing opportunities. Several Portage Valley ponds have been incorporated into the stocking plan in recent years and have provided additional sport fishing opportunities.

Staff needs to regularly update the handout describing Anchorage area sport fishing opportunities available to anglers and additional information available from the Anchorage area web page (http://www.sf.adfg.state.ak.us/statewide/hatchery/stocking_search/HTML/stock_search.cfm). Both provide information on the species stocked, location description of area lakes, access, bathymetric maps, and facilities.

Arctic grayling and Arctic char are stocked in a few local lakes. While SWHS reports small harvests of Arctic grayling from Beach Lake (stocked with catchable-sized grayling until 2003 when they were replaced with fingerling), the harvest varies from year to year. In order to provide angling diversity, 22,000 arctic char were first stocked in area lakes in the spring of 2002. Warm water temperatures resulted in reduced feeding activity, and in a few lakes, significant mortality of char. No large die-offs were reported in 2003, but char do not seem to be well suited to the Anchorage stocking program and will be phased out. The possibility of stocking char in the fall when cooler temperatures may make them a good candidate for ice fishing, or stocking them in two of the deeper lakes to continue offering diversity, is being considered.

Sand and Lower Fire lakes are the only lakes in Anchorage that allow the use of boats equipped with outboard motors. Development of public boat launches in these lakes is being explored.

CHINOOK SALMON FISHERIES

AREAWIDE ASSESSMENT

While several Anchorage area streams support wild chinook salmon stocks, none are large enough to support a freshwater sport fishery. As a result, sport fishing for chinook salmon in streams has been closed with few exceptions. A small chinook salmon fishery occurs in salt water near the mouths of Ship and Bird creeks (Table 9). 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. Only portions of Eagle River and Ship Creek are open to chinook salmon sport fishing.

Recreational chinook salmon fishing in the Anchorage area began in 1987 with the 2-days per week opening of Ship Creek (Appendix A1). This fishery was expanded to 7 days per week in 1991 when over 1,600 chinook salmon were caught with over 1,100 of these harvested. Catch and harvest in 1999 were record highs with 14,300 chinook caught and 5,200 harvested. Estimates for 2002 report a catch of 6,000 and harvest of 2,300 chinook salmon. The Ship Creek chinook salmon fishery is the largest recreational chinook salmon fishery in the AMA and drives the 10-year average catch and harvest for the entire area (Table 9; Figure 10).

Eagle River was first stocked with chinook smolt of Ship Creek origin in 1990 in an attempt to create another urban chinook fishery and opened to king salmon sport fishing in 1992 (Appendix A2). As minimal harvest and participation were documented from 1992-1994 (catch averaged 108 fish, harvest averaged 51; Table 9), the stocking program was dropped in early 1995. The Eagle River king salmon season was reduced in time and area beginning in 1996. The area around the Glenn Highway Bridge remains open to king salmon sport fishing for four "3-day weekends" (Saturday, Sunday, and Monday) beginning Memorial Day weekend. This fishery targets wild fish.

A regulation passed by the Board of Fisheries at the 2000/2001 statewide meeting standardized the definition of jack chinook salmon in freshwater as a chinook salmon less than 20 inches. This superceded existing regulations in the Anchorage area defining jack chinook salmon in freshwater as a chinook salmon less than 16 inches. Limits for chinook salmon less than 20 inches is 10 per day, 10 in possession. Limits for chinook salmon 20 inches or longer in length in Ship Creek and Eagle River are 1 per day per day, 1 in possession. A signed king salmon stamp is required to fish for chinook salmon. Harvest must be immediately recorded in ink on the back of the angler's sport fishing license, and counts toward the Cook Inlet seasonal limit of 5. 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.

Chinook salmon return to Anchorage area streams from late May through early July. Due to the timing of these returns, commercial catches of chinook salmon bound for Anchorage area streams are assumed to be small, and assumed to occur primarily in the June Northern District commercial setnet fishery.

Table 9.-Anchorage area anadromous chinook salmon average sport catch and harvest (1983-2002).

	Ship Creek		Eagle River		Salt Water		Other		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1983		0		0		0	0	2		2
1984		0		25		25	0	24		74
1985		0		0		37	0	24		61
1986		0		0		11	0	22		33
1987		437		0		19	0	29		485
1988		587		0		0	0	76		663
1989		792		28		22	0	108		950
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	1,296	6	7,589	2,421
93-02 Avg.	8,459	3,560	194	99	180	100	627	53	9,460	3,812

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep* .

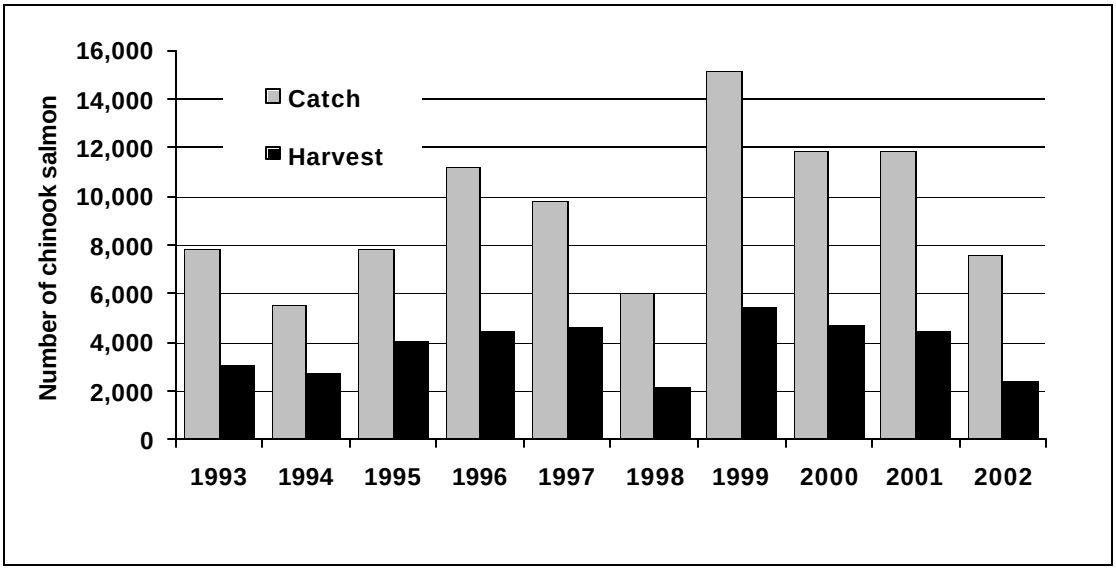


Figure 10.-Anchorage area anadromous chinook salmon average sport catch and harvest (1993-2002)

SHIP CREEK

Background and Historical Perspective

Before World War II, the Ship Creek wild stock chinook salmon run supported sport, personal use, and subsistence fisheries. However, four dams constructed in the lower 11 miles of the creek during the 1940s and 1950s for power generation and as a water source for both MOA and the military bases substantially reduced Ship Creek wild salmon runs. Attempts to enhance Ship Creek salmon runs occurred from 1966 through 1980 when chinook salmon of Alaska and Oregon origin (Miller 1990; Stratton and Cyr 1995) were stocked. 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. More consistent returns of chinook salmon to Ship Creek have been established since 1987 using smolt releases from the Elmendorf Hatchery and Ship Creek chinook salmon brood stock.

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, through increased returns resulting 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.

In recent years, hatchery-produced chinook salmon runs in Ship Creek have provided a unique opportunity for sport anglers to fish in an urban setting. The chinook salmon run is the result of an annual release of approximately 210,000 smolt raised at Elmendorf Hatchery. This release goal was raised to 315,000 in 1999. The periods open to fishing were initially limited to 2 days per week to allow for an orderly fishery and insure that sufficient fish were available for brood stock needs and upstream viewing opportunities. The season was expanded to 7 days a 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 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 ARR and MOA. The Ship Creek King Salmon Derby began in 1993 and has become an annual event that benefits the Foster Grandparents and Senior Companion programs.

Recent Fishery Performance

Harvest and effort of the Ship Creek sport fishery are estimated in SWHS (Mills 1979-1994, Howe et al. 1995-1996, 2001a-d, Walker et al. 2003, Jennings et al. 2004, *In prep*.). The sport catch and harvest of chinook salmon in Ship Creek peaked in 1999 with 14,300 fish caught and 5,200 harvested (Table 9). Sport fish catch and harvest has risen and fallen around the 1999 peak, with a 10-year average (1993-2002) of 8,500 chinook salmon caught and 3,700 harvested from Ship Creek. The 2003 harvest estimate will likely be close to this average. Angling effort in Ship Creek grew significantly until 1992 and has leveled off at an average 48,500 angler-days annually from 1993-2002 (Table 3).

The growth and success of this fishery is largely due to the popularity of the annual Ship Creek King Salmon Derby. Runs to Ship Creek are predicted to average about 5,000 chinook salmon annually.

Total chinook salmon escapement in Ship creek in 2003 was an estimated 2,200 salmon (including fish used for hatchery brood stock) based on stream surveys conducted in June (Appendix C1). Two hundred and eighty three of the 533 chinook salmon collected by Elmendorf Hatchery staff were unsuitable for brood stock. The remaining salmon spawned naturally near the hatchery and provided an opportunity for the public to view spawning chinook salmon.

Although collecting enough brood stock has been a problem for Ship Creek chinook in the past, sufficient brood has been collected since 2000 to meet brood goals and produce the 315,000 smolt for the Ship Creek releases.

Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B10, and B11.

Management Objectives

The management objectives for the Ship Creek chinook salmon fishery are to maintain or increase current angler effort through smolt stocking to generate at least 50,000 angler-days of annual sport fishing opportunity directed at stocked chinook and coho salmon in Ship Creek; and to produce a return of 6,000-9,000 adult chinook salmon to Ship Creek to assure 750 adult salmon are available (passed above the Knik Power Plant Dam) for natural spawning, fish viewing, and meeting egg-take needs. In 2002, Ship Creek produced an estimated chinook salmon return of 3,700 chinook salmon and supported 47,000 angler-days of effort. Present regulations combined with emergency order authority should achieve these management objectives.

Recent Board of Fisheries Actions

A proposal was passed at the 2001/2002 BOF meeting to close the waters of Ship Creek to fishing from 11:00 p.m. to 6:00 a.m. May 15 through July 13. This proposal was intended to help reduce harvest and violations on stocks of Ship Creek chinook salmon and help achieve brood goals.

Current Biological and Social Issues

Besides the sport harvest, there has been an unknown number of chinook salmon illegally harvested between the Chugach Power Plant Dam and Elmendorf Hatchery. Some years this illegal harvest jeopardizes the brood stock and viewing requirements for Ship Creek chinook salmon. Enforcement activities have increased in this area.

Both effort and harvest have increased in the Ship Creek chinook salmon sport fishery. This trend of increased angler participation within such a limited area has created crowding, sanitation, and parking problems along the creek and adjacent ARR and MOA property. As this fishery occurs in a highly industrialized area of the city, potential conflicts exist between land managers and sport anglers.

With a popular annual sport fishing derby in place, a combat type fishery with a carnival atmosphere exists for 10 days during mid June. While only about 500-750 king salmon are officially weighed for the derby annually, the draw of the derby increases angler participation and potentially catches and harvests of king salmon. The department will continue to closely monitor the sport fishery and daily escapement rates.

There has been public concern over water quality and the suitability of Ship Creek fish for human consumption. MOA has monitored water quality in Ship Creek in recent years. Sampling by MOA has shown that Ship Creek water periodically contains high levels of fecal coliform bacteria. Proper cooking of salmon harvested from Ship Creek eliminates any potential health risks fom bacterial pollution. While water quality has improved, pollution from urban activities and development still affects Ship Creek. Most Ship Creek salmon are raised to smolt stage at Elmendorf Hatchery before emigrating to Cook Inlet marine waters. Upon entering Ship Creek as adults, they have ceased feeding. Therefore, ingestion of pollutants is highly unlikely.

The Anchorage Waterways Council (AWC), a local nonprofit organization dedicated to the protection, restoration and enhancement of Anchorage's waterways, initiated the Ship Creek Unplugged project. According to their website, the project's objectives are to: restore the river's natural flows and sediment transport; restore fish passage to the lower 7 miles of Ship Creek; enhance degraded spawning habitat; and increase riparian functions. The council plans to meet these objectives by removing three culverts at the mouth of Ship Creek; removing the Knik Arm Power Plant (KAPP) Dam; removing or modifying the Elmendorf Hatchery Dam; removing or modifying the Fort Richardson Hatchery Dam; and completing several stream bank revegetation projects. ADF&G supports AWC's efforts to restore habitat and enhance Ship Creek, but does not favor modifying or removing the Elmendorf and Fort Richardson Hatchery dams until an alternative water source can be secured to supply hatchery needs. Removing the KAPP dam is likely to significantly impact existing recreational fisheries on Ship Creek. Operating the fish pass in the KAPP dam allows regulation of returning salmon past the dam. Once it is determined that brood stock needs have been met at the Elmendorf Hatchery, closing the fish pass prevents returning salmon from moving through the fishery, past the KAPP dam and upstream into waters closed to salmon fishing. Once they have committed to fresh water, coho salmon in particular tend to move upstream very quickly. If large numbers of hatchery reared salmon passed through the fishery and returned to the hatchery unharvested, ADF&G would reevaluate Ship Creek stocking levels and likely reduce the number of smolt released into Ship Creek so that those fish could be moved to a fishery with a higher harvest potential.

While ADF&G will continue to manage the resource regardless of the size of the fishery, it is recommended AWC work with the Municipality of Anchorage, the Chamber of Commerce, the Ship Creek Fishing Derbies, and local user groups to discuss potential impacts to Ship Creek fisheries. AWC should work to secure access to private land upstream that can be opened to the public and allow angler opportunity.

Ongoing Research and Management Activities

No research activities are planned for the Ship Creek chinook salmon fishery.

Management activities include a variety of tasks necessary to maintain the fishery. Chinook salmon escapements are monitored by management staff and hatchery personnel by foot surveys. Elmendorf Hatchery collects the majority of its brood stock from a fish pass at the facility, but if needed can also collect mature chinook salmon from the live-box at the KAPP dam, and directly from the creek.

Continued coordination with the primary land manager, ARR, is essential to keep the program operating smoothly. This coordination consists of determining facilities (parking, bathrooms, and trash receptacles) and sign needs necessary to control angler activities in a manner consistent with ARR

operations. Enforcement activities are conducted throughout the fishery with an emphasis on the Ship Creek chinook salmon fishery. Management staff participation in the annual derby includes educating derby officials about sport fishing regulations, and loaning the derby officials a Floy tag gun and tags after they receive a collector's permit to catch and mark fish with prize tags.

Recommended Research, Management, and Access Activities

The following activities are recommended for Ship Creek:

1. Continue to monitor escapement levels. Coordinate with Elmendorf Hatchery staff to insure that brood stock goals are met.
2. Continue coordinating with Alaska State Troopers, Anchorage Police Department, and ARR security to show an enforcement presence and deter violations.
3. Efforts should be continued to insure that adequate access, parking, and sanitation facilities are available. The department should take an active role as planning and development of the port area continues.
4. Continue low-level participation in the Ship Creek King Salmon Derby.
5. Meet with Anchorage Waterways Council and user groups on the Ship Creek Unplugged project.
6. Access staff should coordinate the installation of permanent rest rooms, garbage cans, and an informational kiosk on ARR land with MOA.

EAGLE RIVER

Background and Historical Perspective

The Eagle River drainage originates in the Chugach Mountains with most flow contributed by Eagle Glacier. The lower portion of the river flows through flats on Fort Richardson Army Base that were historically used as a large-weapon test firing range and impact area. All 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. That portion of Eagle River upstream from Bailey Bridge to the Glenn Highway bridge is accessed through Fort Richardson. Upstream of Glenn Highway, the river meanders through dedicated greenbelt as part of Chugach State Park. Developed access points on Eagle River are limited. These access sites include: (1) Glenn Highway campground located immediately upstream of Glenn Highway, (2) 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 current nonangling use pattern for Eagle River drainage includes hiking, camping, and whitewater float trips.

The Eagle River drainage was closed to chinook salmon fishing from 1964-1991 (Appendix A2). Wild stock chinook salmon return to the Eagle River drainage during June and early July. Foot surveys of chinook salmon escapement conducted in Eagle River from 1994-2003 have reported an average of 233 chinook annually with a range of 27 to 447 salmon (Appendix C2).

The drainage is relatively unproductive, and due to the population growth in the surrounding area, the department sought to address the problem of limited sport fishing opportunities in the Eagle River area by creating a hatchery chinook 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 fishing conditions, the stocking program was dropped in 1995.

Recent Fishery Performance

Before the chinook salmon fishery opening in 1992, angler effort in Eagle River averaged about 2,300 angler-days from 1982-1991 (Table 3). In 1992, the first year of the chinook fishery, effort was estimated at about 4,900 angler-days; chinook catch was estimated at 109, and harvest was estimated at 48 (Table 9, Figure 10). Approximately 300 wild stock 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 88, and harvest was estimated at 47 (Table 9, Figure 10). The low harvest in 1993 was surprising as over 2,300 hatchery chinook were expected to be available. As the hatchery run failed to materialize and the estimated angler-days of effort were at prestocking levels, the stocking program was dropped in 1995. Practically no effort was noted once water levels increased in mid-June. The fishery was reconfigured by BOF in spring 1996. The area open to chinook salmon fishing was restricted to that portion of Eagle River near 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 1,538 angler-days in 2002. It is thought that this limited fishery will not impact natural chinook salmon runs.

Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B10, and B11.

Management Objectives

Eagle River is managed to allow small levels of opportunity for chinook salmon while ensuring wild stock 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. An escapement goal range (SEG) of 50-300 king salmon was established for South Fork Eagle River based on historic escapement counts from foot surveys.

Recent Board of Fisheries Actions

No BOF proposals specific to Eagle River were submitted for the 2001/2002 meetings.

Current Biological and Social Issues

The limited chinook salmon fishery now in regulation targets naturally-produced fish. The fishery will be monitored through SWHS and spawning escapement counts.

Most of the chinook salmon sport fishing effort occurs within the Eagle River campground. ADNR, the primary land manager, has made considerable improvements in parking and sanitation facilities. Conflicts between other users, canoers, kayakers, campers, etc., have been minimized due to the reduced fishery. Fishing on Ft. Richardson Army Post is allowed from Bailey Bridge upstream to a department marker at the base boundary. Heightened security on Ft. Richardson has made civilian access to this section of the fishery more difficult.

Ongoing Research and Management Activities

No specific research projects are planned for Eagle River.

Management activities for the Eagle River chinook salmon fishery include conducting foot survey chinook salmon escapement counts in South Fork and Meadow Creek. There are no recommended access projects at this time.

Recommended Research, Management, and Access Activities

There are no recommended research, management, or access activities.

OTHER CHINOOK SALMON STREAMS

Chinook salmon return to several other Anchorage area streams. Foot escapement surveys are conducted annually in Campbell and Bird creeks, and in Meadow Creek in 2003. Small numbers of chinook salmon have also been reported in Rabbit, Indian, California (a tributary to Glacier Creek in Girdwood), Peters, and Portage creeks, and Glacier, Carmen, Twentymile, and Placer rivers. All of these streams are closed to chinook salmon sport fishing as the runs cannot support a sport fishery. In most streams, illegal harvests of chinook salmon occur. Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B10, and B11.

Campbell Creek

Campbell Creek, the largest free flowing stream in the Anchorage metropolitan area, supports a small chinook salmon run. This run has averaged 800 fish annually from 1994-2003 with a range from 370 to 1,100 chinook salmon (Appendix C3). The Campbell Creek escapement goal range (SEG) is 50-700 chinook salmon. Although chinook salmon sport fishing has not been permitted in Campbell Creek since statehood (Appendix A3), the department is considering submitting a BOF proposal to allow a limited, weekend only chinook salmon sport fishery if runs continue to increase. Ideally, this fishery would be limited in time and area, and, as there is a small harvestable surplus, would be restricted to youth under 16 years old. Although the BOF does not have the authority to create such a fishery at this time, House Bill 98 currently before the legislature would give the BOF that authority.

The upper reach of Campbell Creek is composed of two tributaries, North and South Forks, which drain 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 largely undeveloped forests and wetlands before converging near Piper Street. Campbell Creek flows through MOA greenbelt and private property from the confluence of the forks downstream to Cook Inlet. It is in this reach of Campbell Creek that the greatest impacts from urbanization have occurred.

In the fall of 2002 a plan was approved to extend Bragraw Avenue from Tudor Road to Abbott Loop Road. This extension will cross the North and South Forks and several small tributaries of Campbell Creek. This extension will also traverse important wet lands. All the streams in the project area are anadromous- most supporting adult spawning, and all supporting rearing juvenile salmonids. To better understand how anadromous and resident fish use these areas and help design a road that minimally impacts fish habitat, studies were conducted during the summer and fall of 2003 and will continue in 2004. Fishery biologists from CH2M Hill are conducting this study with help from ADF&G and ADNR Biologists. The Alaska Department of Transportation (DOT) is looking at three different design

options; all include extensive bridging and an elevated roadbed. The final design will be chosen after the fisheries, wildlife, and habitat studies have been concluded.

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

Bird Creek

Foot survey counts of chinook salmon returning to Bird Creek and its tributary, Penguin Creek, indicate an annual run of 190 chinook salmon from 1994-2003 with a range from 50 to 500 chinook salmon (Appendix C4). A series of falls in Bird Creek approximately one-half mile above the Penguin Creek confluence present a complete barrier to upstream migration. Most chinook salmon are observed within one-quarter 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.

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. Department staff worked with ADNR staff in 1997 to test the feasibility of using Bird Creek chinook 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. Two weirs would need to be built, a semi-permanent camp constructed, and permanent-seasonal personnel would need to be onsite for about 1 month. Only about one-half of the fish counted in the Bird Creek drainage spawn in Penguin Creek. As Bird Creek already has facilities available to handle sport fishers targeting hatchery coho salmon and wild pink salmon, staff should continue to explore the feasibility of stocking Ship Creek origin chinook salmon. Staff will continue to keep Chugach State Park staff, Chugach State Park Citizens Advisory Board, Alaska Sportfishing Association, Alaska Flyfishers, and Turnagain Arm Community Council apprised of this project.

Construction of the new parking area north of Bird Creek began in 2003. The planned parking area and facilities will accommodate an additional 150 vehicles and is scheduled to be completed in the fall of 2004.

Other

Small, wild stock chinook salmon runs are found in 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.

Our best assessment is that these streams support annual chinook salmon runs of less than 100 fish each. These streams are all closed to chinook salmon fishing. The Rabbit Creek chinook salmon run provides viewing opportunities for Potter Marsh visitors in June and July.

Beginning in 1997, USFS the primary land manager, conducted foot surveys to obtain adult salmon escapement counts on six Turnagain Arm streams: Williwaw, Explorer, Upper Railroad, Lower

Railroad, Ingram, and Placer (Bear Valley) creeks (Table 10). To date only six chinook salmon have been observed.

Recommended Research, Management, and Access Activities

Staff should continue participating in the development of the Potter Marsh Coastal Wildlife area. Enforcement activities along streams by department personnel should continue as time allows. Regulations currently allow anglers to catch and harvest chinook salmon less than 20 inches in length in these systems. Although few, if any chinook salmon less than 20 inches have been observed during escapement surveys of area streams, anglers are using this regulation to fish for larger chinook salmon.

As development and urbanization affect area streams, efforts should continue to maintain and improve water quality and fish habitat.

COHO SALMON FISHERIES

AREAWIDE ASSESSMENT

Streams supporting annual runs of coho salmon include Campbell, Rabbit, Bird, Ship, Peters, Glacier, California, and Portage creeks and Eagle, Eklutna, Twentymile, and Placer rivers. According to SWHS, the largest Anchorage area coho salmon sport fisheries occur in Bird, Campbell, and Ship creeks and Twentymile River. Ship Creek and Bird Creek contribute significantly to the area's average catch and harvest (Table 11, Figure 11). Twentymile River supports wild coho salmon, Bird, Campbell, and Ship Creek runs are primarily hatchery produced. In the waters open to fishing for coho salmon, limits for salmon, other than king salmon, 16 inches or greater in length are 3 per day, 3 in possession, only 2 of which may be coho 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.

The most popular recreational coho salmon fisheries in the Anchorage area have developed from hatchery enhancement programs. Stocking efforts using coho salmon fingerlings were conducted in Ingram Creek from 1985-1990 in an attempt to establish a coho salmon sport fishery, but poor release sites resulting in weak returns caused this program to be discontinued. An urban coho project was initiated in 1991 to provide additional recreational fishing opportunities by stocking coho salmon smolt in several other urban area streams. This program identified seven streams to receive stocked anadromous coho salmon in the Northern Cook Inlet (NCI) area (Hoffmann and Hasbrouck 1994). Three of these streams, Ship, Bird and Campbell creeks, are in the Anchorage area; the other four, Fish, Wasilla, and Cottonwood creeks, and Little Susitna River are in the Palmer/Wasilla urban areas. Of the Anchorage area streams, Ship Creek already received stocked fish, but the numbers were increased to provide additional angling opportunities. Bird Creek, which had a limited wild coho salmon fishery, was augmented through stocking to provide additional opportunities. Finally, Campbell Creek was stocked to provide a new fishery that opened in 1993.

Prior to the Urban Coho stocking program, the highest total coho salmon harvest (6,600 coho salmon) occurred in 1988 (Table 11, Figure 11). In 2002, 41,200 coho salmon were caught in area sport fisheries and 26,300 of these fish were harvested. The recent increase in Anchorage area coho salmon sport harvest is directly related to increased sport fishing effort on Ship, Campbell, and Bird creeks due

Table 10.-Salmon escapement counts from foot surveys performed by U. S. Forest Service personnel in selected Turnagain Arm streams, 1998-2002.

Stream	Salmon Species					
	Chinook	Sockeye	Pink	Chum	Coho	Total
1998						
Twentymile River Drainage[a]	0	0	0	0	2,000	2,000
Portage Creek Drainage						
Williwaw Creek (includes Five-Fingers)	1	575	40	1,165	0	1,781
Explorer Creek	0	285	0	0	400	685
Upper Railroad Slough	0	150	350	24	1	525
Lower Railroad Slough			no counts conducted			
Bear Valley	0	180	0	45	0	225
Ingram Creek	1	0	6,600	3	6	6,610
1999						
Twentymile River Drainage[a]	0	0	0	0	310	310
Portage Creek Drainage						
Williwaw Creek (includes Five-Fingers)	0	6,001	4	315	0	6,320
Explorer Creek	0	111	0	2	100	213
Upper Railroad Slough	0	89	0	17	35	141
Lower Railroad Slough			no counts conducted			
Bear Valley	0	142	0	15	0	157
Ingram Creek	0	0	108	0	0	108
2000						
Twentymile River Drainage[a]	0	0	0	0	1,100	1,100
Portage Creek Drainage						
Williwaw Creek (includes Five-Fingers)	0	465	131	175	0	771
Explorer Creek	0	43	1	0	86	130
Upper Railroad Slough	0	455	1,000	75	75	1,605
Lower Railroad Slough			no counts conducted			
Bear Valley	0	103	0	28	0	131
Ingram Creek	0	0	844	0	25	869
2001						
Twentymile River Drainage[b]	0	0	0	0	550	550
Portage Creek Drainage						
Williwaw Creek (includes Five-Fingers)	0	612	1	1,074	2	1,689
Explorer Creek	0	230	0	0	132	362
Upper Railroad Slough	0	50	10	2	25	87
Lower Railroad Slough			no counts conducted			
Bear Valley	0	354	0	156	0	510
Ingram Creek	0	0	177	1	21	199
2002						
Twentymile River Drainage[b]	2	30	10	50	1,000	1,092
Portage Creek Drainage						
Williwaw Creek (includes Five-Fingers)	1	650	24	2,715	410	3,800
Explorer Creek	0	203	0	4	2,017	2,224
Upper Railroad Slough	0	358	211	201	775	1,545
Lower Railroad Slough			no counts conducted			
Bear Valley	1	871	0	487	23	1,382
Ingram Creek	0	0	1,100	0	18	1,118

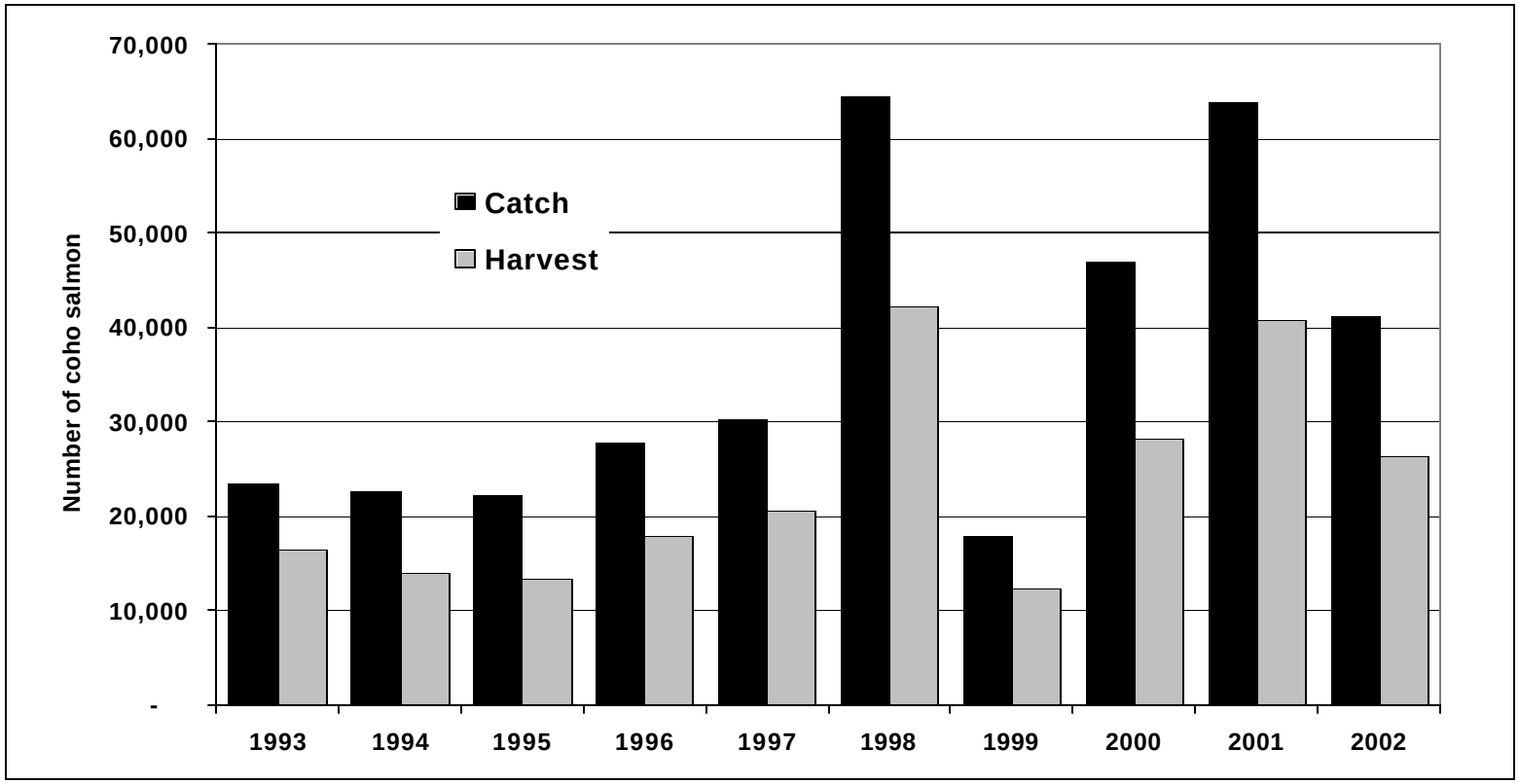
[a] Upper Twentymile Branch.

[b] Flew Upper Basin.

Table 11.-Anchorage area anadromous coho salmon sport catch (1990-2002) and harvest (1983-2002).

	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
1983		94		94		0		712		324		314		1,538
1984		312		324		0		1,297		498		337		2,768
1985		236		373		0		709		149		535		2,002
1986		89		994		0		1,765		436		135		3,419
1987		779		761		0		1,050		253		72		2,915
1988		2,128		1,710		0		2,055		746		0		6,639
1989		1,467		899		28		1,715		543		82		4,734
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
93-02 Avg.	14,876	9,732	10,808	7,671	3,513	1,527	3,634	2,321	2,661	1,542	566	368	36,057	23,160

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.



Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.

Figure 11.-Anchorage area anadromous coho salmon average sport catch and harvest (1993-2002).

to hatchery stocking, and on natural stocks in Twentymile River. Coho salmon return to area streams from mid-July through mid-October. Stocked stream runs peak in mid to late August, while Turnagain Arm runs peak in mid-September. Detailed estimates of stocked coho salmon caught in selected upper Cook Inlet (UCI) commercial fisheries can be found in Hoffmann and Hasbrouck (1994), Stratton et al. (1996), Cyr et al. (1997, 1998) and Bosch et al (*In prep*).

Poor returns of coho salmon to many systems in UCI in 1997-2000 resulted in closures of the UCI 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 runs in 2000-2002. The 2000-2002 estimated catches of coho salmon in the Anchorage area are 3 of the 4 highest years ever recorded.

SHIP CREEK

Background and Historical Perspective

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 creek for power generation and as a water source for MOA and military during the 1940s and 1950s significantly reduced Ship Creek salmon runs. To rebuild these runs, the creek was stocked annually with coho salmon smolt from 1968-1977. These efforts proved unsuccessful in providing consistent numbers of returning adults. Nine different brood stocks 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 and the resultant fry were reared to smolt at Fort Richardson Hatchery. No coho salmon smolt were released in Ship Creek from 1978-1986. From 1987-1994, the department 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 brood stock 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 1957-1959, and again from 1964 to present (Appendix A1). Currently, only the reach downstream of the Chugach Power Plant Dam is open to salmon fishing. Hatchery-supported coho salmon returns to Ship Creek in recent years have provided a unique opportunity for anglers to fish for and harvest coho salmon in an urban setting.

Recent Fishery Performance

Performance of the Ship Creek sport fishery has been estimated in SWHS (Mills 1979-1994, Howe et al. 1995-1996, 2001a-d, Walker et al. 2003, Jennings et al. 2004, *In prep*) since 1977. The Ship Creek coho salmon sport harvest has ranged from less than 100 fish (1983 and 1986) to 26,400 fish in 2001 with a 10-year (1993-2002) average annual harvest of 9,700 coho salmon (Table 11). The recent 3-year average (2000-2002) is significantly higher with 28,000 coho salmon caught and 18,300 harvested. An emergency order (EO 2-55-2-27-02) was issued August 8, 2002 increasing the limits for coho salmon to 6 per day, 6 in possession. The 2003 harvest is again expected to be above the 10-year average. The Ship Creek Silver Salmon Derby began in 1995 and has been held annually in

August. This derby was well received by the angling public and is partly responsible for the increased popularity of the Ship Creek coho salmon fishery.

By mid August 2003 a total of 1,170 coho salmon were counted through the fish trap in the Knik Arm Power Plant Dam, although a foot survey of Ship Creek on August 22 only counted 200 coho in the system (Appendix C1). About 300 adult spawners are typically required for egg-take needs, the remainder are allowed to spawn naturally in the creek. Although over 1,000 coho were passed through the dam, only 316 mature coho salmon were available to be collected by the hatchery, and only 216 of these were suitable for brood stock. Brood goals were not met in 2003 and are projected to result in a 9.8% loss in 2005 smolt releases for Ship, Campbell and Bird creeks. Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B12, and B13.

Management Objectives

The Ship Creek coho salmon fishery management objectives are to produce a return of 12,000 adult returning coho salmon to Ship Creek while assuring 1,000 coho salmon are available (past the Knik Arm Power Plant Dam) for natural spawning, fish viewing and providing for egg-take needs; and 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. In 2002 the Ship Creek return was an estimated 18,000 coho salmon with 47,000 angler-days of effort expended on Ship Creek. 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.

Recent Board of Fisheries Actions

No BOF proposals specific to Ship Creek coho salmon were submitted for the 2001/2002 meetings.

Current Biological and Social Issues

The Ship Creek coho salmon sport fishery has evolved in recent years. Effort has increased resulting in strong catches and harvests since 1999. The recent 3-year average (2000-2002) of 28,400 coho salmon caught and 18,300 harvested is significantly higher than the 10-year average (1993-2002) of 14,900 coho salmon caught and 9,700 harvested (Table 11). This trend of increasing angler participation within a limited area creates crowding, sanitation, and parking problems along the creek and adjacent ARR and MOA property. The coho salmon sport fishery takes place in a highly industrialized area of the city. The potential for conflict exists between sport anglers and land managers including ARR 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.

There has been public concern over water quality and the suitability of Ship Creek fish for human consumption. MOA has monitored water quality in Ship Creek in recent years. Sampling by MOA has shown that Ship Creek water periodically contains high levels of fecal coliform bacteria. Proper cooking of salmon harvested from Ship Creek eliminates any potential health risks from bacterial pollution. While water quality has improved, pollution from urban activities and development still affects Ship Creek. Most Ship Creek salmon are raised to smolt stage at Elmendorf Hatchery before emigrating to Cook Inlet marine waters. Upon entering Ship Creek as adults, they have ceased feeding. Therefore, ingestion of pollutants is highly unlikely.

The Anchorage Waterways Council (AWC), a local nonprofit organization dedicated to the protection, restoration and enhancement of Anchorage's waterways, initiated the Ship Creek Unplugged project. The project's objectives are to: Restore the river's natural flows and sediment transport; restore fish passage to the lower 7 miles of Ship Creek; enhance degraded spawning habitat; and increase riparian functions. The council plans to meet these objectives by removing three culverts at the mouth of Ship Creek; removing the Knik Arm Power Plant (KAPP) Dam; removing or modifying the Elmendorf Hatchery Dam; removing or modifying the Fort Richardson Hatchery Dam; and completing several stream bank revegetation projects. ADF&G supports AWC's efforts to restore habitat and enhance Ship Creek, but does not favor modifying or removing the Elmendorf and Fort Richardson Hatchery dams until an alternative water source can be secured to supply hatchery needs. Removing the KAPP dam is likely to significantly impact existing recreational fisheries on Ship Creek. AWC should work to secure access to private land upstream that can be opened to the public and allow angler opportunity. It is also recommended AWC work with the Municipality of Anchorage, the Chamber of Commerce, the Ship Creek Fishing Derbies, and local user groups to discuss potential impacts to Ship Creek fisheries.

Ongoing Research and Management Activities

Management activities consist of a variety of tasks necessary to maintain the fishery. Escapement counts are conducted annually to assure achievement of brood and escapement goals. Coordination with ARR occurs to keep the program operating smoothly and includes determination of necessary facilities (parking, bathrooms, and trash receptacles) and signs needed to control angler activities in a manner consistent with ARR operations. Enforcement activities are also conducted during the Ship Creek fisheries and are becoming a higher priority.

Coho salmon escapements are monitored by department foot surveys.

Recommended Research, Management, and Access Activities

The following activities are recommended for Ship Creek:

1. Continue to monitor escapement levels. Coordinate with Elmendorf Hatchery staff to insure that brood stock goals are met.
2. Continue coordinating with Alaska State Troopers, Anchorage Police Department, and ARR security to show an enforcement presence and deter violations.
3. Efforts should be continued to insure that adequate access, parking, and sanitation facilities are available. The department should take an active role as planning and development of the port area continues.
4. Continue low-level participation in the Ship Creek Coho Salmon Derby.
5. Meet with Anchorage Waterways Council and user groups on the Ship Creek Unplugged project.
6. Access staff should coordinate the installation of permanent rest rooms, garbage cans, and an informational kiosk on ARR land with MOA.

CAMPBELL CREEK

Background and Historical Perspective

While wild coho salmon return to Campbell Creek during August and September, the number of returning adults was insufficient to support a viable sport fishery. Coho salmon hold in Campbell Lake, which is closed to all fishing, before moving into the creek. Most fish migrate upstream of Lake Otis Parkway, and spawn in both North and South Forks. Campbell Creek coho salmon escapement surveys averaged 159 fish annually from 1986 to 1992, before returns of hatchery fish (Appendix C3). Campbell Creek historically supported annual coho salmon runs greater than observed in the early 1990s. The reduction of Campbell Creek coho salmon runs were 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. Campbell Creek now supports a small coho salmon fishery and recent escapements of coho salmon (1994-2003) have averaged 2,500 coho salmon.

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 Anchorage area. The number of coho smolt stocked annually was reduced to 75,000 beginning in 1996. Campbell Creek was opened to coho salmon fishing in 1993 for the first time since 1971 (Appendix A3). 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.

Recent Fishery Performance

Campbell Creek was closed to salmon fishing for a number of years. Small, illegal coho salmon fisheries occurred at the mouth of Campbell Creek and between Campbell Lake and Lake Otis Parkway. The coho salmon fishery opened in 1993. A BEG of 200 fish was set for Campbell Creek coho salmon, and a weir was operated on Campbell Creek from 1993 to 1994 to count returning adult salmon. An escapement of 2,300 fish was observed during 1993 weir operations (Appendix C3), catch was estimated at 6,900 coho salmon and harvest was estimated at 4,000 (Table 11). The estimates of the 2002 Campbell Creek coho salmon fishery are 3,000 fish caught with a harvest of 1,100. That is just below the previous 10-year (1992-2001) average of 3,200 coho salmon caught and 1,400 harvested.

A map of lower Campbell Creek and areas open to coho salmon sport fishing can be found in Figure 12.

Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B12, and B13.

Management 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 generate 7,500 angler-days of annual sport fishing opportunity directed at stocked coho salmon in Campbell Creek. The fishery will be managed to maintain historic escapement levels with an escapement goal range (SEG) of 100-500 coho, and provide continued natural production and viewing opportunities. In 2002, the fishery generated an

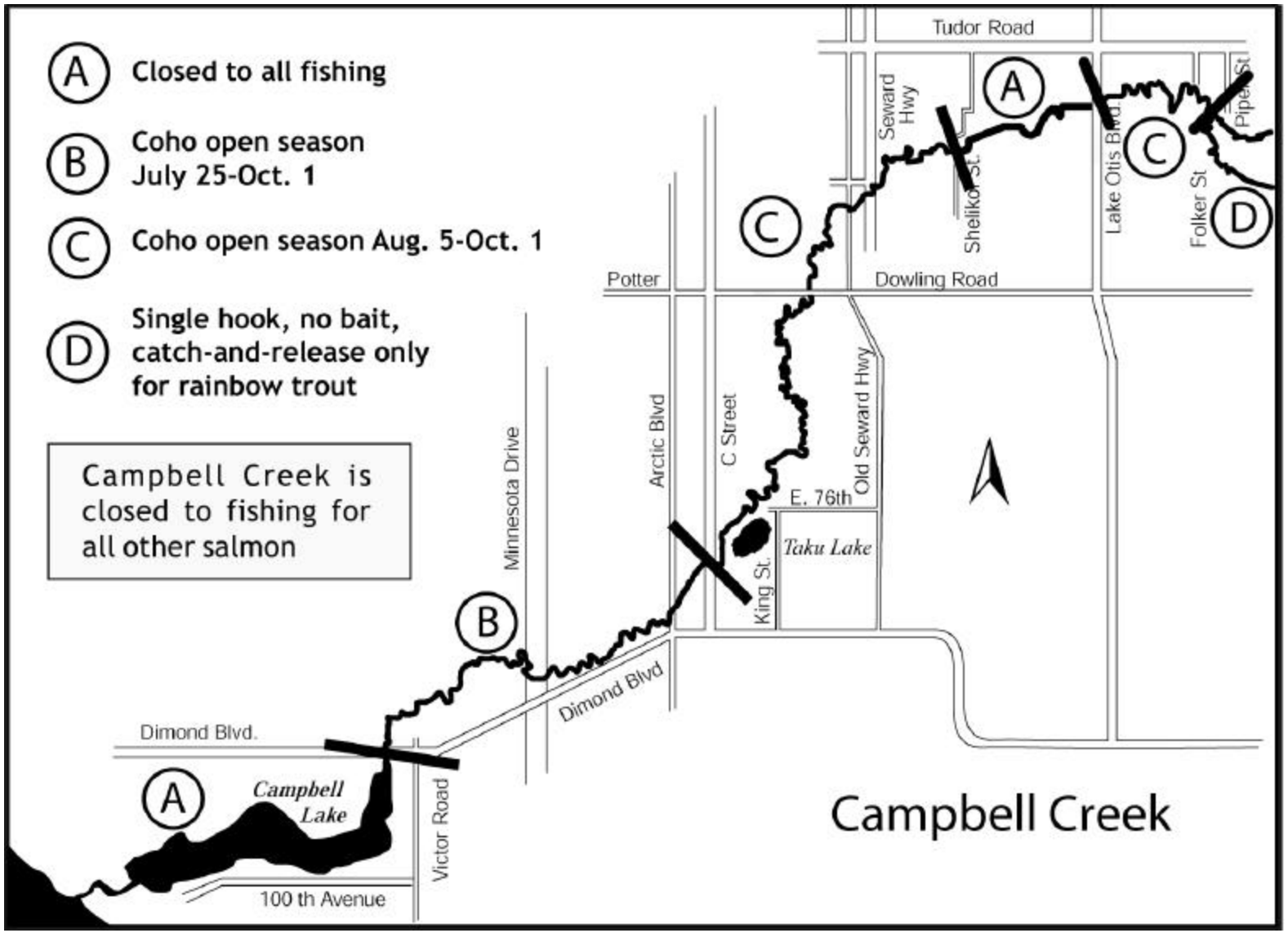


Figure 12.-Lower Campbell Creek drainage and area open to coho salmon sport fishing.

estimated 4,600 angler-days (this estimate is likely very low due to the large number of anglers under 16 years of age that utilize this fishery; the SWHS estimates are based on mail-in surveys sent to anglers who purchased sport fishing licenses and would not include these young anglers) with an estimated return of 2,900 adult coho salmon.

Recent Board of Fisheries Actions

No BOF proposals specific to Campbell Creek coho salmon were submitted for the 2001/2002 meeting.

Current Biological and Social Issues

Poaching is now the number one issue on Campbell Creek, followed by habitat and bank degradation. The same qualities that make an appealing fishery to anglers, an urban fishery winding through the green belt with excellent access along the bike trail, also make Campbell Creek an appealing spot for violators. Department staff will continue to monitor the creek during peak fishery times and work closely with Troopers and the Anchorage Police Department to show an enforcement presence and increase compliance with regulations.

Ongoing Research and Management Activities

The Campbell Creek coho salmon escapement will be estimated via foot surveys as part of the NCI urban coho salmon project.

Recommended Research, Management, and Access Activities

As the Campbell Creek coho salmon sport fishery continues to develop, it is necessary to work with MOA Parks and Recreation, area Advisory Committees, Community Councils, and property owners along the Campbell Creek greenbelt to monitor the fishery and address potential problems as they arise. Coordination with MOA Parks and Recreation and the Anchorage ADF&G Fish and Game Advisory Committee will continue.

Coho salmon escapement surveys should be continued to provide baseline data necessary for evaluation of the stocking program.

Enforcement activities by area staff will continue.

There are no access recommendations at this time.

BIRD CREEK

Background and Historical Perspective

Little historic information is available for Bird Creek coho salmon. The first foot surveys were made in 1986 with three coho salmon observed. Foot surveys conducted from 1990 through 1992 indicted escapements ranging from nine to 101 coho salmon (Appendix C4). 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. This stocking is part of the urban coho salmon project aimed at increasing coho salmon angling opportunities in the Anchorage area. The first return of adult coho salmon from stocking efforts occurred in 1993.

Bird Creek is open to sport fishing from department markers approximately 500 yards upstream of the Seward Highway Bridge downstream to the mouth of the creek. A marker approximately 400 yards

upstream of 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 ADNR, 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 sport fishing in Bird Creek is the intertidal reach, and coho salmon are harvested from late July through mid-September. Harvest information from 1983 through 2002 ranged from 94 to 22,400 coho salmon (Table 11). Given the low observed escapements, it was assumed that most of the Bird Creek wild coho salmon harvest was from fish bound for other Turnagain Arm streams that milled in the intertidal portion of Bird Creek. Bird Creek is also a very popular pink salmon fishing spot and ADNR, the primary land manager, has developed parking, camping, barrier free access, and sanitation facilities.

Recent Fishery Performance

The first returns from hatchery stockings in 1993 resulted in a catch of 7,800 and harvest of 6,200 coho salmon (Table 11). The fishery grew to a peak catch of 33,500 with a harvest of 22,500 in 1998. Fishery performance is linked closely to the number of hatchery-reared smolt released for the fishery. Three hundred thousand coho salmon smolt were released in 1997 resulting in high catch rates the following year (Appendix D). The fishery continued to do well until 2002, when the catch dropped to 1,500 coho salmon of which 1,000 were harvested. This decline in fishery performance was due to Bird Creek not being stocked in 2001. Construction of a 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 in 2001-2003. The planned parking area and facilities will accommodate an additional 150 vehicles and is scheduled for completion in the fall of 2004. The coho smolt that were not released in 2001 would have returned as adults in 2002 accounting for the poor catches that year. Coho smolt stocking is planned to resume in 2004 with adult coho returning to the fishery in 2005.

While harvest estimates for 2003 are not yet available, observations during the coho salmon sport fishery and the fact that it was not stocked with coho salmon in 2002 indicate the catch and harvests will be low, likely comparable to the 2002 estimates. Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B12, and B13.

Management Objectives

The Bird Creek coho salmon fishery was established to provide additional angler opportunities in Anchorage; 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 (1993-2002) of effort expended at Bird Creek is 13,600 angler-days (Table 3) with an average catch of 10,800 coho salmon and harvest of 7,700 (Table 11). 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.

Recent Board of Fisheries Actions

No BOF proposals specific to Bird Creek coho salmon were submitted for the 2001/2002 meeting.

Current Biological and Social Issues

Little Susitna River coho salmon brood stock is used to develop the Bird Creek fishery. No attempts were made to collect wild Bird Creek coho salmon for brood stock as natural production is very low. As Bird Creek historically produced few coho salmon, there are no genetic concerns.

A substantial amount of parking and sanitation facilities already existed prior to stocking, and as the fishery occurs in the intertidal reach, there are no habitat concerns. Additional parking is currently under construction just north of Bird Creek and should accommodate an additional 150 vehicles. Reports of snagging, overlimits, and trespass incidents are occasionally received.

Ongoing Research and Management Activities

The Bird Creek drainage coho salmon escapement will be estimated via foot surveys as part of the NCI urban coho salmon project.

Recommended Research, Management, and Access Activities

As the Bird Creek coho salmon sport fishery develops, it will be necessary to work with ADNR, Chugach State Park, Advisory Committees, Community Councils, and property owners along the creek to monitor the fishery and address potential problems as they arise. Coho salmon foot escapement surveys should be continued to provide baseline data necessary for evaluation of the stocking program.

Enforcement activities by area staff will continue as time permits.

Access staff should continue to work with ADNR and DOT staff to improve sanitation at this site.

TURNAGAIN ARM

Background and Historical Perspective

Upper Turnagain Arm is unique in that it supports diverse sport and personal use activities in close proximity to Anchorage, primarily targeting eulachon, Dolly Varden, and coho salmon. Some fisheries are accessible by highway vehicle while others are limited to jet boat access. Angler activities on these streams range from high to low use. While Turnagain Arm produces the largest wild stock coho salmon runs in the Anchorage Management Area, only anecdotal information is available on run timing and abundance of these stocks. Wild coho salmon return to several Turnagain Arm streams from late July through mid-September and fresh fish are often available into October. The Twentymile River drainage supports the largest and most popular recreational coho salmon fishery in the Turnagain Arm area. The upper reaches of Twentymile, Glacier River, and Carmen River are closed by regulation to all salmon fishing after July 14. Harvest and angler participation have increased in recent years and need to be more closely monitored.

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 by regulation. The limited available escapement information suggests that while these systems can support small sport fisheries they should continue to be monitored to ensure sustainability.

Ingram Creek in Turnagain Arm supports a small natural coho salmon run. In the mid-1980s, a channel connecting the large pond between Placer River overflow channel and Ingram Creek was dug, and a water control structure installed. ADF&G and USFS, Glacier Ranger District in Girdwood, stocked this pond with 72,000-160,000 coho salmon fingerlings (reared at Crooked Creek Hatchery) annually

between 1985-1990 in an effort to create a coho salmon sport fishery. The stocked coho salmon fingerlings reared and overwintered in the pond and emigrated the following spring as smolt into Turnagain Arm. While outmigrant weirs operated by the USFS found that the growth and survival of the fingerlings to the smolt stage were good, adult returns were very low. Ingram Creek coho salmon fingerling stocking efforts were canceled in 1991.

Coho salmon are also harvested in California, Glacier, Ingram, Peterson, and Placer creeks and several Portage Valley streams. No escapement information has been collected from these streams by the department and limited information has been collected by USFS.

Recent Fishery Performance

The coho salmon fishery in Twentymile River has remained fairly steady with a 10-year average (1993-2002) catch of 3,600 coho salmon and a harvest of 2,300. The fishery peaked in 2000 with a catch of 5,000 and a harvest of 3,000 coho salmon. That was followed by another strong year in 2001 with a catch of 5,700 coho, 2,700 of which were harvested. The 2002 estimates are also in the upper part of the historical range with a catch of 4,000 coho salmon and harvest of 2,700 (Table 11). Department aerial surveys of selected Turnagain Arm streams began in 1994 to index escapements of these systems (Table 12).

Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B12, and B13.

Management 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.

Recent Board of Fisheries Actions

Two proposals regarding Turnagain Arm fisheries were considered by the BOF in the 2001/2002 meeting.

Proposal 354 sought to change the time and area allowed for fishing in Indian Creek. The amended language adopted by the Board opens the waters of Indian Creek downstream of the Seward Highway bridge to all species except king salmon 20 inches or greater all year, and opens the waters above the bridge from January 1-June 30 for species other than salmon.

Proposal 355 sought to change the time and area allowed for salmon fishing in Glacier Creek by opening the waters downstream of the Alyeska Road bridge to fishing for salmon year-round. The Board did not pass the proposal.

Current Biological and Social Issues

Turnagain Arm streams are growing in popularity. The main objective is to provide angler opportunity while ensuring an adequate number of fish reach the spawning grounds. Significant access and parking area improvements have been made at Ingram Creek. The Twentymile and Placer rivers parking sites are small and provide limited access. Access to both of these rivers is primarily by jet or airboat. Most sport fishing activity takes place at the confluence of clearwater streams and sloughs flowing into the glacially turbid rivers. While a few shore anglers fish Twentymile and Placer rivers and their tributaries, they must trespass across ARR property to access fishing areas.

Table 12.-Coho salmon escapement index counts from aerial surveys in selected Turnagain Arm streams, 1994-2003.

Stream	1994	1995	1996	1997	1998	1999	2000	2001[e]	2002	2003
Twentymile River Drainage										
Ahjo Creek	75	65	0	0	60	0	0	NS	6	12
NE Fork	75	210	275	140	260	110	975	NS	110	238
Mainstem	780	560	940	770	2,500	470	1,920	NS	77	NC
Beaver Pond	NC[a]	120	30	90	80	260	110	NS	NS	0
Glacier River	50	0	NC[a]	NC[a]	40	NC[a]	NC[a]	NS	208	12
Upper Carmen River	0	0	0	NC[a]	14	NC[a]	0	NS	25	20
South Fork Carmen River	6	0	0	NC[a]	0	NC[a]	0	NS	50	0
Total	986	955	1,245	1,000	2,954	840	3,005		476	282
Portage Creek Drainage										
Mainstem	NC[a]	NC[a]	NC[a]	NC[a]	NC[a]	NC[a]	NC[a]	NS	NC[a]	0
Upper Railroad Slough	0	210	120	NC[b]	540	NC[c]	50	NS	NS	0
Lower Railroad Slough	0	40	60	75	330	NC[c]	180	NS	150	10
Placer Creek	0	57	10	5	NC[d]	0	0	NS	107	16
Total	0	307	190	80	870	0	230		257	26
Placer River Drainage										
Sloughs and Mainstem	55	90	45	110	370	70	280	NS	2,283	492
Skookum Creek	750	720	410	420	1,480	310	1,225	NS	1,820	200
Total	805	810	455	530	1,850	380	1,505		2,698	692

Note: NS- No Survey

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.

Ongoing Research and Management Activities

The Twentymile and Placer rivers drainages and Portage Valley drainages were incorporated into the Urban Coho project in 1995. Aerial surveys have been flown to index coho salmon abundance (Table 12). USFS, the primary land manager, conducts foot surveys to obtain adult salmon escapement counts on six streams: Williwaw, Explorer, Upper Railroad, Lower Railroad, Ingram, and Placer (Bear Valley) creeks (Table 10). Coho salmon were counted in three of these streams.

Recommended Research and Management Activities

Escapements on Turnagain Arm streams are assessed with aerial surveys performed by department staff and foot surveys performed by department and USFS staff. These streams include Twentymile River drainage (mainstem, tributaries, sloughs, and both Carmen River forks), Portage Creek drainage (Upper

and Lower Railroad sloughs, Williwaw, and Placer creeks), Placer River drainage (Lower Explorer and Skookum creeks, and sloughs), and Ingram Creek. Recreational effort and harvest is estimated by SWHS although some of these fisheries are small and only get a few respondents.

Ingram Creek appears to be an ideal candidate for smolt stocking. The ponds east of Ingram Creek were stocked with coho fry in the late 1980s, survival to smolt was good, but adults failed to return. DOT constructed several pull-outs along Seward Highway in anticipation of a fishery that did not develop. The department has had excellent success with coho salmon smolt releases and it is recommended that another attempt be made to create a viable Ingram Creek coho fishery using a Turnagain Arm brood source and smolt releases. Obstacles to establishing this fishery are the lack of hatchery space available for the rearing of additional coho smolt, and determining if existing coho stock from Little Susitna would be considered a "local stock." Egg takes from a nearby wild stock to establish a Turnagain Arm stock would likely be cost-prohibitive. Department staff should continue to work with USFS staff in planning any Turnagain Arm enhancement work.

OTHER COHO SALMON STREAMS

Chester Creek supports a native Dolly Varden population and is stocked annually with sterile rainbow trout catchables. Considerable public attention has focused on Chester Creek in the past years. An effort has begun to revitalize the stream's salmon runs and staff have attended community council and public meetings discussing these issues. Plans are underway through MOA and ARR to reconstruct the fish pass and restore Chester Creek to its natural state downstream of the lagoon. When completed, these enhancement measures will likely increase the number of salmon instream. At this time, there is no public support to stock salmon into Chester Creek.

Several other Anchorage area 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. Fisheries are present in Eklutna, Ingram, California, and Glacier creeks. It is recommend that surveys of these area 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. Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B12, and B13.

PINK SALMON FISHERIES

AREAWIDE ASSESSMENT

While pink salmon return annually to Anchorage area streams in July and August, the largest runs occur in even-numbered years. The 10-year average (1993-2002) is 16,000 pink salmon caught with a harvest of 2,100 (Table 13, Figure 13). Pink salmon fisheries have the second highest annual catch (estimated coho salmon catch from 1993-2002 averages over 36,000 salmon) and share the distinction of most often released fish (87% of pink salmon and 89% of chum salmon were released from 1993-2002) in Anchorage area fisheries (Table 5). Bird Creek supports the largest pink salmon sport fishery in the Anchorage area with an average (1993-2002) 9,800 pink salmon caught and 1,300 harvested.

Table 13.-Anchorage area pink salmon sport catch (1990-2002) and harvest (1983-2002).

	Bird Creek		Ship Creek		Twentymile R.		Other Freshwater		Saltwater		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1983		692		42		31		325		42		1,132
1984		2,669		162		350		374		487		4,042
1985		1,717		25		0		112		12		1,866
1986		9,159		849		491		840		189		11,528
1987		1,684		145		145		308		0		2,282
1988		3,256		564		218		1,037		0		5,075
1989		1,155		291		17		151		17		1,631
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
93-02 Avg	9,828	1,327	2,485	258	459	25	2,536	312	612	134	15,919	2,055

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep* .

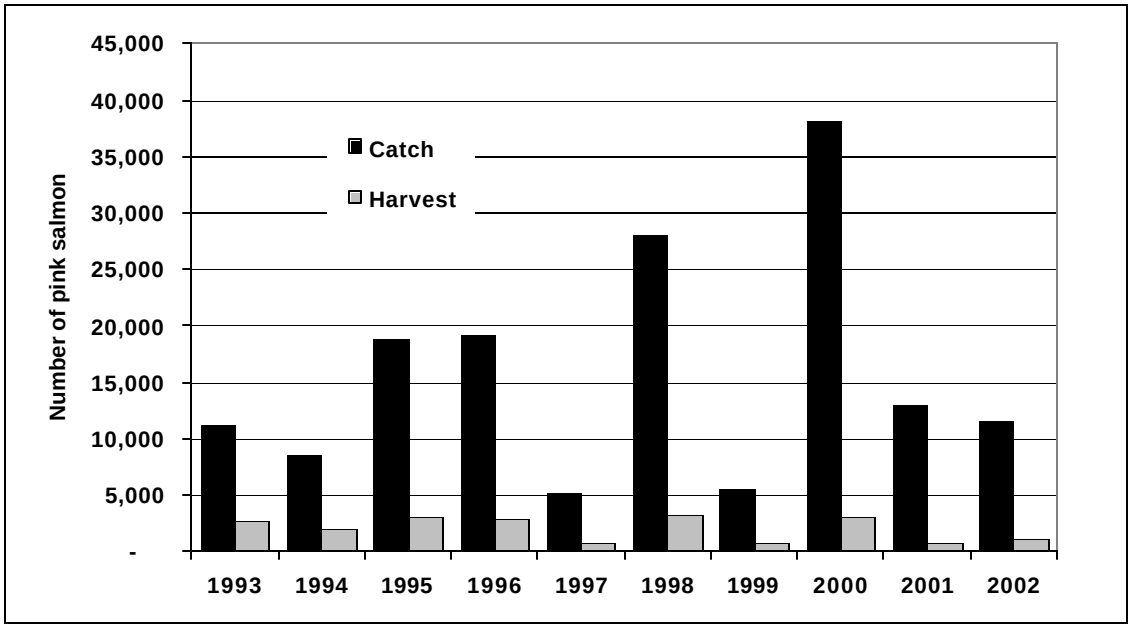


Figure 13.-Anchorage area pink salmon average sport catch and harvest (1993-2002).

Other area streams with reported pink salmon harvests include California, Campbell, Fish, Glacier, Indian, Ingram, Peters, Rabbit, and Ship creeks, and Eagle, Eklutna, Placer and Twentymile rivers, and Sixmile Lake. Rabbit and Sixmile creeks are closed to all salmon fishing and Campbell Creek is closed to pink salmon fishing. Therefore, all reported harvests from these three streams are questionable.

BIRD CREEK

Background and Historical Perspective

Bird Creek flows into Turnagain Arm approximately 25 miles south of Anchorage and supports the primary Anchorage area 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. Construction of a new parking area north of Bird Creek began in 2003. The planned parking area and facilities will accommodate an additional 150 vehicles and is scheduled to be completed in the fall of 2004. Pink salmon return to Bird Creek in July and early August each year; however, the number of returns during even-numbered years is significantly higher than the number of returns during odd-numbered years. These differences in relative abundance significantly influence annual angler effort and pink salmon harvest levels in Bird Creek. Bird Creek is open to sport fishing from department markers located approximately 500 yards upstream of the Seward Highway Bridge 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 ADNR, MOA, and private landowners. To date, this land exchange has not occurred. Bird Creek upstream of this reach is closed to all salmon fishing.

Recent Fishery Performance

A total of 5,900 pink salmon were caught and 760 harvested in Bird Creek in 2002, a low catch and harvest for a high cycle year (Table 13). The 3 previous even-years (2000, 1998, 1996) averaged catches of 17,600 pink salmon with an average harvest of 1,900 salmon. Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B14, and B15.

Management Objectives

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

Recent Board of Fisheries Actions

No proposals specific to Bird Creek fisheries were submitted to BOF for consideration in 2001/2002.

Current Biological and Social Issues

There are presently no significant biological or social issues pertaining to the Bird Creek pink salmon sport fishery. Reports of snagging, overlimits, and trespass incidents are occasionally received.

Ongoing Research and Management Activities

No specific research or management activities are currently being conducted for the Bird Creek pink salmon fishery. Enforcement activities will be conducted as time allows.

Recommended Research and Management Activities

At present, the annual even-year pink salmon runs to Bird Creek are sufficient to support increased sport fishing participation.

Access staff should continue to work with ADNR and DOT staff to improve sanitation at this site.

OTHER PINK SALMON STREAMS

Most Anchorage area streams support annual pink salmon runs but harvest levels are low. 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. Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B14, and B15.

Pink salmon escapement surveys are not conducted in Anchorage area streams by ADF&G staff. Research activities in Turnagain Arm are conducted by USFS, the primary land manager. Adult salmon escapement counts were tallied on six Portage area streams: Williwaw, Explorer, Upper Railroad, Lower Railroad, Ingram, and Placer/Bear Valley (Table 10). Pink salmon were counted in three of these streams.

Military personnel from Elmendorf have operated a weir on Sixmile Creek from 1988-1995 (Appendix C5).

OTHER FISHERIES

SOCKEYE SALMON

The primary Anchorage area streams that support sockeye salmon runs are Sixmile Creek and Twentymile River. The 2002 Anchorage area estimated sockeye salmon sport catch was 700 fish of which 350 were harvested (Table 14, Figure 14). This is the lowest catch and harvest reported since 1990 and significantly below the previous 10-year average (1992-2001) of 2,700 sockeye salmon caught and 1,150 harvested. Other Anchorage area streams with reported sockeye salmon catches and harvests include Twentymile River, Campbell, Ship, and Portage Valley streams. Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-12002) can be found in Appendices B1, B16, and B17.

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 were counted at the Campbell Creek weir in 1993 and 1994 as part of the Urban Coho salmon project, however, the weir was not operational until most sockeye salmon had passed the site. Foot survey counts are now used to estimate Campbell Creek sockeye salmon escapement. The average escapement from 1994 to 2003 is 640 fish. The 2002-2003 escapements have seen historic high escapement levels of sockeye in the North Fork of Campbell Creek (Appendix C3). Campbell Creek is closed to sockeye salmon sport fishing.

Elmendorf Air Force Base personnel have operated a weir in Sixmile Creek since 1988 (Appendix C5). In 1998, this weir was moved upstream near the lake outlet. Annual counts of returning sockeye salmon from 1994-2003 have averaged 2,500 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 department markers, is growing in popularity and contributes most of the area saltwater harvest.

Table 14.-Anchorage area sockeye salmon sport catch (1990-2002) and harvest (1983-2002).

	Bird Creek		Twentymile R.		Sixmile Creek		Other Freshwater		Saltwater		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1983		0		123		0		288		178		589
1984		249		62		0		225		62		598
1985		261		62		37		137		124		621
1986		190		346		0		67		0		603
1987		163		435		36		797		0		1,431
1988		236		200		36		0		0		472
1989		128		145		111		120		60		564
1990	233	97	49	19	78	10	166	69	98	49	624	244
1991	87	78	401	331	44	44	157	122	244	174	933	749
1992	353	173	296	214	1,192	230	616	156	938	542	3,395	1,315
1993	157	109	164	125	963	597	621	405	4,147	1,849	6,052	3,085
1994	479	130	596	299	616	161	1,943	713	642	291	4,276	1,594
1995	501	95	422	89	211	83	358	104	32	10	1,524	381
1996	467	184	233	26	694	268	770	272	185	134	2,349	884
1997	220	98	70	10	1,648	659	397	206	110	50	2,445	1,023
1998	574	448	84	61	509	228	338	171	595	363	2,100	1,271
1999	78	56	42	10	64	0	541	228	782	248	1,507	542
2000	678	446	42	0	53	32	350	21	59	38	1,182	537
2001	316	263	176	97	300	0	670	263	830	271	2,292	894
2002	0	0	288	95	46	14	269	144	91	77	694	330
93-02 Avg	347	183	212	81	510	204	626	253	747	333	2,442	1,054

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep* .

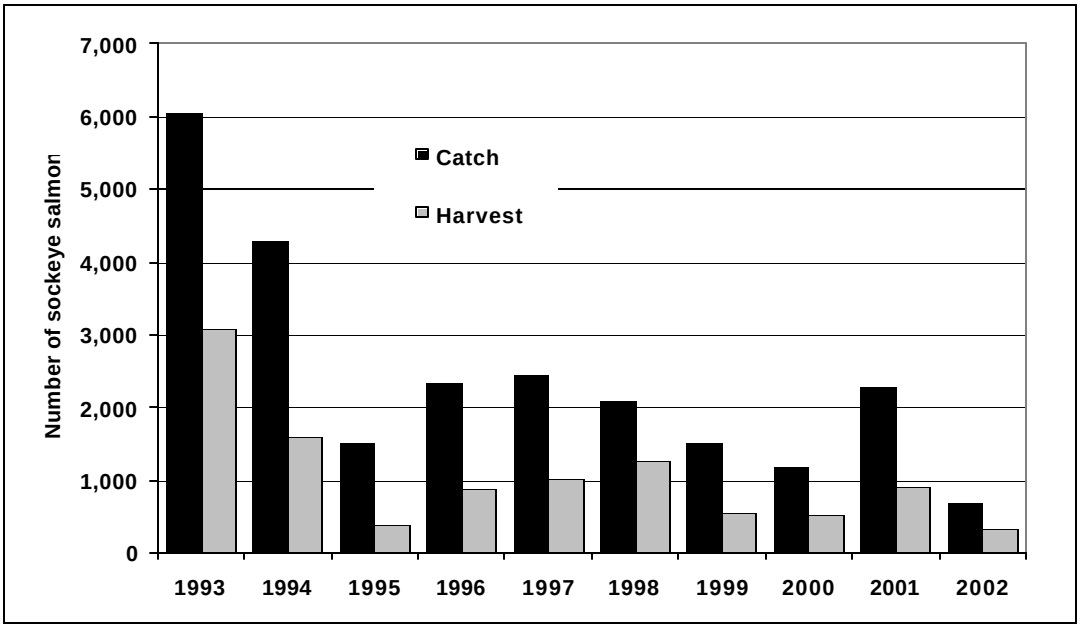


Figure 14.-Anchorage area sockeye salmon average sport catch and harvest (1993-2002).

With a average annual catch and harvest (1993-2002) of 510 sockeye salmon caught and 204 salmon harvested, the mouth of Sixmile Creek is the largest sockeye salmon fishery in the Anchorage area. This fishery is likely even larger as some of the sockeye salmon reported in "saltwater fisheries" likely are harvested at the mouth of Sixmile Creek (Table 14).

Research activities in Turnagain Arm were conducted by USFS, the primary land manager, in 1997. Adult salmon escapement counts were tallied on six Portage area streams: Williwaw, Explorer, Upper Railroad, Lower Railroad, Ingram, and Placer/Bear Valley creeks (Table 10). Sockeye salmon were counted in five of these streams. While 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 USFS.

CHUM SALMON

Chum salmon do not return in significant numbers to Anchorage area streams. Anglers targeting pink and coho salmon harvest most of the chum salmon. The 2002 Anchorage area estimated chum salmon sport catch was 6,500 fish of which 470 were harvested (Table 15, Figure 15). The majority of the catch (3,000) and harvest (400) were from Bird Creek. While chum salmon harvests remain relatively low, catches appear to be increasing over the past 10 years. Chum salmon are also harvested in California, Fish, Glacier, Indian, Peters, and Ship creeks, and Eagle, Eklutna, Placer, and Twentymile rivers (Appendix B19). Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B18, and B19. Chum salmon are counted during chinook salmon escapement surveys although no directed chum salmon counts are conducted by department staff (Appendices C1-C6). Adult salmon escapement counts conducted by the USFS were tallied on six Portage area streams: Williwaw, Explorer, Upper Railroad, Lower Railroad, Ingram, and Placer/Bear Valley creeks (Table 10). Chum salmon were observed in four of the streams surveyed. During the first of several 2003 aerial surveys, department staff counted chum salmon in Twentymile River drainage and in Placer River drainage, although these aerial surveys are conducted in October and November, well after chum salmon spawning occurs. In past years (1994-1997) only about 40 to 75 chum salmon were observed.

STEELHEAD TROUT

Although steelhead trout are not indigenous to the Anchorage area, there has been public interest in developing a steelhead run in one or more area 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 Anchorage area steelhead trout run. 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 three steelhead trout were captured during 1987. One steelhead trout from the Campbell Creek release was caught in the high seas drift net fishery. The stocking program was discontinued in 1987 due to the poor return.

Table 15.-Anchorage area chum salmon sport catch (1990-2002) and harvest (1983-2002).

	Bird Creek		Ship Creek		Twentymile R.		Other Freshwater		Saltwater		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1983		0		0		0	0	10		0	0	10
1984		125		0		25	0	12		0	0	162
1985		448		25		0	0	149		12	0	634
1986		681		89		112	0	78		22	0	982
1987		290		54		181	0	54		0	0	579
1988		364		182		91	0	54		0	0	691
1989		613		44		44	0	266		18	0	985
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
93-02 Avg	1,876	211	568	79	338	13	518	64	156	11	3,457	378

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep* .

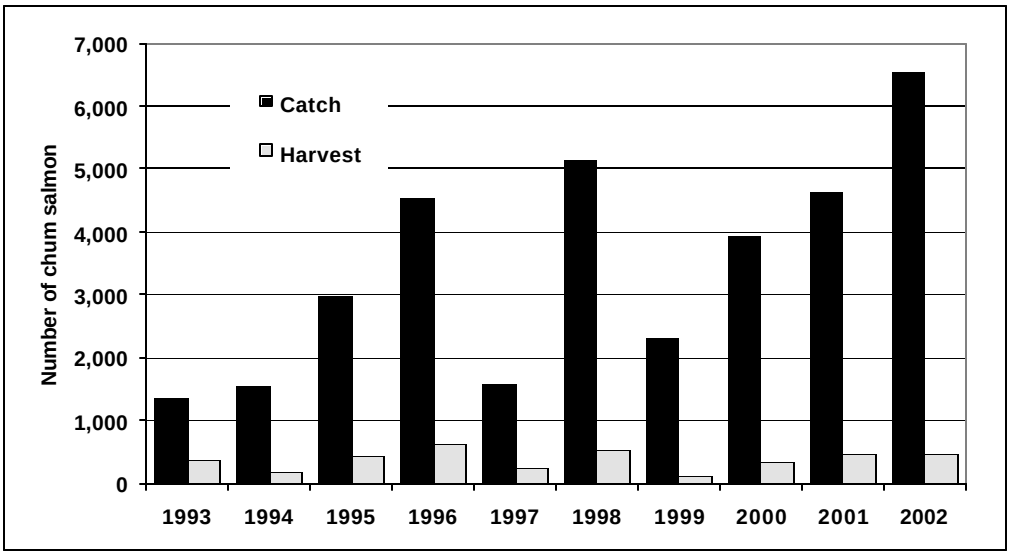


Figure 15.-Anchorage area chum salmon average sport catch and harvest (1993-2002).

STOCKED RAINBOW TROUT STREAMS

Two Anchorage area streams, Campbell and Chester creeks, are stocked with sterile (3N) rainbow trout. 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.

At the fall 1986 meetings, 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. Evaluation of rainbow trout size in the North and South Forks of Campbell Creek is recommended to determine if current regulations regarding catch and release are appropriate. If these Campbell Creek reaches do not produce large rainbow trout, a staff proposal should be developed for consideration by BOF to allow sport harvests of these hatchery-produced fish. Limits for rainbow trout in stocked waters (Figure 8) of the Anchorage area 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.

Both Campbell and Chester creeks are open systems. SWHS estimates a 2002 catch of 91,700 rainbow trout from Anchorage area streams and lakes (Table 16, Figure 16) and a harvest of 22,500 fish; most of this catch (86,700) and harvest (22,000) were taken from area lakes. Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B2, and B3.

Although Ship Creek is not stocked with rainbow trout, it is assumed that the rainbow trout found in this reach are hatchery escapees. The number of fish in this naturalized population is unknown but assumed to be small. These rainbow trout likely spend most 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, 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.

Estimated Ship Creek rainbow trout harvests from 1993-2002 have averaged a catch of 440 rainbow trout and a harvest of 40 fish. Those catch estimates are driven by high catch rates over the last 3 years with the 2000-2002 average of 1,150 rainbow trout.

DOLLY VARDEN STREAMS

Several area streams and lakes support small populations of resident Dolly Varden. The 2002 estimated catch was 7,200 of which 1,300 were harvested (Table 17, Figure 17). This level of catch and harvest is within the range from the previous 10 years (1992-2001). On average, Campbell Creek has supported the largest catch estimates for the 10-year period (1993-2002) with 3,300 Dolly Varden caught. But the largest harvest for that same 10-year period is from Eagle River with an average 300 fish harvested. Dolly Varden have been reported harvested from Bird, Campbell, Ingram, and Ship

Table 16.-Anchorage area streams rainbow trout sport catch (1990-2002) and harvest (1983-2002).

	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
1983		0		63		304		367		44,311		44,678
1984		374		399		1,733		2,506		47,086		49,592
1985		1,613		277		503		2,393		40,627		43,020
1986		815		1,307		403		2,525		37,339		39,864
1987		408		39		263		710		34,549		35,259
1988		1,637		200		655		2,492		57,372		59,864
1989		732		9		385		1,126		52,071		53,197
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
93-02 Avg	4,065	357	442	43	1,805	288	6,374	690	120,097	27,992	126,472	28,682

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep* .

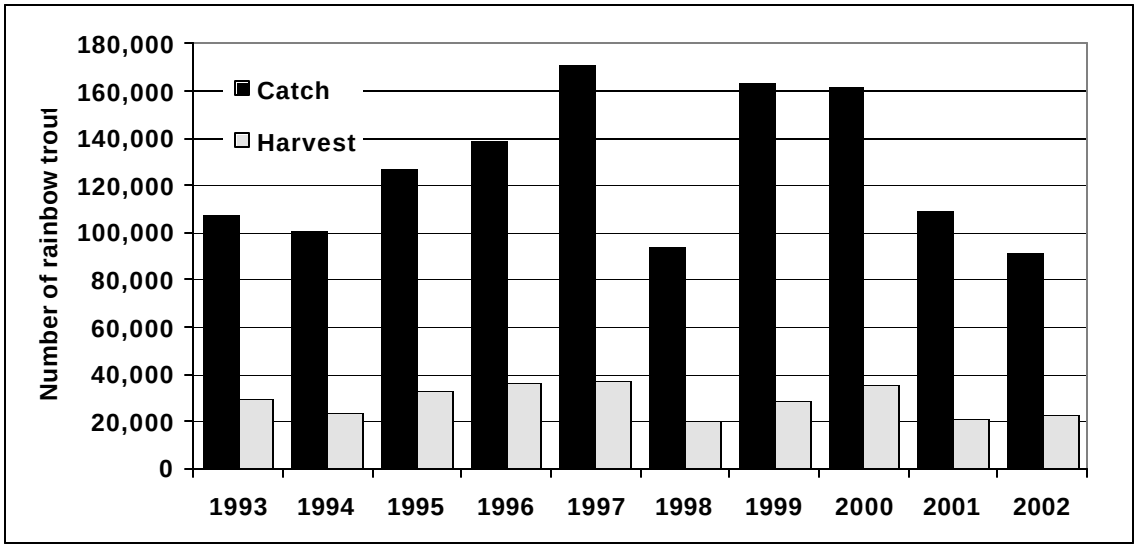
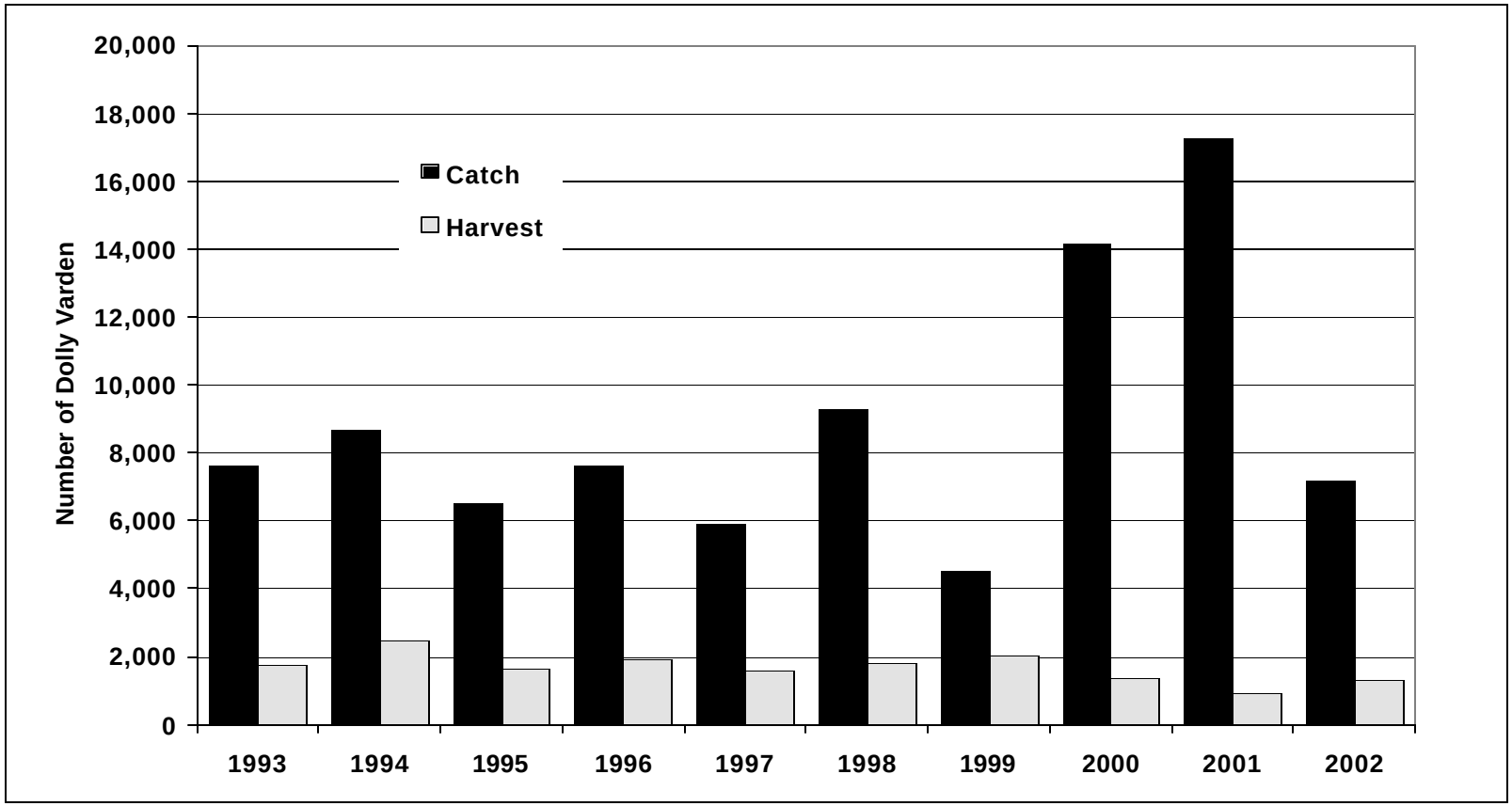


Figure 16.-Anchorage area rainbow trout average sport catch and harvest (1993-2002).

Table 17.-Anchorage area streams Dolly Varden sport catch (1990-2002) and harvest (1983-2002).

	Eagle River		Campbell Creek		Ship Creek		Bird Creek		Twentymile R.		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
1983		1,269		31		168		220		294		713		2,695		315	0	3,010
1984		5,674		150		100		449		187		149		6,709		173	0	6,882
1985		225		1,127		52		121		607		294		2,426		69	0	2,495
1986		983		302		145		134		458		373		2,395		168	0	2,563
1987		543		181		163		109		254		815		2,065		36	0	2,101
1988		637		1,564		146		127		327		763		3,564		108	0	3,672
1989		732		291		75		188		300		388		1,974		731	0	2,705
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
93-02 Avg	994	306	3,298	219	355	49	210	28	804	138	1,014	201	6,675	942	2,202	746	8,877	1,688

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.



Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep*.

Figure 17.-Anchorage area Dolly Varden average sport catch and harvest (1993-2002).

creeks, and Placer and Twentymile rivers. Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B4, and B5. Daily bag and possession limits for Dolly Varden are 5, with only 1 fish 12 inches or longer.

ARCTIC GRAYLING

Arctic grayling are not known to naturally occur in the Anchorage area; however, grayling are occasionally reported harvested in Eagle River. A record catch of 4,600 Arctic grayling was estimated in 2002 of which 750 were harvested (Table 18, Figure 18). That represents the highest catch of grayling reported in the Anchorage area and the highest harvest since 1988. The majority of these grayling were from stocked lakes. Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1, B6, and B7. Limits for Arctic grayling in the Anchorage area 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 Anchorage area waters but have been illegally introduced into Anchorage area lakes. Department 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 area lakes has affected stocking programs as numbers of rainbow and grayling released into "pike lakes" have been greatly reduced or eliminated. If the department is unable to curb the spread of pike to other Anchorage waters, it will result in further reductions to the stocking program and a loss of opportunity for local anglers.

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 area staff revived the spring netting and trapping project to target adult pike as they move into the shallows to spawn. In 2003, staff harvested a total of 44 northern pike (14 mature pike and 30 juvenile) from four sampling trips to Lower Fire and Sand Lakes. Two additional trips to Sand Lake in July produced two more juvenile pike. Informing the public on the effects of illegally stocking pike and encouraging harvest in area lakes has been the department's most effective tool. Estimated pike catch and harvest by recreational anglers peaked in 2000 with a harvest of 1,300 pike and declined to a harvest of 1,200 pike in 2002 (Table 19, Figure 19). 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 Anchorage area and how they can help. There are no daily bag, possession, or size limits on Anchorage area northern pike.

Table 18.-Anchorage area Arctic grayling sport catch (1990-2002) and harvest (1983-2002).

	Lakes		Streams		Area Total	
Year	Catch	Harvest	Catch	Harvest	Catch	Harvest
1983		0		0		0
1984		0		262		262
1985		0		0		0
1986		0		168		168
1987		0		18		18
1988		819		182		1,001
1989		66		0		66
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
93-02 Avg	1,816	215	113	21	1,929	235

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep* .

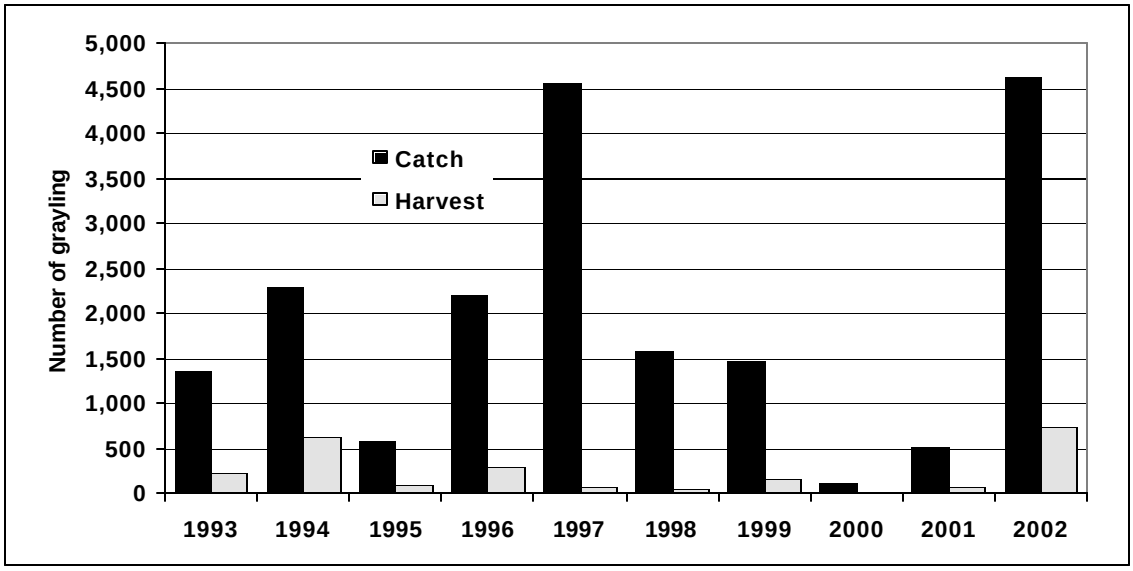


Figure 18.-Anchorage area grayling average sport catch and harvest (1993-2002).

Table 19.-Anchorage area northern pike catch, 1996-2002.

	Lower Fire Lake		Sand Lake		Cheney Lake		Other Lake/Streams		Area Total	
Year[a]	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1996	796	129	86	43			11	11	893	183
1997	385	206	48	14			0	0	433	220
1998	511	303	40	34			0	0	551	337
1999	566	196	113	19			47	28	726	243
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
96-02 Avg	1,245	460	153	78	307	161	83	53	1,612	659

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

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep* .

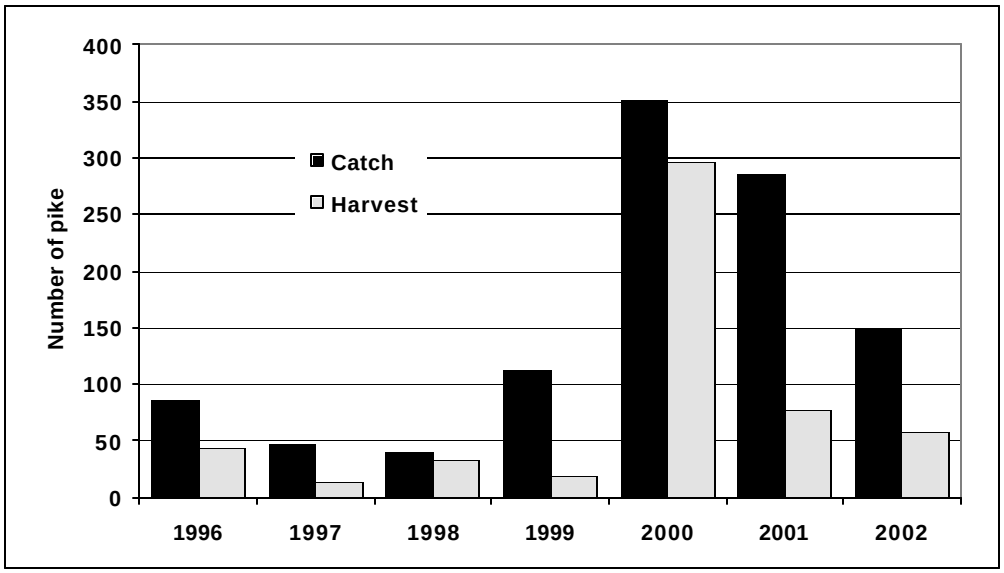


Figure 19.-Anchorage area northern pike harvest, 1996-2002.

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. The fishery occurs from mid-May through June 15. Eulachon have also been reported harvested in Bird Creek, Placer River, and Portage Valley streams (Appendix B20). 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 2002 harvest was 76,800 eulachon (Table 20, Figure 20), most (51,000) of which were taken out of Turnagain Arm at the mouth of Twentymile River. The 2002 harvest was the highest estimated by the SWHS since 1990. Detailed estimates of historic effort and harvest (1977-2002) and catch (1990-2002) can be found in Appendices B1 and B20. As no run-size data are available, the status of Turnagain Arm eulachon stocks is unknown. In SWHS, personal use effort is combined with sport fish effort.

Table 20.-Anchorage area personal use eulachon harvest, 1983-2002.

	Saltwater	Freshwater			Area
Year	Total	Twentymile R.	Other	Total	Total
1983	35,362	60,160	84	60,244	95,606
1984	103,143	190,418	9,232	199,650	302,793
1985	42,595	225,540	0	225,540	268,135
1986	22,980	100,974	0	100,974	123,954
1987	26,932	101,574	3,078	104,652	131,584
1988	35,952	103,556	0	103,556	139,508
1989	13,923	88,411	1,547	89,958	103,881
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
93-02 Avg	11,790	25,634	368	26,002	37,792

Source: Mills 1979-1994; Howe et al. 1995, 1996, 2001a-d; Walker et al. 2003; Jennings et al. 2004, *In prep* .

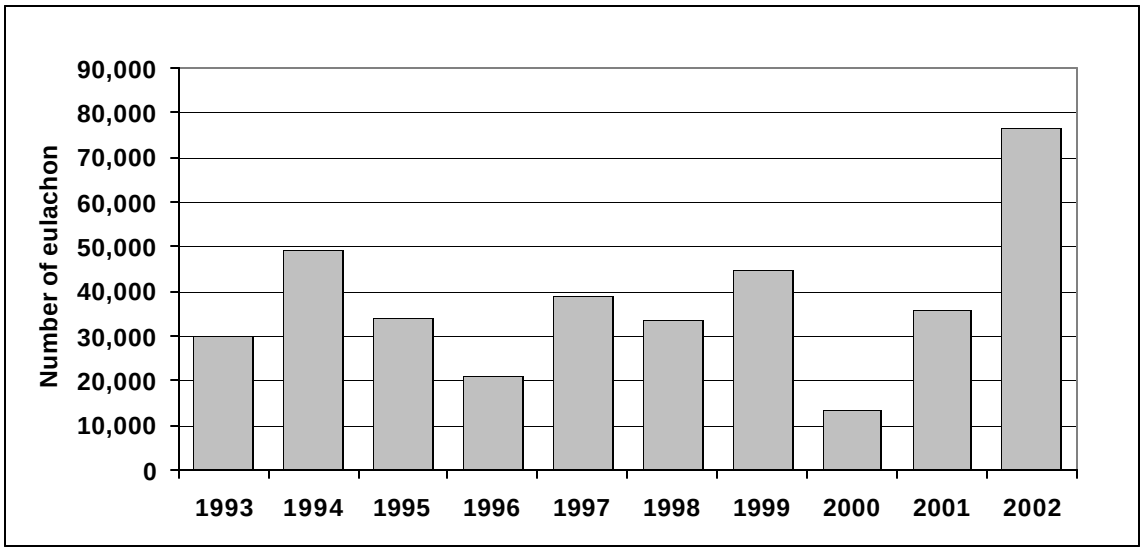


Figure 20.-Anchorage area personal use eulachon harvest, 1993-2002.

LITERATURE CITED

ADF&G (Alaska Department of Fish and Game). 1989. Statewide stocking plan for recreational fisheries, 1989-1993. Alaska Department of Fish and Game, Juneau.

Alaska Department of Fish and Game. 2004. Statewide stocking plan for recreational fisheries, 2004-2008. Alaska Department of Fish and Game, Juneau.

Bosch, D. E., D. G. Evans, P. Cyr, and J. J. Hasbrouck. In prep. Estimates of commercial and sport harvest and escapement in 1999-2001 of coho salmon stocks into Northern Cook Inlet stream in 1998-2000. Alaska Department of Fish and Game, Fishery Data Series report, Anchorage.

Cyr, P. A., B. L. Stratton, and J. J. Hasbrouck. 1997. Estimates of commercial harvest and escapement of coho salmon stocked into Northern Cook Inlet streams, 1995. Alaska Department of Fish and Game, Fishery Data Series No. 97-3, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds97-03.pdf

Cyr, P. A., B. L. Stratton, and J. J. Hasbrouck. 1998. Estimates of commercial harvest and escapement of coho salmon stocked into Northern Cook Inlet streams, 1996. Alaska Department of Fish and Game, Fishery Data Series No. 98-5, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds98-05.pdf

Fox, J. and P. Shields 2003. Upper Cook Inlet Commercial Fisheries Annual Management Report, 2002. Regional Information Report No. 2A03-14, Alaska Department of Fish and Game, Anchorage.

Hoffmann, A. G., and J. J. Hasbrouck. 1994. Estimates of commercial harvest and escapement of coho salmon stocked into northern Cook Inlet streams, 1993. Alaska Department of Fish and Game, Fishery Data Series No. 94-45, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds94-45.pdf

Howe, A. L., G. Fidler, A. E. Bingham, and M. J. Mills. 1996. Harvest, catch, and participation in Alaska sport fisheries during 1995. Alaska Department of Fish and Game, Fishery Data Series No. 96-32, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds96-32.pdf

Howe, A. L., G. Fidler, and M. J. Mills. 1995. Harvest, catch, and participation in Alaska sport fisheries during 1994. Alaska Department of Fish and Game, Fishery Data Series No. 95-24, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds95-24.pdf

Howe, A. L., R. J. Walker, C. Olnes, K. Sundet, and A. E. Bingham. 2001a. Revised Edition: Harvest, catch, and participation in Alaska sport fisheries during 1996. Alaska Department of Fish and Game, Fishery Data Series No. 97-29 (revised), Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds97-29(revised).pdf

Howe, A. L., R. J. Walker, C. Olnes, K. Sundet, and A. E. Bingham. 2001b. Revised Edition: Harvest, catch, and participation in Alaska sport fisheries during 1997. Alaska Department of Fish and Game, Fishery Data Series No. 98-25 (revised), Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds98-25(revised).pdf

Howe, A. L., R. J. Walker, C. Olnes, K. Sundet, and A. E. Bingham. 2001c. Revised Edition: Participation, catch, and harvest in Alaska sport fisheries during 1998. Alaska Department of Fish and Game, Fishery Data Series No. 99-41 (revised), Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds99-41(revised).pdf

Howe, A. L., R. J. Walker, C. Olnes, K. Sundet, and A. E. Bingham. 2001d. Participation, catch, and harvest in Alaska sport fisheries during 1999. Alaska Department of Fish and Game, Fishery Data Series No. 01-8, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds01-08.pdf

Jennings, G. B., K. Sundet, A. E. Bingham, and H. K. Sigurdsson. 2004. Participation, catch, and harvest in Alaska sport fisheries during 2001. Alaska Department of Fish and Game, Fishery Data Series No. 04-11, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds04-11.pdf

Jennings, G. B., K. Sundet, A. E. Bingham, and H. K. Sigurdsson. In prep. Participation, catch, and harvest in Alaska sport fisheries during 2002. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.

LITERATURE CITED (Continued)

Jones & Stokes Associates, Inc. 1987. Southcentral Alaska sport fishing economic study. Final research report. November 1987. (JSA86-0413.) Sacramento, CA. Prepared for Alaska Department of Fish and Game, Sport Fish Division, Research and Technical Services Section, Anchorage, AK.

Miller, J. 1990. Stocking records, 1990. Alaska Department of Fish and Game, Division of Fisheries Rehabilitation, Enhancement, and Development (FRED), Anchorage.

Mills, M. J. 1979. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game, Federal Aid in Fish Restoration, Annual Performance Report 1978-1979, Project F-9-11, 20 (SW-I-A), Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/f-9-11(20)SW-I-A.pdf

Mills, M. J. 1980. Alaska statewide sport fish harvest studies. Alaska Department of Fish and Game. Federal Aid in Fish Restoration, Annual Performance Report, 1979-1980, Project F-9-12, 21 (SW-I-A), Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/f-9-12(21)SW-I-A.pdf

Mills, M. J. 1981a. Alaska statewide sport fish harvest studies - 1979 data. Alaska Department of Fish and Game, Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report 1980-1981, Project F-9-13, 22 (SW-I-A), Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/f-9-13(22a)SW-I-A.pdf

Mills, M. J. 1981b. Alaska statewide sport fish harvest studies - 1980 data. Alaska Department of Fish and Game, Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report 1980-1981, Project F-9-13, 22 (SW-I-A), Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/f-9-13(22b)SW-I-A.pdf

Mills, M. J. 1982. Alaska statewide sport fish harvest studies - 1981 data. Alaska Department of Fish and Game, Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report 1981-1982, Project F-9-14, 23 (SW-I-A), Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/f-9-14(23)SW-I-A.pdf

Mills, M. J. 1983. Alaska statewide sport fish harvest studies - 1982 data. Alaska Department of Fish and Game, Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report 1982-1983, Project F-9-15, 24 (SW-I-A), Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/f-9-15(24)SW-I-A.pdf

Mills, M. J. 1984. Alaska statewide sport fish harvest studies - 1983 data. Alaska Department of Fish and Game, Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report 1983-1984, Project F-9-16, 25 (SW-I-A), Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/f-9-16(25)SW-I-A.pdf

Mills, M. J. 1985. Alaska statewide sport fish harvest studies - 1984 data. Alaska Department of Fish and Game, Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report 1984-1985, Project F-9-17, 26 (SW-I-A), Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/f-9-17(26)SW-I-A.pdf

Mills, M. J. 1986. Alaska statewide sport fish harvest studies - 1985 data. Alaska Department of Fish and Game, Federal Aid in Fish Restoration and Anadromous Fish Studies, Annual Performance Report 1985-1986, Project F-10-1, 27 (RT-2), Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/f-10-1(27)RT-2.pdf

Mills, M. J. 1987. Alaska statewide sport fisheries harvest report, 1986. Alaska Department of Fish and Game, Fishery Data Series No. 2, Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-002.pdf

Mills, M. J. 1988. Alaska statewide sport fisheries harvest report, 1987. Alaska Department of Fish and Game, Fishery Data Series No. 52, Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-052.pdf

Mills, M. J. 1989. Alaska statewide sport fisheries harvest report, 1988. Alaska Department of Fish and Game, Fishery Data Series No. 122, Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds-122.pdf

Mills, M. J. 1990. Harvest and participation in Alaska sport fisheries during 1989. Alaska Department of Fish and Game, Fishery Data Series No. 90-44, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds90-44.pdf

Mills, M. J. 1991. Harvest, catch, and participation in Alaska sport fisheries during 1990. Alaska Department of Fish and Game, Fishery Data Series No. 91-58, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds91-58.pdf

LITERATURE CITED (Continued)

Mills, M. J. 1992. Harvest, catch, and participation in Alaska sport fisheries during 1991. Alaska Department of Fish and Game, Fishery Data Series No. 92-40, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds92-40.pdf

Mills, M. J. 1993. Harvest, catch, and participation in Alaska sport fisheries during 1992. Alaska Department of Fish and Game, Fishery Data Series No. 93-42, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds93-42.pdf

Mills, M. J. 1994. Harvest, catch, and participation in Alaska sport fisheries during 1993. Alaska Department of Fish and Game, Fishery Data Series No. 94-28, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds94-28.pdf

Rutz, D. S. 1996. Seasonal movements, age and size statistics, and food habits of upper Cook Inlet northern pike during 1994 and 1995. Alaska Department of Fish and Game, Fishery Data Series No. 96-29, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds96-29.pdf

Stratton, B., and P. Cyr. 1995. Annual management report for the recreational fisheries in the Anchorage area, 1994. Alaska Department of Fish and Game, Fishery Management Report No. 95-5, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr95-05.pdf

Stratton, B., A. Hoffmann, and P. Cyr. 1994. Annual management report for the Anchorage area 1993. Alaska Department of Fish and Game, Fishery Management Report No. 94-8, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fmr94-08.pdf

Stratton, B. L., P. A. Cyr, and J. J. Hasbrouck. 1996. Estimates of commercial harvest and escapement of coho salmon stocked into Northern Cook Inlet streams, 1994. Alaska Department of Fish and Game, Fishery Data Series No. 96-4, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds96-04.pdf

Walker, R. J., C. Olnes, K. Sundet, A. L. Howe, and A. E. Bingham. 2003. Participation, catch, and harvest in Alaska sport fisheries during 2000. Alaska Department of Fish and Game, Fishery Data Series No. 03-05, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fds03-05.pdf

APPENDIX A. REGULATION SUMMARIES

Appendix A1.-Sport fishing regulations for Ship Creek, 1957-2001.

Year	Sport Fishing Regulations
1957-1959	Closed to sport fishing from 4/01-5/27. 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 4/01-5/27. Bag limit 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 4/01-5/25.
1964-1965	Closed to sport fishing from 4/01 through third Friday in May. Open to salmon fishing (except kings) downstream of a marker 300 feet below Chugach Power Plant Dam. Bag limit was three chum, sockeye, or pink with an additional three coho salmon allowed.
1966-1967	Legal gear defined as a single-hook-only with gap between point and shank of ½ inch or less.
1968	Closed to all fishing from 1/01-8/31. Anglers allowed three salmon. Closed to king fishing.
1969	From 9/01-12/31 anglers allowed three salmon. Removed excess Dolly Varden from resident fish bag limit.
1970	Closed to all fishing from 1/01-8/31 except for a king opening from 7/04-7/19. Bag limit of one king salmon per day and two per season. From 9/01-12/31, anglers allowed three salmon.
1971-1972	Closed to all fishing from 1/01-8/31 except for king salmon openings on 6/10-6/11 and 6/17-6/18. A king salmon punch card was required and bag limit was one king per day and two per season. From 9/01-12/31, anglers were allowed three salmon.
1973-1981	Closed to all fishing from 1/01-8/17. Closed to king salmon fishing. From 8/18-12/31, 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 1/01-7/31. Single-hook-only restriction lifted. Anglers were allowed three salmon other than kings from 8/01-12/31.

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Appendix A1.-Page 2 of 2.

Year	Sport Fishing Regulations
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 kings) on Tuesdays and Wednesdays for 5 consecutive weeks commencing the second Tuesday in June. King salmon bag and possession limits were one and two with no seasonal limit.
1991-1992	King salmon fishing was allowed from 1/01-7/13, 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 king salmon in Cook Inlet waters was added.
1997	The possession limit for king salmon was reduced to one and a regulation went into effect that prohibited anglers from continuing to sport fish in waters open to king salmon fishing after harvesting a king salmon.
1999	Chinook bag and possession limit is one per day and in possession, and anglers may not fish in Ship Creek the remainder of the day after you harvest chinook salmon 20 inches or longer. Salmon other than king salmon, 16 inches or longer in length bag/possession limit is three, all three can be coho salmon. Reeve Blvd upstream to 300 ft upstream of Elmendorf Dam is closed to all fishing.
2001	Bag and possession limit for king salmon less than 20 inches in length, and other salmon less than 16 inches in length is 10. Fishing is open all year for these small salmon. In waters open to fishing for king 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 king salmon in fresh waters open to king salmon less than 20 inches in length (jack salmon) is 10 per day/10 in possession.

Appendix A2.-Sport fishing regulations for Eagle River, 1957-2001.

Year	Sport Fishing Regulations
1957-1959	Closed to sport fishing from 4/01-5/27. 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 king salmon.
1961-1962	Anglers were allowed up to 20 resident fish if the excess were Dolly Varden.
1963	Closed season was from 4/01-5/25. Closed to salmon fishing upstream of 1/4 mile above Glenn Highway bridge. Bag limit was six coho salmon; three pink, chum or red salmon; one king 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 4/01 through third Friday in May.
1968	No closed season. Bag limit was three salmon 16 inches or greater in length. Closed to king 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 6/01-8/14.
1992-1996	Regulations restricted king 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 a department 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 6/01-8/14. North Fork Eagle River upstream from a department marker located near its confluence with Eagle River was closed to all fishing during the king salmon season. Passes were required to fish on Fort Richardson.
1999-2001	In areas open for fishing king salmon less than 20 inches in length and other salmon 16 inches in length or less, open all year. Bag and possession limit for these small salmon is 10. Statewide regulation defines the bag and possession limit for king salmon in fresh waters open to king salmon less than 20 inches in length (jack salmon) is 10 per day/10 in possession.

Appendix A3.-Sport fishing regulations for Campbell Creek, 1957-2001.

Year	Sport Fishing Regulations
1957-1959	Closed to sport fishing from 4/01-5/27. Bag limit was 10 trout daily or in possession, only two 20 inches or more in length. No salmon fishing regulations.
1960	Creek was open to salmon fishing, except king salmon, from 8/22-9/23. 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 4/01-5/25. Bag limit was six coho salmon; three pink, chum or red salmon. Resident fish bag limits were 10, only two over 20 inches.
1964-1967	Closed to sport fishing from 4/01 through the third Friday in May. Open to salmon fishing (except king salmon) from 8/01-9/30. Closed to salmon fishing above Seward Highway. Bag limit was six coho, and three chum, sockeye, or pink salmon.
1968	Open to salmon fishing (except king salmon) from 8/01-9/30. Closed to salmon fishing above 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 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
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 7/25-10/15, with fishing limited to that portion of Campbell Creek upstream from Dimond Boulevard to a department 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 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 7/25-10/01 from Dimond Boulevard upstream to C Street. Coho salmon fishing was allowed from 8/05-10/01 upstream of C Street to markers near Piper Street except for the Wickersham closed area.
1999-2001	Regulations same as those established by BOF during 1996-1998.

APPENDIX B. HISTORICAL EFFORT, HARVEST, AND CATCH DATA

Appendix B1.-Anchorage area sport fishing effort (angler days), 1987-2002.

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER																
Boat	980	155	159	321	711	676	452	779	1,110	125	105	707	285	273	278	515
Shoreline	607	1,035	1,004	1,865	2,117	2,595	4,961	2,823	3,616	745	1,344	2,214	2,631	1,924	1,999	2,016
Saltwater Total	1,587	1,190	1,163	2,186	2,828	3,271	5,413	3,602	4,726	870	1,449	2,921	2,916	2,197	2,277	3,528
FRESHWATER																
Campbell Point Lake	688	2,037	769	2,439	1,854	1,878	1,347	982	2,674	1,798	1,691	329	1,572	1,982	1,336	1,510
Cheney Lake	5,089	6,676	7,523	6,326	4,189	6,594	5,013	7,032	6,225	4,789	5,280	2,703	3,933	3,935	1,630	1,659
Delong Lake	2,228	3,583	3,527	3,845	4,300	5,474	3,759	2,742	6,321	3,194	3,321	2,000	3,620	4,649	3,100	2,279
Jewel Lake	4,908	7,785	9,099	10,235	7,294	8,290	7,412	5,339	8,222	4,343	6,283	5,373	7,814	6,173	5,755	7,353
Sand Lake	2,065	3,693	4,728	4,814	3,697	3,542	2,676	3,578	3,762	1,885	1,735	2,061	3,492	4,692	2,337	1,788
Taku Campbell Lake	869	3,365	3,283	4,196	2,446	1,611	1,023	1,138	1,567	1,192	1,429	1,731	3,290	5,494	1,410	1,412
Beach Lake	3,857	1,083	3,067	2,407	2,256	4,780	2,650	2,678	4,419	2,928	4,786	2,328	4,088	3,468	3,939	5,480
Lower Fire Lake	3,531	4,056	3,771	6,326	3,507	3,702	3,446	2,671	5,784	2,967	2,916	2,442	2,091	2,288	1,446	2,492
Mirror Lake	5,505	4,002	3,255	5,740	4,993	5,249	4,007	5,294	6,346	4,292	4,378	3,874	3,843	4,052	6,989	5,437
Fish Lake	4,890	3,911	3,489	3,440	1,352	1,985	2,569	1,209	2,007	1,443	1,142	1,898	2,356	1,974	740	943
Green Lake	5,542	3,220	2,973	3,781	1,899	1,803	2,328	2,755	3,654	2,313	4,638	3,371	3,781	4,204	1,824	929
Hillberg Lake	2,879	2,874	3,349	2,801	2,580	2,070	1,880	2,091	2,143	2,130	3,321	1,557	3,651	3,546	1,882	908
Sixmile Lake	12,677	8,822	5,046	6,539	4,446	6,765	5,295	5,675	4,114	3,923	4,659	2,867	5,928	5,101	3,248	1,106
Triangle Lake	4,473	1,330	1,979	2,130	1,709	2,230	2,058	1,090	1,035	771	1,199	1,022	1,096	1,086	310	194
Clunie Lake	6,574	7,185	5,384	6,592	4,379	4,108	4,980	5,169	6,585	4,465	4,636	2,921	4,843	5,850	4,550	1,140
Gwen Lake	3,785	4,638	3,255	3,120	5,027	2,433	3,407	3,418	2,674	2,705	3,262	1,109	3,456	2,756	1,778	1,056
Otter Lake	13,275	5,402	7,570	9,542	8,076	6,423	7,619	9,365	7,993	7,035	6,265	4,005	4,090	5,048	3,293	2,636
Other Lakes	1,609	1,652	2,051	1,442	2,592	2,257	3,528	2,889	3,673	2,526	3,390	2,314	3,368	3,309	1,817	1,879
Lake Total	84,444	75,314	74,118	85,715	66,596	71,194	64,997	65,115	79,198	54,699	64,331	43,905	66,312	69,607	47,384	40,201
Bird Creek	5,614	9,532	5,844	9,138	7,551	11,352	12,852	12,357	15,947	12,003	12,136	20,797	13,033	17,550	13,662	5,660
Campbell Creek	1,485	4,729	1,942	3,983	1,977	1,515	9,073	8,036	10,457	5,225	5,897	4,834	4,446	3,918	6,222	4,607
Eagle River	1,684	1,273	2,017	2,002	1,106	4,908	3,396	2,937	4,922	3,499	2,059	1,023	2,096	1,998	1,214	1,884
Ingram Creek	181	1,083	647	639	290	373	643	893	721	396	143	506	493	852	305	513
Placer River	326	93	333	234	447	886	688	547	924	578	551	1,087	324	459	1,021	1,209
Ship Creek	11,989	14,115	16,424	15,112	29,768	40,513	40,815	40,727	51,087	42,454	47,826	44,670	52,294	62,101	56,402	48,822
Twentymile River [a]	5,505	4,820	4,043	4,537	4,178	4,257	3,480	4,772	4,758	3,823	3,170	2,805	3,370	3,620	4,161	2,943
Other Streams	2,837	3,850	2,062	2,303	3,039	3,302	2,135	3,291	3,661	2,778	1,987	2,965	1,505	3,642	2,711	2,362
Stream Total	29,621	39,495	33,312	37,948	48,356	67,106	73,082	73,560	92,477	70,756	73,769	78,687	77,561	94,140	85,698	68,000
Freshwater Total	114,065	114,809	107,430	123,663	114,952	138,300	138,079	138,675	171,675	125,455	138,100	122,592	143,873	163,747	133,082	113,183
AREA TOTAL	115,652	115,999	108,593	125,849	117,780	141,571	143,492	142,277	176,401	126,325	139,549	125,513	146,789	165,944	135,359	116,711

[a] Includes Glacier River.

Appendix B2.-Anchorage area rainbow trout sport fish catch, 1990-2002.

Area	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Campbell Point Lake	6,262	2,978	3,103	1,905	1,107	3,086	4,070	2,317	647	3,446	7,235	2,474	1,728
Cheney Lake	8,174	6,566	9,523	6,291	5,635	8,655	11,415	12,561	3,243	7,245	8,485	699	957
Delong Lake	6,526	6,542	7,963	8,023	4,102	10,172	4,331	6,564	5,807	8,897	7,874	7,651	3,127
Jewel Lake	16,595	14,591	14,858	8,517	10,285	17,001	6,261	12,489	11,619	26,856	12,408	11,428	9,566
Sand Lake	11,866	5,582	3,744	4,838	3,599	5,168	6,037	1,983	4,227	11,279	6,083	2,606	3,440
Taku Campbell Lake	4,895	4,772	3,618	1,175	1,774	3,362	2,023	2,175	1,966	8,609	7,207	1,895	1,023
Beach Lake	6,378	6,791	6,372	4,217	4,464	9,851	9,562	12,222	5,061	8,153	15,112	5,741	17,954
Lower Fire Lake	8,075	5,296	5,763	4,946	6,044	6,596	6,198	3,782	1,985	2,203	1,713	366	1,837
Mirror Lake	7,630	5,196	7,528	7,797	8,997	9,826	8,258	14,211	10,913	10,111	14,149	15,422	14,231
Fish Lake	5,158	1,396	2,699	3,326	1,049	2,633	2,667	2,767	3,770	5,558	5,281	988	2,299
Green Lake	6,164	4,261	1,433	4,273	3,969	3,728	9,396	9,494	6,278	5,400	8,473	5,027	2,942
Hillberg Lake	3,708	3,788	2,660	2,572	2,338	3,053	5,450	11,397	2,570	8,527	8,340	4,768	2,339
Sixmile Lake	8,537	6,703	8,969	4,785	4,568	4,514	7,015	10,664	3,113	10,672	9,403	4,737	1,317
Triangle Lake	2,736	1,458	1,559	1,516	448	1,335	1,491	4,847	1,573	1,647	2,649	159	131
Clunie Lake	17,502	10,741	6,847	8,674	9,356	12,334	15,528	17,105	5,472	13,360	14,079	12,668	6,675
Gwen Lake	7,647	7,675	5,201	6,974	7,817	3,104	8,276	14,166	3,531	9,056	7,001	5,660	2,942
Otter Lake	24,044	18,914	11,700	15,658	16,248	14,169	15,804	18,621	7,068	10,411	9,571	5,778	5,119
Other Lakes	8,108	6,418	3,784	7,990	4,857	4,555	10,908	10,381	6,043	7,250	8,368	3,454	9,115
Lake Total	160,005	119,668	107,324	103,477	96,657	123,142	134,690	167,746	84,886	158,680	153,431	91,521	86,742
Bird Creek	16	50	47	19	819	0	55	208	69	71	125	8	17
Campbell Creek	5,801	2,417	982	1,673	1,809	2,416	2,622	2,988	3,603	2,874	4,766	14,952	2,948
Eagle River	1,154	0	317	1,186	238	190	74	65	109	473	468	98	12
Ship Creek	132	162	87	146	38	242	229	84	144	94	1,106	1,094	1,318
Twentymile River	0	187	174	75	0	75	0	63	0	0	0	0	0
Other Streams	2,142	162	277	889	812	801	1,388	171	4,632	818	1,891	1,947	707
Stream Total	9,245	2,978	1,884	3,988	3,716	3,724	4,368	3,579	8,557	4,330	8,356	18,099	5,002
AREA TOTAL	169,250	122,646	109,208	107,465	100,373	126,866	139,058	171,325	93,443	163,010	161,787	109,620	91,744

Appendix B3.-Anchorage area rainbow trout sport fish harvest, 1987-2002.

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Campbell Point Lake	320	1,746	497	1,796	1,520	1,393	576	343	618	1,588	931	42	304	2,282	431	490
Cheney Lake	1,146	4,529	5,919	2,340	2,579	2,367	1,394	1,554	1,696	2,156	2,565	537	1,544	1,337	117	585
Delong Lake	1,068	2,365	4,193	1,829	2,143	2,375	1,608	916	1,990	1,712	1,346	1,043	1,133	1,779	938	718
Jewel Lake	1,845	6,676	6,754	5,257	4,747	3,863	2,856	2,234	4,349	2,291	3,581	2,529	2,724	2,524	1,568	3,443
Sand Lake	505	3,820	2,542	3,312	2,143	1,148	1,393	901	1,093	1,125	1,054	952	1,046	2,103	627	1,145
Taku Campbell Lake	660	3,838	1,154	1,615	635	1,203	297	542	860	1,176	645	282	1,662	1,973	304	153
Beach Lake	1,884	637	2,148	2,456	2,430	1,599	1,345	1,134	2,294	1,989	1,915	1,090	2,093	1,779	1,730	5,640
Lower Fire Lake	1,602	4,675	1,989	1,780	1,919	2,224	1,441	1,149	1,956	883	483	1,021	339	458	75	283
Mirror Lake	2,554	3,038	2,748	3,164	3,053	2,628	2,443	2,767	3,194	3,776	3,515	2,425	1,925	2,662	5,401	5,027
Fish Lake	2,408	2,638	1,398	972	274	792	864	91	968	642	746	1,083	825	999	291	83
Green Lake	1,049	1,401	2,411	1,846	984	443	1,044	159	743	1,883	1,183	955	1,363	2,967	622	491
Hillberg Lake	1,107	1,382	1,323	1,763	685	475	425	446	571	1,151	1,489	307	1,694	1,960	886	87
Sixmile Lake	3,991	5,366	2,458	2,291	2,405	2,121	1,324	1,206	762	1,851	2,922	1,015	2,570	2,459	713	292
Triangle Lake	1,058	182	1,201	511	237	301	554	56	459	549	324	190	374	388	150	0
Clunie Lake	4,146	5,566	5,628	7,960	5,968	2,248	3,480	2,672	3,399	3,575	4,627	1,944	3,174	3,411	3,021	893
Gwen Lake	1,651	2,528	2,326	2,208	4,648	1,789	1,344	1,857	1,133	1,567	1,518	594	1,895	1,894	1,421	1,000
Otter Lake	6,117	4,056	6,810	11,964	10,118	4,148	4,900	3,285	4,023	5,071	4,339	1,639	1,905	2,497	1,756	1,192
Other Lakes	1,438	2,929	572	3,213	2,330	1,591	1,333	1,796	1,814	2,001	3,442	1,327	1,304	2,056	559	477
Lake Total	34,549	57,372	52,071	56,277	48,818	32,708	28,621	23,108	31,922	34,986	36,625	18,975	27,874	35,528	20,610	21,999
Bird Creek	10	36	9	16	12	24	19	135	0	10	48	0	24	0	0	17
Campbell Creek	408	1,637	732	1,697	199	277	267	271	300	531	215	272	711	216	369	418
Eagle River	39	0	113	132	0	142	79	63	103	21	41	25	73	22	0	0
Ship Creek	39	200	9	0	62	47	47	14	99	53	84	0	47	85	0	0
Twentymile River	10	0	19	0	187	8	0	0	28	0	12	0	0	0	0	0
Other Streams	204	619	244	313	25	111	79	40	422	547	120	489	47	61	332	44
Stream Total	710	2,492	1,126	2,158	485	609	491	523	952	1,162	520	786	902	384	701	479
AREA TOTAL	35,259	59,864	53,197	58,435	49,303	33,317	29,112	23,631	32,874	36,148	37,145	19,761	28,776	35,912	21,311	22,478

Appendix B4.-Anchorage area Dolly Varden/Arctic char sport fish catch, 1990-2002.

Area	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER													
Boat	0	0	0	0	0	0	0	0	80	0	0	0	65
Shoreline	16	39	434	45	27	147	61	0	44	275	202	0	37
Saltwater Total	16	39	434	45	27	147	61	0	124	275	202	0	102
FRESHWATER													
Campbell Point Lake	198	107	107	445	36	699	534	14	314	0	1,693	43	326
Cheney Lake	0	0	0	0	0	0	364	64	194	297	178	11	68
Mirror Lake	0	496	918	302	377	317	745	1,441	1,074	484	142	465	375
Sixmile Lake	82	78	336	312	18	130	340	27	421	35	0	0	0
Clunie Lake	1,137	701	877	604	950	579	570	122	757	374	2,936	329	0
Gwen Lake	280	58	107	107	45	0	0	0	0	0	0	0	0
Other Lakes	594	156	0	204	73	29	145	68	201	172	0	99	1,366
Lake Total	2,291	1,596	2,345	1,974	1,499	1,754	2,698	1,736	2,961	1,362	4,949	947	2,135
Bird Creek	165	19	213	302	662	378	85	162	243	90	137	22	94
Campbell Creek	1,516	788	246	1,382	1,975	1,267	1,832	938	3,633	1,693	5,161	12,760	2,371
Eagle River	2,192	788	1,704	2,091	1,302	1,261	1,497	804	303	814	1,275	87	540
Ingram Creek	0	78	8	78	63	120	61	0	34	66	83	32	227
Placer River	148	0	500	0	1,022	76	206	230	278	44	217	88	303
Ship Creek	297	428	303	427	568	528	170	256	134	44	184	648	610
Twentymile River	1,038	837	803	644	637	783	583	1,154	607	190	935	2,027	489
Other Streams	1,583	554	492	718	974	338	510	606	1,080	221	1,236	647	416
Stream Total	6,939	3,492	4,269	5,642	7,203	4,751	4,944	4,150	6,312	3,162	9,228	16,311	5,050
Freshwater Total	9,230	5,088	6,614	7,616	8,702	6,505	7,642	5,886	9,273	4,524	14,177	17,258	7,185
AREA TOTAL	9,246	5,127	7,048	7,661	8,729	6,652	7,703	5,886	9,397	4,799	14,379	17,258	7,287

Appendix B5.-Anchorage area Dolly Varden/Arctic char sport fish harvest, 1987-2002.

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER																
Boat	0	0	0	0	0	0	0	0	0	0	0	80	0	0	0	65
Shoreline	0	73	0	16	19	180	10	0	0	61	0	9	22	24	0	0
Saltwater Total	0	73	0	16	19	180	10	0	0	61	0	89	22	24	0	65
FRESHWATER																
Campbell Point Lake	0	0	0	66	49	107	244	36	153	291	14	306	0	118	32	17
Cheney Lake	36	36	0	0	0	0	0	0	0	0	21	42	297	0	11	0
Lower Fire Lake	0	36	281	0	0	0	0	0	0	0	0	0	0	0	0	0
Mirror Lake	0	0	281	0	282	500	156	296	317	489	442	253	392	0	108	182
Sixmile Lake	0	36	9	49	0	213	0	0	76	0	0	0	22	0	0	0
Clunie Lake	0	0	0	363	418	705	409	556	186	218	41	303	231	462	139	0
Gwen Lake	0	0	0	132	39	90	29	0	0	0	0	0	0	0	0	0
Otter Lake	0	0	122	0	0	0	0	0	0	0	0	0	0	24	0	0
Other Lakes	0	0	38	33	10	0	29	45	29	12	41	84	150	0	0	156
Lake Total	36	108	731	643	798	1,615	867	933	761	1,010	559	988	1,092	604	290	355
Bird Creek	109	127	188	33	10	147	28	108	86	12	14	34	0	0	0	0
Campbell Creek	181	1,564	291	445	107	49	195	283	87	85	0	226	626	83	238	373
Eagle River	543	637	732	330	584	573	492	521	426	389	378	160	97	409	0	205
Ingram Creek	0	109	39	0	19	0	0	54	0	24	0	26	0	24	0	0
Placer River	290	0	20	49	0	82	0	242	22	0	176	25	44	47	0	170
Ship Creek	163	146	75	82	350	33	58	161	98	73	32	17	22	0	33	0
Twentymile River	254	327	300	396	185	311	78	99	153	194	243	169	99	154	189	180
Other Streams	525	654	329	263	486	361	65	99	0	146	188	161	45	118	151	55
Stream Total	2,065	3,564	1,974	1,598	1,741	1,556	916	1,567	872	923	1,031	818	933	835	611	983
Freshwater Total	2,101	3,672	2,705	2,241	2,539	3,171	1,783	2,500	1,633	1,933	1,590	1,806	2,025	1,439	901	1,338
AREA TOTAL	2,101	3,745	2,705	2,257	2,558	3,351	1,793	2,500	1,633	1,994	1,590	1,895	2,047	1,463	901	1,403

Appendix B6.-Anchorage area Arctic grayling sport fish catch, 1991-2002.

Area	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
FRESHWATER												
Beach Lake	1,043	3,096	1,027	724	484	1,897	4,555	1,077	1,351	105	0	4,463
Lower Fire Lake	70	428	176	122	9	0	0	0	0	0	0	0
Mirror Lake	0	0	0	612	0	0	0	0	0	0	0	0
Other Lakes	367	30	159	766	18	206	0	0	0	0	412	0
Lake Total	1,480	3,554	1,362	2,224	511	2,103	4,555	1,077	1,351	105	412	4,463
Eagle River	30	0	0	10	27	50	0	0	116	17	0	31
Other Streams	40	0	0	49	35	61	0	505	0	0	98	129
Stream Total	70	0	0	59	62	111	0	505	116	17	98	160
AREA TOTAL	1,550	3,554	1,362	2,283	573	2,214	4,555	1,582	1,467	122	510	4,623

Appendix B7.-Anchorage area Arctic grayling sport fish harvest, 1987-2002.

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
FRESHWATER																
Beach Lake	0	0	0	0	89	270	233	90	53	182	68	59	158	10	43	747
Lower Fire Lake	0	819	66	511	20	135	0	0	9	0	0	0	0	0	0	0
Mirror Lake	0	0	0	0	0	0	0	387	0	0	0	0	0	0	0	0
Other Lakes	0	0	0	16	79	8	0	108	0	0	0	0	0	0	0	0
Lake Total	0	819	66	527	188	413	233	585	62	182	68	59	158	10	43	747
Eagle River	0	0	0	49	30	0	0	0	27	50	0	0	0	0	0	0
Other Streams	18	182	0	0	20	0	0	49	0	61	0	0	0	0	19	0
Stream Total	18	182	0	49	50	0	0	49	27	111	0	0	0	0	19	0
AREA TOTAL	18	1,001	66	576	238	413	233	634	89	293	68	59	158	10	62	747

Appendix B8.-Anchorage area landlocked salmon (chinook and coho) sport fish catch, 1990-2002.

Area	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
FRESHWATER													
Campbell Point Lake	1,038	116	790	221	1,254	1,484	1,419	626	34	1,600	6,384	224	940
Cheney Lake	2,538	2,339	2,542	7,279	2,433	1,219	1,698	2,130	1,463	752	1,965	573	0
Delong Lake	1,285	929	2,910	2,102	771	2,859	704	2,523	724	851	3,078	2,036	2,413
Jewel Lake	5,026	4,031	5,906	5,590	4,702	2,378	5,735	3,425	3,611	3,487	5,537	5,987	9,077
Sand Lake	7,301	3,301	2,607	1,955	2,451	2,997	3,494	1,194	2,348	2,265	4,575	3,039	950
Taku Campbell Lake	0	0	0	0	0	0	364	244	1,511	1,007	6,482	650	346
Beach Lake	148	664	1,828	2,303	2,597	1,153	3,700	1,187	2,074	1,505	485	505	1,378
Mirror Lake	956	282	3,440	2,191	4,058	1,516	1,565	2,969	6,658	4,953	2,365	5,966	1,306
Fish Lake	0	0	184	1,219	76	34	0	0	0	0	0	0	0
Green Lake	1,879	0	335	123	1,026	285	2,639	1,253	1,419	147	1,357	2,694	1,590
Hillberg Lake	49	0	1,579	1,185	1,027	67	970	445	979	46	279	128	0
Sixmile Lake	445	0	1,709	1,471	472	478	0	0	0	0	0	0	0
Triangle Lake	0	100	0	0	73	0	0	0	0	0	0	0	0
Clunie Lake	1,895	896	2,055	1,331	3,532	1,173	3,349	2,046	1,900	518	3,610	2,404	201
Gwen Lake	2,554	166	541	67	835	117	0	0	0	0	0	0	0
Otter Lake	2,653	2,754	2,131	8,755	3,305	1,794	7,045	3,448	2,567	147	303	198	85
Other Lakes	0	0	433	280	36	0	0	0	25	94	303	753	66
AREA TOTAL	27,767	15,578	28,990	36,072	28,648	17,554	32,682	21,490	25,313	17,372	36,723	25,157	18,352

Appendix B9.-Anchorage area landlocked salmon (chinook and coho) sport fish harvest, 1987-2002.

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
FRESHWATER																
Campbell Point Lake	0	186	141	231	83	162	221	764	461	388	309	8	526	26	87	594
Cheney Lake	0	309	2,195	428	2,041	1,071	2,426	1,661	142	995	1,027	623	549	497	573	0
Delong Lake	54	557	1,726	412	630	1,709	1,800	571	1,157	522	773	244	332	1,139	265	438
Jewel Lake	362	62	3,311	1,154	2,688	2,574	3,611	2,977	1,099	2,544	1,317	2,321	1,807	2,485	2,506	2,542
Sand Lake	1,105	588	4,690	2,868	2,588	2,153	1,234	1,761	486	704	634	1,097	904	956	2,279	276
Taku Campbell Lake	0	0	0	0	0	0	0	0	0	0	122	198	147	48	0	207
Beach Lake	0	124	159	33	332	1,385	783	926	455	1,941	577	1,519	409	121	9	562
Lower Fire Lake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mirror Lake	0	0	0	231	265	1,828	1,554	1,960	700	1,274	1,531	2,278	2,681	735	2,002	498
Fish Lake	0	248	188	0	0	54	414	0	0	0	0	0	0	0	0	0
Green Lake	0	1,114	206	165	0	281	0	272	201	923	718	346	124	206	1,283	885
Hillberg Lake	0	0	291	33	0	281	570	227	34	667	299	953	0	0	128	0
Sixmile Lake	0	340	122	198	0	357	794	45	251	0	0	0	0	0	0	0
Triangle Lake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clunie Lake	380	155	516	511	697	638	783	1,071	134	861	769	841	271	400	346	25
Gwen Lake	0	0	0	181	133	346	0	291	84	0	0	0	0	0	0	0
Otter Lake	362	681	938	330	1,360	930	3,019	754	830	2,461	837	2,156	85	36	91	0
Other Lakes	0	0	0	0	0	216	280	0	0	0	0	17	19	303	69	66
AREA TOTAL	2,263	4,364	14,483	6,775	10,817	13,985	17,489	13,280	6,034	13,280	8,913	12,601	7,854	6,952	9,638	6,093

Appendix B10.-Anchorage area anadromous chinook salmon sport fish catch, 1990-2002.

Area	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER													
Boat	6	12	31	60	237	147	0	0	6	22	40	0	30
Shoreline	83	18	94	112	93	291	21	30	115	179	20	262	134
Saltwater Total	89	30	125	172	330	438	21	30	121	201	60	262	164
FRESHWATER													
Bird Creek	95	92	47	239	0	366	661	303	408	404	199	116	330
California Creek	0	0	0	0	10	0	0	0	35	0	0	0	0
Campbell Creek	44	226	0	212	0	0	53	82	0	98	88	149	81
Eagle River	0	6	109	88	128	296	586	306	64	48	132	132	162
Glacier Creek	6	0	8	0	10	0	11	0	0	11	20	32	0
Ship Creek	946	1,607	4,019	7,104	4,950	6,769	9,354	9,045	5,382	14,275	11,090	10,656	5,967
Twentymile River	6	12	0	0	0	0	64	33	6	44	129	0	215
Other Lakes and Streams	6	23	0	9	76	0	437	0	6	37	130	496	151
Stream Total	1,103	1,966	4,183	7,652	5,174	7,431	11,166	9,769	5,901	14,917	11,788	11,581	6,906
AREA TOTAL	1,192	1,996	4,308	7,824	5,504	7,869	11,187	9,799	6,022	15,118	11,848	11,843	7,070

Appendix B11.-Anchorage area anadromous chinook salmon sport fish harvest, 1987-2002.

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER																
Boat	19	0	11	6	12	31	43	178	109	0	0	6	22	10	0	30
Shoreline	0	0	11	6	18	78	28	26	168	0	20	32	145	10	108	64
Saltwater Total	19	0	22	12	30	109	71	204	277	0	20	38	167	20	108	94
FRESHWATER																
Bird Creek	29	0	23	0	0	9	10	0	0	0	0	0	11	10	0	0
California Creek	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
Campbell Creek	0	19	11	0	0	0	41	0	0	0	0	0	33	0	0	6
Eagle River	0	0	28	0	6	48	47	59	194	309	140	19	22	109	58	34
Glacier Creek	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
Peters Creek	0	0	62	0	0	0	0	0	0	0	0	0	0	0	0	
Ship Creek	437	587	792	445	1,127	2,282	2,872	2,445	3,583	3,774	4,456	2,099	5,204	4,593	4,286	2,287
Twentymile River	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
Other Lakes and Streams	0	57	0	0	0	0	0	0	0	373	0	0	25	20	0	0
Stream Total	466	663	928	445	1,139	2,339	2,970	2,504	3,777	4,456	4,596	2,118	5,295	4,732	4,344	2,327
AREA TOTAL	485	663	950	457	1,169	2,448	3,041	2,708	4,054	4,456	4,616	2,156	5,462	4,752	4,452	2,421

Appendix B12.-Anchorage area anadromous coho salmon sport fish catch, 1990-2002.

Area	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER													
Boat	0	121	40	17	326	190	20	279	146	87	52	234	257
Shoreline	110	13	121	320	144	86	305	200	1,121	83	539	498	755
Saltwater Total	110	134	161	337	470	276	325	479	1,267	170	591	732	1,012
FRESHWATER													
Bird Creek	811	1,372	1,279	7,799	7,169	5,639	9,675	9,097	33,546	6,284	15,799	11,563	1,504
California Creek	0	0	16	0	36	0	28	0	171	*	292	487	109
Campbell Creek	0	89	24	6,894	4,725	4,910	3,474	3,006	2,624	1,880	1,873	2,748	2,998
Eagle River	8	32	8	201	30	76	871	148	15	134	93	449	420
Eklutna River	0	57	*	29	0	19	95	0	25	*	*	11	51
Glacier Creek	47	146	178	363	190	25	172	78	171	87	595	452	743
Ingram Creek	228	0	40	76	54	179	68	29	191	87	125	29	259
Peters Creek	79	216	259	0	0	38	0	*	52	0	11	0	94
Peterson Creek	16	0	24	0	*	*	*	*	*	*	*	0	0
Placer Creek	31	*	8	143	*	*	*	*	*	0	*	*	*
Placer River	55	191	599	716	552	977	662	657	1,196	327	986	1,345	1,841
Portage Valley Streams	63	229	24	29	652	361	426	228	100	126	276	0	2,313
Rabbit Creek	*	0	*	0	0	*		59	0	*	*	*	*
Ship Creek	1,220	1,384	3,142	3,876	4,239	5,482	7,710	13,448	21,733	7,064	20,890	39,615	24,699
Twentymile River [a]	1,283	2,032	2,559	2,636	3,882	3,729	3,767	2,664	3,354	1,457	5,025	5,724	4,101
Other Streams	16	44	931	334	443	235	425	79	32	0	311	710	1,075
Other Lakes	0	0	413	29	100	377	28	220	45	218	21	0	0
Freshwater Total	3,857	5,792	9,504	23,125	22,072	22,047	27,401	29,713	63,255	17,664	46,297	63,133	40,207
AREA TOTAL	3,967	5,926	9,665	23,462	22,542	22,323	27,726	30,192	64,522	17,834	46,888	63,865	41,219

[a] Includes Glacier River.

* Catch included in totals, but number of responses too low to separate by stream.

Appendix B13.-Anchorage area anadromous coho salmon sport fish harvest, 1987-2002.

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER																
Boat	54	0	0	0	121	40	17	280	181	20	134	140	87	31	234	213
Shoreline	18	0	82	79	13	88	206	72	86	218	109	720	71	257	229	374
Saltwater Total	72	0	82	79	134	128	223	352	267	238	243	860	158	288	463	587
FRESHWATER																
Bird Creek	761	1,710	899	535	1,099	785	6,195	5,425	4,121	6,934	6,771	22,406	4,611	10,741	8,449	1,053
California Creek	18	0	37	0	0	0	0	27	0	19	0	159	*	104	214	103
Campbell Creek	0	0	28	0	25	8	3,942	1,256	1,947	1,458	1,651	1,167	1,341	555	813	1,144
Eagle River	0	73	37	0	0	8	96	20	57	223	92	15	37	83	140	271
Eklutna River	0	36	28	0	57	*	29	0	19	0	0	25	*	*	*	21
Fish Creek	0	0	28	0	0	0	*	0	0	0		0	*	*	*	55
Glacier Creek	0	200	147	24	114	130	353	100	0	49	49	100	11	428	345	628
Ingram Creek	0	55	64	118	0	24	76	27	132	59	0	159	87	73	19	152
Peters Creek	0	0	0	0	216	219	0	0	38	0	*	52	0	0	0	88
Peterson Creek	0	0	0	16	0	24	0	*	*	*	*	*	*	*	0	0
Placer Creek	54	273	101	24	*	8	143	*	*	*	*	*	0	*	*	*
Placer River	181	36	142	47	152	300	650	380	652	416	500	610	262	569	701	1,044
Portage Valley Streams	91	55	55	24	76	24	0	217	343	107	228	57	59	161	0	1,213
Rabbit Creek	18	91	37	0	0	*	0	0	*	*	0	0	*	*	*	*
Ship Creek	779	2,128	1,467	818	1,168	1,911	2,579	3,011	3,222	5,369	9,434	14,049	4,649	11,858	26,419	16,751
Twentymile River [a]	1,050	2,055	1,715	787	1,308	1,684	1,986	2,846	2,347	2,597	1,332	2,541	1,051	3,094	2,742	2,672
Other Streams	72	18	0	16	44	356	86	287	113	298	69	19	0	1,008	388	478
Other Lakes	0	0	73	0	0	89	29	0	9	28	209	0	0	21	0	0
Freshwater Total	3,024	6,730	4,858	2,409	4,259	5,570	16,164	13,596	13,000	17,557	20,335	41,359	12,108	28,695	40,230	25,673
AREA TOTAL	3,096	6,730	4,940	2,488	4,393	5,698	16,387	13,948	13,267	17,795	20,578	42,219	12,266	28,191	40,693	26,260

[a] Includes Glacier River.

* Catch included in totals, but number of responses too low to separate by stream.

Appendix B14.-Anchorage area pink salmon sport fish catch, 1990-2002.

Area	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER													
Boat	0	0	9	28	51	28	29	0	193	0	92	0	37
Shoreline	511	74	1,136	1,784	392	77	431	128	1,461	185	871	321	16
Saltwater Total	511	74	1,145	1,812	443	105	460	128	1,654	185	963	321	53
FRESHWATER													
Sixmile Creek and Lake	105	19	128	173	128	223	69	156	7	13	205	150	93
Bird Creek	9,327	3,953	16,845	6,206	3,460	15,201	14,218	3,038	18,595	3,913	20,055	7,662	5,931
California Creek	12	0	46	77	358	29	216	46	399	*	266	579	225
Campbell Creek	23	139	0	153	90	115	333	0	27	0	297	129	138
Eagle River	0	0	9	29	49	242	120	55	0	0	70	23	178
Eklutna River	35	0	*	0	0	0	0	0	0	*	*	0	0
Glacier Creek	1,640	65	1,136	1,198	435	48	247	9	451	134	1,970	227	504
Indian Creek	23	0	55	115	*	*	*	0	13	*	0	0	0
Ingram Creek	488	0	522	316	1,168	300	442	92	785	214	1,970	551	601
Peters Creek	12	46	27	0	0	0	0	*	14	0	0	23	0
Placer River	0	0	110	0	0	0	20	18	358	13	31	57	141
Ship Creek	686	742	5,881	747	1,185	1,851	1,258	1,484	5,152	789	6,841	2,815	2,724
Twentymile River	500	585	870	173	762	494	1,464	72	301	80	297	234	709
Other Streams & Lakes	0	0	513	125	402	194	342	22	382	121	5,271	217	354
Freshwater Total	12,851	5,549	26,142	9,312	8,037	18,697	18,729	4,992	26,484	5,277	37,273	12,667	11,598
AREA TOTAL	13,362	5,623	27,287	11,124	8,480	18,802	19,189	5,120	28,138	5,462	38,236	12,988	11,651

* Catch included in totals, but number of responses too low to separate by stream.

Appendix B15.-Anchorage area pink salmon sport fish harvest, 1987-2002.

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER																
Boat	0	0	0	35	0	9	19	0	9	0	0	43	0	0	0	0
Shoreline	0	0	17	105	9	448	284	222	28	59	9	210	40	348	64	7
Saltwater Total	0	0	17	140	9	457	303	222	37	59	9	253	40	348	64	7
FRESHWATER																
Sixmile Lake	*	*	*	*	*	46	105	68	0	0	92	7	0	41	150	0
Bird Creek	1,684	3,256	1,155	3,815	1,513	5,899	1,745	1,101	2,593	2,419	535	1,941	507	1,335	333	758
California Creek	0	491	50	0	0	0	10	94	0	0	0	0	*	0	0	0
Campbell Creek	0	0	0	0	0	0	19	14	0	0	0	0	0	0	0	5
Eagle River	0	0	42	0	0	0	0	49	0	28	55	0	0	0	0	0
Eklutna River	0	55	0	0	0	*	0	0	0	0	0	0	*	*	0	0
Fish Creek	0	0	42	0	0	0	*	0	0	0	*	15	*	*	*	*
Glacier Creek	0	36	0	512	46	137	115	17	19	20	0	27	0	359	0	28
Indian Creek	127	346	0	0	0	55	115	*	*	*	*	0	*	0	0	0
Ingram Creek	0	255	0	291	0	192	192	209	29	10	18	325	94	41	23	90
Peters Creek	0	0	0	12	0	9	0	0	0	0	*	0	0	0	0	0
Placer River	0	0	0	0	0	18	0	0	0	0	0	108	0	0	0	15
Ship Creek	145	564	291	81	353	1,346	163	119	267	214	80	454	80	853	190	155
Twentymile River	145	218	17	81	46	73	0	9	19	91	32	34	0	10	23	29
Other Streams & Lakes	181	109	17	0	19	669	0	77	135	21	22	41	0	136	0	81
Freshwater Total	2,282	5,330	1,614	4,792	1,977	8,444	2,464	1,757	3,062	2,803	834	2,952	681	2,775	719	1,161
AREA TOTAL	2,282	5,330	1,631	4,932	1,986	8,901	2,767	1,979	3,099	2,862	843	3,205	721	3,123	783	1,168

* Catch included in totals, but number of responses too low to separate by stream.

Appendix B16.-Anchorage area sockeye salmon sport fish catch, 1990-2002.

Area	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER													
Boat	0	0	58	45	28	32	17	0	178	108	0	0	53
Shoreline	98	244	880	4,102	614	0	168	110	417	674	59	830	38
Saltwater Total	98	244	938	4,147	642	32	185	110	595	782	59	830	91
FRESHWATER													
Bird Creek	233	87	353	157	479	501	467	220	574	78	678	316	0
Campbell Creek	87	35	16	135	305	274	84	101	38	11	0	329	111
Eagle River	10	0	66	9	0	21	59	60	0	43	35	12	19
Ingram Creek	29	0	411	29	199	0	76	30	76	11	32	12	61
Placer River	10	113	99	48	0	31	81	80	53	32	0	0	47
Portage Valley Streams	10	9	16	96	9	10	209	52	8	11	130	166	19
Sixmile Creek and Lake	78	44	1,192	963	616	211	694	1,648	509	64	85	300	46
Ship Creek							206	0	156	433	0	0	0
Twentymile River	49	401	296	164	596	422	233	70	84	42	42	176	288
Other Lakes and Streams	20	0	8	304	1,430	22	55	74	7	0	219	151	12
Freshwater Total	526	689	2,457	1,905	3,634	1,492	2,164	2,335	1,505	725	1,221	1,462	603
AREA TOTAL	624	933	3,395	6,052	4,276	1,524	2,349	2,445	2,100	1,507	1,280	2,292	694

Appendix B17.-Anchorage area sockeye salmon sport fish harvest, 1987-2002.

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER																
Boat	0	0	0	0	148	41	19	28	10	8	0	114	108	0	0	53
Shoreline	0	0	60	49	26	501	1,830	263	0	126	50	249	140	38	271	24
Saltwater Total	0	0	60	49	174	542	1,849	291	10	134	50	363	248	38	271	77
FRESHWATER																
Bird Creek	163	236	128	97	78	173	109	130	95	184	98	448	56	446	263	0
Campbell Creek	0	0	51	19	0	0	19	71	52	0	0	0	11	0	68	60
Eagle River	435	0	0	0	0	16	9	0	21	0	60	0	21	0	0	0
Ingram Creek	38	0	0	10	0	33	19	38	0	0	0	76	0	0	0	36
Placer River	38	0	0	10	113	99	48	0	31	64	30	0	0	0	0	17
Portage Valley Streams	308	0	9	10	9	8	96	0	0	17	42	0	11	21	89	19
Ship Creek	0	0	0	0	0	0	0	0	0	136	0	95	185	0	0	0
Sixmile Creek and Lake	36	36	111	10	44	230	597	161	83	268	659	228	0	32	0	14
Twentymile River	435	200	145	19	331	214	125	299	89	26	10	61	10	0	97	95
Other Lakes and Streams	54	0	60	30	0	0	214	604	0	55	74	0	0	21	106	12
Freshwater Total	1,507	472	504	205	575	773	1,236	1,303	371	750	973	908	294	520	623	253
AREA TOTAL	1,507	472	564	254	749	1,315	3,085	1,594	381	884	1,023	1,271	542	558	894	330

Appendix B18.-Anchorage area chum salmon sport fish catch, 1990-2002.

Area	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER													
Boat	0	8	0	0	0	22	11	145	194	0	12	0	21
Shoreline	34	8	31	33	88	0	288	0	8	469	85	168	18
Saltwater Total	34	16	31	33	88	22	299	145	202	469	97	168	39
FRESHWATER													
Bird Creek	442	304	478	1,013	744	1,694	2,416	1,014	3,628	1,156	2,549	1,489	3,056
California Creek	0	0	0	37	7	0	22	9	137	*	12	0	73
Eagle River	68	0	0	18	15	71	351	0	120	0	109	806	184
Eklutna River	11	24	0	0	0	0	0	0	8	*	*	0	277
Glacier Creek	261	0	23	55	37	0	89	9	176	95	182	90	74
Peters Creek	11	64	76	0	0	0	0	*	8	0	0	43	287
Placer River	113	64	167	0	22	77	100	62	0	27	0	0	111
Portage Valley Streams	0	16	8	0	131	23	155	0	25	108	36	116	91
Ship Creek	238	160	243	129	334	626	497	229	508	354	853	1,347	807
Twentymile River [a]	352	633	562	65	153	467	384	87	342	81	48	357	1,400
Other Lakes and Streams	0	0	76	9	15	9	209	33	0	14	72	215	141
Freshwater Total	1,496	1,265	1,633	1,326	1,458	2,967	4,223	1,443	4,952	1,835	3,861	4,463	6,501
AREA TOTAL	1,530	1,281	1,664	1,359	1,546	2,989	4,522	1,588	5,154	2,304	3,958	4,631	6,540

[a] Includes Glacier River.

* Catch included in totals, but number of responses too low to separate by stream.

Appendix B19.-Anchorage area chum salmon sport fish harvest, 1987-2002.

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER																
Boat	0	0	0	11	16	0	0	0	0	0	0	48	0	0	0	0
Shoreline	0	0	18	0	0	8	8	7	0	0	0	8	0	36	0	0
Saltwater Total	0	0	18	11	16	8	8	7	0	0	0	56	0	36	0	0
FRESHWATER																
Bird Creek	290	364	613	136	120	129	283	102	296	232	209	236	99	158	87	406
California Creek	54	0	89	0	0	0	0	7	0	0	0	0	*	0	0	0
Eagle River	0	0	0	11	0	0	0	15	11	121	0	86	0	12	52	0
Eklutna River	0	0	62	11	24	0	0	0	0	0	0	8	*	*	0	0
Fish Creek	0	0	27	0	0	0	*	0	0	0	*	0	*	*	*	0
Glacier Creek	0	18	44	11	0	0	46	0	0	0	0	0	0	61	52	0
Indian Creek	0	0	0	0	0	0	0	*	*	*	0	0	*	0	0	0
Peters Creek	0	0	0	11	40	38	0	0	0	0	*	0	0	0	0	0
Placer River	0	0	30	11	24	0	0	7	5	0	0	0	0	0	0	0
Portage Valley Streams	0	36	0	0	0	8	0	0	14	0	0	17	0	0	0	0
Ship Creek	54	182	44	11	16	61	28	22	95	155	24	93	16	73	218	66
Twentymile River	181	91	44	102	120	38	9	7	18	33	0	17	14	0	35	0
Other Lakes and Streams	0	0	44	0	0	15	9	7	0	66	15	0	0	0	26	0
Freshwater Total	579	691	997	304	344	289	375	167	439	607	248	457	129	304	470	472
AREA TOTAL	579	691	1,015	315	360	297	383	174	439	607	248	513	129	340	470	472

* Catch included in totals, but number of responses too low to separate by stream.

Appendix B20.-Anchorage area personal use eulachon harvest, 1987-2002.

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SALTWATER																
Boat	0	0	0	989	0	0	0	0	0	0	0	0	0	0	0	0
Shoreline	26,932	35,952	13,923	6,674	4,229	7,290	5,479	4,562	1,449	1,163	12,306	6,725	14,926	7,625	12,584	51,077
Saltwater Total	26,932	35,952	13,923	7,663	4,229	7,290	5,479	4,562	1,449	1,163	12,306	6,725	14,926	7,625	12,584	51,077
FRESHWATER																
Bird Creek	0	0	0	0	0	0	0	0	0	0	0	0	325	0	0	0
Placer River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Twentymile River	101,574	103,556	88,411	125,100	63,365	35,674	24,386	44,037	31,342	20,049	26,765	26,912	29,346	5,563	22,763	25,180
Other Streams	3,078	0	1,547	264	1,663	0	0	680	1,267	0	0	0	0	307	562	542
Freshwater Total	104,652	103,556	89,958	125,364	65,028	35,674	24,386	44,717	32,609	20,049	26,765	26,912	29,671	5,870	23,325	25,722
AREA TOTAL	131,584	139,508	103,881	133,027	69,257	42,964	29,865	49,279	34,058	21,212	39,071	33,637	44,597	13,495	35,909	76,799

APPENDIX C. ESCAPEMENT COUNTS

Appendix C1.-Salmon escapement counts, Ship Creek, 1960-2003.

Year	Chinook [a]	Coho [a]	Sockeye	Pink	Chum
1960	58				
1961	80				
1962	58				
1963	119				
1964	94				
1965	207				
1966	50				
1967	200				
1968	500				
1969	710	142		211	200
1970	1,746	2,234		448	39
1971	221	1,206			41
1972	121	85		147	165
1973	165	64		14	93
1974	146	250			
1975	120	85			
1976	806				
1977	1,011	436	3	584	472
1978	867	381	3	613	155
1979	124				
1980	256	90	1	99	116
1981	1,000				
1982	665				
1983-85 [b]					
1986	1,433				
1987	1,030				
1988 [b]					
1989	238				
1990	761	71			5
1991	318	412			6
1992	134	55	2		
1993	706	338	2	22	
1994	247	654	13	631	89
1995	505	858	5	890	92
1996	503	1,013	13	244	26
1997	447	1,205	0	14	9
1998	360	1,090	2	578	19
1999	899	493	19	360	320
2000	801	815	11	5,024	46
2001	1032	760	0	525	143
2002	1475 [c]	9	9	0	0
2003	1,665 [c]	199 [c]	0	2	7
94-03 Avg.	793	710	7	827	75

[a] Does not include fish collected for hatchery brood stock.

[b] No count conducted.

[c] Estimates from foot surveys.

Appendix C2.-Salmon escapement counts, Eagle River, 1963-2003.

Year	Chinook [a]	Coho [a]	Sockeye [a]	Pink [a]	Chum [a]
1963	135	200			
1964	123				
1965	159				
1966	49				
1967	50				
1968	28				
1969	[b]				
1970	81				
1971-1972	[b]				
1973	61				
1974-1975	[b]				
1976	81				
1977	313				
1978-1985	[b]				
1986	222				
1987-1988	[b]				
1989	37				
1990	326	2			1
1991	513	3			
1992	336				
1993	378				
1994	440				
1995	447	9			
1996	141 [c]				
1997	412				
1998	163 [d]				
1999	224				
2000	[b] [d]				
2001	77 [d]			19	
2002	27 [d]				
2003	167 [d]				
94-03 Avg.	233				

[a] Estimates from foot surveys.

[b] No count conducted.

[c] Survey conducted after spawning occurred.

[d] High water and poor visibility.

Note: Surveys conducted to target peak chinook returns.

Appendix C3.-Salmon escapement counts, Campbell Creek drainage, 1958-2003.

Year	Chinook [a]	Coho [a]	Sockeye [a]	Pink [a]	Chum [a]
1958	6			1,000	
1959-1960					
1961	70				
1962	40				
1963	187	22			
1964	116			142	20
1965	119				
1966	15				
1967	300				
1968	125				
1969					
1970	63				
1971	102				
1972	37				
1973	201				
1974	79				
1975					
1976	210				
1977	349				
1978-1981 [c]					
1982	68				
1983 [c]					
1984	423				
1985 [c]					
1986	733	99	877		
1987	571	132	545		
1988 [c]					
1989	218		51		
1990	458	126	317		2
1991	590	282	844		
1992	931	157	575		
1993	937	2,312 [b]	493	13 [b]	3 [b]
1994	1,076	3,054 [b]	756	6 [b]	15 [b]
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	163		
2002	744	7,574	1,473		
2003	745	1,799	1,857		
94-03 Avg.	803	2,533	640	10	9

[a] Unless otherwise noted, estimates from foot surveys.

[b] Weir count.

[c] No surveys conducted.

Note: Surveys conducted to target peak run timing for chinook, sockeye and coho returns.

Appendix C4.-Salmon escapement counts, Bird Creek, 1984-2003.

Year	Chinook [a]	Coho [a]	Sockeye [a]	Pink [a]	Chum [a]
1984	21			420	
1985 [b]					
1986		3		500	100
1987-1988 [b]					
1989	70			615	184
1990	109	9		[c]	[c]
1991	156	50		[c]	
1992	142	101		[c]	
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
94-03 Avg.	190	524	6	1,612	147

[a] Unless otherwise noted, estimates from foot surveys.

[b] No count conducted.

[c] Observed but not counted.

Note: Surveys conducted to target peak chinook and coho run timing.

Appendix C5.-Salmon escapement counts, Sixmile Creek, 1988-2003.

Year	Chinook [a]	Coho [a]	Sockeye [a]	Pink [a]	Chum [a]
1988			2,190	958	
1989			1,321	377	
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		[b]	2,549	884	[b]
1997		10	2,158	457	
1998	[c]	1	1,777	1,309	
1999		[d]	748 [e]	[d]	[d]
2000			2,186		
2001			4,005		
2002		120	2,800	1,900	
2003		34	2,964	1,340	3
94-03 Avg.		36	2,506	1,178	11

[a] Estimates a combination of weir counts and foot surveys.

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

[c] Weir moved upstream of fish ladder near lake.

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

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

Appendix C6.-Salmon escapement estimates, Rabbit Creek drainage, 1986-2003.

Year	Chinook [a]	Coho [a]	Sockeye [a]	Pink [a]	Chum [a]
1986	10	169			
1987-1989 [b]					
1990	10	10	5	400	5
1991	64		2		
1992	38			2	
1993-1996 [b]					
1997	31				
1998	41	309		43	
1999-2000 [b]					
2001	64	697	300 [c]	7	
2002	9	1,243	0	1,004	
2003	7	348	0	33	
01-03 Avg.	27	763	100	348	

[a] Estimates from foot surveys

[b] No count conducted.

[c] Estimated from boardwalk at Potter Marsh

Note: Surveys conducted to target peak chinook run timing; chinook and coho salmon were targeted in 1998 and 2001.

Appendix C7.-Aerial survey coho salmon escapement estimates, Turnagain Arm drainages, 1994-2003.

Drainage	1994	1995	1996	1996	1997	1998	1999	2000	2001[e]	2002	2003
Twentymile River											
Ahjo Creek	75	65	0	0	0	60	0	0	NS	6	12
NE Fork	75	210	275	0	140	260	110	975	NS	110	238
Mainstem	780	560	940	0	770	2,500	470	1,920	NS	77	NC
Beaver Pond	NC[a]	120	30	0	90	80	260	110	NS	NS	0
Glacier River	50	0	NC[a]	NC[a]	NC[a]	40	NC[a]	NC[a]	NS	208	12
Upper Carmen River	0	0	0	0	NC[a]	14	NC[a]	0	NS	25	20
South Fork Carmen River	6	0	0	0	NC[a]	0	NC[a]	0	NS	50	0
Total	986	955	1,245	0	1,000	2,954	840	3,005		476	282
Portage Creek											
Mainstem	NC[a]	NC[a]	NC[a]	NC[a]	NC[a]	NC[a]	NC[a]	NC[a]	NS	NC[a]	0
Upper Railroad Slough	0	210	120	0	NC[b]	540	NC[c]	50	NS	NS	0
Lower Railroad Slough	0	40	60	0	75	330	NC[c]	180	NS	150	10
Placer Creek	0	57	10	0	5	NC[d]	0	0	NS	107	16
Total	0	307	190	0	80	870	0	230		257	26
Placer River											
Sloughs and Mainstem	55	90	45	0	110	370	70	280	NS	2,283	492
Skookum Creek	750	720	410	0	420	1,480	310	1,225	NS	1,820	200
Total	805	810	455	0	530	1,850	380	1,505		2,698	692

NS-No Survey

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 D. HISTORICAL STOCKING TABLES

Appendix D1.-Arctic char stocking in Anchorage Area by year and site.

Location	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Campbell Pt Lake	500	1,000	2,000			1,250			1,000	852		1,027		2,094	1,796
Cheney Lake										40					
Clunie Lake	1,000	500	1,250	2,000	1,000	1,250			1,000	2,133				4,387	4,496
Delong Lake														14,820	4,400
Gwen Lake	500	500	1,250	1,000											
Jewel Lake														4,000	4,035
Mirror Lake	500	500	1,250	1,000	1,000	2,500	2,402		2,000	3,908		2,012		4,845	6,117
Sand Lake														2,522	4,522
Tangle Pond														503	503
Thompson Lake		500													

Note: Unless otherwise noted, releases are of catchable-sized arctic char.

Appendix D2.-Chinook salmon stocking in Anchorage Area by year (1990-2003) and site.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Catchable releases														
Beach Lake	3,104	3,076	3,037	3,168	6,346	8,115 [a]	2,989	2,000	7,123	2,744	10,709	4,139	3,838	4,040
Campbell Pt Lake	1,587	1,617	1,986	1,711	1,552	1,534	1,588	1,000	4,072					
Cheney Lake	3,030	5,206	7,398	3,029	5,489	9,905	4,880	4,191	11,358	643		3,807	2,000	1,975
Clunie Lake	4,096	4,232	3,937	4,320	4,103	4,291	4,023	2,767	6,000	6,228	8,819	8,360	8,004	3,822
Delong Lake	5,051	5,068	7,626	5,066	7,432	10,146 [b]	5,020	4,032	12,537	4,045	5,348	5,966	6,207	6,055
Green Lake		1,007	1,043	1,051	989	1,562	1,558	1,586	4,032	5,644	2,149	998	1,086	1,190
Gwen Lake	2,090		2,004											
Hillberg Lake		512	1,071	1,156	989	1,468	1,587	1,586	4,124	1,956	2,058	3,308	981	1,144
Jewel Lake	38,130	7,027	19,664	7,611	17,325	17,562 [c]	13,929	7,325	20,715	2,006	7,725	12,814	7,611	24,243
Jewel Lake Derby									1,546	1,932	2,016	8,978	4,927	
Mirror Lake	6,880	4,981	10,263	4,798	10,264	9,257	8,191		14,550		15,399	10,272	9,683	7,142
Otter Lake	5,014	7,314	15,106	5,400	6,954 [d]	8,528	6,776	5,500		7,672				
Sand Lake	9,973	10,014	15,302	9,968	9,542	6,033	3,929	4,000	10,811	7,749	5,119	4,945	4,930	5,133
Spring Lake		516		505	990	1,012	998	1,000	2,000	5,867	1,031			
Taku Campbell Lake						1,948	1,985	2,231	9,219	500				
Tangle Pond							1,154	1,651	2,016	3,052				
Upper Six Mile Lake			423											
Smolt releases														
Eagle River		102,100	107,695	121,066	107,547									
Ship Creek	102,523	211,268	176,380	217,557	199,830	229,799	228,000	325,891	204,741	197,168	265,582	254,924	290,501	329,416

[a] 5,117 were 51g subcatchables.

[b] 5,082 were 51g subcatchables.

[c] 4,976 were 51g subcatchables.

[d] 1,639 were 20g subcatchables.

Appendix D3.-Coho salmon stocking in Anchorage Area by year and site.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Catchable releases														
Cheney Lake			30,529											
Clunie Lake				17,600									53,790	
Delong Lake		8,593												
Green Lake				10,180										
Hillberg Lake		6,112		8,000										
Ingram Creek	80,000													
Jewel Lake	102,000	8,593	163,533											
Otter Lake														
Sand Lake														
Spring Lake		4,000		8,000										
Taku Campbell Lake														
Triangle Lake		6,268												
Walden Lake				5,000										
Smolt releases														
Bird Creek[a]			100,924	140,382	84,643	154,753	147,618	294,565	164,211	111,430	97,409			
Campbell Creek			97,076	140,797	87,686	157,241	75,943	71,519	83,317	42,046	63,730	69,836	69,836	78,576
Ship Creek	64,006	57,800	67,178	54,764	75,799	158,981	227,914	232,066	232,765	165,388	260,070	233,563	212,639	234,716

[a] Bird Creek not stocked 2001-2003 due to construction of the parking area just north of the creek.

Appendix D4.-Arctic grayling stocking in Anchorage Area by year and site.

Location	1987	1989	1990	1991	1992	1993	1994	1995	1996	1999	2000	2001[b]	2002[b]	2003
APU Lake			40,000 [a]											
Beach Lake		4,000	4,000	4,000		4,000	4,000	4,000	8,000	1,048		4,749	4,199	7,081 [c]
Lower Fire Lake	20,000	7,000	7,000	7,000		7,000	7,000	7,000	7,500					
Tangle Pond						2,000	2,000							
Walden Lake		4,000	4,000				4,000							
Willow Lake	28,600	3,300	31,500	14,300	14,300									
Symphony Lake												2,936		4,239

Note: Unless otherwise noted, all releases are grayling fingerling.

[a] Emergent fry were stocked in APU Lake in 1990.

[b] Catchable-sized grayling were stocked in 2001and 2002.

[c] 2,375 were catchable-sized, and 4,706 were fingerling.

Appendix D5.-Rainbow trout stocking in Anchorage Area by year (1987-2003) and site.

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Catchable releases[a]																	
Alder Lake							8,491	5,118	5,747	5,081	2,592	4,002	1,434	2,072	1,906	2,019	2,455
Beach Lake	4,810	5,307	6,609	4,572	4,497	4,311	3,249	4,437	4,947	4,410	4,244	4,056	9,862	10,133	8,087	10,095	9,614
Campbell Creek	10,281	6,303	9,235	7,277	5,428	8,010	6,071	6,634	5,058	5,104	2,686		3,030	4,563	3,909	2,291	4,264
Campbell Pt Lake	5,067	4,995	4,998	5,175	5,194	5,017	3,299	5,099	6,022	5,039	2,906	2,172		5,452	5,047	2,561	2,456
Cheney Lake	10,000	13,366	12,402	10,323	7,503	10,307	11,547	10,998	13,549	10,254	8,946	355	6,074	13,668			
Chester Creek		4,509	4,467	5,011	2,458	7,700	4,349	4,641	8,135	4,975	2,611	1,000	1,000	852	2,335	2,036	1,779
Clunie Lake	10,357	8,064	10,798	8,290	5,076	8,106	4,918	7,094	9,167	9,244	7,662		9,346	4,669	7,804	3,932	4,613
Delong Lake	7,228	11,698	12,170	10,437	8,235	12,818	10,968	10,549	13,090	10,246	6,207	7,300	9,904	16,282	12,840	1,231	10,182
Dishno Lake	950	1,000	1,015						542	512	515		483				
Eagle River				1,010													
Edmonds Lake								506		985	1,017			500	1,000	1,723	1,967
Elmendorf-Swan											136,388						
Fish Lake	500	768	1,108			1,021	822	1,016	1,006		1,054		1,201	1,135	300	250	532
Green Lake	1,161	1,600	1,993	2,006	2,048	2,049	1,600	1,995	3,307	3,076	2,729		2,870	3,151	2,546	1,500	1,359
Gwen Lake	4,956	4,089	4,767	4,776	3,316	4,985	3,855	4,688	2,771	4,993	5,299		3,969	4,807	5,153	2,073	4,994
Hillberg Lake	1,199	1,414	1,510	1,500	1,557	1,500	1,200	1,502	3,116	3,393	3,054	2,984		4,802	1,645	1,532	1,889
Jewel Lake	9,996	13,493	20,534	14,297	12,950	18,671	17,282	13,627	16,239	11,086	10,189	6,974	16,344	15,546	23,862	14,057	17,344
Lake Otis	1,683	1,534	1,507	1,500	1,566	1,485	1,307	1,510	1,570	1,573	1,155			500	500	500	250
Lower Fire Lake	4,740	5,018	6,653	5,220	5,501	5,181	5,329	6,706	8,052	5,170	3,081	3,350	1,672	3,000	3,018	2,976	2,713
Mirror Lake	10,151	8,173	2,456	10,273	7,841	10,243	8,520	10,429	14,068	10,079	9,771		11,299	12,107	19,595	9,299	7,402
Otter Lake	10,059	13,262	13,130	11,150	10,532	11,730	6,139	13,403	12,010	9,304	12,767	106	4,901	10,923	10,159	5,418	7,342
Rabbit Lake										2,553			1,994			920	
Sand Lake	5,404	7,101	9,821	7,211	5,225	11,413	6,684	7,273	7,380	6,069	3,646		1,466	4,096	6,201	3,074	2,105
Six Mile Lake	2,362		1,473	1,498	800												
Spring Lake	713		1,015			1,065	784	1,000	1,026	1,063	917	500		500		500	500
Taku Campbell Lake	5,065	7,622	4,161	4,246	4,242	4,536	3,382	4,119	5,126	4,163	3,022	101	2,351	7,637		2,869	1,804
Tangle Pond								5,000	1,115	3,004	1,247	1,181	983	1,000	1,713	1,031	1,021
Thompson Lake	1,915	1,024	2,030	2,019	2,017	1,982	1,408		1,992	1,979	1,969	978	939		977		
Triangle Lake	579	1,178	1,256	1,028	984	1,006	674	1,032	1,062	1,448	989		10,133	707		500	500
Upper Six Mile Lake		400			696	1,510	1,272	1,529	3,096	3,110	3,000		4,103	5,066	2,256	2,001	2,241
University Lake		50,013			2,506	270	257	100									
Walden Lake			4,383	4,050		4,146	3,348	4,065	1,995	2,006	2,034	1,005		1,000	4,615	3,208	1,149
Willow Airstrip Pond										985				1,497	1,938	2,200	1,866
Willow Lake							14,300						1,000				

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	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Subcatchable releases [b]																	
Beach Lake		8,890						17,748					29,844				
Campbell Pt Lake																	
Cheney Lake		2,500										5,440					
Chester Creek																	
Clunie Lake	20,004	6,087					102,734	58,094	91,604			4,152	46,138				
Delong Lake		1,970									51,088		2,769				
Dishno Lake												125					
Eagle River												2,462					
Edmonds Lake												1,195					
Fish Lake		420										1,500					
Green Lake		1,870							43,077			2,088					
Gwen Lake												39,298					
Hillberg Lake		1,120										2,984					
Jewel Lake		2,620									53,919	7,060	6,772				
Lake Otis												1,000					
Lower Fire Lake		6,290											1,284				
Mirror Lake		6,820							3,000		3,510	7,032	38,254				
Otter Lake		20,082	6,562	55,976		93,723	148,418	81,815	53,884			6,888	55,921				
Sand Lake		6,700										1,098					
Six Mile Lake		4,140															
Taku Campbell Lake												1,797					
Tangle Pond										80,375							
Thompson Lake																	
Triangle Lake												1,000	10,133				
Upper Six Mile Lake												2,234					
Willow Lake								14,803	14,300	14,490		12,900	12,494				

[a] Catchable releases includes catchable and brood stock rainbow trout.

[b] Subcatchable releases includes fry, smolt, subcatchable, and eyed eggs.

Appendix D6.-Other fish stocking in Anchorage Area by species, year and site.

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Pink salmon																
Ingram Creek			259,200	252,975	325,380											
Lake trout																
Clunie Lake															2,150	
Sand Lake															2,022	
Steelhead trout																
Campbell Lake	35,196	44,873														
Cheney Lake			4,054													
Delong Lake			4,143													
Gwen Lake			3,169													
Jewel Lake			5,842													
Sand Lake			6,000													
Salmon Hybrids																
Campbell Lake																1,902
Delong Lake																2,907
Jewel Lake																1,930