

Fishery Management Report No. 08-55

**Area Management Report for the Recreational
Fisheries of Prince William Sound, 2007**

by

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and

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November 2008

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



Symbols and Abbreviations

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

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ABSTRACT

This report provides a detailed summary of sport fisheries in the Prince William Sound Management Area under consideration by the Alaska Board of Fisheries in December 2008. Included are a description and overview of each fishery, how the fisheries are managed, and fishery performance and escapement, 2005-2007. The recreational fisheries include Chinook salmon, coho salmon, sockeye salmon, pink salmon, chum salmon, cutthroat trout, halibut, rockfish, lingcod, shellfish, sharks, and Dolly Varden.

Key words: Prince William Sound Management Area, Valdez, Whittier, Cordova, Seward, Chinook salmon, coho salmon, sockeye salmon, pink salmon, chum salmon, cutthroat trout, halibut, rockfish, lingcod, shellfish, sharks, Dolly Varden, sport fisheries overview.

INTRODUCTION

This report provides a detailed summary of sport fisheries in the Prince William Sound Management Area (PWSMA). Included are a description and historical overview of each fishery, how the fisheries are managed, and pertinent fishery performance and escapement.

PWSMA consists of all waters west of Cape Suckling (143° 53' W longitude) and east of Cape Puget (148° 26' 30" W longitude) (Figure 1). Local communities within the area include Valdez, Cordova, Whittier, Chenega, and Tatitlek.

PWSMA land managers include private individuals, the cities of Valdez, Cordova, and Whittier, the Alaska Railroad Corporation (ARRC), Alaska Department of Natural Resources (ADNR), U.S. Forest Service (USFS), U.S. Bureau of Land Management (BLM), U.S. Department of Defense, and Native organizations. Management and research functions for PWSMA sport fisheries are conducted by Alaska Department of Fish and Game (ADF&G), Division of Sport Fish staff from the Anchorage regional office.

Valdez was the only road access to Prince William Sound until the Anton Anderson Memorial Tunnel opened road access to Whittier in 2000. The Alaska Marine Highway ferries travelers to and from Valdez, Whittier, and Cordova several times per week in the summer including intermittent service to Tatitlek and Chenega. Winter ferry service is typically reduced to weekly visits. With the exception of some road-accessible streams in Whittier, Cordova and Valdez, virtually all the sport fisheries in PWSMA are remote and relatively difficult to access.

Data on the sport harvest of fish in Prince William Sound for this report were gathered from the Alaska Statewide Sport Fish Harvest Survey (SWHS) (Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, *In prep.*). In 2001, the saltwater reporting regions of the SWHS for PWSMA were changed to increase reporting accuracy, and allow for reporting of port of landing and a more general area fished. The new recording method simplifies the way saltwater sportfishing is recorded, as one of two areas, western PWS or eastern PWS (Figure 2). The reporting regions used prior to 2001 tallied several groups of data by a more complicated collection of areas fished in PWSMA (Figure 3a and 3b and Figure 4a and 4b) and the ports used were not recorded.

The port of landing, Valdez, Cordova, Whittier, or Seward, is also required to determine usage proportions. This change was initiated to better describe the fisheries in terms of which ports were being utilized within PWSMA. With the old method, SWHS respondents were often unable to accurately describe the specific area that they fished, so a more general description was needed to ensure more accurate results.

Mean catch and harvest statistics for the old area fished grouping method are no longer calculated, but historical data groups and means prior to 2001 are still listed in most tables to present historic data. Note that this change in grouping method does not affect the overall PWSMA total averages in each table (far right column) per each species. Beginning with this report sufficient data allow for the calculation of mean catch and harvest statistics for the “new” port of landing method (5-year average of port means). These two grouping methods, “area fished” (old method), and “port of landing” (new method) group data similarly but means per each group calculated prior to 2001 should be compared to the new port of landing data means with caution, as these two methods may not perfectly coincide.

Codified regulations for PWSMA sport fisheries are found in the Prince William Sound Section under Chapter 54 of the Alaska Administrative Code (AAC). For the purposes of effort, catch, and harvest reporting, the Statewide Harvest Survey (SWHS) was used (Mills 1979-1980, 1981a-b, 1982-1994; Howe et al. 1995, 1996, 2001 a-d; Walker et al. 2003; Jennings et al. 2004, 2006a-b, 2007, *In prep*). Catch was estimated by the SWHS beginning in 1990. PWSMA fisheries fall under Area J in the SWHS. Estimates presented in the text of this report are rounded to the nearest 10 fish; tables present estimates to the nearest fish to maintain consistency with the SWHS. Estimates of effort, catch, and harvest from the SWHS are available through 2007.

AREAWIDE OVERVIEW

Areawide Catch, Harvest, and Effort

From 2005-2007, the estimated average angler effort in PWSMA was 176,146 angler-days (Table 1, Figure 5), about 7% of the total statewide sportfishing effort and 10% of the total Southcentral Alaska effort.

In PWSMA, saltwater angling effort accounted for an estimated 92% of the total 2005-2007 fishing effort, streams accounted for 8%, and lakes angling represented less than 1%. Fishing effort in PWSMA grew substantially during 2007. This was mostly as a result of an increase in angler-days of effort expended out of Whittier, Valdez and Cordova, which were greater than the 5-year average (2002-2006) and the largest in history (Table 2). Valdez continues to be the most popular fishery in the area. Angler-days of effort from the Port of Valdez accounted for 42% of the effort in PWSMA. Whittier provided 36% of the effort, which was well above the 5-year average of 28%, followed by Cordova and other sites around PWSMA.

Anadromous salmon catch and harvest in PWSMA has varied in the past 10 years (1998-2007) with a peak catch in 2003 and harvest in 2007 (Figure 3a and 3b). Coho salmon *Oncorhynchus kisutch* comprised the largest anadromous catch (191,349) by area anglers in 2007 (Table 3), followed by pink salmon *O. gorbuscha* (136,784), sockeye salmon *O. nerka* (19,052), chum salmon *O. keta* (7,523), Chinook salmon *O. tshawytscha* (6,979), and cutthroat trout *O. clarki* (1,220).

The 2005-2007 average bottomfish catch and harvest in PWSMA was greater than the 10-year average and the 2007 season produced the highest catch and harvest estimates on record (Figure 4a and 4b). Pacific halibut *Hippoglossus stenolepis* comprised the largest catch (110,239) by area anglers in 2007, followed by rockfish *Sebastes* (38,606), and lingcod, *Ophiodon elongatus*, (20,467).

The 2005-2007 average Dolly Varden *Salvelinus malma* catch and harvest (7,387) was below the 10-year average (1998-2007), followed by rainbow trout *O. mykiss* (816), and Arctic grayling *Thymallus arcticus* (506) with anglers releasing most of their catch during this time period.

Valdez Fisheries

The city and Port of Valdez is located in northeast PWS (Appendix B1) and the fisheries of this area encompass the village of Tatitlek. Valdez continues to be the most popular port for fishing in PWSMA with 88,312 angler-days in 2007, the largest on record (Table 2 and Figure 6a). Valdez is the northernmost port in PWSMA, and saltwater boat anglers out of Valdez reported fishing in the eastern sound 83% of the time in 2007 (Figure 6b). Valdez trips represented 42% of the total angler days to PWSMA in 2007. There are seven major fisheries that occur in the Valdez area. These fisheries target five species of salmon, halibut, and lingcod. In terms of numbers of fish harvested, the most popular fisheries target coho and pink salmon. Valdez is also the most important port for charter boats in PWSMA accounting for at least 50% of the charter fleet.

Cordova Fisheries

Cordova is located on the southeastern side of PWS (Appendix B2) adjacent to the Copper River Delta. In 2007, an estimated 26,826 angler-days were expended in the Cordova area accounting for 13% of the total angling effort expended in PWSMA (Table 2 and Figure 6a). Sport fisheries target salmon, bottomfish, Dolly Varden, rainbow and cutthroat trout. In terms of numbers of fish harvested, the most popular fisheries targeted coho and sockeye salmon, and halibut. Angler effort increased dramatically in 1989, and has fluctuated since that time. The Cordova area supports the most popular freshwater fisheries in PWSMA. This can largely be attributed to the growing trend in coho salmon fishing along the Cordova road system. The Eyak River and Alaganik Slough are the most popular freshwater streams. Additionally, the popularity of the Fleming Spit salmon enhancements and trolling for salmon in Orca Inlet has also increased. Saltwater boat anglers out of Cordova reported fishing in eastern sound salt waters 86% of the time in 2007.

Whittier Fisheries

Whittier is located on the northwestern side of PWS (Appendix B3) and the fisheries of this area encompass the village of Chenega in the western sound. In terms of angling effort expended since 1983 the waters of the Whittier area have historically supported the second most popular sport fishery in PWSMA (Table 2, Figure 6a). Boat anglers out of Whittier reported fishing in salt waters of the western sound 90% of the time in 2007. In 2007, these anglers accounted for 36% of the recreational effort in PWSMA, a 19% increase since 2001. Nearly all of the angling effort is expended in marine waters because there are limited opportunities to fish in fresh water. Sport fisheries mainly target salmon and bottomfish. An estimated 76,191 angler-days were expended from Port Whittier in 2007. This represents a substantial increase over the 2002-2006 average of 34,110 angler-days. This increase is attributed to easier angler access due to the construction of the Whittier Tunnel in 2000, and the numerous new recreational developments to the Whittier Harbor area.

Seward Fisheries

Seward is located outside of PWSMA on Resurrection Bay but considerable angler effort for bottomfish is directed at western PWSMA fisheries from the port of Seward (Table 2, Figure 6a).

Anglers travel to areas near western PWSMA to fish for halibut, rockfish, and lingcod. Seward fisheries for these species are discussed below only for fish caught in PWSMA waters. A thorough analysis of Seward fisheries is found in Bosch (*Unpublished*, Area Management Report for the Recreational Fisheries of the North Gulf Coast, 2005).

STOCKED FISHERIES

ARCTIC GRAYLING AND RAINBOW TROUT

Fishery Description

In the 1960s, ADF&G began a stocking program to increase sportfishing opportunities within PWSMA. There are only a few systems with natural rainbow trout or Arctic grayling in the Copper River Delta, but these fish have been stocked in landlocked lakes near Valdez and Cordova in PWSMA to diversify opportunities for sport anglers (Figure 7). Regulations governing the stocked lakes vary by species. The limits for rainbow trout are 5 fish per day, 10 in possession. Daily bag and possession limits for Arctic grayling are 10 fish, with no size limits.

The estimated average annual catch of rainbow trout (largely from stocked lakes) from 1997-2006 was 2,157 fish (Table 4, Figure 7, Appendix A1). Historically, 18 sites in PWSMA were stocked with rainbow trout (Appendix A1). Since 1990, the number of sites has been reduced to two because the majority of the angler effort was at Ruth and Blueberry lakes located near Valdez. In 2007, rainbow trout catch was 1,239 and harvest was 313, for a harvest rate of 25%. The 2007 catch and harvest were well below the 10-year average.

Arctic grayling have been stocked in as many as eight lakes along the Copper River Highway between Cordova and the Million Dollar Bridge since 1984, and in Thompson Lake near Valdez. Thompson Lake is the only site in PWSMA currently stocked with Arctic grayling. The average annual catch of Arctic grayling from 1997-2006 was 1,062 fish and ranged from 85 in 2006 to 3,071 in 2000 (Table 5, Figure 8, Appendix A2). The 2007 estimated catch of 524 Arctic grayling was below the 10-year average. On average 22% of Arctic grayling caught were harvested.

From 2005-2007, an estimated average of 1,322 fish was caught in PWSMA lakes with an average harvest of 374. Total catch in area lakes was below the 10-year average of 3,219. Rainbow trout were the most popular fish with an estimated 1,239 caught in 2007 and 313 retained. The 2005-2007 average sport catch of Arctic grayling was estimated at 506, of which, only 71 were harvested on average.

Fishery Management and Objectives

The management goal for the PWSMA lake stocking program is to provide 400 angler-days of fishing opportunity annually.

SALMON

Fishery Description

Stocking of hatchery-raised fish has increased and diversified the opportunities available to recreational anglers in PWSMA. Total hatchery releases in PWSMA annually top 700 million salmon fry (Appendix A7). These stocking activities consist of two types of programs. Large

private non-profit (PNP) hatchery releases enhance fish abundance mainly for commercial fisheries and to a lesser extent sport fisheries. Smaller ADF&G hatchery releases are targeted specifically toward enhancing sport fisheries. All hatchery salmon releases contribute to the common property of all fisheries, and are available to any fishery regardless of the target group. Terminal Harvest Areas (THAs) were created around release sites to facilitate regulations that allow increased harvest limits targeting hatchery fish.

PNP hatchery releases in PWSMA are some of the most extensive in the state. These fish are raised at various hatcheries and released at numerous sites in PWS to return as adults for harvest. Two PNP corporations operate five hatcheries in PWSMA (Appendix B4). Valdez Fisheries Development Association (VFDA) releases coho and pink salmon that enhance sport and commercial fishing in Valdez Arm. Prince William Sound Aquaculture Corporation (PWSAC) releases coho salmon primarily to enhance sport fisheries around Whittier, Chenega, and Cordova. PWSAC also releases coho, pink, sockeye, and chum salmon at various locations throughout PWSMA (Appendix B4) primarily to enhance commercial fisheries, but some of these fish are harvested by sport anglers. Pink salmon are reared and released from three PWSAC hatchery locations. Sockeye salmon are reared in two PWSAC hatcheries and are released there, or at several remote locations in PWSMA. Chum salmon are reared in two PWSAC hatcheries and are released there and at two remote locations.

ADF&G hatcheries produce Chinook salmon, rainbow trout, and Arctic grayling for fisheries in PWSMA. Rainbow trout and Arctic grayling releases by ADF&G occur yearly near Valdez at Thompson Lake, Blueberry Lake, and Ruth Lake. The Chinook salmon stocking program is conducted in PWS at Port of Valdez, Cordova, and Whittier to create saltwater fisheries for these communities. All fish for the ADF&G hatchery releases are raised at Fort Richardson Hatchery and transported to the release sites. Chinook salmon are imprinted to the release areas in holding pens for 1 week before being released. They return in 3-5 years for harvest. Rainbow trout and Arctic grayling are released on site and available immediately for harvest. Because of reductions in budget and hatchery capacity the Chinook salmon stocking program in Whittier was eliminated in 2006.

CHINOOK SALMON FISHERIES

Areawide Overview

There is little wild production of Chinook salmon in PWSMA that is targeted by anglers. The Copper River supports a healthy wild Chinook salmon return, but little recreational harvest occurs in the lower Copper River. Currently, bait restrictions imposed for the protection of spawning trout during the spring Chinook salmon run on the Copper River preclude a fishery from developing in this turbid river. There is a small but growing harvest of “feeder” Chinook (immature adult winter Chinook salmon) in PWSMA salt waters by residents in Cordova, Whittier, and Valdez, and a few charters target them. Winter Chinook salmon are of unknown origin.

The Chinook salmon sport fishery in PWSMA is supported almost entirely by hatchery-produced fish. Beginning in 1988, various hatchery programs supplemented Chinook fisheries in PWSMA (see Miller and Stratton 2001), including the ADF&G hatchery at Elmendorf, and PNP hatcheries (Wally Noerenberg and Solomon Gulch). Beginning in 1999, the ADF&G hatchery at Fort Richardson has been responsible for stocking Chinook salmon in PWSMA (Appendix A3).

Chinook smolt were released at three sites near the ports of Valdez, Cordova, and Whittier. Approximately 100,000 smolt were held at each site in net pens for 1 week to imprint to the area before release. This should produce a return of about 3,000 adults per site. Hatchery Chinook salmon return to release sites as mature adults from mid-May through June, and anglers can harvest feeder Chinook salmon throughout the year, with winter months being the most productive.

A small number of Chinook salmon are also occasionally caught in small streams in PWSMA. Small tributaries of the Copper River produce some fish, and both Coghill and Jackpot Lake drainages in PWS reportedly contain sporadic runs of Chinook salmon. Eyak River, Robe River, and Clear Creek may also produce some Chinook salmon. These runs are sporadic and may include strays from hatchery releases or wild stocks from the Copper River.

Areawide Catch, Harvest, and Effort

The average annual catch of Chinook salmon in PWSMA from 2002-2006 was 6,456 (Table 6, Figure 9) ranging as high as 8,100 in 2003. The catch and harvest of Chinook salmon from 2005-2007 has remained relatively stable. The average harvest from 2005-2007 was 3,907. Most of this catch and harvest came from Valdez Arm with the next largest fishery in Whittier. Chinook salmon anglers harvested 51% of the catch on average from 2005-2007.

The 2006 Chinook salmon catch was the second largest ever recorded and the highest harvest ever for PWSMA, and the 2005 catch was the third largest. The Valdez fishery was again the most productive followed by Whittier. The 2007 catch was 6,979 and the harvest was 3,282. From 2005–2007 anglers harvested 54% of their catch which is similar to the 5-year average (2002–2006) of 54%. Considerable harvest appears to occur outside of the spring terminal fishery as few fish were encountered in a creel census project conducted in the ports of Valdez and Cordova (B. Marston, ADF&G, Cordova, personal communication).

Areawide Management

All recreational Chinook salmon fisheries are managed to protect fish stocks and their habitats for sustained yield of the various Chinook salmon stocks. Most waters of PWSMA are open to year-round harvest of Chinook salmon. The bag and possession limits in PWSMA marine waters is 2 per day, 4 in possession for Chinook 16 inches or longer, and 6 per day, 12 in possession for Chinook less than 16 inches. Closed waters include Eccles Creek, the Eyak Lake drainage, Clear Creek upstream of the Carbon Mountain Bridge, Hartney Creek above the Whitshed Road, all near Cordova, and all freshwater drainages of Valdez Arm except for a portion of Robe River and Solomon Gulch Creek, and all waters within 300 ft of a weir or fish ladder.

The following management goals are stated in the Statewide Stocking Plan for Recreational Fisheries (ADF&G 2004). For hatchery-produced Chinook salmon at Whittier, Valdez Arm, and Orca Inlet the management objectives are to: (1) produce an annual return of 3,000 Chinook salmon through supplemental hatchery production; (2) provide 5,000 angler-days of fishing opportunity annually; and (3) promote diverse sportfishing opportunities by providing early-run Chinook salmon to both boat and shorebased anglers.

Research projects designed to help Chinook salmon fisheries management have recently been initiated in PWSMA. In spring 2006, a project to analyze the origin of Chinook salmon in the sport harvests in PWSMA was begun and was completed in 2007. The projects objectives are to estimate the percentage of hatchery produced Chinook salmon in the sport harvest at Valdez and

Cordova. Additionally, streams in the release areas are being surveyed to determine if potential strays can be detected. Protocols include port samplers in Valdez and Cordova that take otoliths from sport-caught Chinook salmon to determine their origin, and walk streams in areas near the release sites to look for Chinook salmon that may have strayed from hatchery releases.

VALDEZ CHINOOK SALMON FISHERY

Fishery Description

Valdez anglers typically target Chinook salmon in spring by trolling. Trollers target Chinook salmon in the narrows area of Port Valdez in spring, and many fish are also incidentally caught all summer and fall in coho salmon or bottomfish fisheries. Additionally, there is some trolling in winter for feeder Chinook salmon (immature adults) in the Valdez area. Robe River also has a small sporadic potentially wild run that is targeted by fly fishers in late spring and early summer. Chinook salmon in Port Valdez return to their release site at Old Town Valdez, or to potential spawning sites in the Robe River. Although Chinook salmon smolts have been observed in Robe River (Marston *In prep*), the origins of the Robe River run is not known and only a few adult fish have ever been observed.

Stocking Program

The Chinook salmon stocking program in Valdez was initiated in 1999. A permanent release site was constructed in Old Town Valdez in 2004 to allow the use of net pens in the Robe River estuary. Previously, Chinook salmon were released into net pens in Valdez harbor or directly into Glacial Pit Creek. The release of 100,000 Chinook smolt in June every year is designed to create a return of 3,000 fish in the Valdez area.

Catch, Harvest, and Effort

Valdez Chinook salmon catches ranged from 846 to 6,350 during 2002–2006 and harvests ranged from 367 to 2,939. Valdez typically accounts for 56% (2002-2006) of the Chinook salmon catch and 52% of the harvest in PWSMA.

Valdez was the most productive port from 2005-2007 with 56% of the total PWSMA catch coming from anglers that used Port of Valdez. Catch of Chinook salmon from Valdez was the second and third highest on record in 2006 and 2007, and harvest was highest in 2006. Freshwater harvest of Chinook salmon could not be estimated.

Fishery Management and Objectives

Areawide daily limits are in effect year round for Valdez. All fresh waters of Port Valdez other than Robe River are closed to Chinook salmon fishing year round. Management goals for the Valdez area hatchery releases include: (1) produce an annual return of 3,000 Chinook salmon through supplemental hatchery production; (2) provide 5,000 angler-days of fishing opportunity annually; and (3) promote diverse sportfishing opportunities by providing early-run Chinook salmon to both boat and shorebased anglers.

WHITTIER CHINOOK SALMON FISHERY

Fishery Description

The Chinook salmon fishery in Whittier is entirely supported by hatchery fish released near the Port of Whittier. The Chinook salmon stocking program was discontinued in 2006 due to budget

constraints and a reduction in ADF&G hatchery production. Anglers catch Chinook salmon in spring from shore at the head of the port and in boat by trolling Passage Canal and Port Whittier. Winter Chinook salmon are also pursued in Port Wells and Passage Canal. Anglers fishing the Coghill River in Northern Port Wells report a few Chinook salmon caught each year.

Stocking Program

Releases in the Whittier area began in 1981 and occurred at several sites. These were the first Chinook salmon hatchery releases in PWSMA. The release of 100,000 Chinook smolt each spring from 1991 to 2006 was designed to create a return of 3,000 fish in the Port of Whittier area. The Chinook salmon stocking program was discontinued in 2006 because of state hatchery budget constraints.

Catch, Harvest and Effort

Chinook salmon catches in the Whittier area ranged from 620 to 1,895 in 2002-2006. On average, 21% of PWSMA catch and 24% of the Chinook salmon harvest comes from port landings at Whittier.

The catch of Chinook salmon in Whittier in 2005-2007 averaged 1,576 fish which is more than the 2002-2006 (5-year) average of 1,371. The harvest in 2005-2007 averaged 818 Chinook salmon. Whittier was the second most productive Chinook salmon fishery in PWSMA averaging 21% of the catch and 24% of the harvest, 2005-2007.

Anglers reported fair catches of winter Chinook salmon trolling in late winter-spring, but few fish were caught early in the run. More anglers reported finding Chinook salmon in mid summer.

Fishery Management and Objectives

Areawide daily limits are in effect year round for Whittier. Management goals for the Whittier area hatchery releases include: (1) produce an annual return of 3,000 Chinook salmon through supplemental hatchery production; (2) provide 5,000 angler-days of fishing opportunity annually; and (3) promote diverse sportfishing opportunities by providing early-run Chinook salmon to both boat and shorebased anglers.

CORDOVA CHINOOK SALMON FISHERY

Fishery Description

Cordova Chinook salmon fisheries occur primarily from hatchery raised-fish at the terminal harvest area and the Flemming Spit release site. Anglers fish this area from shore at high tides in May and June. Returns to this area are sporadic and potentially intercepted in other fisheries. Winter Chinook salmon are also pursued throughout Orca Bay by trolling in late fall through spring. These winter-caught fish are also most likely of hatchery origin. Occasional Chinook salmon catches are also reported from Clear Creek and Eyak River which are most likely wild strays from large runs on the Copper River. The majority of the Copper River Chinook salmon run is not accessible to anglers because of turbid waters and bait restrictions in the mainstem Copper River.

Stocking Program

The Chinook salmon stocking program in Cordova was initiated in 1990. The annual release of 100,000 Chinook smolt in June every year from Fort Richardson Hatchery is designed to create a return of 3,000 fish into the Cordova area.

Catch, Harvest and Effort

In 2002-2006, Cordova provided 8% of the Chinook salmon catch in PWSMA, and the proportion has decreased in the last several years. Chinook salmon catches in Cordova ranged from 844 to 147 and harvests ranged from 556 to 147. Mean sport catch in 2002-2006 was 514 and harvest was 317. On average, 61% of the Chinook salmon caught in Cordova are harvested which is the highest harvest rate in PWSMA.

The average Chinook salmon harvest in Cordova for 2005-2007 was below the 5-year average (2002-2006) of 317. The harvest rate of 61% indicates that anglers retained most of their catch. Angling in the area was reported as slow during this period. Only a small number Chinook salmon were seen near Flemming Spit, and few were harvested.

Fishery Management and Objectives

Areawide daily limits are in effect year round for Cordova. Management goals for the Cordova area hatchery release include: (1) produce an annual return of 3,000 Chinook salmon through supplemental hatchery production; (2) provide 5,000 angler-days of fishing opportunity annually; and (3) promote diverse sportfishing opportunities by providing early-run Chinook salmon to both boat and shorebased anglers.

COHO SALMON FISHERIES

Areawide Overview

Recreational coho salmon fisheries have grown substantially since the 1990s and are the most popular sport fisheries in PWSMA through 2007. These fisheries are supported by both wild and hatchery fish. The growth in popularity and catch may be attributed to the success of hatchery programs developed to increase angling opportunities near Valdez. PWSMA coho salmon sport fisheries are one of the largest annual coho fisheries in Alaska. Coho salmon are released in the port areas of Whittier, Valdez, Cordova, and the remote waters of Lake Bay. Sport fisheries have been established August through September in Passage Canal and late July through September in Valdez and Cordova. Wild and stocked coho salmon return to PWSMA streams from mid-August through October with peak runs occurring in early September, and spawning beginning in October.

Areawide Catch, Harvest and Effort

Average areawide catch of coho salmon in 2000-2006 was 168,902 and harvest was 108,781 (Table 3, Figure 10). Coho salmon have been numerically the most popular sport fish in PWSMA waters since 2000. PWSMA was one of the largest coho salmon fisheries in Alaska, 1994-2007. PWSMA coho catch exceeded the Kenai Peninsula to be the state's largest in 2001, 2003, and 2005-2007.

Since 1991, the average annual coho salmon catch in PWSMA has increased 4-fold. Although catches varied the increase in coho salmon catch can be attributed mainly to the success of the PNP hatchery programs developed to increase angling opportunities near Valdez and Whittier.

The catch and harvest in 2007 was above the 2002-2006 average and was the third largest catch and first largest harvest on record (Table 3, Figure 10). Valdez and Whittier saltwater areas had good coho salmon fishing in 2007, and angling in the Cordova area was reported as fair. Low water conditions hindered angling in key freshwater streams of the Copper River Delta and escapement was at the low end of the escapement goal delta wide. The areawide coho salmon catch in 2007 was 191,349 and 136,392 were harvested. The harvest rate (percent of fish retained) for coho salmon was 71% in 2007.

Areawide Management

All recreational coho salmon fisheries are managed to protect fish stocks and their habitats for sustained yield of the various coho salmon stocks. Effort, catch, and harvest estimates for all sport-caught coho salmon are provided by the Statewide Harvest Survey. Catch and harvest data are used to identify trends in the fishery that indicate potential stock sustainability or yield issues from changes in fishery regulations or environmental cycles.

Sustainable escapement goals (SEGs) govern the larger freshwater fisheries on heavily fished wild stocks of coho salmon under guidelines of the Statewide Salmon Policy. Fish numbers for large stocks are monitored weekly by ADF&G commercial fisheries, and both sport and commercial fisheries are closely managed to maximize harvest, but ensure escapements will sustain fish stocks over time. Small sport fisheries are governed by observing yearly harvests over time and maintaining sustainable levels of harvest, but no escapement goals exist for individual small stocks and harvest is not necessarily maximized.

The majority of PWSMA is open to coho salmon fishing year-round. In most waters areawide regulations apply, limits are 3 fish per day, 3 fish in possession. However, limits are 6 per day, 12 in possession in the terminal harvest areas around hatchery release sites in Valdez, Cordova, Chenega, and Whittier. Additionally, specific waters with high harvest potential on small stocks or important habitats, have lower limits, restricted methods, or closed spawning sections.

VALDEZ COHO SALMON FISHERY

Fishery Description

The Valdez coho salmon fishery is centered on Port of Valdez and includes a fishing derby held in the Valdez Arm in August each year, ending on Labor Day. Valdez supports the largest coho fishery in PWSMA. Anglers during the derby in Valdez principally target hatchery coho by trolling in Port Valdez, but some are also caught from shore. Hatchery coho salmon are produced at Solomon Gulch Hatchery by the Valdez Fishery Development Association. Coho salmon are also pursued by anglers outside of the port as early as mid-July. Coho salmon are also caught in bays and lagoons in or near Valdez Arm. A small number of coho salmon, most likely wild, are also pursued in or near small streams like Robe River and other northeastern PWSMA freshwater systems.

Stocking Program

The Valdez Fishery Development Association (VFDA) is a PNP hatchery in Port of Valdez. Solomon Gulch Hatchery releases 1.6 million coho salmon smolt annually at the head of Port

Valdez. These fish typically return as 3-year-old adults to Solomon Gulch, peaking in August. These fish are the primary targets of the coho salmon derby in Valdez Arm.

Catch, Harvest and Effort

Valdez coho angling occurs almost entirely in salt waters. The average coho catch for 2002-2006 was 92,590 and harvest was 69,528, accounting for 53% of the catch in PWSMA. Coho catch estimates have remained above 50,000 since 1995 for Valdez, ranging from 50,907 to 110,197 in 2007. The Valdez Arm harvest averaged 62% in PWSMA during 2002-2006. Because most of the freshwater drainages of Port Valdez are closed to salmon fishing by regulation, very little fresh water coho fishing occurs in Valdez. However, a small (<100 fish harvested annually) locally popular fishery exists in the fly-fishing-only section of the Robe River.

Valdez saltwater coho catch (110,197) and harvest (85,043) were the largest on record in 2007. The 2005 season was also an excellent year for catch, third largest, and harvest, second largest, historically. Both catch and harvest were above the 5-year average for Port Valdez in 2007. Coho salmon sportfishing was good for both shore and boat anglers in 2005-2007.

Fishery Management and Objectives

For hatchery-produced coho salmon stocked at Valdez, the management objectives are to: (1) produce an annual return of 25,000 coho salmon through supplemental hatchery production; (2) provide 50,000 angler-days of fishing opportunity annually; and (3) promote diverse sportfishing opportunities by providing coho salmon to both boat and shorebased anglers.

No formal fishery objectives have been established for the remaining small coho salmon fisheries in PWSMA. However, the recreational fisheries are managed to protect fish stocks and their habitats for sustained yield of the various coho salmon stocks. Fishing effort and harvest for these small fisheries are monitored by ADF&G and regulations are implemented to sustain harvest.

Bag limits pertaining to hatchery-based fisheries are liberal within the Valdez terminal harvest area to maximize harvest. The terminal harvest area in Valdez is defined as all marine waters north of a line from Point Freemantle to Rocky Point excluding the waters of Jack, Sawmill, and Galena bays. The daily bag limit for coho salmon in the Valdez terminal harvest area is 6 per day, 12 in possession.

There is a more conservative coho salmon daily bag limit for the remaining fresh and saltwater areas; 3 per day, 3 in possession. Additionally, all Valdez Arm freshwater drainages, other than the creek at Solomon Gulch Hatchery and a portion of Robe River downstream of the Richardson Highway, are closed to fishing for coho salmon to protect wild stocks. Regulations for Solomon Gulch are the same as areawide regulations, and Robe River is limited to fly-fishing-only with a daily bag limit of one coho salmon per day. These restrictive regulations are designed to protect wild stocks.

WHITTIER COHO SALMON FISHERY

Fishery Description

The Whittier coho salmon fishery is maintained largely by Wally Noerenberg Hatchery releases at Whittier Harbor and Chenega, or the Lake Bay common property hatchery releases. Fish are raised and released at Lake Bay, Chenega, and outside of Whittier Harbor. These releases

provide returns of adult coho salmon to western PWSMA from August through October. These fish are targeted by trolling in open salt water or casting in bays, passages, and lagoons. Bays and lagoons are especially productive near Lake Bay Hatchery late in the season, as are Whittier and Chenega harbors. Fishing for these fish occurs earlier south of the release sites in southwest PWSMA as early as July. Anglers in Whittier can also fish many small freshwater wild stocks, but these typically make up a small part of the fishery.

Stocking Program

Whittier coho salmon releases averaged 78,000 in the last decade and the Chenega releases averaged 51,000. These fish are reared at PWSAC and released in Port of Whittier and Chenega Bay after a week imprinting in net pens in June. The hatchery release of coho salmon on site at Lake Bay averaged 401,000 smolts for the decade ending in 2005. These stocks all return to the release sites primarily in late-August and September.

Catch, Harvest and Effort

Coho salmon catches from the Whittier area averaged 26,116 in 2002-2006. The coho salmon catch in the Whittier area increased the last few years, jumping sharply in 2000, 2005, and was highest in 2007. This is likely due to access improvements connecting Whittier to the Anchorage road system, as well as harbor expansions. The 5-year average Whittier catch as a proportion of the total PWSMA catch is 15%. The Whittier coho salmon fishery harvest rate averaged 72% in 2002-2006. Coghill Lake, Shrode Lake, Eshamy Lake, Jackpot Lakes, and numerous other small freshwater wild stocks account for less than 5% of this fishery.

Coho salmon angling out of Whittier fell sharply in 2006 from 2005 and increased to record levels in 2007 with a catch of 46,647 and harvest of 31,694 coho salmon. The coho salmon catch in the Whittier area in 2007 was 24% of the total from the entire PWSMA. In 2007, Whittier anglers harvested 68% of their catch. The saltwater fishery was reported as good out of Whittier in 2007. Anglers reported good numbers early in the season and tapered off as the fishery progressed.

Fishery Management and Objectives

For hatchery-produced coho salmon stocked at Whittier, the management objectives are to: (1) produce an annual return of 5,000 coho salmon through supplemental hatchery production; (2) provide 10,000 angler-days of fishing opportunity annually; and (3) promote diverse sportfishing opportunities by providing coho salmon to both boat and shorebased anglers. Chenega objectives are identical, but provide lower annual returns (2,500) and fewer angler-days (5,000).

The large hatchery releases at Lake Bay are primarily targeted at commercial fisheries. No management objectives currently exist for the sport fishery other than angling is not allowed within 100 feet of the Lake Bay barrier seine.

No formal fishery objectives have been established for the remaining small coho salmon fisheries in PWSMA. However, the recreational fisheries are managed to protect fish stocks and their habitats for sustained yield of the various coho salmon stocks. Fishing effort and harvest for these fisheries are monitored by ADF&G and regulations are implemented to sustain harvest.

Bag limits pertaining to hatchery-based fisheries are liberal within the Whittier terminal harvest area to maximize harvest. The terminal harvest area in Whittier is defined as all waters west of a

line from Blackstone Point to Pigot Point. The daily bag limit for coho salmon in the Whittier terminal harvest area is 6 per day, 12 in possession. No snagging is allowed in Whittier Harbor.

There is a conservative coho salmon daily bag limit for the remaining fresh and saltwater areas; 3 per day, 3 in possession. Additionally, to protect this stock no snagging is allowed in Eshamy Lagoon, a particularly vulnerable location. These restrictive regulations are designed to protect wild stocks.

CORDOVA COHO SALMON FISHERY

Fishery Description

Coho salmon fisheries for the Cordova area are the largest sport fishery of wild coho salmon stocks in PWSMA. This freshwater fishery is characterized by low annual harvest rates. Although sportfishing opportunities along the Cordova road system are composed of both wild and hatchery fish, most coho fishing is for wild fish. Eyak River, Ibeck Creek, and Alaganik Slough are the three main systems fished for wild coho salmon.

The number of respondents in the SWHS is not typically sufficient to accurately estimate effort and catch from individual small streams on the Copper River Delta, and fishing effort on some small streams can vary substantially with changing angling conditions. However, small streams can produce substantial numbers of coho salmon when flows are high in the larger systems.

Hatchery coho are pursued at Flemming Spit in the Cordova terminal harvest area. This area has been developed by the City of Cordova to provide handicapped accessible ramps, bathrooms, and cleaning stations. Wild coho are also caught in Orca Bay near floating lodge sites. Floating lodge sites are located only in Sheep and Simpson bays, but anglers from these sites fish along Hawkins Island as well as the protected lagoons.

Stocking Program

PWSAC annually stocks 90,000 coho salmon smolt at Flemming Spit. These fish originate at Wally Noerenberg Hatchery and are barged to the release site. At the release site the fish are imprinted to the area in net pens for 1 week in June, and then released. These fish return as 3-year-old adults in September.

Catch, Harvest and Effort

Coho salmon catches in the Cordova area averaged 33,011 in 2002-2006. In 2002-2006, wild coho salmon streams along the road system produced 78% of the average Cordova area catch (Table 7, Figure 11). The Eyak River, the largest river on the Cordova road system fished for coho, contributed an average of 51% of the Cordova catch during that period. The wild fishery on freshwater streams had a low average harvest rate of 45% in 2002-2006.

Adult coho salmon began returning to the Flemming Spit fishery in 1987, and in 2002-2006, anglers caught an average of 3,232 coho and harvested an estimated 1,771 coho annually. This fishery ranged in catch from 1,329 to 4,581 coho salmon in 2002-2006. The harvest rate of Orca Inlet coho salmon was 54% in 2002-2006. Anglers often target the hatchery-released coho salmon from the Flemming Spit fishery and take advantage of the higher bag limit to meet their personal needs. Fishing for wild stocks along the Cordova road system, or at remote fly-in fisheries, provides a more typical “Alaskan” fishing experience.

Two flood events hindered angling on the Copper River Delta in 2006. The coho catch out of Cordova was 17,727 constituting 12% of the total PWSMA coho salmon catch in 2006. Both catch and harvest were below the 5-year average in Cordova for 2006 coho angling. The catch in Eyak River was 45% of the coho salmon caught in Cordova, and 15% came from Alaganik Slough. Ibeck Creek, another popular delta stream, contributed 12% of the catch. The 2006 harvest at Cordova was 9,230 coho salmon, 7,995 of which came from the Cordova road system. In 2006, anglers caught 3,922 coho salmon and harvested 2,518 in Orca Inlet mostly at Flemming Spit.

The catch in 2007 was 19,716 and the harvest was 11,325, below the 2002–2006 average catch of 33,011 and harvest of 14,530. The 2007 freshwater fisheries on the Copper River Delta were affected by low and clear water conditions. Ibeck Creek remained clear for most of the season and promoted good angling. Eyak River was low making boat travel difficult, which may have decreased angler success. Eyak River also had a pulse of late running fish in October.

Fishery Management and Objectives

For wild stocks of coho salmon on the Copper River and Bering River deltas, the management objective is to meet SEGs. The midpoint of the sustainable escapement goal for the Copper River Delta is 49,500 coho salmon with a range of 32,000-67,000. The midpoint of the sustainable escapement goal for coho in the Bering River drainage is 23,000 and ranges 13,000-33,000 (Bue and Hasbrouck *Unpublished*¹). The ADF&G Division of Commercial Fisheries currently conducts weekly aerial escapement surveys of the streams of the Copper River and Bering River deltas. Sport fisheries are managed to ensure observed escapement numbers are within the SEGs. The sport fishery bag limits are regulated to ensure escapement meets, but does not exceed these goals.

For hatchery-produced coho salmon stocked in Cordova (Orca Inlet), the management objectives are to: (1) produce an annual return of 5,000 coho salmon through supplemental hatchery production; (2) provide 10,000 angler-days of fishing opportunity annually; and (3) promote diverse sportfishing opportunities by providing coho salmon to both boat and shorebased anglers. Limits for hatchery coho are 6 per day, 12 in possession in the Cordova Terminal Harvest Area. The Cordova terminal harvest area is defined as all waters north of a line from Odiak Slough to Stump Point and south of a line from Orca Cannery to Knot Point.

The daily bag limit in effect for most of the remaining Cordova area is 3 per day, 3 in possession. Coho salmon released may not be removed from the water in streams along the Copper River Highway. Additionally, regulations limit harvest to 1 per day, 1 in possession in Shelter Bay on Hinchinbrook Island. Areas closed to fishing for coho salmon near Cordova, include Eccles Creek, Eyak Lake and its tributaries, Clear Creek upriver of the Carbon Mountain Bridge, and Hartney Creek upstream of the Whitshed Road.

¹ Bue, B. G., and J. J. Hasbrouck. *Unpublished*. Escapement goal review of salmon stocks of Upper Cook Inlet. Alaska Department of Fish and Game, Report to the Alaska Board of Fisheries, November 2001 (and February 2002), Anchorage.

SOCKEYE SALMON FISHERY

Areawide Overview

Sockeye salmon return to PWSMA streams from late May through August, with peak returns varying by stream. Spawning occurs from mid-July through September. The major sockeye salmon fisheries in PWSMA occur in freshwater at Eshamy, Cordova, Valdez, and Coghill and in salt water at Main Bay near Whittier.

Areawide Catch, Harvest and Effort

In 2002-2006, the average catch of sockeye salmon from PWSMA was 11,422 (Tables 8 and 9, Figures 12 and 13). Sockeye salmon catches ranged from 7,345 in 2006 to 14,708 in 2003. Harvest rates of sockeye salmon ranged from 53% in 2003 to 76% in 2004, and averaged 64%. Commercial fishing dominates sockeye management because of their high economic value and large hatchery returns to Main Bay.

The 2007 sport catch (19,052) and harvest (13,220) of sockeye salmon in PWSMA were the largest on record. The 2005-2006 sport catch and harvest were below the 2002-2006 average catch of 11,422 and harvest of 7,378. The sockeye salmon fishery in 2005 and 2006 was the worst in the last 10 years. Shortfalls appear to be similar throughout the area, except for Port Valdez. In 2007, escapement goals in PWSMA streams were met, but at the low end of the range. Except at Coghill, sockeye salmon escapement was well above the goal, and the daily bag limit was raised, whereas Eshamy Creek drainage sockeye salmon escapement was low and required a sport fish closure.

Areawide Management

The daily bag limit for sockeye salmon is 6 per day, 12 in possession. Methods or daily limits are restricted in areas that have particularly vulnerable stocks and some streams are closed for protection of spawning salmon. In all freshwater drainages crossed by the Copper River Highway, including Clear Creek (except upstream of the Carbon Mountain Bridge, which is closed to all salmon fishing), the bag and possession limit is 3 fish. In Eshamy Creek drainage the limits are 3 fish per day, 6 in possession. In Robe River near Valdez, the bag and possession limit is 1 fish.

ADF&G sockeye salmon counts by the Division of Commercial Fisheries are used to enumerate escapement in PWSMA. Sockeye salmon returns to Eshamy and Coghill lakes are enumerated at weirs and are managed for a SEG of 20,000-40,000 for each system. Aerial surveys are flown to index sockeye salmon escapement on the Copper River Delta which typically runs later in the summer. Escapement index goals are used as indicators of overall stock abundance. The index escapement goal for the Copper River Delta is 55,000-130,000 sockeye salmon. Sport and commercial fisheries are regulated so that escapement goals are met at weir sites and on the Copper River Delta.

The Copper River sonar station at Miles Lake also counts sockeye salmon in the Copper River mainstem, but these fish are not targeted by sport fisheries.

The majority of sockeye salmon fisheries in PWSMA are for wild fish. However, PWSAC operates Main Bay Hatchery for sockeye salmon. Main Bay is a PWSAC facility where, on average, over 5 million sockeye fry were released annually from 1997-2006. These fish are available to sport anglers, although the hatchery is designed primarily to augment commercial

harvest. No formal management objectives currently exist for the hatchery-based sport fishery, other than a regulation that prohibits anglers from fishing within 300 feet of the hatchery raceways.

VALDEZ SOCKEYE FISHERIES

Fishery Description

Sockeye salmon angling out of Valdez occurs in fresh waters at Robe River and other small freshwater streams in northern PWSMA. Anglers also target sockeye salmon in northern PWSMA saltwater lagoons, and in fresh waters especially at lake outlets. Valdez anglers also travel to western PWSMA to fish the Main Bay hatchery run. Typical run timing for sockeye salmon in Valdez is late May through July.

Stocking Program

No ADF&G stocking of sockeye salmon occurs in the Valdez area.

Catch, Harvest and Effort

In 2002-2006 the catch and harvest was 2,432 and 1,331 sockeye salmon. During this time the sockeye salmon catch out of Valdez ranged from 1,783 to 3,460 and harvest ranged from 884 to 2,189. Valdez anglers typically account for 21% of the total PWSMA sockeye salmon catch which is the second largest sockeye fishery. Valdez anglers harvest on average 55% of their catch of sockeye salmon. The catch of sockeye salmon in Valdez was above the 5-year average in 2005, but harvest was below average. The catch and harvest of sockeye salmon in Valdez were well below normal in 2006 with a catch of 2,118 and harvest of 979. The 2007 catch of 3,460 and harvest of 1,384 sockeye salmon were larger than the 5-year average and the largest catch since 2000. Valdez anglers generally reported fair sockeye fishing in 2007. Anglers traveled to Coghill where escapements were excellent, but the Eshamy sockeye run was poor in 2007. Valdez anglers also harvested 40% of their sockeye salmon catch in 2007, as compared to the 5-year average of 55%.

Fishery Management and Objectives

No formal escapement goals are established for sockeye salmon in the Valdez area. Areawide limits are in effect for all waters except the fresh waters of Valdez Arm. All fresh waters of Valdez Arm are closed to salmon fishing, except for Solomon Gulch Creek and the fly-fishing-only section of Robe River downstream of the Richardson Highway to its mouth. Sockeye salmon limits on the Robe River fly-fishing section are 1 per day, 1 in possession. Solomon Gulch Creek is governed by areawide limits for sockeye salmon. Additionally, a small area by Billy's Hole in Long Bay is closed to snagging in the salt waters of Billy's Hole Lagoon between the mouth of Billy's Hole Creek and ADF&G signs.

CORDOVA SOCKEYE SALMON FISHERY

Fishery Description

The Cordova area supports the largest freshwater fishery for sockeye salmon in PWSMA. Several streams on the western Copper River Delta are accessible by the Cordova Road system. Eyak River supports the largest fishery along with Alaganik Slough and Clear Creek. Run timing for sockeye salmon on the Eyak River is earlier and the duration of the run is longer. The

fishery on the Eyak River largely occurs at the lake outlet which is restricted to fly-fishing only. Smaller fisheries also occur on the eastern delta, accessible only by plane or boat. Sockeye salmon can be found in Eyak River in early May and persist through July. Other streams in the area typically have mid-June to August runs of sockeye salmon.

Stocking Program

No ADF&G stocking of sockeye salmon occurs in the Cordova area.

Catch, Harvest and Effort

Sockeye salmon catches during 2002-2006 in the Cordova area ranged from 648 to 2,005 fish. Catches have generally declined since 2000 after a major portion of Clear Creek was inundated by the Copper River. However, catches rebounded to over 3,000 sockeye salmon in 2007. Since 2002 the Cordova sockeye salmon fisheries typically account for 12% of the total PWSMA catch and 9% of the harvest.

Sockeye salmon catch (3,221) and harvest (1,883) in 2007 were above the 2002-2006 average catch (1,343) and harvest (656). Sockeye salmon angling was fair in the Cordova area. Clear water conditions at Eyak lake outlet increased success somewhat. Clear Creek was unfishable for the entire sockeye season due to turbidity. Pink salmon were seen in large numbers in delta streams and may have affected the sockeye fishery.

Sockeye salmon fishing in 2006 was poor in the Cordova area. Sockeye catch was 648 and harvest was 195, the lowest on record. Turbidity at Eyak Lake and river may have reduced fishery success, but sockeye salmon escapements were also generally below average for that system and other westside delta streams in 2006 and 2005. The 2006 harvest rate was particularly low indicating fish may have been of poor quality and were released, or anglers were concerned about escapement and released their catch. Changes in subsistence regulations in 2003 may also have increased the proportion of catch-and-release angling in Cordova area streams because of additional harvest of sockeye through subsistence means.

Fishery Management and Objectives

The largest sockeye salmon fishery in the PWSMA is located on the Copper River Delta and is largely managed by Commercial Fisheries. The SEG for the Copper River Delta sockeye salmon stock is 55,000–130,000 and escapements are monitored with weekly aerial counts conducted by the ADF&G Division of Commercial Fisheries. All fisheries are curtailed when escapements are not met.

Sport fish limits vary by location in the Cordova area. Limits are 3 per day, 3 in possession in all fresh waters along the Copper River Highway. All other open freshwater areas are 6 per day, 12 in possession for sockeye salmon. The Eyak Lake outlet is limited to fly-fishing only. Eyak Lake and its tributaries above the outlet are closed to all salmon fishing. Other closed areas are Eccles Creek and Hartney Creek upstream of Whitshed Road and Clear Creek upstream of the Carbon Mountain Road Bridge.

WHITTIER SOCKEYE SALMON FISHERY

Fishery Description

The sockeye salmon fishery out of Whittier is concentrated in a few locations. Freshwater fisheries occur primarily in two large systems at Coghill and Eshamy lakes. Small fisheries also

occur in a limited number of smaller systems like Shrode Lake and Jackpot Lake drainages. Saltwater fisheries occur in Main Bay near the PWSAC Main Bay Hatchery and in Marsha Bay, another PWSAC release site.

Stocking Program

No ADF&G stocking of sockeye salmon occurs in PWSMA, but PWSAC has operated a large sockeye salmon hatchery in Main Bay since 1988. PWSAC recently began using a remote release site for surplus fish in Marsha Bay. On average, more than 5 million sockeye salmon smolt are released into Main Bay, and as many as 900,000 into Marsha Bay in recent years.

Catch, Harvest and Effort

Sockeye salmon sport catches in 2002-2006 for the Whittier area ranged from 3,561 to 8,262. The harvest rate averaged 76% for these fish, reflecting a large saltwater harvest by snagging. The fishery in this area is also sporadic because of variable run sizes at Eshamy and Coghill that often prompt emergency order bag limit changes. On average, 49% of the sockeye salmon catch in PWSMA is by Whittier anglers.

During the early 2000s, the sockeye fisheries at Coghill and Eshamy were rebuilding after several poor returns in the 1990s. Because of low escapements Coghill was closed entirely and the sport fishery at Eshamy was restricted in 1992-1994. Sockeye returns to Coghill increased in the early 2000s and met or exceeded escapement goals in recent years, allowing for increases of sport fish bag limits and methods. Eshamy Creek exceeded its escapement goal in 2001-2003, and 2006, but was below the goal in 2004 and 2007.

In 2007, sockeye salmon fishing out of Whittier was good as catch (9,208) and harvest (7,492) were the highest on record. The Coghill drainage escapement was well above average and bag limits were raised mid season. However, fishing success at Eshamy Creek was poor and the fishery was closed mid season due to low escapement. In 2006, sockeye salmon fishing was poor in the Whittier area. Both catch and harvest were below average. Catch in 2006 was 3,561 and harvest was 3,107. Eshamy and Coghill met escapement goals and the daily bag limit was raised by Emergency Order at Eshamy due to high escapements. The harvest rate was high and averaged 81%, indicating most anglers kept their catch.

Fishery Management and Objectives

All Whittier area waters are governed by bag limits of 6 per day, 12 in possession, except for the Eshamy Lakes system, which is 3 per day, 6 in possession. Additionally, areas near creek mouths in Eshamy Lagoon and Long Bay Lagoon (Shrode Lake system) inside ADF&G markers are closed to snagging.

Fishery trends for most of the small Whittier sockeye salmon fisheries are monitored so that current catch rates are sustained. Additionally, fish counting weirs at the two largest fishery systems in PWSMA at Eshamy Lake and Coghill Lake are largely used to manage commercial harvests. These systems are managed to meet formal biological escapement goals of 20,000-40,000 for both Eshamy and Coghill (Bue and Hasbrouck *Unpublished*²), and providing at least

² Bue, B. G., and J. J. Hasbrouck. *Unpublished*. Escapement goal review of salmon stocks of Upper Cook Inlet. Alaska Department of Fish and Game, Report to the Alaska Board of Fisheries, November 2001 (and February 2002), Anchorage.

2,000 angler-days of effort annually at each location. All fisheries are curtailed when escapement goals are not met and liberalized when escapement goals are exceeded.

PINK SALMON FISHERIES

Areawide Overview

Pink salmon return to PWSMA from mid-June through late August, and peak in late July. There are more than 200 streams in PWSMA that support wild returns of pink salmon. In addition, there are four PNP hatcheries that produce pink salmon, releasing an average of 580,000,000 fry yearly from 1997-2006. The stocking of pink salmon in PWSMA is done entirely by PNP hatcheries.

The largest sport fishery is in Valdez Arm and targets early-run pink salmon returning to the VFDA Solomon Gulch Hatchery. It accounts for about 74% of the catch in PWSMA. The Port of Valdez pink salmon fishery is the largest in the state with fish caught by both boat and shore anglers who can access this fishery by road. Substantial angling for pink salmon also occurs out of Whittier at the larger freshwater systems of Coghill and Eshamy and in saltwater lagoons throughout the area, but these are remote and only accessible by boat or plane. Limited fishing for pink salmon occurs in the Cordova area as most roadside streams do not have pink salmon runs.

Areawide Catch, Harvest and Effort

The pink salmon sport fishery catch in PWSMA has been the largest in the state since 1985. The 2002–2006 average annual sport catch of pink salmon in PWSMA was 105,709 fish and harvest was 30,017 (Tables 10 and 11, Figures 14 and 15). The pink salmon sport fishery in PWSMA is characterized by low harvest rates (compared to other salmon species) at 28% and total harvest is between 30,000 and 41,000 fish regardless of fluctuations in catch. Pink salmon returns to PWSMA are highly cyclic.

Areawide Management

The sportfishing season is open all year and the bag and possession limits for pink salmon are 6 fish per day, 12 in possession (daily limit includes chum, sockeye, and coho salmon), except in freshwater drainages crossing the Copper River Highway and the Robe River near Valdez, where the limits are 3 fish per day, 3 in possession. Closed waters near Cordova include Eccles Creek, Eyak Lake drainages, Clear Creek upstream of the Carbon Mountain Bridge, and Hartney Creek upstream of Whitshed Road. Additionally, all freshwater drainages of Valdez Arm, except for Robe River and Solomon Gulch Creek, are closed to salmon fishing. Method restrictions occur in situations where fish are particularly vulnerable to overharvest by anglers.

Large commercial harvests drive management of the pink salmon sport fishery in PWSMA. The escapement goal for pink salmon is 1.25–2.75 million fish for the entire PWSMA. Regularly scheduled aerial flights are used to assess escapement in season, and the commercial fishery is opened in accordance with management plans. Goals have been established in Valdez for sport harvests of pink salmon originating from VFDA hatchery, but no established goals exist for the pink salmon fishery in general.

Some evidence indicates that hatchery strayed pink and chum salmon can escape into PWSMA streams that contain wild salmon runs (Rick Merizon, ADF&G, Palmer, personal

communication). The magnitude or repercussions of this situation on wild salmon stocks is unclear.

VALDEZ PINK SALMON FISHERY

Fishery Description

The Valdez pink salmon fishery is managed for returns to the VFDA hatchery at Solomon Gulch. Anglers catch fish from both boat and shore, but shorebased angling accounts for two-thirds of the catch. Shore anglers fish from docks in the City of Valdez and along shore near Allison Point. Boat anglers typically fish near the City of Valdez, or at Shoupe Bay, and near the mouth of Golden Creek. A limited number of pink salmon are also caught in streams like Robe River. Pink salmon typically return from late June through July in the Valdez area.

Stocking Program

Over 200 million hatchery pink salmon are released in the Port of Valdez every year, primarily for commercial harvests, but these fish are available to sport anglers. No ADF&G hatcheries release pink salmon in PWSMA.

Catch, Harvest and Effort

Catches of pink salmon in the Valdez area since 2002 range from 52,507 to 104,879 and harvests range from 17,309 to 29,780. Large fluctuations in catch occur because of variable hatchery returns and the odd-even year life cycle of pink salmon biology, whereas harvests typically are more stable. Returns to the VFDA hatchery range from 5 to almost 18 million adults, and recent odd-year escapements have set records. On average, Valdez accounts for 74% of the total PWSMA pink salmon catch, and Valdez anglers harvest the largest proportion of their catch at 32%, more than other ports.

In 2007, the pink salmon catch of 97,684 was the third highest on record. In 2006, the pink salmon catch of 55,729 was the second lowest ever recorded, and the harvest of 17,202 was also the lowest in years. The 2006 harvest rate in Valdez was lower than average and the proportion of the total PWSMA pink salmon catch in Valdez was higher than average. The 2005 season produced the second highest catch on record with 99,311 fish.

Fishery Management and Objectives

For hatchery-produced pink salmon returning to Valdez Arm, the sport fish management objectives are to: (1) produce an annual sport harvest of 50,000 pink salmon through supplemental hatchery production; (2) provide 25,000 angler-days of pink salmon fishing opportunity annually; and (3) promote diverse sportfishing opportunities by providing pink salmon to both boat and shorebased anglers.

WHITTIER PINK SALMON FISHERIES

Fishery Description

Although it is much smaller than the Valdez fishery, Whittier is the second largest pink salmon fishery in PWSMA and includes fish landed in Chenega. Angling occurs from boats at many small stream mouths in PWS and also in fresh waters at Coghill Lake, Eshamy Lake, Shrode Lake, and Jackpot lakes drainages. The Whittier pink salmon fishery since 2002 has a low

harvest rate of 17%, indicating a substantial part of the catch is released. Pink salmon typically return throughout July and into August in the Whittier area.

Stocking Program

No stocking of pink salmon exists in the Whittier area, although PWSAC hatcheries are run in Unakwik Inlet on Cannery Creek and in Sawmill Bay near Chenega. A limited number of Unakwik fish may be intercepted by Whittier anglers, but it is distant from the typical sport fishery areas. Sawmill Bay Hatchery fish are harvested by anglers near Chenega and by Whittier anglers traveling to that area, usually for species other than pink salmon.

Catch, Harvest and Effort

Since 2002, catches of pink salmon near Whittier range from 7,037–21,237 and harvests range from 1,133–3,315. Catch has risen substantially since 2003, except in 2006, but harvest rates remain low. On average, 12% of the total catch in PWSMA has been by Whittier anglers.

In 2007, pink salmon angling produced the second highest catch (19,759) since the record catch of 21,237 pink salmon in 2004. The 2006 return was poor for pink salmon sport fisheries in the Whittier area; the catch was 7,073 and the harvest was 1,336 and was below the 5-year average. Anglers targeting pink salmon in 2005 had the third best season on record with a catch of 15,652 pink salmon.

Fishery Management and Objectives

Fisheries management in the Whittier area is largely geared toward sustaining commercial fisheries. Escapement of pink salmon in index systems within an area are surveyed with aerial flights by commercial fisheries staff and compared to expected escapements. All sport and commercial fisheries are curtailed if escapement goals are not achieved.

CORDOVA PINK SALMON FISHERIES

Fishery Description

Pink salmon sport fisheries in the Cordova area are small. Pink salmon are found in a few streams in fishable numbers along Whitshed Road and Orca Road and a few inhabit streams along the Copper River Highway. Pink salmon do inhabit most small streams in Orca Bay, but a limited number are targeted by anglers. The average Cordova area pink salmon catch in 2002-2006 was 4,535 and accounts for less than 5% of the total catch in PWSMA. The 2007 season produced the largest catch on record, 15,486 pink salmon.

CHUM SALMON FISHERIES

Areawide Overview

The chum salmon fishery is a small portion of the salmon fishery in PWSMA and largely limited to western PWSMA. Limits for chum salmon are 6 per day, 12 in possession (daily limit includes pink, sockeye, and coho salmon). The sport catch of chum salmon in 2002-2006 was highly variable in PWSMA ranging from 5,383 to 13,227 and the annual average was 9,249 (Table 12, Figure 16). Chum salmon had the lowest average harvest rate of any salmon species at 18% in 2002-2006, and was as low as 13%.

On average, over 100,000,000 chum fry are released in PWSMA by PWSAC largely for commercial harvest. In the early 2000s, more chum salmon returning to Wally Noerenberg Hatchery on Esther Island were caught by sport anglers and a small recreational fishery targeting chums appears to be developing.

Areawide Catch, Harvest and Effort

The chum salmon fisheries in 2006 and 2007 were fair. The 2007 estimates of catch (7,523) and harvest (1,168) were below the 5-year average. Valdez anglers caught large numbers of chum in fall 2007 during the coho salmon derby. The chum salmon catch in 2006 was 8,098 and harvest was 2,034. The 2006 harvest rate of 25% was the highest on record.

Valdez anglers accounted for 36% of the catch on average and 11% of chum salmon harvest in PWSMA. The 2005 chum salmon catch and harvest was the lowest since 1994.

Areawide Management

The sportfishing season is open all year and the bag and possession limits for chum salmon are 6 fish per day, 12 in possession (daily limit is inclusive of pink, sockeye, and coho salmon), except in freshwater drainages crossing the Copper River Highway and the Robe River near Valdez, where the limits are 3 fish per day, 3 in possession. Closed waters near Cordova include Eccles Creek, Eyak Lake drainages, Clear Creek upstream of the Carbon Mountain Bridge, and Hartney Creek upstream of Whitshed Road. Additionally, all freshwater drainages of Valdez Arm, except for Robe River and Solomon Gulch Creek, are closed to salmon fishing. Some areas have method restrictions in situations where fish are particularly vulnerable to angling overharvest.

Some evidence indicates that hatchery strayed pink and chum salmon can escape into PWSMA streams that contain wild salmon runs (Rick Merizon, ADF&G, Palmer, personal communication). The magnitude or repercussions of this situation on wild salmon stocks is unclear.

CUTTHROAT TROUT FISHERIES

Areawide Overview

Wild cutthroat trout, and to a limited extent rainbow trout, are available to anglers throughout the year in PWSMA. The peak fishing opportunities typically occur as fish migrate to and from overwintering and spawning areas, typically from mid-June through September. Spawning begins in April and lasts into June. Wild rainbow trout are limited in distribution to a few streams on the Copper and Bering River deltas, while cutthroat trout are found in many streams in PWS and in most delta streams. Wild spawning fish are differentiated by regulation from stocked rainbow trout. Hybrids of wild cutthroat and rainbow trout have also been observed on several systems (G. Reeves, USFS, personal communication, Marston et al. 2005).

Catch estimates were focused on wild cutthroat trout because wild rainbow trout are only occasionally caught in PWSMA. The annual catch of cutthroat trout in 1997-2006 ranged from 1,232 to 4,194 fish, with a 10-year average of 2,336 (Table 13, Figure 17). The annual harvest rate varied in 1997-2006, but averaged only 20%, reflecting the popularity of catch-and-release trout fishing and management directives that mandate catch-and-release near Cordova. The Eyak and Eshamy drainages and the delta streams near Cordova are the three major fishing areas for cutthroat trout in PWSMA. In 1997-2006, Eyak, Eshamy, and Cordova area streams accounted for 7%, 20%, and 15% of the 10-year average annual catch, respectively.

Areawide Catch, Harvest and Effort

The overall sport catch of cutthroat trout in PWSMA was 1,220 in 2007 and 1,408 in 2006. Both years were well below the 10-year average catch of 2,336. The catch of cutthroat trout in streams near Cordova in 2007 was also below average, but was above average in 2006, and the catch at Eshamy was low. Harvest rates in 2007 for each area ranged from 0% at Eshamy to 35% in Cordova, with an overall average of 22%.

Angler reports indicated that 2007 was a good year for wild trout fisheries in PWSMA. Anglers on the Copper River Delta and at Eshamy reported good catches. Eyak River had especially good conditions in 2007, and similar to 2006. Fluctuations in the fisheries and low response rates to the SWHS make it difficult to identify specifics of the cutthroat trout fisheries.

Areawide Management

Regulations for wild cutthroat and rainbow trout and their hybrids in PWSMA are inclusive. The daily bag and possession limits are 2 trout (only 1 over 20 inches) allowed. Additionally, spawning season is closed to fishing for trout from April 15 through June 14. In the Copper River Delta Special Management Area for trout there is no retention of cutthroat trout and only unbaited, single-hook, artificial lures are allowed year-round.

HALIBUT FISHERIES

Areawide Overview

Halibut are one of the most popular targets of anglers fishing marine waters in PWSMA. The majority of halibut are harvested from May through early September. Anglers fish PWSMA from the two major ports of Valdez or Whittier, or smaller ports like Cordova, and also from outside areas like Seward. Few halibut are caught from shore. Whittier surpassed Valdez in 2005 as the largest fishery port in PWSMA, followed by Seward and Cordova. Cordova is a comparatively small part of the sport halibut fishery in PWSMA. Weather conditions can have a considerable affect on the halibut fishery as many charters travel long distances to the most productive sites. Typically, over 60% of halibut caught are harvested.

Areawide Catch, Harvest and Effort

The average annual sport catch of halibut from PWSMA in 2002-2006 was 73,838, and ranged from 49,016 to 97,052 (Table 14, Figure 18). The average annual harvest was 44,768. Sharp increases in catch and harvest occurred in 2004 and 2007.

The 2007 halibut catch of 110,239 and harvest of 69,623 are the largest on record and well above the 5-year averages in PWSMA. The 2006 halibut catch of 78,329 and harvest of 47,223 in PWSMA were above the 5-year average. Whittier surpassed Valdez in catch of halibut for the third consecutive year in 2007 and in harvest for the second time. The overall weather conditions were good in 2007 and fair in 2006, allowing for good boat access to open waters and good halibut angling success.

Areawide Management

State management limits are the same as federal regulations for halibut at 2 fish per day, 4 fish in possession. The fishery is open year-round except in January, when the fishery is closed to protect spawning fish.

The State of Alaska does not have direct management authority of halibut fisheries in Alaska. Halibut fisheries are managed under an international treaty, the 1953 Halibut Convention as amended by the 1979 Protocol (McCaughran and Hoag 1992). The International Pacific Halibut Commission (IPHC) was formed to assure the optimal sustained yield of the North Pacific halibut resource. However, the IPHC does not have authority to allocate the catch quota among the various halibut fisheries in U.S. waters. In U.S. waters, the responsibility for allocation of the catch quota among fisheries falls to the North Pacific Fishery Management Council (NPFMC) via the Magnuson-Stevens Fishery Conservation and Management Act of 1996. ADF&G, Division of Sport Fish, provides harvest data and other information to both the IPHC and the NPFMC to aid in making management and allocation decisions.

Under treaty, North Pacific halibut stocks are managed for optimum sustained yield. Currently, the North Pacific halibut stock is fully utilized. A constant exploitation rate strategy is used to manage North Pacific halibut stocks. The IPHC annually calculates the exploitable biomass available for harvest in each of 10 regulatory areas. Constant exploitation yield (CEY) is calculated for each regulatory area as the estimated exploitable biomass available times a 20% exploitation rate. Thus, each CEY represents the total allowable removals (includes harvest, waste, and legal-size bycatch) for each regulatory area. The IPHC then estimates the sport and subsistence harvests, as well as wastage and legal-size bycatch mortality for each regulatory area and these are subtracted from the CEY. The remainder is then "allocated" to the directed commercial halibut fishery. This factoring of the catch has, to the present, been done by the IPHC and the final numbers "approved" by the NPFMC on an annual basis. Under this management approach CEY changes annually, reflecting the estimated biomass of exploitable halibut.

The charter fleet has operated under a guideline harvest level (GHL) since September 2003. The GHL was created by the NPFMC as a target harvest level created for each IPHC area that should not be exceeded, but was not a hard limit on harvest. In 2004-2006, the GHL was exceeded by the charter halibut fleet in SE Alaska, and PWSMA (which falls within one of 10 regulatory areas, Area 3A). The NPFMC is currently exploring options to limit charter halibut harvest, which may include a lower daily bag limit, and/or a charter halibut boat limit. Additionally, the state has used its Emergency Order authority to limit harvest from charter guides. A solution is currently under consideration by the NPFMC, and the state has added halibut to its groundfish monitoring program to improve tracking of halibut harvests by charter boat anglers.

VALDEZ HALIBUT FISHERY

Fishery Description

The Valdez halibut fishery has the largest charter component and historically was the largest halibut fishery port in PWSMA. A halibut derby run by the city of Valdez promotes the halibut fishery beginning in June and continuing through Labor Day. Port of Valdez is a primary access point to PWSMA especially for interior anglers from the Fairbanks area. Valdez anglers typically fish the eastern sound for halibut and charters typically go to entrance areas into PWS when weather permits. Private anglers typically fish closer to port Valdez.

Catch, Harvest and Effort

Since 2002, catch of halibut from the Valdez area ranged from 13,885 to 30,979 and the harvest from 8,333 to 18,241. The 5-year average catch is 21,013 and harvest is 13,203. Valdez halibut

sport harvest areas are found in Meyer (2003 and 2006). Anglers have caught more than 20,000 and harvested more than 13,000 halibut out of Port Valdez in the last 4 years. Typically, 63% of halibut caught out of Valdez are harvested. The 2007 halibut catch exceeded 30,000 fish for the first time in history while harvesting a record high 18,241 in the Port of Valdez. In 2007, Valdez fell behind Whittier for the second year as the largest halibut fishery port in PWSMA for both catch and harvest. In 2006, Valdez halibut fishermen caught 20,052 halibut and harvested 13,145 which were below the 5-year average. The 2005 season catch (24,282) and harvest (15,521) was the third most successful for halibut anglers out of Valdez.

Fishery Management and Objectives

Areawide management regulations apply. A port sampling program samples halibut brought in by sport anglers to determine harvest, age and length (Meyer (2003, 2006). These data are provided to the IPHC for management of halibut resources.

WHITTIER HALIBUT FISHERY

Fishery Description

Whittier anglers find halibut within Passage Canal, within entrance areas into PWS, and as far south as Point Puget. Perry and Naked Islands are also productive. Areas inside PWS are typically more productive as summer progresses. Whittier anglers have easier access to halibut than Valdez anglers because of the more sheltered waters close to the port. Numerous state, private, and federally owned cabins allow private boat owners to camp in protected coves for overnight angling trips. Charters from the port of Whittier typically fish around Knight Island and farther south. Good halibut angling in southern PWS entrance areas begin as early as April and inside waters are usually productive by mid May through late August.

Catch, Harvest and Effort

Anglers targeting halibut out of Whittier has continued to increase. Prior to 2001, catches of halibut were usually well below 10,000 fish and harvests were below 4,500. Since 2002, catches have exceeded 11,000 and harvests have been over 9,500. The average catch for halibut in 2002-2006 was 18,911 and harvest was 11,847. Whittier surpassed Valdez as the top halibut port the last 3 years. The harvest rate out of Whittier has been similar to other ports averaging 60%.

The 2007 season catch of 37,867 and harvest of 24,288 halibut is the highest on record for both Whittier and the entire PWSMA, surpassing Valdez by almost 7,000 fish. The 2007 catch from Whittier was reported as good throughout the year. Fishing in Passage Canal was good in 2007 beginning May 1, and areas in northern PWS were productive throughout the season. The most productive areas were in southern entrance areas. The 2006 season was the second highest recorded halibut catch and harvest in Whittier. Whittier also exceeded Valdez in number of halibut caught and harvested in 2006 for the second year with 23,925 caught and 14,895 harvested. The harvest rate of 62% in Whittier for 2006 was much higher than in 2005. In 2005, halibut landings in Whittier surpassed Valdez in catch with anglers landing 24,320 halibut.

Fishery Management and Objectives

Areawide management regulations apply. A port sampling program samples halibut brought in by sport anglers to determine harvest, age and length (Meyer 2003 and 2006). These data are provided to the IPHC for management of the halibut resource.

CORDOVA HALIBUT FISHERY

Fishery Description

Cordova halibut anglers fish near town in Orca Inlet and out in Orca Bay, Strawberry Channel, and around Hinchinbrook Island. The vast majority of Cordova anglers fish the eastern side of PWSMA. Spring halibut fishing begins in early April near Strawberry Channel and later in Orca Bay, near Middle Ground Shoal, until late September. Halibut are caught from shore on occasion, especially near cannery outflow pipes. Much of the Orca Inlet area is shallow nursery habitats where young halibut are concentrated. Subsistence fishery regulations that allow harvest of halibut without a fishing license may curtail sport angling of halibut in Cordova.

Catch, Harvest and Effort

Cordova halibut anglers have caught between 2,645 and 7,092 fish annually since 2002. Harvests of halibut from Cordova ranged from 1,796 to 4,183. The average 5-year catch was 4,586 and harvest was 2,682. The harvest rate in Cordova averaged 58%. Catch and harvest fluctuate annually in Cordova.

The 2007 catch of 4,655 and harvest of 2,872 halibut were above the 5-year average. Cordova area anglers reported fair to good fishing in 2007. The late spring conditions hampered early catches at Strawberry Channel, but summer catches in Orca Bay were good, and several large halibut were landed. Halibut angling in 2006 was the lowest since 2002. In 2006, 3,441 halibut were caught and 2,195 were harvested. Halibut catch rates in 2005 were the third highest since 2000 with a catch of 5,725; however, anglers chose to harvest only 52% of their catch.

Fishery Management and Objectives

Areawide management regulations apply. A port sampling program samples halibut brought in by sport anglers to determine harvest, age and length (Meyer (2003, 2006). These data are provided to the IPHC for management of the halibut resource.

SEWARD HALIBUT FISHERY (PWSMA)

Fishery Description

Saltwater fish landed in Seward are discussed in detail in the Area Management Report for the Recreational Fisheries of the North Gulf Coast, 2005 (D. Bosch, unpublished). This section presents angling data on fish caught from PWSMA and landed in Seward. The Seward halibut fishery catch in PWSMA was not directly recorded before 2001. Prior to 2001, PWSMA halibut landed at Port Seward were tallied as “other areas.” Since 2001, the actual port of landing has been recorded and saltwater fish harvest was tallied for Seward. Anglers from Seward travel to areas east of Point Puget, mostly at the southern tip of Montague Island and Elrington Island. Because these areas require a long trip across open water from Seward, the fishery is highly dependent on weather conditions.

Catch, Harvest and Effort

Catch and harvest data for Seward are only available since 2001. Catches have ranged from 7,975 to 19,278 and harvests from 5,363 to 9,394. The 5-year average (2002-2006) catch is 13,536 with a harvest of 11,362. Seward anglers typically harvest 57% of the halibut catch.

In 2007, halibut catch and harvest rates increased by 21% and 34% from 2006, producing the second largest catch and largest harvest since 2001. Halibut fishing was good in 2007 as weather conditions were favorable for travel to the Gulf of Alaska. The halibut catch for Seward increased in 2006, but harvest was down. Catch was 13,706 and harvest was 7,453 accounting for 18% of the catch from PWSMA in 2006. Halibut catch (13,332) and harvest (8,179) in 2005 was similar to 2006.

Fishery Management and Objectives

Areawide management regulations apply. A port sampling program samples halibut brought in by sport anglers to determine harvest, age and length (Meyer (2003, 2006). These data are provided to the IPHC for management of the halibut resource.

ROCKFISH FISHERIES

Areawide Overview

Rockfish are a popular target of recreational anglers fishing PWSMA marine waters. A variety of rockfishes, species of the genera *Sebastes* and *Sebastolobus*, inhabit the marine waters of PWSMA. These rockfishes are categorized into the following groups based on habitat preferences: slope, demersal shelf, and pelagic shelf. The recreational fishery primarily targets demersal and pelagic shelf rockfish, with slope rockfish only occasionally harvested. Although many species of rockfish have been identified in PWSMA, the most commonly harvested *Sebastes* species are yelloweye rockfish *S. ruberrimus* (demersal), black *S. melanops* (pelagic), quillback *S. maliger* (demersal), and copper rockfish *S. caurinus* (demersal). Although available year-round, most rockfish are harvested in the sport fishery from May through early September. Management, issues and stock status, are discussed in Meyer and Stock (2002).

Areawide Catch, Harvest and Effort

The average annual sport catch of rockfish from PWSMA in 2002-2006 was 45,756 fish (Table 15 and Figure 19). Harvest averaged 27,452 during the same time period. The average harvest rate was 60% for rockfish in PWSMA, ranging from 55% to 66%. Most rockfish catches in PWSMA come from anglers using Port of Whittier and Valdez, with Whittier anglers accounting for 50% of the catch since 2002. Rockfish catch and harvest in general has increased since 2002 to a record catch and harvest in 2007.

The sport fish catch and harvest of rockfish in 2007 in PWSMA was the largest on record with a catch of 64,836 and a harvest of 38,606. Catch and harvest rates in 2007 at each port were above the 2002-2006 average. The sport catch of rockfish from PWSMA waters during 2006 (49,983) was well above the 5-year average, but was less than 2005. Total harvest areawide in 2006 was 32,958 rockfish, well above the previous (2001-2005) 5-year average of 24,782 and a small increase over 2005. Most of the 2006 catch was from trips out of Whittier (51%), which is now the most productive rockfish port.

Areawide Management

The limits for rockfish in PWSMA are 5 per day, 10 in possession (only 2 per day and 2 in possession may be non-pelagic) from May 1 through September 15, and 10 per day, 10 in possession (only 2 per day and 2 in possession may be non-pelagic) from September 16 through April 30. The first two non-pelagic rockfish that are removed from the water must be retained as

part of the bag limit of the person originally hooking them. Federal subsistence regulations allow individuals from Cordova, Chenega, and Tatitlek to harvest rockfish as bycatch to subsistence halibut fishing with set lines. Up to 20 hooks may be used and no harvest limit has been set.

Due to a lack of stock assessment data, no specific fishery objectives have been established for recreational rockfish fisheries in PWSMA. However, the following management approach is followed:

1. Lower bag limits for demersal and slope species – low enough to discourage targeting, high enough to allow retention of bycatch.
2. Education of public regarding life history.

The Division of Sport Fish Division groundfish harvest monitoring program provides estimates of species, age, length, and sex composition, as well as the spatial distribution of the recreational rockfish harvest for each port. Ports with recreational rockfish landings include Seward, Whittier, and Valdez. This program is effective at describing harvest, but these data alone cannot be used to evaluate stock status or develop management objectives.

An assessment of rockfish release mortality is in the planning phase for PWSMA. The study will assess release methods for rockfish that attempt to limit mortality of released rockfish. Released rockfish often suffer physical trauma and potential mortality from being brought up from depth. Methods and techniques to minimize this trauma have not been fully tested but are used by the angling public. Management regulations may need to be implemented to control or promote the use of release mechanisms depending on the outcome of the study.

VALDEZ ROCKFISH FISHERY

Fishery Description

Rockfish are landed at Port Valdez mostly from areas throughout eastern PWSMA. Charter anglers principally catch rockfish near Hinchinbrook Entrance, while most private anglers fish closer to the port in areas like Bligh Reef and Knowles Head. Prior to 2000, Valdez had the highest rockfish harvest of all PWSMA ports, but has since dropped below Whittier in rockfish catch. Many rockfish are incidentally captured in other fisheries, primarily halibut.

Catch, Harvest and Effort

Rockfish angling from Valdez has ranged from 9,955 to 16,507 for catch and 5,414 to 9,843 for harvest since 2002. The percent of total PWSMA rockfish catch from the Port of Valdez fell from 30% in 2002 to 25% in 2006 and the average harvest rate has been 63% since 2002.

Valdez anglers caught a record 17,014 rockfish in 2007 and the harvest of 12,343 was the largest on record. Late spring conditions in 2007 may have delayed the arrival of halibut and increased rockfish angling, which was 26% of the catch in PWSMA. Rockfish catch and harvest numbers were down in 2006 and were the lowest during 2005-2007. Anglers caught 13,106 rockfish and harvested 9,843 in 2005 which was 26% of the catch in PWSMA and 32% of the harvest. This was second largest in relation to other ports in PWSMA. Valdez anglers harvested 75% of the rockfish they caught overall in 2005.

Fishery Management and Objectives

Areawide limits and regulations apply.

WHITTIER ROCKFISH FISHERY

Fishery Description

Whittier anglers mostly fish for rockfish in western PWSMA. Charter anglers fish areas near Knight Island and farther south to Elrington. Most private anglers fish closer to the port and as far as Lone Island or Port Nellie Juan. Whittier is currently the largest rockfish port of landing in PWSMA. Along with targeted angling, rockfish are often incidentally captured in other fisheries.

Catch, Harvest and Effort

Catches of rockfish in Whittier have increased from 15,562 to 32,391 since 2002 and harvests have increased from 9,560 to 16,450. The proportion of captured fish attributed to the Port of Whittier in PWSMA increased from 46% in 2002 to 50% in 2007 and is the largest rockfish port of landing.

In 2005, 26,215 rockfish were caught by anglers out of Whittier and 13,835 were harvested, or 51% of the total PWSMA catch and 44% of the total harvest. Whittier anglers harvested 53% of their catch in 2005. Anglers caught 25,391 rockfish and harvested 64% of the catch in 2006. The 2007 season produced a record catch of 32,391 rockfish in PWS and anglers harvested 16,450 rockfish, the largest number in Port of Whittier history.

Fishery Management and Objectives

Areawide limits and regulations apply.

CORDOVA ROCKFISH FISHERY

Fishery Description

Cordova rockfish anglers fish primarily from Orca Bay to northern Montague Island. The port is dominated by private anglers, with only a few charter boats. Cordova is the smallest port in PWSMA for rockfish landings. Orca Bay has several private use cabins that are rented to anglers who fish Sheep and Simpson bays. Knowles Head and Port Gravina are also fished by Cordova anglers.

Catch, Harvest and Effort

Cordova rockfish catches since 2002 have ranged from 1,361 to 4,884 and harvests from 916 to 2,543 and were highest in 2007. Catch and harvest of rockfish have varied annually. Cordova accounts for less than 10% of the total rockfish angling in PWSMA and Cordova anglers typically harvest 61% of their catch.

Rockfish catch (2,109) in 2005 was below the 2002-2006 average of 2,540 while harvest (1,504) was above average (1,391). Cordova anglers harvested 71% of the fish they caught in 2005. Cordova rockfish angling accounted for 4% of the total PWSMA rockfish fishery in 2005. The rockfish catch of 1,821 in 2006 was lower than in 2005 and the harvest rate was 67%. In 2007, rockfish anglers caught 4,844 and harvested 2,534, the largest number of rockfish landed in Cordova.

Fishery Management and Objectives

Areawide limits and regulations apply.

SEWARD ROCKFISH FISHERY (PWSMA)

Fishery Description

Most anglers from Seward that fish in PWSMA fish the southern end of Montague and Elrington Islands. These areas are particularly good rockfish habitats. Anglers in this area also encounter rockfish while fishing for other species like lingcod and halibut. The PWSMA waters from Seward are largely open and susceptible to adverse weather requiring larger boats.

Catch, Harvest and Effort

Catch and harvest rates increased from 2002 to 2004 and remained relatively steady through 2007. Catch ranged from 3,848 to 9,010 and harvest from 3,025 to 6,056. The proportion of rockfish caught by Seward anglers in PWSMA ranged from 11% to 19% and the harvest rate ranged from 52% to 79%.

Rockfish catch was 8,917 and harvest was 5,395 in 2005. Seward anglers caught 17% of PWSMA rockfish in 2005 with a harvest rate of 61%. The rockfish catch of 8,050 and harvest of 5,071 in 2006 were down compared to 2005, as weather conditions were not as favorable for fishing. The 2007 season catch of 8,734 produced a Port of Seward record high harvest of 6,056 rockfish.

Fishery Management and Objectives

Areawide limits and regulations apply.

LINGCOD FISHERIES

Areawide Overview

Lingcod are targeted by anglers from every port in PWSMA. Regulations prohibit retention of lingcod prior to July 1 and angling for lingcod is uncommon before then, but persists from mid summer through fall. Underwater pinnacles are especially productive in areas like North Montague, South Montague, Elrington, and Eastern Hinchinbrook Island waters. Lingcod angling has grown in popularity in recent years. A complete history of the recreational and commercial fisheries for lingcod in the north Gulf of Alaska through 1992 is provided in Vincent-Lang and Bechtol (1992), Meyer (1993), and Hepler et al. (1993). Lingcod sport fisheries in PWSMA are larger than commercial harvests.

Areawide Catch, Harvest and Effort

The average annual catch for the recreational lingcod fishery in PWSMA was 12,682 fish and average harvest was 5,588 since 2002 (Table 16 and Figure 20). Harvest rates for lingcod average 45%. Lingcod are primarily caught in western PWS, but harvests are essentially spread equally between east and west. Seasonal closures and size limits for lingcod influence harvest rates.

It was a record high year for lingcod angling in PWSMA during 2007; catch peaked at 20,467 and harvest peaked at 9,262. Harvest was also slightly higher than average. The average harvest

rate from 2002-2006 was 44% indicating many fish are below the legal size limit or caught before the opening of the season. All port landings in 2007 were the 2002-2006 average.

Areawide Management

The current regulations governing recreational lingcod fisheries in PWSMA were enacted in 1993. The areawide limits are 2 fish daily and 4 in possession. Due to a lack of stock assessment data, no formal fishery objectives have been established for recreational rockfish fisheries in PWSMA. However, recreational lingcod fisheries in PWSMA are managed using a conservative approach. Because lingcod recruitment is highly variable, the current management approach is designed to maintain the spawning population and assure future recruitment. This is done in three ways: (1) a season closure protects spawning fish January 1 to July 1, (2) a 35-inch minimum size limit for both sport and commercial fisheries allows fish the opportunity to spawn at least once before reaching harvestable size, and (3) the conservative bag limit restricts overall harvest. In addition, all sport-caught lingcod can only be landed by hand or net if they are to be released.

VALDEZ LINGCOD FISHERY

Fishery Description

The Valdez lingcod fishery is largely a charter boat fishery. Lingcod brought into Valdez are caught mostly in PWS entrance areas that require long, open water crossings. Fewer lingcod are caught by private anglers because habitats near port are not ideal for lingcod. Valdez anglers typically account for about 33% of the lingcod fishery in PWSMA and usually harvest 54% of their catch.

Catch, Harvest and Effort

Catches of lingcod range from 2,388 to 7,047 since 2002 and harvests range from 1,313 to 3,653. The catch and harvest of lingcod from Valdez has increased in recent years.

Catch of lingcod from the Port of Valdez produced historical highs in 2005-2007. The catch of lingcod in 2005 was 4,670 and the harvest was 2,658. The Valdez lingcod catch in 2005 was 32% of the total catch in PWSMA. Lingcod catch in 2006 was 5,376 fish and harvest was 2,379. The 2007 season produced a record high catch of 7,047 lingcod and harvest of 3,653.

Fishery Management and Objectives

Areawide limits and regulations apply.

WHITTIER LINGCOD FISHERY

Fishery Description

The lingcod fishery from the Port of Whittier is largely a private boat fishery, although there is a growing charter fleet. These anglers travel to southern PWSMA to fish entrance areas by Elrington and Latouche Islands. Eastern Knight Island and Naked Islands produce fewer numbers of fish. The Port of Whittier has been the largest lingcod fishery in terms of catch for the last several years.

Catch, Harvest and Effort

Whittier lingcod catches have increased markedly since 2002, ranging from 2,465 to 7,369, and harvests have been relatively stable ranging from 1,098 to 3,032. The harvest rate at Whittier varied from 20% to 50%. About 38% of the lingcod catch in PWSMA comes from the Port of Whittier.

The past three years have produced record high catches and harvests in Whittier and PWSMA. In 2005, the lingcod catch out of Whittier was 6,686, the harvest was 1,327, and the harvest rate of 20% was low relative to past years. The low harvest rate in 2005 indicates that most fish were undersized or caught during the closed season. The 2006 lingcod catch was 4,435 and the harvest was 1,861. In 2007, a record high number of lingcod were caught (7,369) and harvested (3,032). Lingcod anglers harvested more than 40% of their catch in 2007, which is above the 2002-2006 average of 35%. Lingcod catch and harvest numbers have increased annually since 2002, which indicates anglers are targeting these fish more often.

Fishery Management and Objectives

Areawide limits and regulations apply.

CORDOVA LINGCOD FISHERY

Fishery Description

The lingcod fishery out of Cordova is the smallest of all PWSMA ports. There is only one full time charter and several intermittent guides that use the Port of Cordova to target lingcod. Lingcod are pursued by anglers in Orca Bay and near PWS entrance areas by Hinchinbrook Island. Some anglers travel as far as Middleton Island for lingcod.

Catch, Harvest and Effort

The catch of lingcod from the Port of Cordova ranged from 375 to 1,208 and harvest from 95 to 490 since 2002. Cordova is normally less than 10% of the total PWSMA lingcod catch. The average harvest rates from 2002-2006 for Cordova anglers are similar to Whittier anglers at 34%. The fishery in Cordova varies annually.

The lingcod catch of 484 and harvest of 176 from Cordova in 2005 was low, and accounted for only 3% of the lingcod fishery. Angler effort in 2005 was down for the entire Cordova area. The 2006 lingcod catch was only 375, but rebounded in 2007 with a record high catch of 1,208 and a harvest of 490 lingcod.

Fishery Management and Objectives

Areawide limits and regulations apply.

SEWARD LINGCOD FISHERY (PWSMA)

Fishery Description

Most Seward anglers that fish for lingcod travel to southwestern PWSMA. This requires a long, open water passage that is mostly limited to larger boats. Some effort is expended as far as Wessels Reef and Middleton Island. Compared to the rest of PWSMA, these areas are particularly good for lingcod.

Catch, Harvest and Effort

Since 2002, the catch of lingcod out of Seward has ranged from 1,177 to 4,351 and harvest from 545 to 1,770. The Seward fishery accounts on average for 18% of the total PWSMA lingcod fishery. Seward anglers typically harvest 44% of their catch.

Lingcod catch and harvest in PWSMA for Seward were similar in 2005 and 2006. The catch was 2,455 and harvest was 992 in 2005, and in 2006, the catch was 2,444 and harvest was 1,099. Harvest rates in 2005 and 2006 were low for Seward, indicating that most fish were small or caught out of season and released. The 2007 lingcod season produced a record high catch of 4,351 and a harvest of 1,770 for the Port of Seward. Lingcod anglers harvested approximately 41% of their catch in 2007.

Fishery Management and Objectives

Areawide limits and regulations apply.

SHRIMP

Areawide Overview

Shrimp are pursued mainly out of the Ports of Valdez and Whittier, but some harvest also occurs in Orca Bay out of Cordova. Shrimp are harvested with no bag limit, but with a maximum limit of 5 pots per person, with a maximum of 5 pots per vessel. In order to help reduce harvest of egg-bearing females the defined season is from April 15 through September 15. A shrimp harvest permit (and record card) for sport, subsistence and personal use in PWSMA was required through 2005 to determine the extent of sport, subsistence and personal use harvest. The PWSMA shrimp harvest continues to be monitored through the statewide harvest survey.

Areawide Catch, Harvest and Effort

Harvest of shrimp has varied over time. The SWHS estimates began in 1994 and have ranged from 2,059 pounds of shrimp reported harvested in 1998 to 36,418 pounds of shrimp harvested in 2007 (Table 17 and Figure 21). Shrimp harvest remained relatively low and consistent through 2001, and has increased annually since then. Effective in 2001, the Alaska Board of Fisheries instituted new regulations for the noncommercial shrimp fisheries of PWSMA reducing the number of pots to 5 per person with a maximum of 5 per vessel, and required a permit for anyone fishing for shrimp. An unintended consequence of these restrictions was to draw attention to what had been a quiet fishery, and increased interest and effort in the noncommercial shrimp fishery.

The permits were required in 2001, and after an initial year of developing a permit and educating the public, an estimated harvest of 9,620 pounds of shrimp was estimated for 2002 and grew to 33,285 in 2005. Comparisons between what were reported in the SWHS and the estimates derived from the permits confirmed that the two reporting methods provided different, yet comparable estimates and the permit requirement was dropped in 2006.

Areawide Management

No formal fishery objectives have been established for this fishery. ADF&G, Division of Commercial Fisheries monitors the status of shrimp stocks by conducting pot surveys in Prince William Sound. This survey documents average catch, weight, and abundance per pot by shrimp species, and collects data on sex, size, and egg condition of the spot shrimp *Pandalus platyceros*.

These data provide an index of relative abundance and an indication of spot shrimp stock condition. Tagging studies conducted in the mid 1980s showed PWSMA spot shrimp are long-lived and slow-growing, characteristics that emphasize the need to keep fishing mortality low.

RAZOR CLAMS

Areawide Overview

Razor clams were commercially harvested in the Cordova area in large numbers until environmental changes from the 1964 earthquake drastically reduced razor clam populations. From 1997-2007, the average annual harvest estimate of razor clams in the entire PWSMA was 481 clams, with the largest harvest of 1,435 razor clams occurring in 2007 (Table 18 and Figure 22).

Areawide Management

No formal fishery objectives have been formally established for these fisheries except that a permit is required for all clam harvesting (sport, personal use, and subsistence) east of Point Bentick on the Copper River Delta. The harvest from subsistence and personal use clamming is not included in the SWHS.

OTHER FISHERIES

SHARKS

Areawide Overview

The shark fisheries in PWSMA waters are relatively new. The three most common sharks in PWSMA are the salmon shark *Lamna ditropis*, spiny dogfish *Squalis acanthias*, and the Pacific sleeper shark *Somniosus pacificus*. Although all three species are caught incidentally in other fisheries, there is a growing interest in targeting the salmon shark as a sport fish. Charter operators from Valdez, Cordova, Seward, and Whittier target salmon sharks, but Valdez and Whittier are the only substantial harvest ports for salmon shark charters in PWSMA. A small number of unguided anglers also target salmon sharks. The proportion of salmon sharks in the total catch and harvest (which includes all species) is unknown, but harvest of salmon sharks is recorded by port samplers in major PWSMA ports.

Areawide Catch, Harvest and Effort

Most sharks caught in the recreational fishery are released, as shown by the average harvest rate of 6% from 2001-2007 (Table 19 and Figure 23). Although the SHWS does not separate sharks by species, most sharks harvested are likely salmon sharks as these fish are the only species popular as table fare. The catch from areas designated as “unknown” has been exceptionally high since 2003, but a large portion were landed in the Port of Seward. Fluctuations in shark catch and harvest statistics have been large in the past because of the short time series of data and the changing nature of the fishery. Catch and harvest data for sharks in PWSMA were first collected in 1996. Interpretations of trends in the shark sport fishery in PWSMA will continue to be anecdotal until more data are obtained.

The catch and harvest of sharks has increased markedly since 2001. The average annual catch from 2005-2007 of 5,332 was above the 2002-2006 average catch of 3,923 sharks. The 2007

catch of 5,141 sharks is the second largest on record with 246 harvested. The largest shark catch on record was 6,453 in 2005 and the largest harvest was 292 in 2006.

Areawide Management

The daily bag and possession limits for any shark species is 1, with an annual limit of 2 sharks, were enacted statewide in 1997. In addition, sport harvest of all sharks must be recorded on a license or harvest card.

Available data on sharks are insufficient to estimate exploitable biomass in PWSMA, therefore formal management objectives for this fishery have not been developed. Although research might eventually allow estimates of abundance, biomass, or a sustainable level of harvest, none of these tools are currently available to managers. Thus, based on a lack of abundance data, and a life history that is particularly vulnerable to overexploitation, recreational shark fisheries in the PWSMA are managed using a conservative bag limit.

The Division of Commercial Fisheries groundfish harvest monitoring program collects information on age, length, sex, and location of harvested salmon sharks, Pacific sleeper sharks, and spiny dogfish. Although there are no formal objectives with respect to the shark fishery, it is hoped that the harvest of these species can be characterized using several years of data.

ADF&G also initiated a shark tagging program enlisting the aid of shark-charter operators in 1998. Funding for that program was eliminated in 1999, but a low level of tagging has continued. Since 1999, ADF&G has assisted the National Marine Fisheries Service and Virginia Institute of Marine Science in limited research on salmon sharks in PWSMA. It is hoped that shark research will continue and that the information collected will be useful in formulating management objectives that provide for sustained yield.

DOLLY VARDEN

Areawide Overview

Dolly Varden are available to anglers throughout the year in PWSMA, however, peak fishing opportunities generally occur as they migrate to and from overwintering and spawning areas. Peak harvest occurs in May and from mid-July through September, but much of the catch can be incidental to fishing for other species. Spawning begins in September and lasts into November.

Areawide Catch, Harvest and Effort

Within PWSMA substantial fisheries for Dolly Varden include the Valdez Arm area and Cordova roadside streams (Table 20 and Figure 24). The 5-year averages for catch and harvest of Dolly Varden in these areas through 2006 were 7,809 and 1,213 for PWSMA. Cordova has been the dominant producer during the 5-year average with 47% of the catch. The PWSMA average harvest rate for Dolly Varden was 15% from 2002 to 2006, which is representative of a catch-and-release fishery, and high incidental catch of Dolly Varden.

The catch of Dolly Varden in PWSMA decreased from a high of 8,834 in 2004 to 7,094 in 2007. Dolly Varden catch rates, 2005-2007, were below the 5-year average. The harvest rate during the same period was above average in 2005 and 2007 and below average in 2006.

Catches of Dolly Varden in Cordova were below the 2002-2006 average (3,662) in 2005 (3,070) and 2007 (2,742), but were above average in 2006 (4,426). Dolly Varden catch of 1,176 from

Whittier in 2007 was more than three times the 5-year average of 307 and the largest on record. Valdez area catch of 2,008 Dolly Varden in 2007 was above the 5-year average of 1,577.

The catch and harvest of Dolly Varden will likely continue to vary more than other fisheries because anglers often catch these fish incidentally to other fisheries, especially coho, instead of targeting the species directly.

Areawide Management

Current areawide limits for Dolly Varden are 10 per day, 20 in possession, and no size limit. All streams in PWSMA and all salt waters are open year-round to Dolly Varden fishing.

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TABLES AND FIGURES

Table 1.-Number of angler-days expended in the Prince William Sound Management Area compared to Southcentral and statewide, 1991-2007.

Year	Effort			Percent of Statewide from PWS	Percent of Southcentral from PWS
	Statewide	Southcentral	PWS		
1991	2,456,328	1,782,055	113,062	5%	6%
1992	2,540,374	1,889,930	113,418	4%	6%
1993	2,559,408	1,867,233	104,577	4.1%	5.6%
1994	2,719,911	1,966,985	121,944	4.5%	6.2%
1995	2,787,670	1,985,539	138,194	5.0%	7.0%
1996	2,006,528	1,434,943	97,448	4.9%	6.8%
1997	2,079,514	1,400,983	101,079	4.9%	7.2%
1998	1,856,976	1,258,782	92,503	5.0%	7.3%
1999	2,499,152	1,659,966	122,447	4.9%	7.4%
2000	2,627,805	1,844,824	134,288	5.1%	7.3%
2001	2,621,941	1,560,562	133,635	5.1%	8.6%
2002	2,259,091	1,569,513	125,074	5.5%	8.0%
2003	2,219,398	1,535,501	149,290	6.7%	9.7%
2004	2,473,961	1,709,671	168,046	6.8%	9.8%
2005	2,461,933	1,712,610	160,427	6.5%	9.4%
2006	2,294,548	1,605,983	157,843	6.9%	9.8%
2007	2,543,674	1,799,352	210,169	8.3%	11.7%
10-Yr Ave	2,339,432	1,585,840	134,463	5.7%	8.4%

Table 2.—Number of angler-days by geographic region expended in the Prince William Sound Management Area, 1991-2007.

Year	Cordova Road System	Copper River Delta	Southwest PWS	Northwest		Northeast PWS	Valdez		Other sites in PWS	PWS Total
				PWS (Whittier)	Eastern PWS		Arm Area	Outer Islands		
1983	6,946	51	2,192	7,519	151	34	16,052	85	14,584	47,614
1984	8,196	368	2,259	6,123			23,605	450	16,547	57,548
1985	1,884	135	1,601	11,064	329	553	51,862	375	4,859	72,662
1986	8,394	513	1,870	14,176	2,721	306	32,051	1,055	3,165	64,251
1987	10,451	520	1,890	15,028	1,015	856	48,174	1,244	2,043	81,221
1988	6,994	329	3,867	13,868	1,249	1,498	52,108	1,401	3,657	84,971
1989	16,818	270	7,746	10,148	1,365	909	49,500	2,033	6,458	95,247
1990	9,107	203	3,201	11,255	1,918	2,833	71,909	2,259	3,054	105,739
1991	16,070	1,498	3,021	13,646	1,903	2,613	68,794	1,627	3,890	113,062
1992	19,222	1,172	4,524	8,980	2,599	3,715	60,952	4,061	8,193	113,418
1993	14,943	569	4,354	16,917	1,535	1,126	53,658	3,658	7,817	104,577
1994	19,401	529	6,008	16,286	2,669	3,179	56,329	4,194	13,349	121,944
1995	14,918	378	4,626	16,548	3,200	1,628	76,429	5,121	15,346	138,194
1996	16,456	557	2,676	13,124	1,905	2,094	50,896	2,951	6,789	97,448
1997	13,842	676	3,969	13,511	2,809	1,789	47,516	5,468	11,499	101,079
1998	15,039	455	4,433	13,752	1,135	864	46,571	4,307	5,947	92,503
1999	19,907	682	4,151	17,265	1,515	2,189	59,080	5,810	11,848	122,447
2000	16,150	710	3,044	24,567	1,672	1,996	71,484	4,398	10,267	134,288
91-00 Avg.	16,595	723	4,081	15,460	2,094	2,119	59,171	4,160	9,495	
Year ^a	Cordova ^b		Whittier ^c		Valdez ^d		Other/unknown		Total	
2001	19,918		23,027		67,467		23,223		133,635	
2002	15,718		29,301		56,267		23,788		125,074	
2003	24,482		31,838		72,761		20,209		149,290	
2004	22,123		50,945		78,360		16,618		168,046	
2005	16,147		52,827		71,974		19,479		160,427	
2006	17,314		45,496		76,233		18,777		157,820	
2007	26,826		76,191		88,312		18,840		210,169	
5-Yr Ave	19,157		42,081		71,119		19,774		152,131	
10-Yr Ave									134,461	

^a To increase precision in data collection, the SWHS changed from reporting area of harvest to port of landing in 2001. This had no effect on data for "PWS totals".

^b Includes reported landings in Cordova for saltwater trips, and freshwater effort along the Cordova road system.

^c Includes reported landings in Whittier and Chenega for saltwater trips.

^d Includes reported landings in Valdez for saltwater trips, and freshwater effort along the Valdez road system.

Table 3.–Coho salmon catch and harvest, Prince William Sound Management Area, 1991-2007.

Year	Cordova Road System		Copper River Delta		Northwest PWS		Valdez Arm Area		Other Sites in PWS		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1991	7,634	4,943	164	68	3,310	2,799	12,761	10,393	2,160	1,580	26,029	19,783
1992	7,256	5,150	1,028	113	777	640	22,705	17,580	3,625	1,776	35,391	25,259
1993	8,313	5,056	138	78	1,846	1,558	14,799	12,841	3,626	2,260	28,722	21,793
1994	8,782	5,933	346	266	2,979	2,317	22,071	18,633	5,484	3,424	39,662	30,573
1995	7,286	4,279	814	39	1,918	943	50,907	37,265	8,572	4,590	69,497	47,116
1996	16,287	8,182	4,244	439	4,616	3,282	66,594	42,822	11,896	5,209	103,637	59,934
1997	9,032	4,575	12,801	302	3,051	1,745	51,429	36,311	12,156	6,212	88,469	49,145
1998	8,567	5,026	139	119	3,994	3,235	55,222	37,088	5,032	2,505	72,954	47,973
1999	14,264	8,763	3,538	577	2,991	2,385	50,045	36,125	10,580	5,239	81,418	53,089
2000	9,559	5,586	2,566	514	12,385	8,569	95,097	67,563	12,523	5,235	132,130	87,467
91-00 Avg.	9,698	5,749	2,578	252	3,787	2,747	44,163	31,662	7,565	3,803		

Year ^a	Cordova ^b		Whittier ^c		Valdez ^d		Other/unknown ^e		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
2001	27,214	14,930	16,218	12,626	104,962	75,109	35,092	12,025	183,486	114,690
2002	18,907	10,370	21,957	15,862	66,556	54,832	18,556	9,696	125,976	90,760
2003	44,618	19,515	20,945	15,554	109,324	83,795	30,133	8,665	205,020	127,529
2004	54,981	19,353	21,488	15,675	90,095	65,696	23,684	7,564	190,248	108,288
2005	28,820	14,180	42,606	29,244	106,821	75,152	23,934	11,576	202,181	130,152
2006	17,727	9,230	23,584	17,552	90,153	68,164	11,807	7,633	143,271	102,579
2007	19,716	11,325	46,647	31,694	110,197	85,043	14,789	8,330	191,349	136,392
5-Yr Ave	33,011	14,530	26,116	18,777	92,590	69,528	21,623	9,027	173,339	111,862
10-Yr Ave	23,369	10,662	16,922	12,245	81,970	59,984	18,350	7,635	142,515	91,167

^a To increase precision in data collection, the SWHS changed from reporting area of harvest to port of landing in 2001. This had no effect on data for "PWS totals."

^b Includes reported landings in Cordova for saltwater trips, and freshwater effort along the Cordova road system.

^c Includes reported landings in Whittier and Chenega for saltwater trips.

^d Includes reported landings in Valdez for saltwater trips, and freshwater effort along the Valdez road system.

^e Includes reported landings in Seward for saltwater trips to Western PWS.

Table 4.—Sport catch and harvest of rainbow trout, Prince William Sound Management Area, 1997-2007.

Year	Cordova Road Area		Copper Delta Area		Valdez Area		Other Sites in PWS		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1997	0	0	1,491	0	1,163	331	790	94	3,444	425
1998	226	0	0	0	568	282	447	55	1,241	337
1999	98	0	0	0	3,164	676	1,185	679	4,447	1,355
2000	278	0	3,588	0	770	366	1,084	140	5,720	506
2001	0	0	283	0	527	156	863	542	1,673	698
2002	87	58	22	0	412	338	435	321	956	717
2003	55	0	44	0	466	150	1,250	151	1,815	301
2004	140	0	753	0	117	117	58	103	1,068	220
2005	0	0	41	0	242	33	232	321	515	354
2006	0	0	212	0	126	126	357	116	695	242
2007	0	0	0	0	856	15	383	298	1,239	313
10-Yr Ave	88	6	643	0	756	258	670	252	2,157	516

Table 5.—Sport catch and harvest of Arctic grayling, Prince William Sound Management Area, 1997-2007.

Year	Cordova Area		Copper Delta Area		Valdez Arm Area		Other sites in PWS		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1997	0	0	302	50	91	0	291	69	684	119
1998	0	0	0	0	146	0	388	15	534	15
1999	0	0	0	0	212	180	151	66	363	246
2000	0	0	0	0	316	41	2,755	48	3,071	89
2001	0	0	0	0	0	0	923	47	923	47
2002	0	0	0	0	1,056	101	149	82	1,215	183
2003	0	0	0	0	1,049	560	378	86	1,427	646
2004	0	0	0	0	1,195	34	378	86	1,406	73
2005	0	0	0	0	860	161	48	16	908	177
2006	0	0	0	0	0	0	85	35	85	35
2007	0	0	0	0	454	0	70	0	524	0
10-Yr Ave	0	0	30	5	493	108	555	55	1,062	163

Table 6.–Chinook salmon catch and harvest, Prince William Sound Management Area, 1991-2007.

Year	Cordova		Northwest		Valdez		Other sites		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1991	191	59	59	59	400	353	6	6	656	477
1992	416	321	609	367	437	317	191	111	1,653	1,116
1993	369	302	585	353	660	405	661	284	2,275	1,344
1994	1,046	764	296	220	483	394	376	346	2,201	1,724
1995	479	303	262	161	378	333	263	180	1,382	977
1996	822	779	470	224	1,055	971	85	53	2,432	2,027
1997	1,133	692	1,047	548	1,787	1,193	453	270	4,420	2,703
1998	606	470	860	444	998	571	212	137	2,676	1,622
1999	1,085	787	454	299	848	421	366	256	2,753	1,763
2000	649	448	410	323	4,128	1,229	898	388	6,085	2,388
91-00 Avg.	680	493	505	300	1,117	619	351	203		
Year ^a	Cordova ^b		Whittier ^c		Valdez ^d		Other/unknown		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
2001	374	312	908	739	2,840	1,155	992	431	5,114	2,637
2002	590	330	1,190	770	846	367	1,118	303	3,744	1,770
2003	844	556	620	432	6,350	2,545	286	139	8,100	3,672
2004	483	224	1,712	645	2,178	1,122	1,485	562	5,858	2,553
2005	422	283	1,895	1,094	3,952	1,672	756	481	7,025	3,530
2006	232	192	1,439	1,149	4,844	2,939	1,038	630	7,553	4,910
2007	147	147	1,395	1,012	4,800	1,668	637	455	6,979	3,282
5-Yr Ave	514	317	1,371	818	3,634	1,729	937	423	6,456	3,287
10-Yr Ave									4,821	2,467

Table 7.—Coho salmon catch and harvest, Cordova road system, Prince William Sound Management Area, 1991–2007.

Year	Alaganik		Clear Creek		Eyak Drainage		Orca Inlet		Ibeck Creek		Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1991	490	306	415	211	2,486	1,355	4,018	2,989	0	0	7,409	4,861
1992	1,207	729	57	16	4,178	2,996	1,741	1,377	0	0	7,183	5,118
1993	2,255	1,127	736	332	3,854	2,431	931	721	0	0	7,776	4,611
1994	1,128	433	894	568	3,998	3,083	2,025	1,592	0	0	8,045	5,676
1995	224	177	674	375	2,893	1,831	2,830	1,364	0	0	6,621	3,747
1996	4,167	1,480	3,971	1,585	5,265	3,107	2,733	1,982	0	0	16,136	8,154
1997	1,939	789	1,089	391	2,316	1,549	3,355	1,816	0	0	8,699	4,545
1998	659	340	1,523	869	4,880	2,732	1,492	1,072	0	0	8,554	5,013
1999	3,592	1,240	1,264	800	6,806	4,914	2,558	1,809	0	0	14,220	8,763
2000	2,199	1,024	94	94	5,071	3,037	1,673	1,180	0	0	9,037	5,335
2001	3,188	1,565	0	0	17,477	10,025	3,265	1,334	796	462	24,726	13,386
2002	1,681	663	666	89	9,345	5,547	1,329	908	662	226	13,683	7,433
2003	4,655	1,708	1,290	667	15,604	8,473	4,247	2,304	11,857	3,318	37,653	16,470
2004	13,032	3,843	1,050	299	25,746	10,235	4,581	1,648	377	135	44,786	16,160
2005	4,049	1,777	310	285	10,693	5,228	3,122	1,779	4,120	2,437	22,294	11,506
2006	2,237	1,236	159	0	6,579	3,328	2,883	2,216	1,803	913	13,661	7,693
2007	1,641	1,052	247	93	8,141	4,677	2,192	1,629	2,260	927	14,481	8,378
10-Yr Ave	3,723	1,419	745	349	10,452	5,507	2,851	1,607	1,962	749	19,731	9,630

Table 8.–Sockeye salmon catch and harvest, Prince William Sound Management Area, 1991–2007.

Year	Cordova Area		Northwestern PWS		Valdez Area		Other Sites in PWS		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1991	2,050	806	871	444	1,746	1,471	342	342	5,795	3,754
1992	3,641	1,578	2,752	1,947	2,506	2,153	1,586	1,020	12,656	8,358
1993	2,204	1,321	1,505	1,152	1,706	1,235	741	401	7,625	5,269
1994	6,101	3,066	1,707	601	4,159	2,368	354	283	13,301	6,948
1995	2,472	590	1,365	739	1,791	1,358	992	232	7,797	3,711
1996	5,076	2,235	2,295	1,246	2,600	1,367	319	248	12,058	5,496
1997	2,265	972	3,039	1,374	1,669	1,077	691	513	10,654	5,086
1998	5,600	2,015	4,311	2,328	1,595	566	1,152	959	16,478	8,312
1999	5,541	2,855	4,366	2,942	3,510	2,220	1,698	1,207	16,891	10,666
2000	3,816	2,189	4,085	2,447	7,101	3,550	471	325	17,350	9,830
91-00 Avg.	3,877	1,763	2,630	1,522	2,838	1,737	835	553		
Year ^a	Cordova ^b		Whittier ^c		Valdez ^d		Other/unknown		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
2001	769	298	4,543	3,140	3,278	2,228	3,231	1,017	11,821	6,683
2002	1,399	798	5,146	3,708	2,765	1,413	3,481	1,695	12,791	7,614
2003	2,005	631	8,262	5,025	1,783	884	2,658	1,276	14,708	7,816
2004	1,498	952	6,323	5,573	2,889	2,189	2,441	1,258	13,151	9,972
2005	1,166	703	4,877	4,022	2,603	1,190	470	406	9,116	6,321
2006	648	195	3,561	3,107	2,118	979	1,018	888	7,345	5,169
2007	3,221	1,883	9,208	7,492	3,460	1,384	3,163	2,461	19,052	13,220
5-Yr Ave	1,343	656	5,634	4,287	2,432	1,331	2,014	1,105	11,422	7,378
10-Yr Ave									13,031	7,747

^a To increase precision in data collection, the SWHS changed from reporting area of harvest to port of landing in 2001. This had no affect on data for "PWS totals".

^b Includes reported landings in Cordova for saltwater trips, and freshwater effort along the Cordova road system.

^c Includes reported landings in Whittier and Chenega for saltwater trips.

^d Includes reported landings in Valdez for saltwater trips, and freshwater effort along the Valdez road system.

Table 9.-Sockeye salmon catch and harvest at selected sites, Prince William Sound Management Area, 1997-2007.

Year	Coghill Drainage		Eshamy Drainage		Valdez Area		Cordova Road System		Other Sites in PWS		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1997	1,731	788	510	310	1,669	1,077	2,265	972	6,744	2,911	12,919	6,058
1998	1,518	349	561	276	1,595	566	5,600	2,015	12,804	7,121	22,078	10,327
1999	1,739	752	443	248	3,510	2,220	5,541	2,855	11,199	7,446	22,432	13,521
2000	131	106	505	219	7,101	3,550	3,816	2,189	9,613	5,955	21,166	12,019
2001	97	77	87	87	3,278	2,228	769	298	8,359	4,291	12,590	6,981
2002	392	297	469	390	2,765	1,413	1,399	798	9,165	5,514	14,190	8,412
2003	1,761	625	135	104	1,783	884	2,005	631	9,024	5,572	14,708	7,816
2004	54	0	665	296	2,889	2,189	1,498	952	8,045	6,535	13,151	9,972
2005	0	0	12	0	2,603	1,190	962	656	5,539	4,466	9,116	6,312
2006	99	99	132	132	2,118	979	340	113	4,656	3,846	7,345	5,169
2007	683	639	0	0	3,460	1,384	2,979	1,704	11,930	9,493	19,052	13,220
10-Yr Ave	752	309	352	206	2,931	1,630	2,420	1,148	8,515	5,366	14,970	8,659
5 Yr Ave	461	204	283	184	2,432	1,331	1,241	630	7,286	5,187	11,702	7,536

Table 10.—Pink salmon catch and harvest, Prince William Sound Management Area, 1991-2007.

Year	Cordova Area		Northwest PWS		Valdez Area		Other Sites in PWS		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1991	6,291	747	4,473	1,647	74,583	48,618	5,949	1,278	91,296	52,290
1992	970	37	2,482	1,025	48,987	28,596	5,697	2,353	58,136	32,011
1993	1,707	433	3,627	775	58,540	32,479	9,208	2,048	73,082	35,735
1994	1,396	487	4,535	1,335	74,235	46,494	9,783	3,222	89,949	51,538
1995	4,837	444	4,164	921	94,887	41,963	17,237	3,616	121,125	46,944
1996	2,484	413	4,848	1,070	82,259	27,996	15,130	1,573	104,721	31,052
1997	2,133	837	8,475	979	67,269	22,132	12,601	2,489	90,478	26,437
1998	8,267	1,916	6,419	1,101	71,558	31,933	10,214	1,281	96,458	36,231
1999	4,342	624	10,464	1,047	97,133	29,407	20,919	2,915	132,858	33,993
2000	7,715	1,295	8,378	1,909	110,386	31,885	9,615	3,425	136,094	38,514
91-00 Avg.	4,014	723	5,787	1,181	77,984	34,150	11,635	2,420	99,420	38,475
Year ^a	Cordova ^b		Whittier ^c		Valdez ^d		Other/unknown		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
2001	7,676	1,896	7,632	2,539	83,264	28,521	18,018	3,035	116,590	35,991
2002	2,934	457	7,386	1,193	52,507	20,713	10,927	4,061	73,754	26,424
2003	6,713	1,777	11,432	3,237	104,879	27,281	20,690	1,282	143,714	33,577
2004	8,053	1,189	21,237	2,188	78,326	25,221	8,525	933	116,141	29,531
2005	2,092	310	15,652	2,946	99,311	35,947	9,236	1,976	126,291	41,179
2006	2,882	366	7,037	1,133	55,876	17,309	2,852	564	68,647	19,372
2007	15,486	2,052	19,759	3,315	97,684	29,780	3,855	734	136,784	35,881
5-Yr Ave	4,535	820	12,549	2,139	78,180	25,294	10,446	1,763	105,709	30,017
10-Yr Ave									110,103	32,125

^a To increase precision in data collection, the SWHS changed from reporting area of harvest to port of landing in 2001. This had no effect on data for "PWS totals".

^b Includes reported landings in Cordova for saltwater trips, and freshwater effort along the Cordova road system

^c Includes reported landings in Whittier and Chenega for saltwater trips

^d Includes reported landings in Valdez for saltwater trips, and freshwater effort along the Valdez road system.

Table 11.–Valdez pink salmon catch and harvest by method, Prince William Sound Management Area, 1997-2007.

Year	Boat		Shore		Stream		Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1997	15,685	6,346	51,553	15,775	31	11	67,269	22,132
1998	28,562	11,674	42,086	20,259	910	0	71,558	31,933
1999	39,672	11,502	57,293	17,905	168	0	97,133	29,407
2000	36,998	10,813	72,815	21,072	573	0	110,386	31,885
2001	35,256	2,200	57,002	21,026	224	69	92,482	23,295
2002	11,879	3,983	40,628	16,730	220	25	52,727	20,738
2003	33,333	9,543	58,348	15,977	267	36	91,948	25,556
2004	21,804	5,994	48,948	17,070	648	111	71,400	23,175
2005	21,047	8,303	64,547	22,577	630	123	86,224	31,003
2006	13,049	4,846	39,424	11,515	161	0	52,634	16,361
2007	17,368	6,665	69,420	19,573	98	0	86,886	26,238
10-Yr Ave	25,729	7,520	53,264	17,991	383	38	79,376	25,549

Table 12.–Chum salmon catch and harvest, Prince William Sound Management Area, 1991–2007.

Year	Cordova Area		Northwestern PWS		Valdez Area		Other Sites in PWS		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1991	490	143	474	229	1,401	838	753	412	3,118	1,622
1992	813	38	220	91	2,621	804	191	31	3,845	964
1993	565	170	1,732	686	2,686	873	822	289	5,805	2,018
1994	419	134	1,273	202	1,747	767	1,695	224	5,134	1,327
1995	1,081	73	1,967	234	3,708	653	1,150	152	7,906	1,112
1996	1,878	110	1,952	576	7,983	1,043	3,563	351	15,376	2,080
1997	988	87	1,351	290	4,522	1,388	4,298	828	11,159	2,593
1998	2,017	15	2,166	543	6,230	1,424	691	266	11,104	2,248
1999	912	367	1,591	255	3,244	338	1,465	370	7,212	1,330
2000	1,138	510	4,174	1,169	3,926	437	3,359	642	12,597	2,758
91-00 Avg.	1,030	165	1,690	428	3,807	857	1,799	357	8,326	1,805
Year ^a	Cordova ^b		Whittier ^c		Valdez ^d		Other/unknown		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
2001	2,504	287	2,325	322	2,762	773	4,337	265	11,928	1,647
2002	973	40	2,571	662	2,026	405	1,854	280	7,424	1,387
2003	1,829	302	5,253	722	2,872	475	2,160	550	12,114	2,049
2004	823	423	8,396	1,367	2,895	135	1,113	47	13,227	1,972
2005	197	32	3,176	390	1,214	218	796	80	5,383	720
2006	371	0	2,955	826	4,031	1,111	741	97	8,098	2,034
2007	1,573	0	2,272	241	2,730	815	948	112	7,523	1,168
5-Yr Ave	839	159	4,470	793	2,608	469	1,333	211	9,249	1,632
10-Yr Ave									10,025	1,874

^a To increase precision in data collection, the SWHS changed from reporting area of harvest to port of landing in 2001. This had no affect on data for "PWS totals."

^b Includes reported landings in Cordova for saltwater trips, and freshwater effort along the Cordova road system.

^c Includes reported landings in Whittier and Chenega for saltwater trips.

^d Includes reported landings in Valdez for saltwater trips, and freshwater effort along the Valdez road system.

Table 13.—Cutthroat catch and harvest at selected sites, Prince William Sound Management Area, 1991-2007.

Year	Eyak Drainage		Cordova Sites		Eshamy Drainage		Other PWS Areas		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1991	155	68	77	48	290	213	658	87	1,180	416
1992	477	73	705	412	412	0	1,457	530	3,051	1,015
1993	308	75	240	66	392	11	3,701	788	4,641	940
1994	297	154	1,046	253	63	0	605	205	2,011	612
1995	36	27	75	18	307	34	214	43	632	122
1996	79	12	225	61	884	49	1,583	585	2,771	707
1997	83	16	523	123	894	81	2,615	422	4,115	642
1998	50	33	571	108	308	17	2,350	559	3,279	717
1999	172	65	199	111	0	0	861	273	1,232	449
2000	52	0	202	43	1,003	27	1,538	285	2,795	355
2001	305	52	95	0	12	0	1,106	324	1,518	376
2002	418	13	992	54	84	0	536	113	2,030	180
2003	256	19	973	206	839	0	2,126	810	4,194	1,035
2004	122	10	371	80	312	0	649	177	1,454	267
2005	100	36	358	46	0	0	876	359	1,334	441
2006	190	0	512	84	0	0	706	127	1,408	211
2007	156	22	280	98	0	0	784	156	1,220	276
10-Yr Ave	175	24	480	86	345	13	1,336	345	2,336	467

Table 14.—Halibut catch and harvest, Prince William Sound Management Area, 1991-2007.

Year	Cordova Area		Northwestern		Valdez Arm Area		Other Sites in PWS		PWS Total			
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest		
1991	2,581	1,463	1,890	1,484	8,120	6,122	4,632	3,613	17,273	12,425		
1992	3,450	2,305	1,460	1,151	12,973	8,379	7,347	4,868	26,610	17,105		
1993	3,807	2,165	3,121	1,705	14,664	8,457	10,508	5,676	35,107	19,025		
1994	4,213	2,488	2,991	2,438	10,910	7,457	12,875	8,913	33,798	22,097		
1995	6,126	2,627	4,474	2,639	12,968	9,087	15,264	8,943	41,585	24,067		
1996	7,165	3,176	5,074	3,505	14,227	8,029	12,596	7,780	39,227	21,584		
1997	4,955	2,636	7,239	4,355	17,168	9,918	16,079	9,196	49,126	27,322		
1998	5,785	3,310	4,898	3,786	15,961	9,337	12,547	7,891	39,301	23,343		
1999	6,864	3,339	5,754	4,048	20,792	11,348	13,154	8,734	46,908	26,711		
2000	7,188	3,290	6,919	5,479	20,549	12,198	15,208	10,119	49,641	30,089		
91-00 Avg.	5,213	2,680	4,382	3,059	14,833	9,033	12,021	7,573				
Year ^a	Cordova ^b		Whittier ^c		Valdez ^d		Seward and other		Seward only		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
2001	3,893	2,291	9,623	6,570	16,617	11,129	11,338	7,285	7,975	5,363	49,446	32,638
2002	2,645	1,796	11,444	9,624	13,885	8,333	11,835	7,898	9,207	6,264	49,016	33,915
2003	4,029	2,281	12,390	8,883	18,433	11,384	13,526	8,717	12,157	7,524	60,535	38,789
2004	7,092	4,183	22,428	13,107	28,415	17,631	19,839	9,716	19,278	9,394	97,052	54,031
2005	5,725	2,955	24,320	12,726	24,282	15,521	16,601	10,501	13,332	8,179	84,260	49,882
2006	3,441	2,195	23,975	14,895	20,052	13,145	17,155	9,535	13,706	7,453	78,329	47,223
2007	4,655	2,872	37,867	24,288	30,979	18,241	19,422	12,860	17,316	11,362	110,239	69,623
5-Yr Ave	4,586	2,682	18,911	11,847	21,013	13,203	15,791	9,273	13,536	7,763	73,838	44,768
10-Yr Ave											60,361	36,394

^a To increase precision in data collection, the SWHS changed from reporting area of harvest to port of landing in 2001. This had no effect on data for "PWS totals".

^b Includes reported landings in Cordova for saltwater trips, and freshwater effort along the Cordova road system.

^c Includes reported landings in Whittier and Chenega for saltwater trips

^d Includes reported landings in Valdez for saltwater trips, and freshwater effort along the Valdez road system.

Table 15.—Rockfish catch and harvest, Prince William Sound Management Area, 1991-2007.

Year	Cordova Area		Northwestern PWS		Valdez Area		Other Sites in PWS		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1991	1,866	477	3,356	2,497	5,223	3,979	1,755	1,780	12,200	8,733
1992	1,129	879	3,439	1,483	10,099	7,625	6,418	5,491	21,085	15,478
1993	643	335	3,707	2,158	7,852	4,894	6,356	4,887	18,558	12,274
1994	2,050	1,215	4,546	3,158	9,184	5,725	8,219	5,284	23,999	15,382
1995	1,241	644	4,527	2,379	9,383	6,359	9,415	5,319	24,566	14,701
1996	2,107	1,713	5,732	2,598	6,194	3,600	6,569	4,464	20,602	12,375
1997	2,202	1,048	4,326	2,909	6,423	4,385	12,272	7,061	25,223	15,403
1998	1,758	950	3,638	2,318	8,898	4,293	8,170	5,890	22,464	13,451
1999	2,241	1,467	4,867	3,370	7,146	4,110	6,693	4,049	20,947	12,996
2000	1,756	1,090	9,400	5,820	7,913	5,282	7,846	5,284	26,915	17,476
91-00 Avg.	1,699	982	4,754	2,869	7,832	5,025	7,371	4,951		

Year ^a	Cordova ^b		Whittier ^c		Valdez ^d		Other/unknown		Seward only		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
2001	2,411	1,308	11,246	7,948	9,017	6,056	2,508	1,635	3,949	2,661	29,131	19,608
2002	1,361	916	15,562	9,560	10,225	5,414	2,968	1,433	3,848	3,025	33,964	20,348
2003	1,991	1,362	16,411	9,817	9,955	6,331	779	349	6,825	3,546	35,961	21,405
2004	4,830	1,867	27,006	14,839	16,507	9,105	76	40	9,010	5,476	57,429	31,327
2005	2,109	1,504	26,215	13,835	13,106	9,843	1,094	647	8,917	5,395	51,441	31,224
2006	1,821	1,215	25,391	16,208	12,437	8,565	2,284	1,899	8,050	5,071	49,983	32,958
2007	4,884	2,534	32,391	16,450	17,014	12,343	1,813	1,223	8,734	6,056	64,836	38,606
5-Yr Ave	2,540	1,391	19,288	11,200	11,762	7,350	1,485	821	6,510	4,021	45,756	27,452
10-Yr Ave											35,346	21,620

^a To increase precision in data collection, the SWHS changed from reporting area of harvest to port of landing in 2001. This had no effect on data for "PWS totals".

^b Includes reported landings in Cordova for saltwater trips, and freshwater effort along the Cordova road system.

^c Includes reported landings in Whittier and Chenega for saltwater trips

^d Includes reported landings in Valdez for saltwater trips, and freshwater effort along the Valdez road system.

Table 16.–Lingcod catch and harvest, Prince William Sound Management Area, 1991-2007.

Year ^a	Cordova Area		Northwestern PWS		Valdez Area		Other Sites in PWS		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1991	525	157	345	274	2,006	1,122	847	346	3,457	1,884
1992	1,120	177	522	252	3,903	1,476	2,903	427	8,476	2,492
1993	492	74	505	150	4,016	1,117	1,495	250	6,622	1,860
1994	220	58	500	303	1,286	287	1,523	461	4,108	1,434
1995	308	65	660	243	1,997	1,028	1,299	481	4,782	2,056
1996	392	147	1,514	423	2,151	691	1,111	523	5,616	1,948
1997	448	142	958	564	2,269	904	2,294	849	7,385	3,310
1998	617	326	602	307	2,427	825	1,410	722	5,387	2,186
1999	1,114	196	1,375	333	2,453	1,002	2,310	310	6,814	1,873
2000	594	168	1,701	490	2,572	973	2,188	690	7,945	2,856
91-00 Avg.	582	149	868	334	2,508	943	1,738	506		

Year ^a	Cordova ^b		Whittier ^c		Valdez ^d		Other/unknown ^e		Seward only		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
2001	693	285	2,402	1,098	3,603	1,679	309	207	1,178	598	8,185	3,867
2002	683	95	3,871	1,942	2,388	1,313	264	175	1,177	545	8,383	4,070
2003	808	286	2,465	1,121	2,919	1,461	567	263	1,876	802	8,635	3,933
2004	687	288	3,946	1,250	3,217	2,070	965	488	1,851	953	10,666	5,049
2005	484	176	6,688	1,327	4,670	2,658	373	195	2,455	992	14,670	5,348
2006	375	173	4,435	1,861	5,376	2,379	641	356	2,444	1,099	13,271	5,868
2007	1,208	490	7,369	3,032	7,047	3,653	492	317	4,351	1,770	20,467	9,262
5-Yr Ave	607	204	4,281	1,500	3,714	1,976	562	295	1,961	878	11,125	4,854

^a To increase precision in data collection, the SWHS changed from reporting area of harvest to port of landing in 2001. This had no effect on data for "PWS totals".

^b Includes reported landings in Cordova for saltwater trips, Eastern PWS shoreline, and freshwater effort along the Cordova road system.

^c Includes reported landings in Whittier, Whittier shoreline, and Chenega for saltwater trips.

^d Includes reported landings in Valdez for saltwater trips, Valdez Arm shoreline, and freshwater effort along the Valdez road system.

^e Includes reported catches from West Prince William Sound shoreline.

Table 17.-Estimated shrimp harvest, Prince William Sound Management Area, 1994–2007.

Year	Permit Harvest (lbs)	SWHS Harvest (lbs)
1994		3,190
1995		3,722
1996		2,758
1997		3,024
1998		2,059
1999		2,882
2000		3,002
2001 ^a	2,731	6,115
2002	9,620	3,432
2003	14,136	9,439
2004	25,702	17,609
2005	33,285	23,076
2006		27,218
2007		36,418
10 Yr Ave	20,686	13,125

^a Reminder letter not sent to shrimp permit holders, response rate may be lower than other years.

Table 18.-Razor clam harvest, Prince William Sound Management Area, 1997–2007.

Year	Cordova Area	Copper Delta Area	Valdez Arm Area	Other Sites in PWS	PWS Total
1997	72	0	0	0	72
1998	0	0	60	360	420
1999	238	285	0	0	523
2000	0	0	0	0	0
2001					702
2002					244
2003					0
2004	0	0	635	0	635
2005	127	0	0	0	127
2006	0	0	0	733	733
2007	0	0	0	1,435	1,435
10-Yr Ave	141	104	87	212	481

Table 19.-Shark catch and harvest, Prince William Sound Management Area, 1996-2007.

Year	Unknown Catch/Harvest Area				PWS Totals					
	Catch		Harvest		Catch	Harvest				
1996	41		6		41	6				
1997	1,412		80		1,412	80				
1998	1,802		115		1,802	115				
1999	520		90		520	90				
2000	1,842		103		1,842	103				
96-00 Avg.	1,123		79							
Year ^a	Cordova ^b		Whittier ^c		Valdez ^d		Other/unknown ^e		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
2001	533	80	891	62	2,082	46	228	8	3,734	196
2002	28	0	126	11	677	80	325	33	1,156	124
2003	140	12	453	49	1,467	187	2,596	42	4,656	290
2004	291	33	308	54	475	63	1,876	8	2,950	158
2005	204	0	2,100	111	1,552	54	2,597	65	6,453	230
2006	77	15	827	113	704	149	2,793	15	4,401	292
2007	189	16	1,001	21	1,979	202	1,972	7	5,141	246
5-Yr Ave	148	12	763	68	975	107	2,037	33	3,923	219

^a To increase precision in data collection, the SWHS changed from reporting area of harvest to port of landing in 2001. This had no effect on data for "PWS totals".

^b Includes reported landings in Cordova for saltwater trips, and freshwater effort along the Cordova road system.

^c Includes reported landings in Whittier and Chenega for saltwater trips

^d Includes reported landings in Valdez for saltwater trips, and freshwater effort along the Valdez road system.

^e Includes catches in West PWS from trips to Seward.

Table 20.—Dolly Varden catch and harvest, Prince William Sound Management Area, 1991-2007.

Year	Cordova Area		Northwest PWS		Valdez Area		Other Sites in PWS		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
1991	3,072	997	216	40	1,576	1,441	1,065	863	5,929	3,341
1992	3,752	1,138	228	89	5,923	1,622	1,228	492	11,131	3,341
1993	3,044	586	856	213	4,077	1,801	1,188	454	9,165	3,054
1994	4,216	611	943	108	1,190	404	1,292	260	7,641	1,383
1995	1,474	330	0	0	1,363	506	749	364	3,586	1,200
1996	3,663	789	97	60	4,512	1,941	4,206	985	12,478	3,775
1997	3,356	481	859	138	1,410	663	5,628	817	11,253	2,099
1998	3,163	605	667	321	1,236	517	2,555	281	7,621	1,724
1999	3,579	297	45	11	2,136	534	1,285	311	7,045	1,153
2000	1,639	250	121	71	1,011	625	2,648	213	5,419	1,159
91-00 Avg.	3,096	608	403	105	2,443	1,005	2,184	504		
Year ^a	Cordova ^b		Whittier ^c		Valdez ^d		Other/unknown ^e		PWS Total	
	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest
2001	3,318	465	225	105	810	87	3,807	576	8,160	1,233
2002	2,174	147	154	122	641	251	4,214	1,241	7,183	1,761
2003	4,657	979	148	67	428	307	2,729	171	7,962	1,524
2004	3,983	210	626	110	1,927	323	2,298	70	8,834	713
2005	3,070	390	196	75	2,939	535	1,494	216	7,699	1,216
2006	4,426	478	412	164	1,948	85	583	126	7,369	853
2007	2,742	213	1,176	235	2,008	0	1,168	773	7,094	1,221
5-Yr Ave	3,662	441	307	108	1,577	300	2,264	365	7,809	1,213
10-Yr Ave									7,855	1,344

^a To increase precision in data collection, the SWHS changed from reporting area of harvest to port of landing in 2001. This had no affect on data for "PWS totals".

^b Includes reported landings in Cordova for saltwater trips, and freshwater effort along the Cordova road system.

^c Includes reported landings in Whittier and Chenega for saltwater trips.

^d Includes reported landings in Valdez for saltwater trips, and freshwater effort along the Valdez road system.

^e Includes catches in West PWS from trips to Seward.

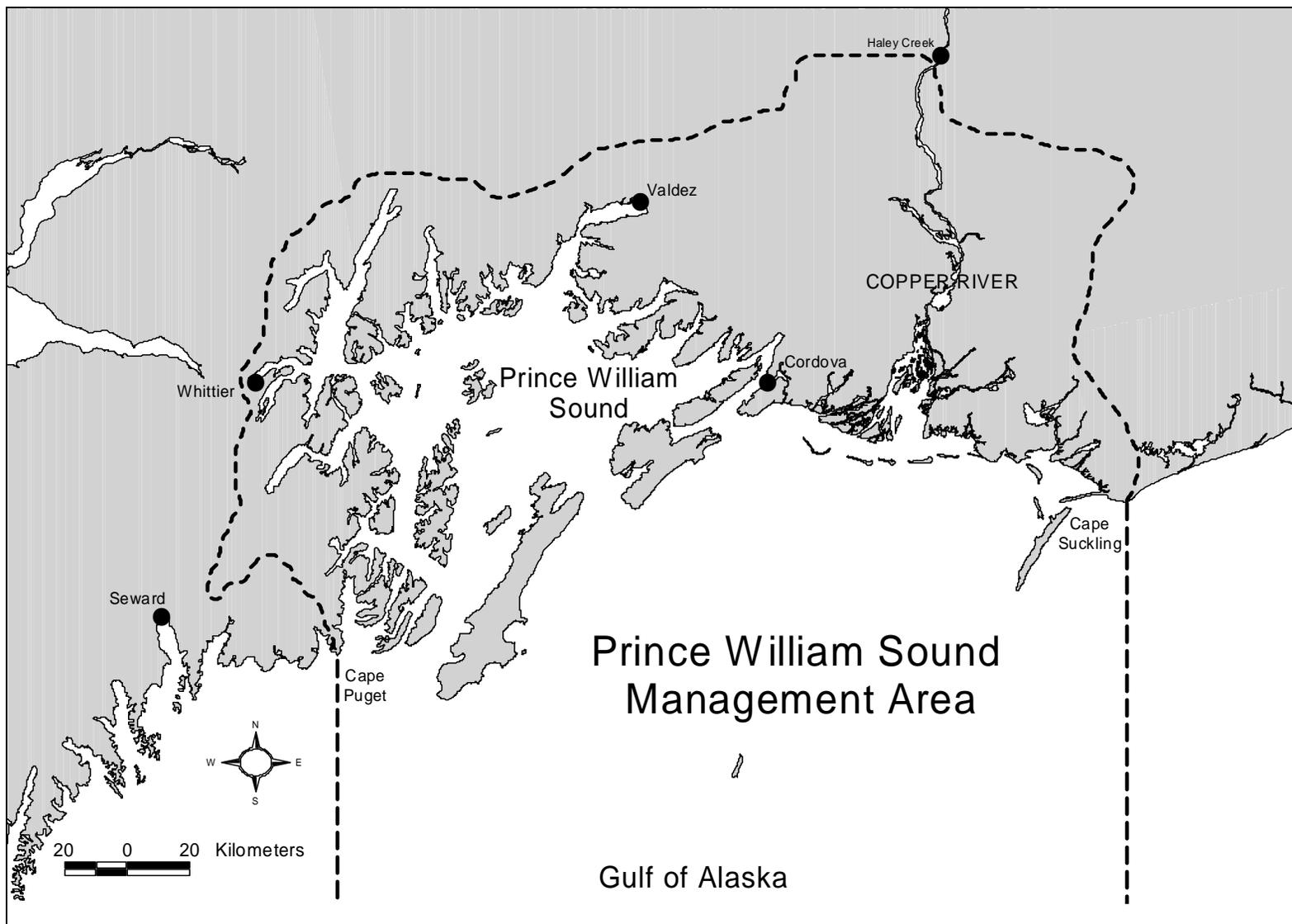


Figure 1.—Prince William Sound Management Area.

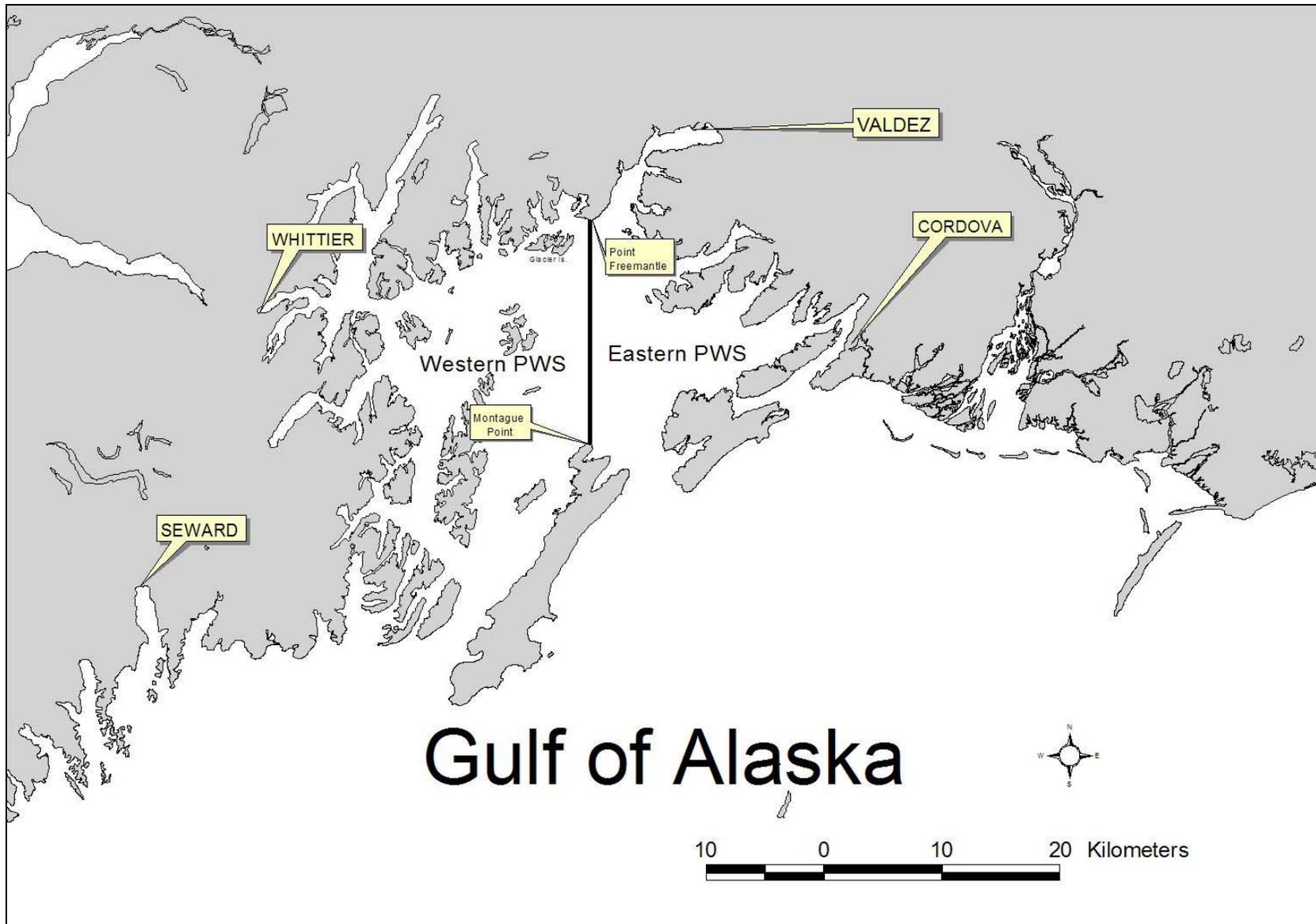


Figure 2–Map of reporting regions in the Prince William Sound Management Area.

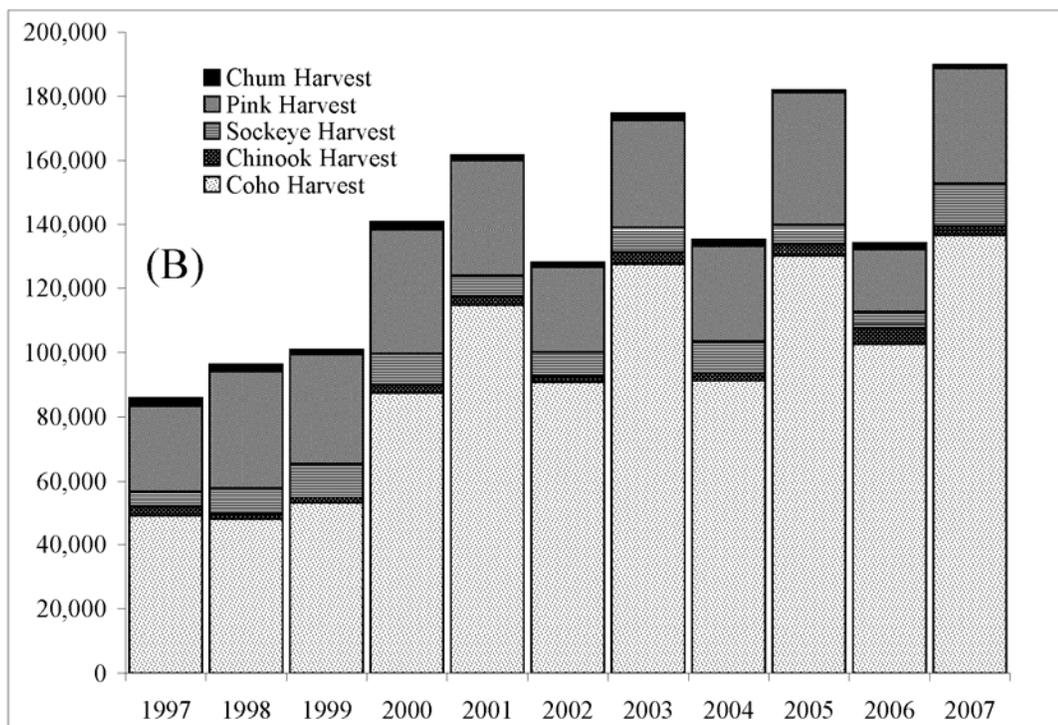
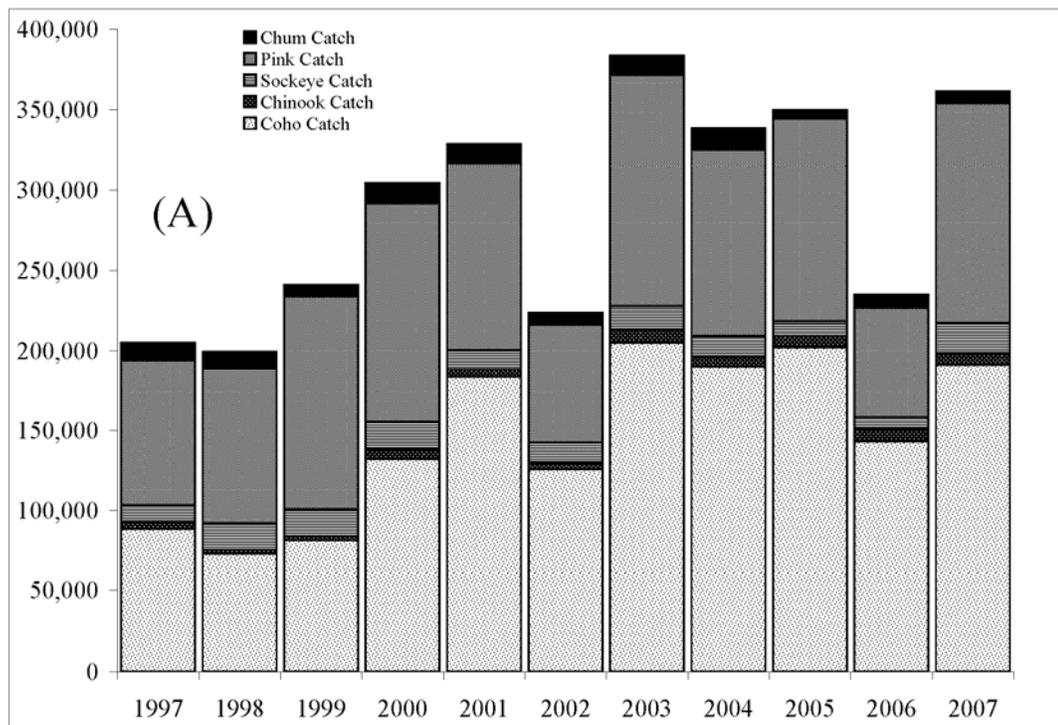


Figure 3.—Sport fish catch (a) and harvest (b) of salmon species in the Prince William Sound Management Area, 1997–2007.

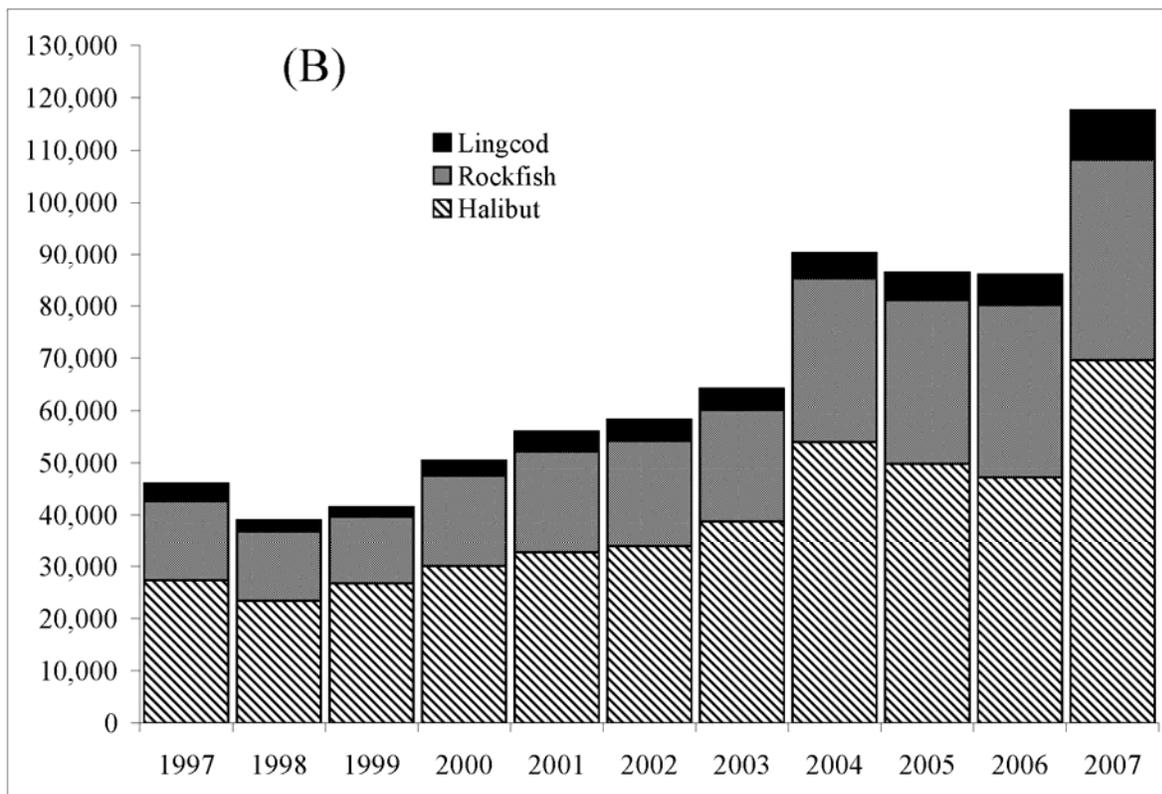
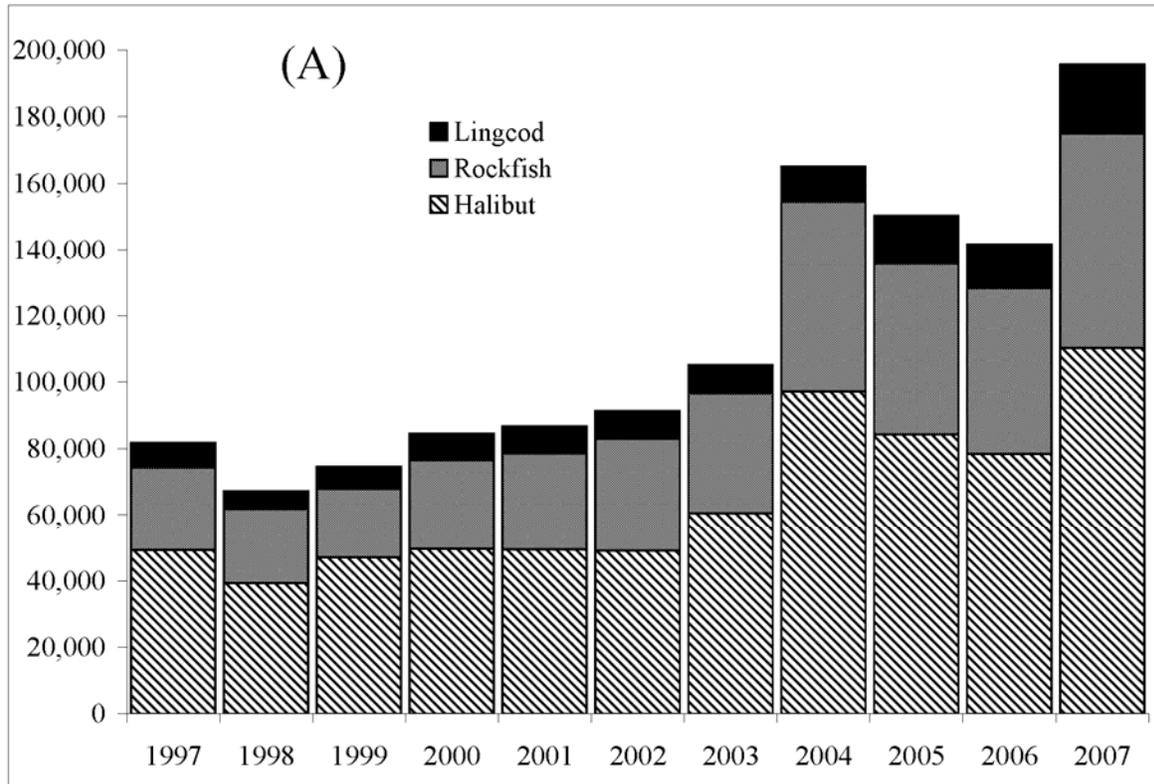


Figure 4.—Sport fish catch (a) and harvest (b) of saltwater species in the Prince William Sound Management, 1997–2007.

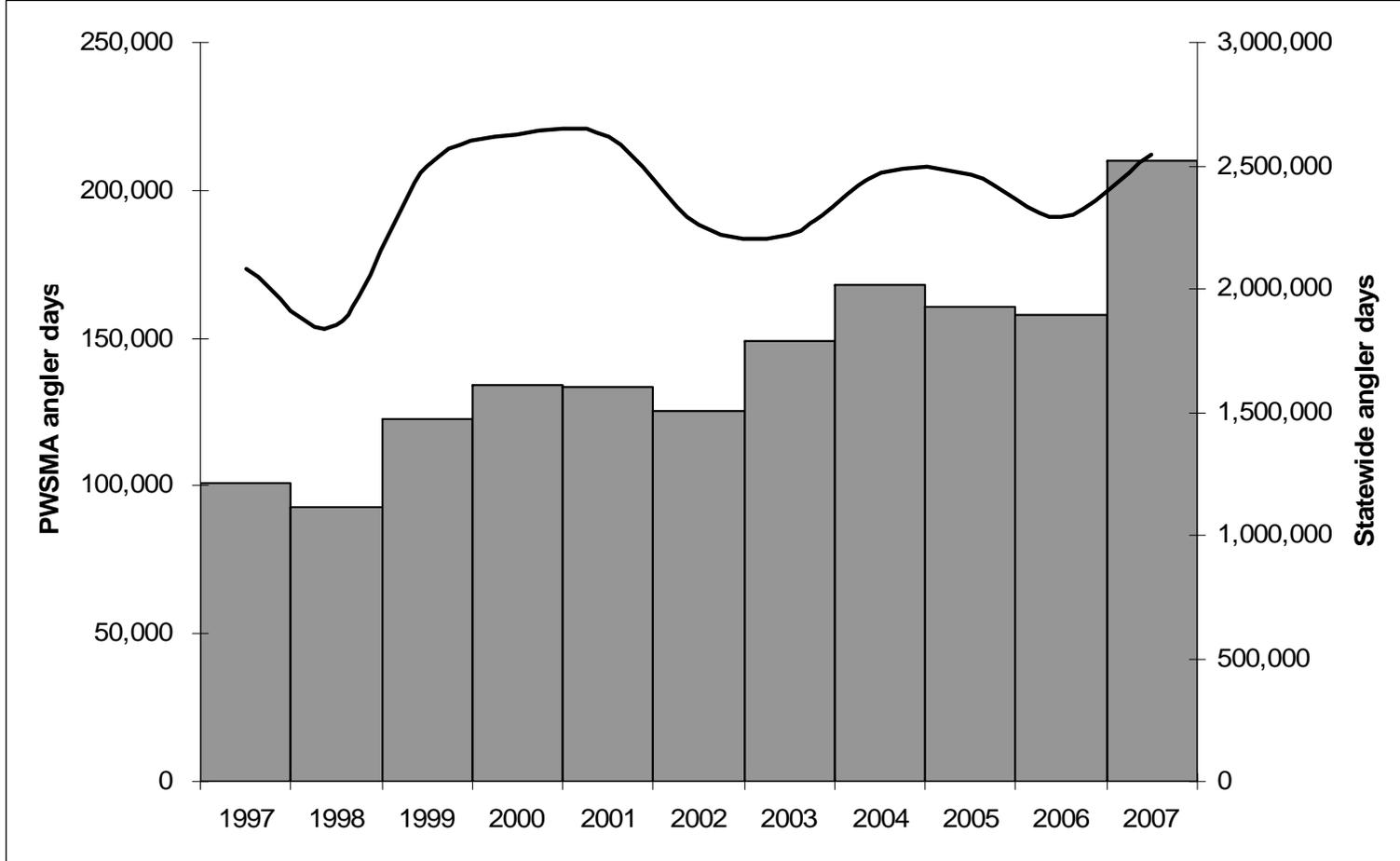


Figure 5.—Sport fishing angler effort expended in the Prince William Sound Management Area compared to the Alaska statewide effort, 1997-2007.

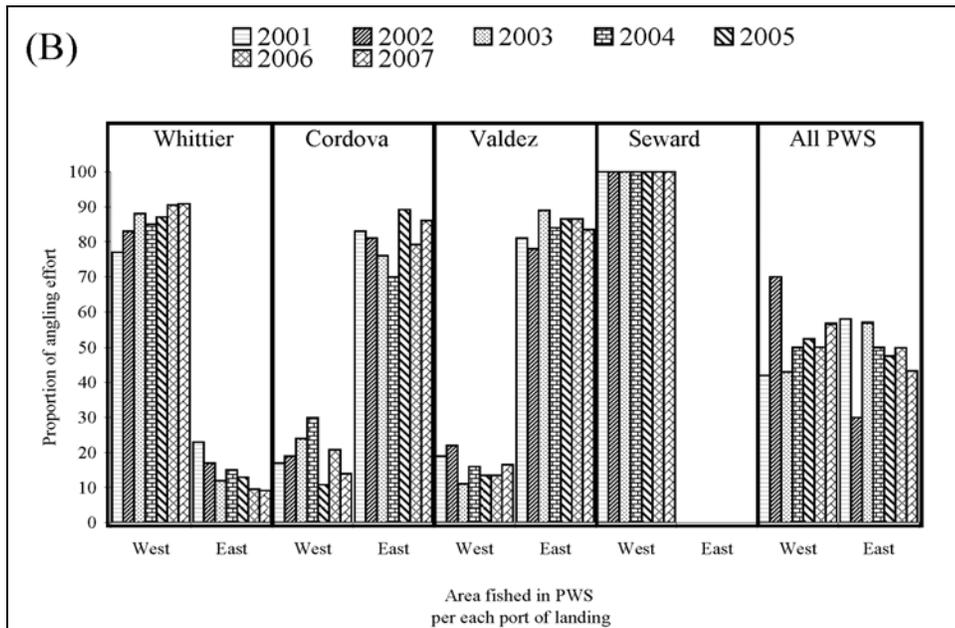
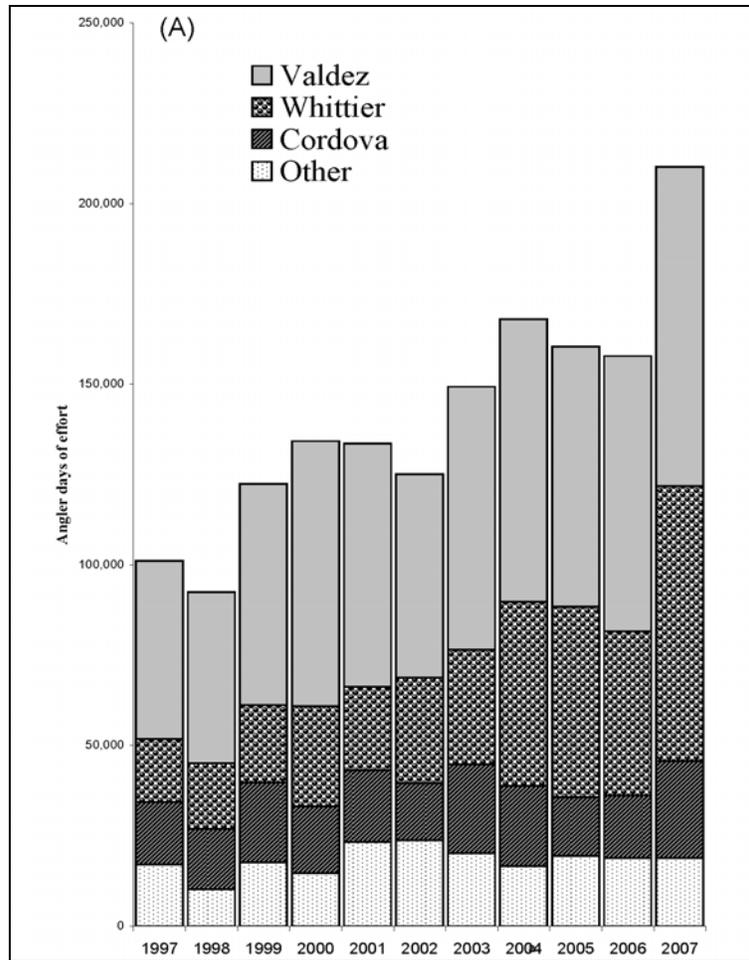


Figure 6.—(A) Angler effort by geographical region, Prince William Sound Management Area, 1997–2007, and (B) Percent boat angler effort by port of landing, Prince William Sound Management Area, 2001-2007.

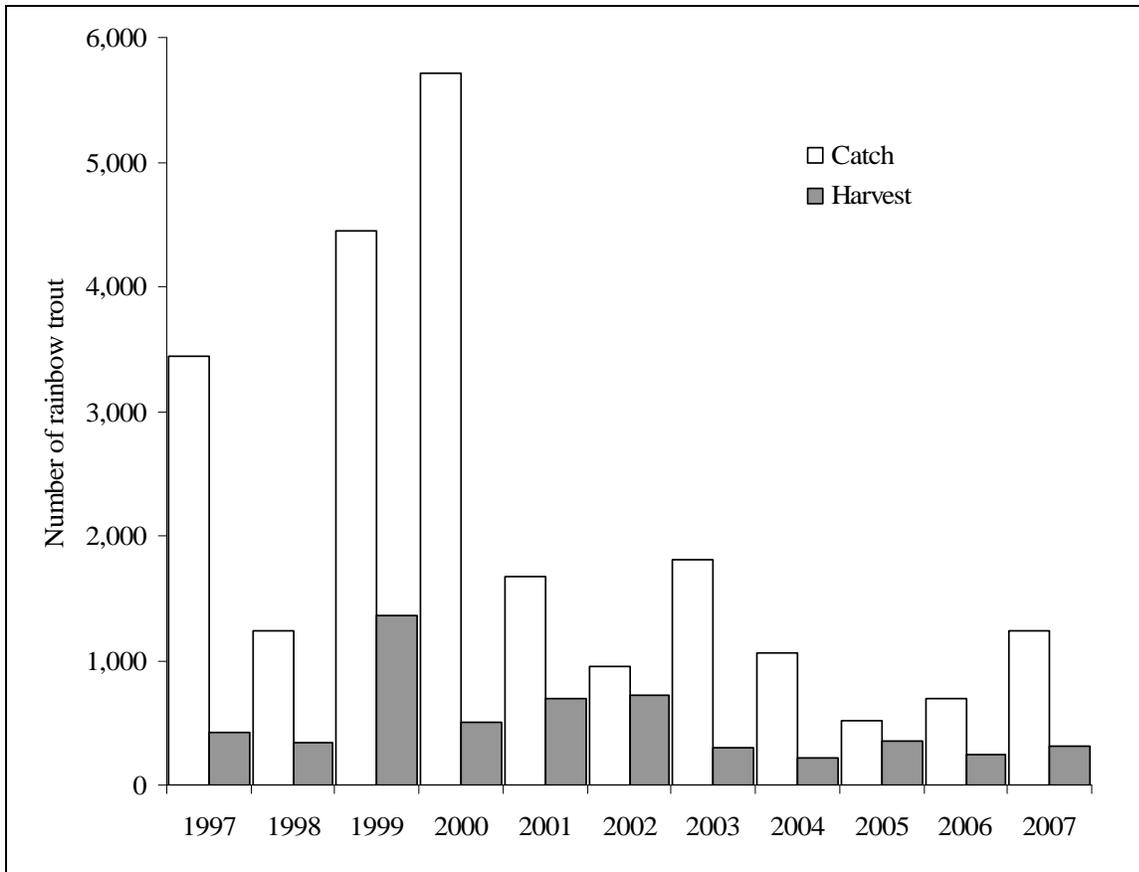


Figure 7.—Rainbow trout catch and harvest, Prince William Sound Management Area, 1997-2007.

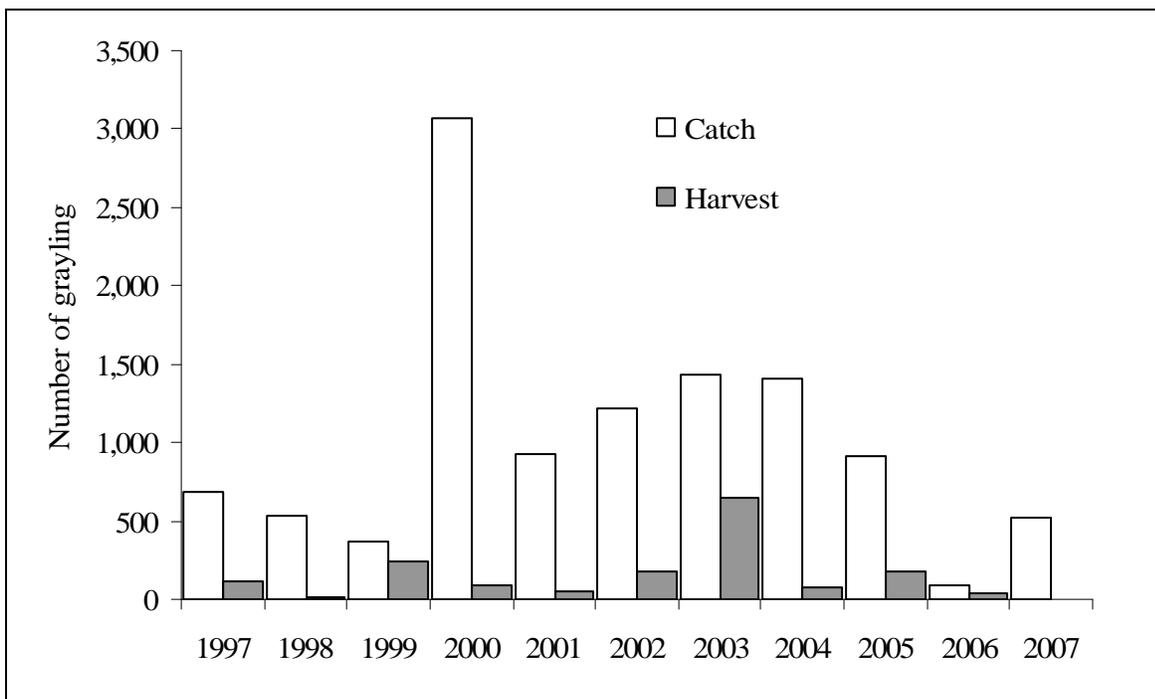


Figure 8.—Arctic grayling catch and harvest, Prince William Sound Management Area, 1997-2007.

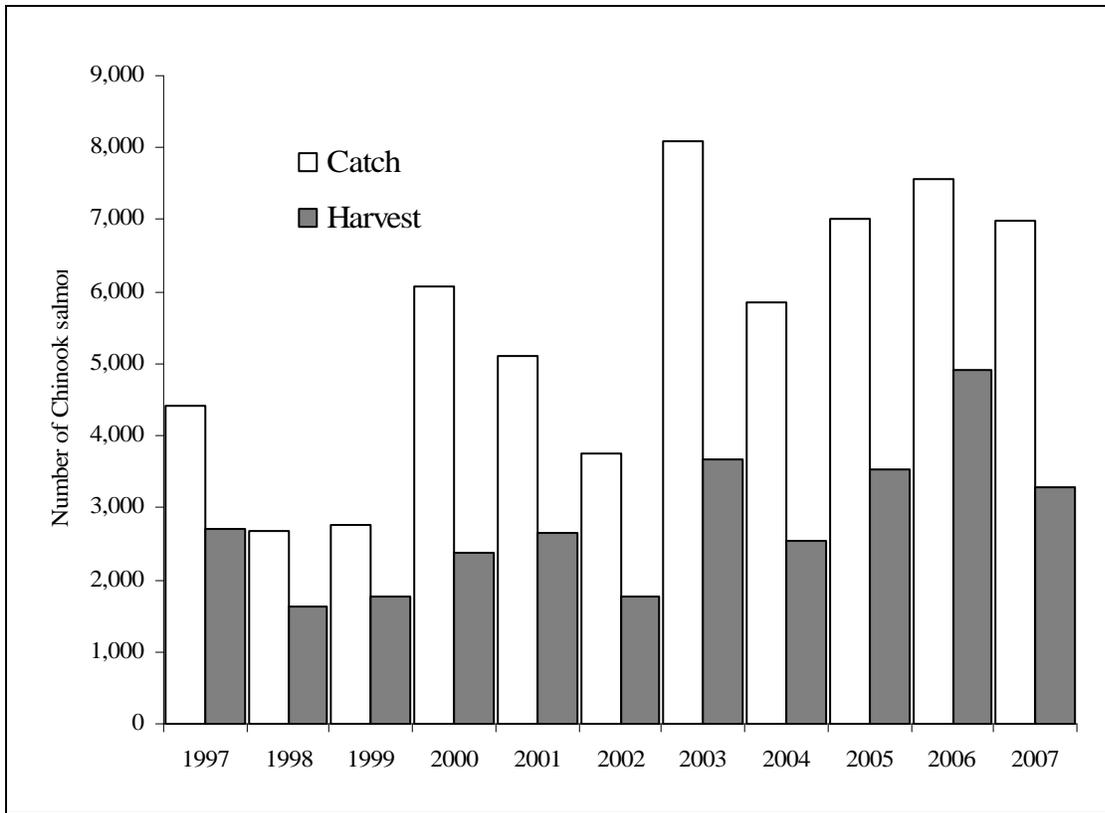


Figure 9.—Chinook salmon catch and harvest, Prince William Sound Management Area, 1991-2007.

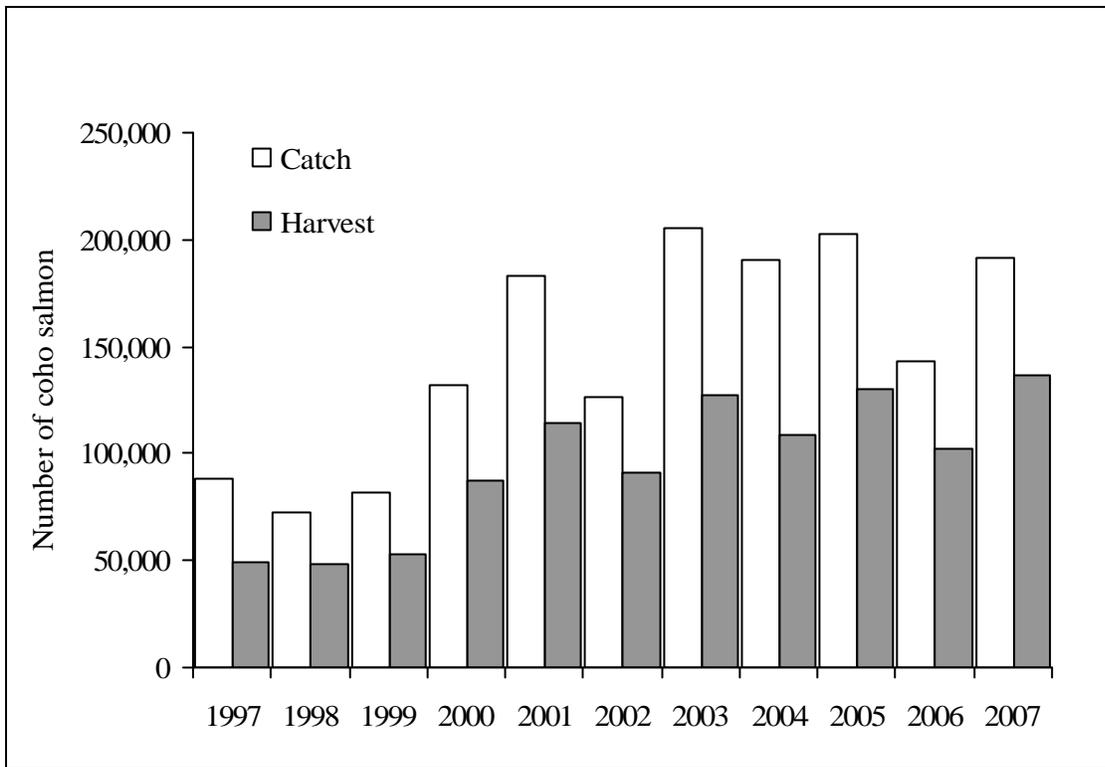


Figure 10.—Coho salmon catch and harvest, Prince William Sound Management Area, 1991-2007.

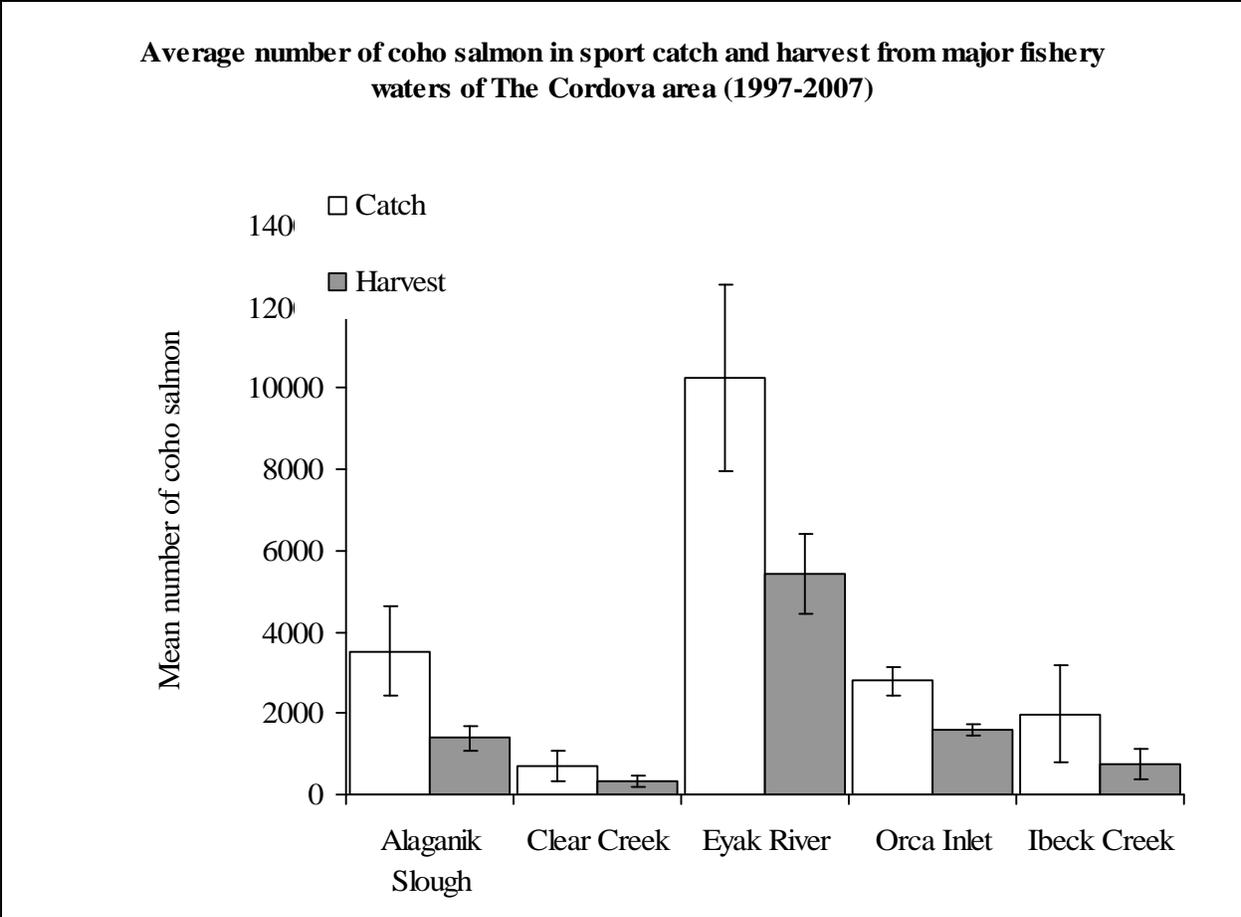


Figure 11.-Coho salmon average catch and harvest, Cordova road system, Prince William Sound Management Area, 1997-2007.

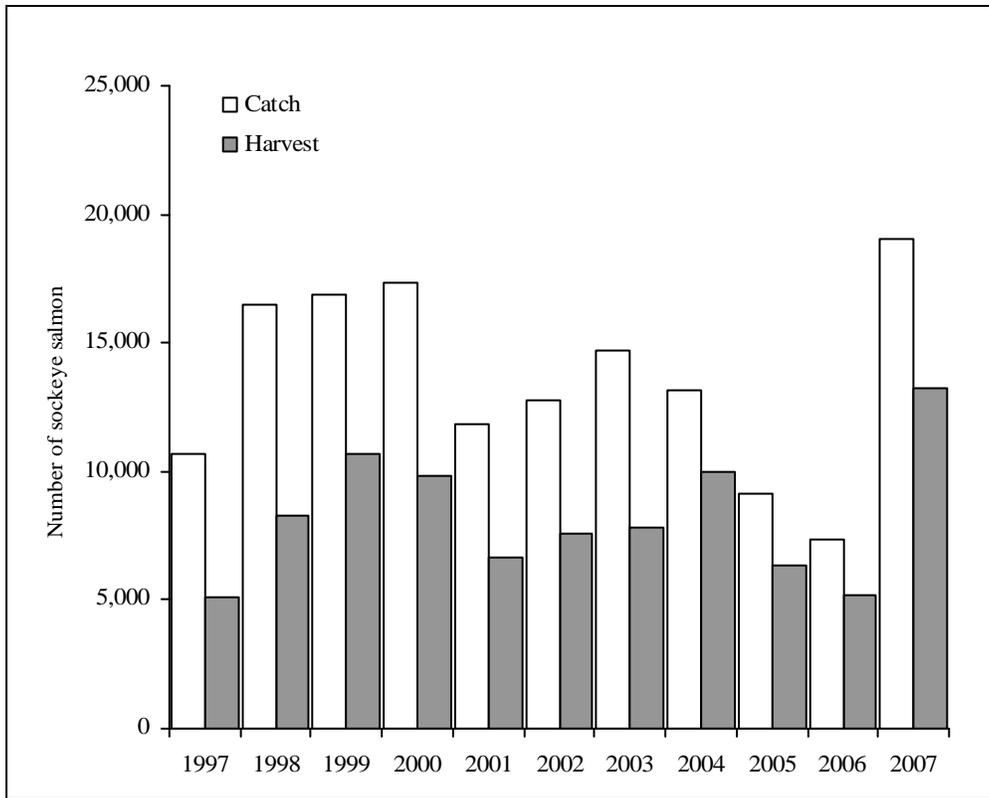


Figure 12.—Sockeye salmon catch and harvest, Prince William Sound Management Area, 1991-2007.

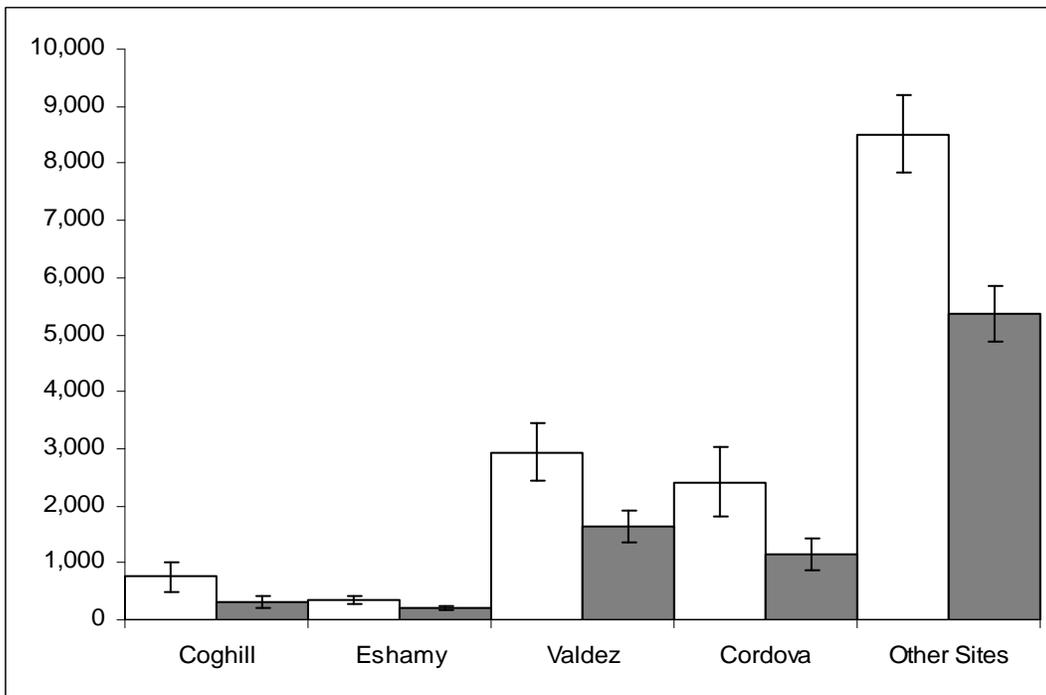


Figure 13.—Sockeye salmon catch and harvest at selected sites, Prince William Sound Management Area, 1991-2007.

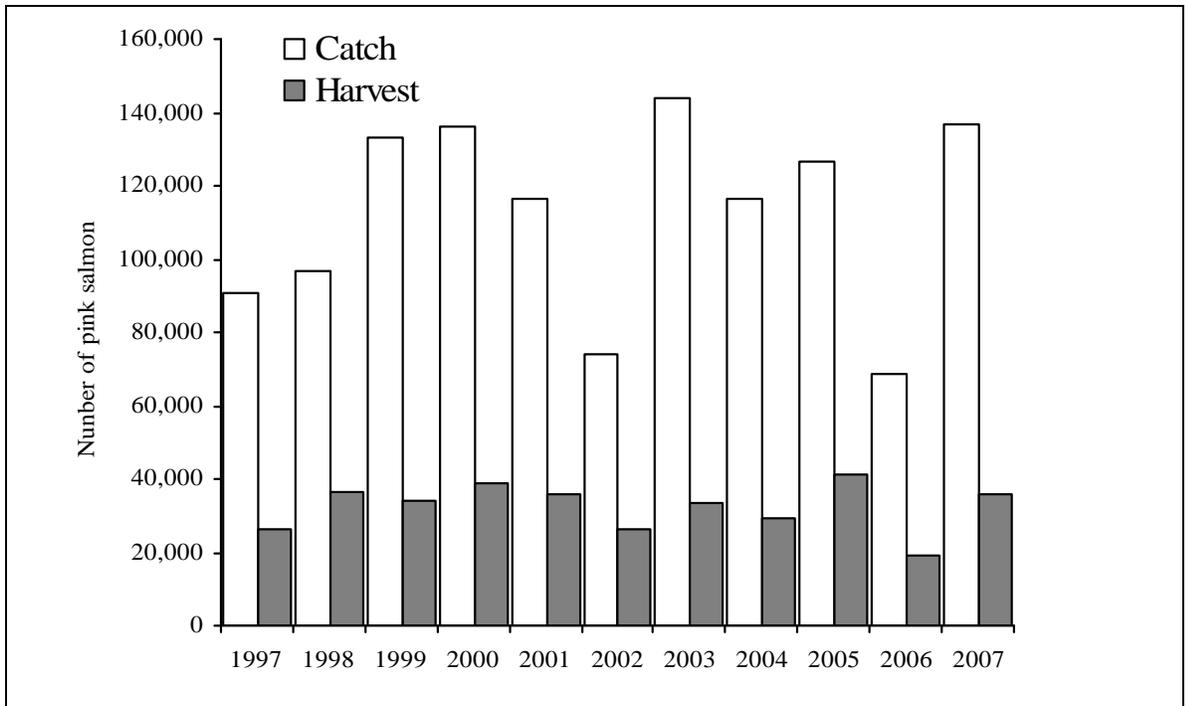


Figure 14.—Pink salmon catch and harvest, Prince William Sound Management Area, 1991-2007.

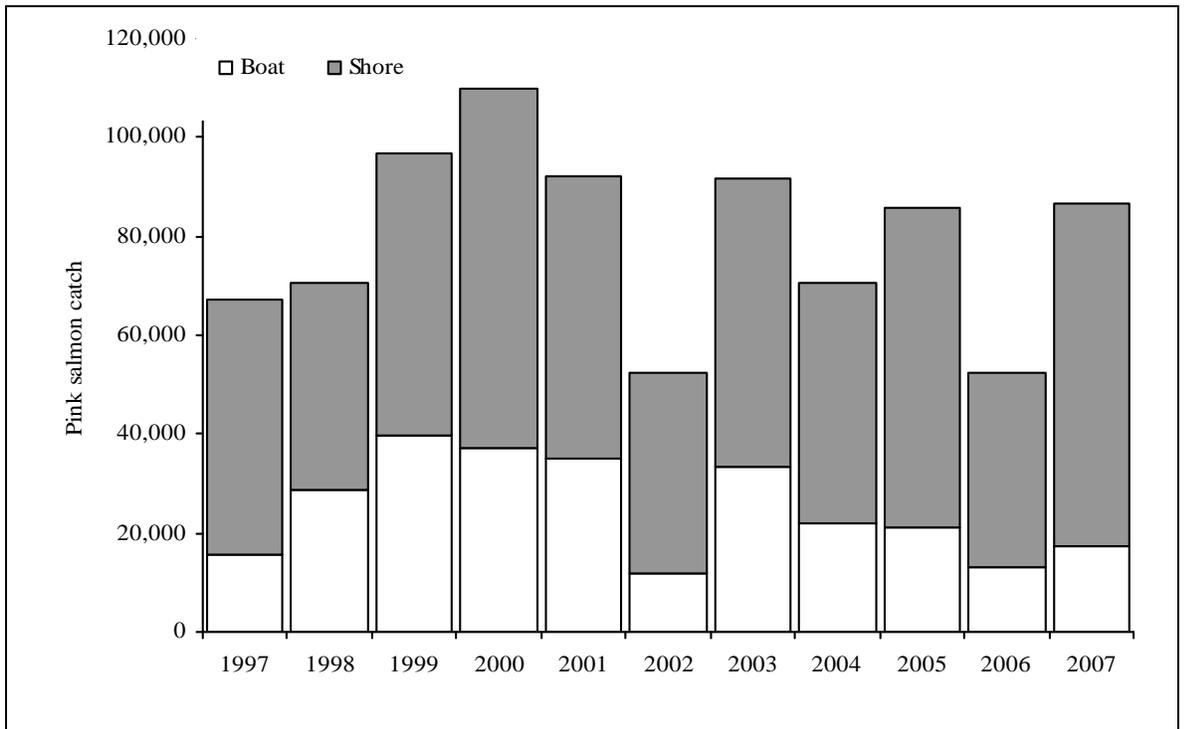


Figure 15.—Valdez pink salmon catch and harvest by method, Prince William Sound Management Area, 1997-2007.

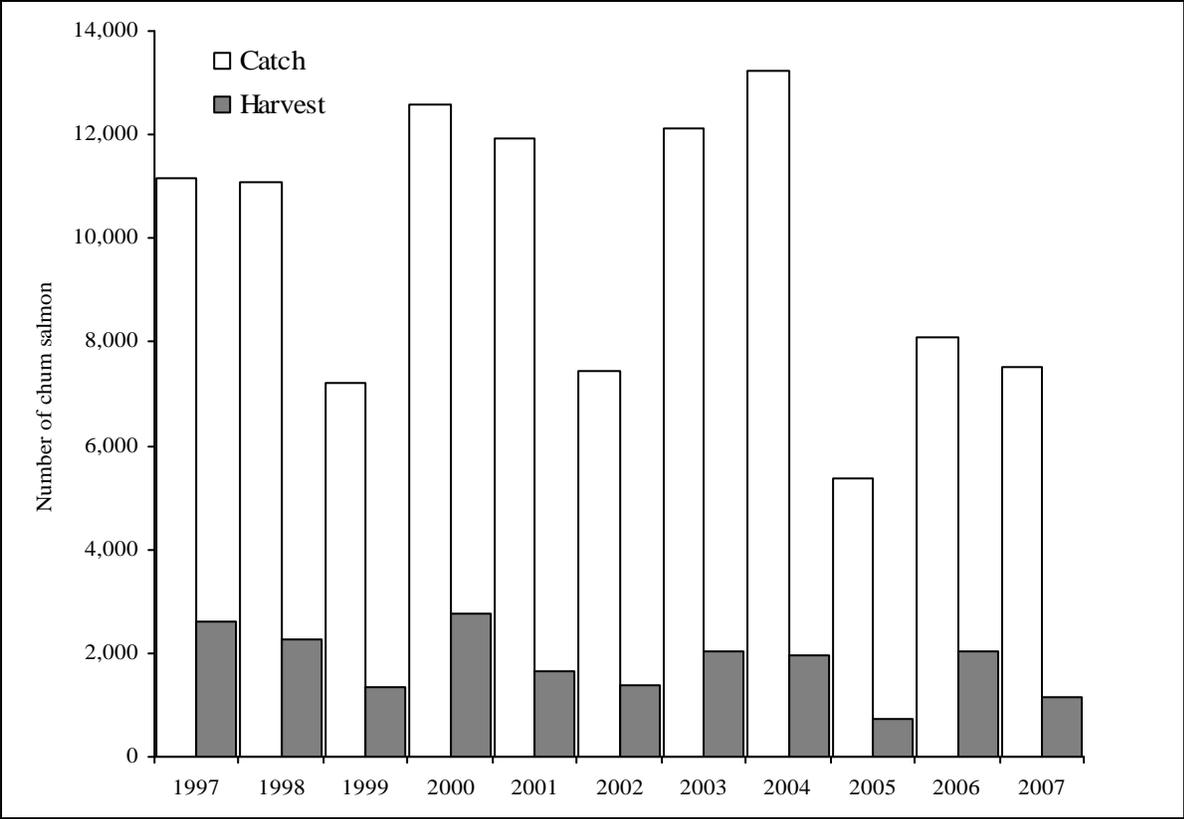


Figure 16.—Chum salmon catch and harvest, Prince William Sound Management Area, 1991-2007.

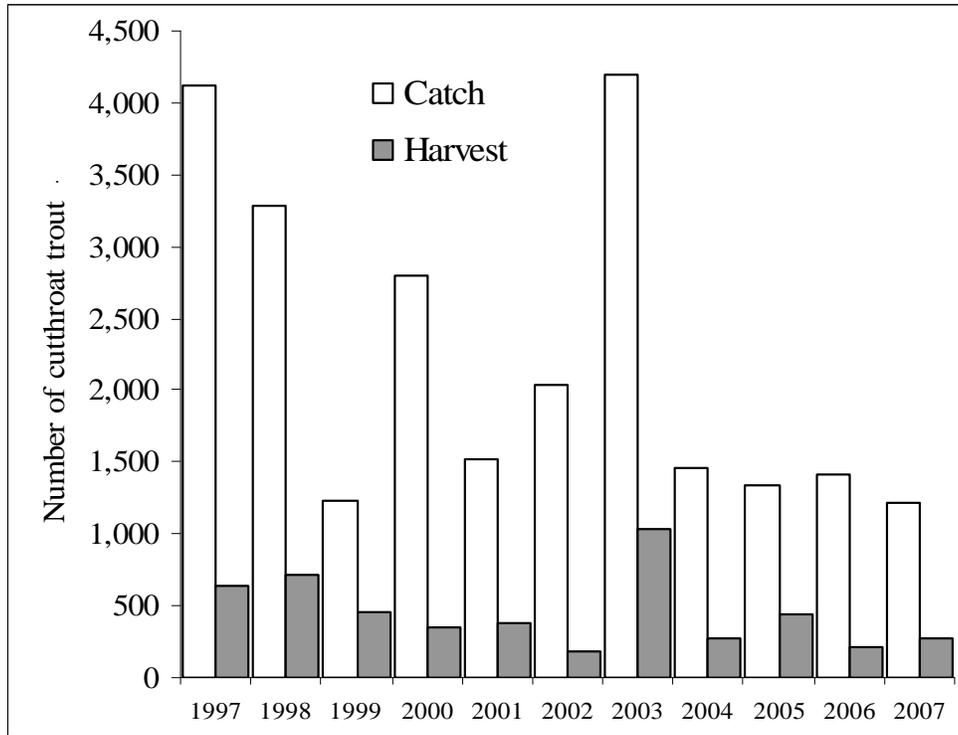


Figure 17.—Cutthroat catch and harvest at selected sites, Prince William Sound Management Area, 1991-2007.

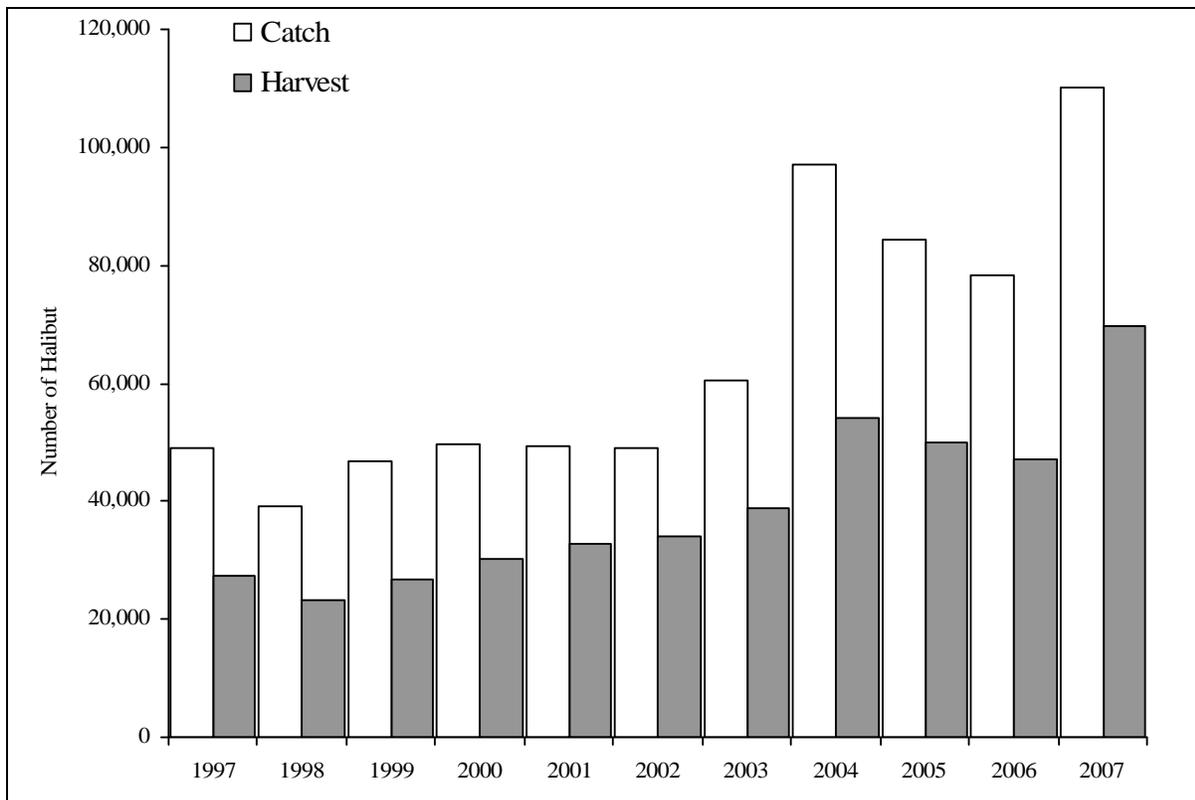


Figure 18.—Halibut catch and harvest, Prince William Sound Management Area, 1997-2007.

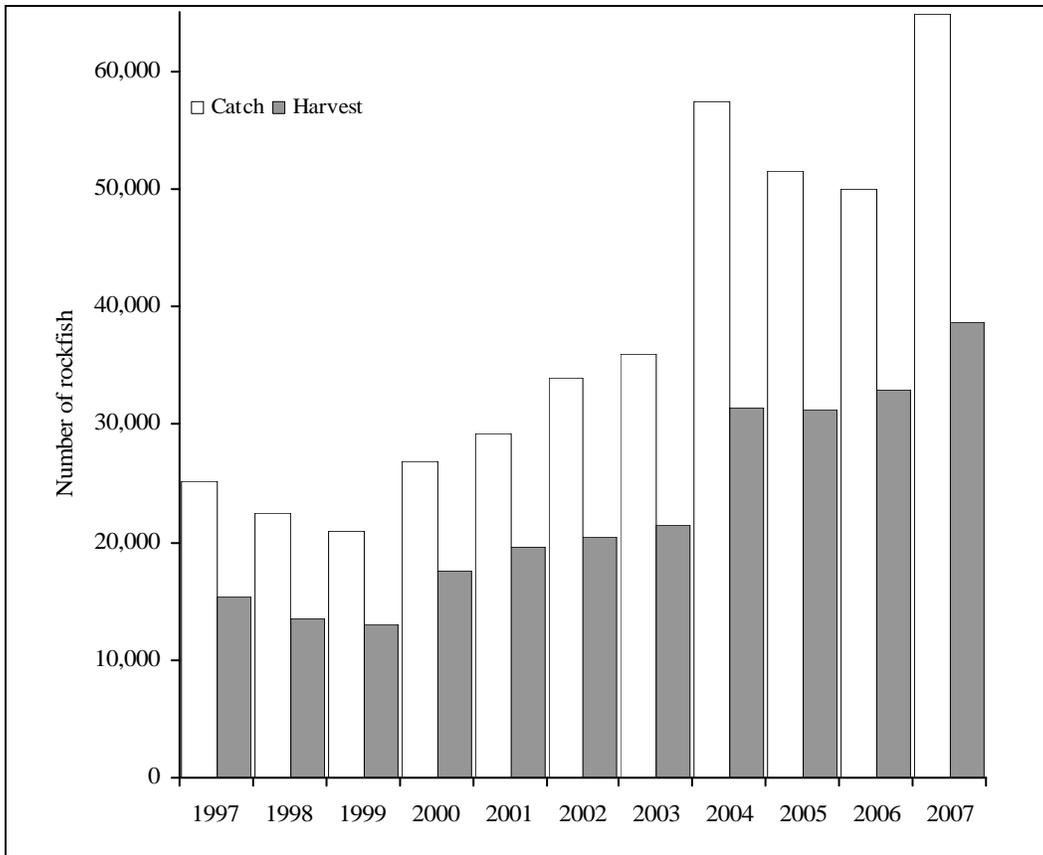


Figure 19.—Rockfish catch and harvest, Prince William Sound Management Area, 1997-2007.

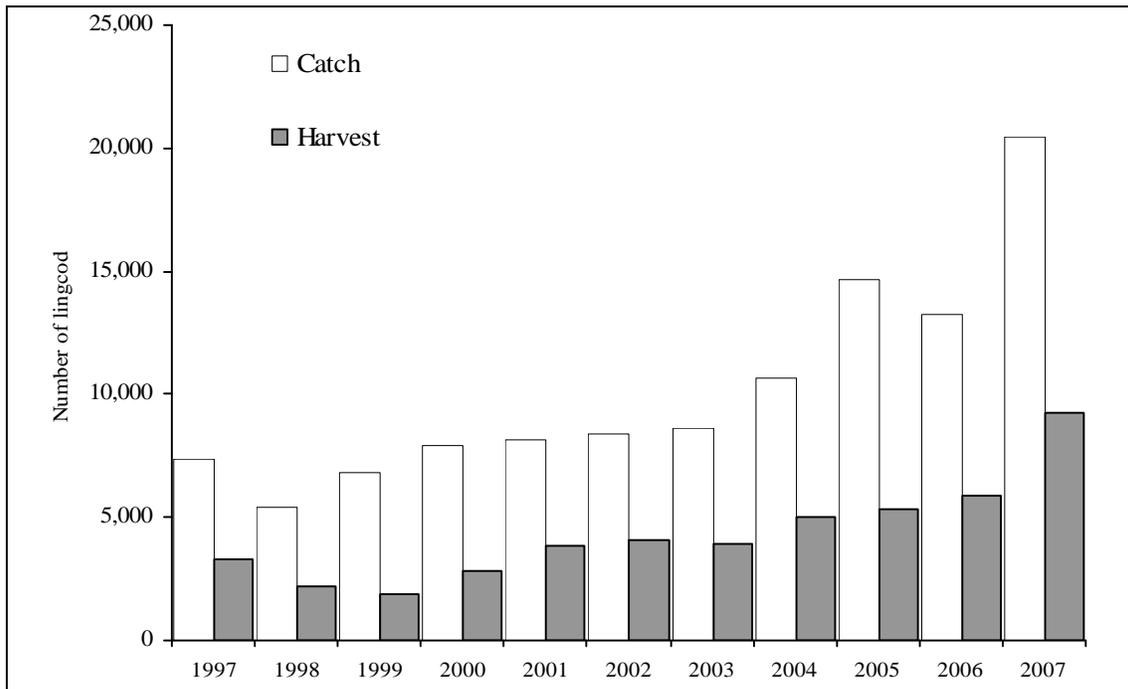


Figure 20.—Lingcod catch and harvest, Prince William Sound Management Area, 1997-2007.

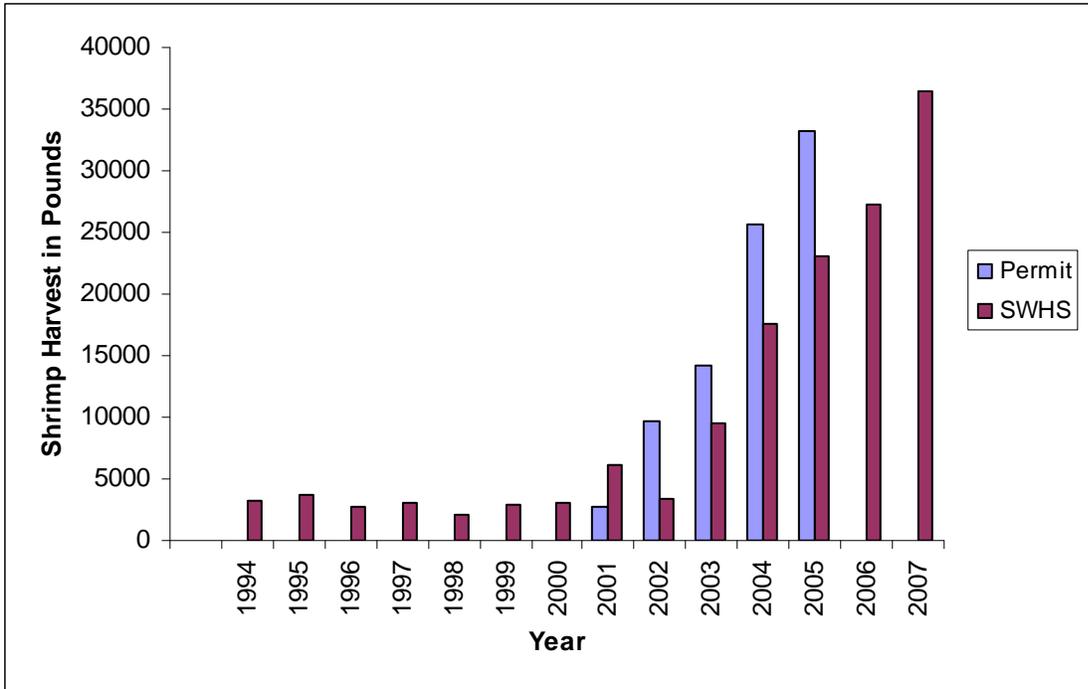


Figure 21.—Shrimp harvest in pounds, shrimp permits and statewide harvest survey, Prince William Sound Management Area, 1994-2007.

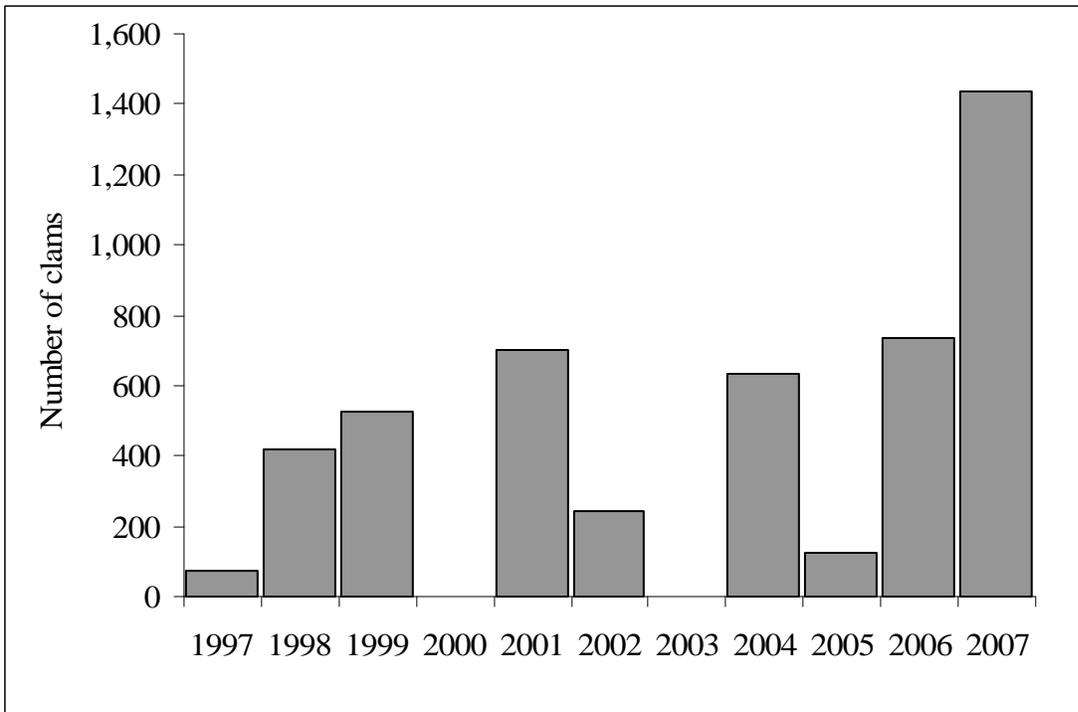


Figure 22.—Razor clam harvest, Prince William Sound Management Area, 1997-2007.

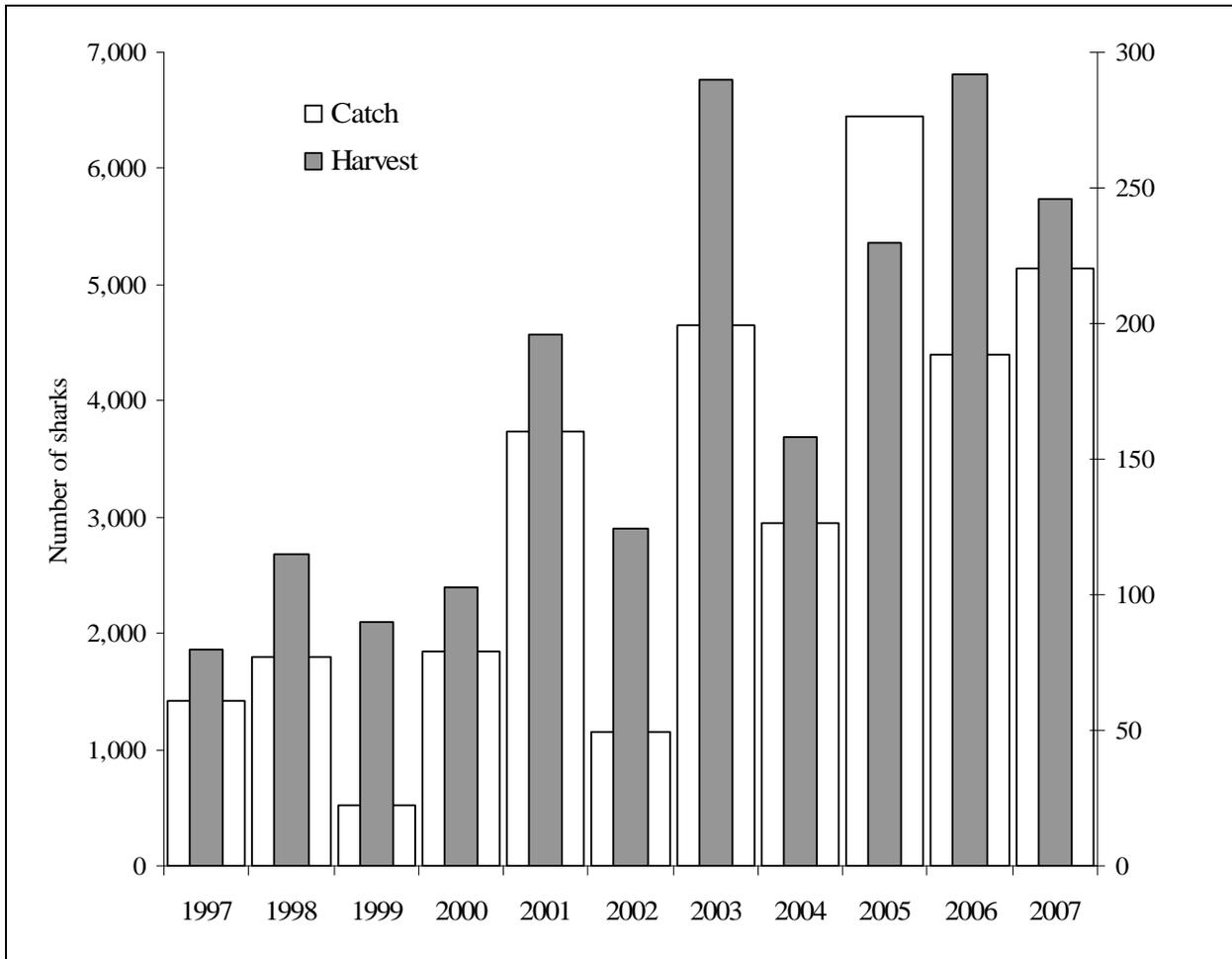


Figure 23.—Shark catch and harvest, Prince William Sound Management Area, 1997-2007.

APPENDIX A

Appendix A1.—Rainbow trout stocking by year and release site, Prince William Sound Management Area, 1980-2007.

Year	Blueberry Lake	Crater Lake	Granite Bay 171	Pipeline Lake #1	Pipeline Lake #4	Ruth Lake	Worthington Lake ^a	Crater Lake	Totals
1980	1,950						3,950		5,900
1981									
1982	3,000 ^b								
1983							10,000	0 ^b	10,000
1984	2,100 ^b	5,000 ^b							
1985							9,980		9,980
1986	1,500	5,000						5,000	11,500
1987									
1988	2,463	5,762				545		5,762	14,532
1989						1,002	7,946		8,948
1990	2,000	5,009	6,677 ^c	1,056 ^c	5,200 ^c	728		5,009	25,679
1991						1,052	8,014		9,066
1992	2,000	3,400				1,021			6,421
1993						504	8,000		8,504
1994	2,000	1,600 ^c				518			4,118
1995	1,038					1,710	5,002		7,750
1996	980					1,028	990		2,998
1997	1,000					1,500	1,000		3,500
1998	500					1,596	1,000 ^c		3,096
1999	480					1,481			1,961
2000	500					1,750			2,250
2001	544					1,000			1,544
2002	438					450			888
2003	556					556			1,112
2004						765			765
2005						592			592
2006						498			498
2007						916			916
10-Yr Ave	402					1,019	200		1,621

Note: Unless noted separately, all rainbow releases after 1976 were reared at Ft. Richardson Hatchery.

^a Stocking efforts in Worthington Lake for rainbow trout and Arctic char began in 1954.

^b Reared at Elmendorf Hatchery.

^c Stocking discontinued.

Appendix A2.—Arctic grayling stocking by year and release site, Prince William Sound Management Area, 1980-2007.

Year	28.5 M. Lake	Alaganik Sl. Lake	Pipeline Lake #1	Pipeline Lake #2	Pipeline Lake #4	Quarry Lake	Sheridan Dike 1	Sheridan Dike 2	Thompson Lake	Ruth Pond	Totals
Fire Lake Hatchery											
1980											
1981									11,579		11579
1982											
Clear Creek Hatchery											
1983	10,000						10,000		9,500		29500
1984											
1985	5,000						1,000		10,000		16000
1986	10,000						1,000				11000
1987									10,000		10000
1988	10,000						10,000		10,000		30000
1989					10,000 ^a			10,000	10,000	10,000	30000
1990	10,000	10,000	1,100				10,000	10,000			41100
1991	10,000	10,000	10,000		10,000		10,000	10,000	10,000		70000
1992	10,000		10,000		10,000			10,000			40000
1993	10,000		10,000		10,000			10,000	10,000		50000
1994	10,000		10,000		10,000			10,000			40000
1995	^a	^a	^a		^a		15,000 ^a	^a	10,000		25000
1996											
1997											
1998											
1999											
2000									1,117		1117
2001									1,045	1,000	2045
2002									1,008		1008
2003											
2004									1,000		1000
2005									1,000		1000
2006									1,506		1506
2007									1,000		1000
10-Yr Ave									668	91	768

^a Stocking discontinued.

Appendix A3.–Chinook salmon stocking by year and release site, Prince William Sound Management Area, 1980-2007.

Year	Elmendorf Hatchery			Solomon Gulch/ Ft. Richardson/ W. Noerenberg Hatcheries										Totals
	Cove Creek	Passage Canal	Wells Passage	6.5 M. Rich. Hy ^a	Anderson Bay ^b	Chenega Lake ^c	Fleming Spit	Glacier Cr. Pit ^b	Valdez Harbor ^b	Granite Bay ^b	Logging Camp Cr. ^b	W Noerenberg Hatchery ^c	Shakespeare Creek	
1981	109,850													
1982														
1983	112,020													
1984	117,590													
1985	61,400	70,757			139,888									
1986	^d	85,164			113,535				25,072	49,850		115,088		
1987		^d	50,143		^d				^d	^d				
1988			^d									44,790		
1989												145,000		
1990							19,991 ^c					118,618		
1991				192,465			59,730 ^c					239,624	99,811 ^c	591,630
1992				94,748			102,116 ^c					274,754	102,024 ^c	573,642
1993				196,947 ^d			113,325 ^c					273,429	85,677 ^c	669,378
1994				^d		50,318	99,334 ^c					539,195	98,311 ^c	787,158
1995						49,990	89,197 ^c					395,850	102,095 ^c	637,132
1996						49,900						36,515		86,415
1997						49,733	46,111 ^c							95,844
1998						43,400	35,627					35,600		114,627
1999						^d	49,723 ^b	49,853				^d	49,853 ^b	149,429
2000							45,000 ^b	115,582					119,389 ^b	279,971
2001							94,812 ^b		94,701				95,823 ^b	285,336
2002							110,000 ^b		110,000				110,000 ^b	330,000
2003							110,000 ^b		108,000				110,000 ^b	328,000
2004							58,000 ^b		99,464				128,611 ^b	286,075
2005							100,000 ^b		100,000				100,000 ^b	300,000
2006							100,000 ^b		100,000				118,059 ^b	318,059
2007							114,627		126,703					241,330
10-Yr Ave						9,313	74,927		61,217			3,560	83,174	248,734

^a Reared at Solomon Gulch Hatchery.

^b Reared at Ft. Richardson Hatchery.

^c Reared at W. Noerenberg Hatchery

^d Stocking discontinued.

Appendix A4.–Coho salmon stocking by year and release site, Prince William Sound Management Area, 1980-2007.

Year	Cannery Creek/ Elmendorf/ W. Noerenberg/ Ft. Richardson Hatcheries											Solomon Gulch Hatchery		
	18 M. Creek	Chenega Lake ^c	Cove Creek	Culross Lake	Fleming Spit	Lake Bay ^c	Otter Lake ^a	Passage Canal	Surprise Cove #1 ^d	Surprise Cove #2 ^d	Whittier Sites ^e	Boulder Bay	Solomon Gulch	Totals
1980			50,057 ^d											
1981			84,022 ^d					25,876 ^d			63,333 ^d			
1982			9,750 ^b											
1983	57,003 ^a			95,130 ^a			29,253 ^f	93,235 ^b			95,130 ^d			
1984			41,661 ^b	61,261 ^d										
1985	20,512 ^d		96,900 ^d					108,500 ^b	77,000	66,646		94,700	443,746	
1986	49,990 ^d		99,600 ^d		44,470 ^d	98,778			20,053	38,698	104,796 ^b	231,538	637,933	
1987			42,516 ^d		58,213 ^d	376,000			21,605 ^f	40,158 ^f	55,546 ^b	86,300	680,338	
1988						871,000					107,428 ^b	822,000	1,800,428	
1989					75,113 ^d	2,499,000					82,379 ^d	987,000	3,643,492	
1990					54,815 ^d	2,390,000					40,912 ^d	20,000	787,153	3,292,880
1991					40,000	2,083,292					99,990 ^c	30,761	962,872	3,216,915
1992					124,000 ^c	1,564,000					143,800 ^c	19,568	1,206,476	3,057,844
1993					99,848 ^c	1,103,278					99,951 ^c		461,388	1,764,465
1994					98,628 ^c	1,281,837					103,471 ^c	13,784	901,303	2,399,023
1995					100,260 ^c	1,861,922					101,775 ^c	20,000	1,305,316	3,389,273
1996					49,845 ^c	176,913					48,648 ^c	20,000	1,855,823	2,151,229
1997					49,583 ^c	104,944					49,124 ^c	21,768	1,293,415	1,518,834
1998					102,955 ^c	205,518					99,242 ^c	16,388	1,732,098	2,156,201
1999		56,500			99,943	830,243					81,685 ^c	19,810	1,843,718	2,931,899
2000		47,395			93,000	187,775					47,500 ^c	20,000	1,605,599	2,001,269
2001		50,341			98,599	47,861					49,861 ^c	16,000	1,503,328	1,765,990
2002		48,935			100,435 ^c	241,545					94,919	20,000	1,821,000	2,326,834
2003		53,594			100,781	666,451					99,942	20,000	1,275,145	2,215,913
2004		50,000			89,893	749,598					99,892		1,442,274	2,431,657
2005					105,892	796,153					105,877		1,968,366	2,976,288
2006					36,748	866,319					99,830		1,511,592	2,514,489
2007		50,000			100,000	1,600,000					100,000		1,970,000	3,820,000
10-Yr Ave		30,677			87,783	469,641					82,787	13,397	1,599,654	2,283,937

^a Reared at Cannery Creek Hatchery.

^b Reared at Elmendorf Hatchery.

^c Reared at W. Noerenberg Hatchery.

^d Reared at Ft. Richardson Hatchery.

^e Whittier Sites include data from ‘Whittier Harbor’, ‘Army Dock’ and ‘Wells Passage’.

^f Stocking discontinued.

Appendix A5.—Pink salmon stocking by year and release site, Prince William Sound Management Area, 1980-2007

Year	AFK Hatchery	Cannery Creek/ W. Noerenberg/ Main Bay Hatcheries					Solomon Gulch/ Nerka Hatcheries			Totals
	Port San Juan	Eaglek Bay ^a	Cannery Creek ^a	Derickson Bay ^a	Hobo Bay ^a	Lake Bay ^b	Main Bay	Boulder Bay ^d	Perry Island	
1980	21,641,757		990,859		1,690,712				250,000 ^e	
1981	69,662,000		14,388,752		6,950,000 ^f				113,000 ^e	
1982	70,118,000		13,932,987				33,700,561 ^a		500,000 ^d	7,400,000
1983	87,384,533		22,184,862				25,751,531 ^c			5,600,000
1984	76,746,000	1,561,750 ^f	29,271,000				41,945,403 ^c			8,390,000
1985	103,531,000		36,497,996	2,003,800			29,286,498 ^c			51,263,063
1986	112,529,000		58,216,842	2,000,000 ^f		34,437,214	32,728,663 ^c			54,630,942
1987	116,177,000		42,653,000			75,933,000	2,660,000 ^c			59,739,000
1988	110,037,000		95,572,691			195,322,000	0	16,960,000		114,030,000
1989	160,000,000		58,969,539			159,890,000	10,200,000 ^c	14,380,000		114,034,000
1990	113,800,000		143,660,000			233,260,000	0	47,026,093		75,177,816
1991	115,750,000		141,510,000			205,728,876	9,235,154 ^b	48,416,027 ^f		82,879,067
1992	112,830,588		132,166,231			163,591,000				86,902,415
1993	113,337,400		140,030,396			172,087,494				141,865,235
1994	92,078,951		84,616,614			162,386,766				149,473,648
1995	108,583,112		130,339,451			168,864,536				205,371,130
1996	108,636,977		140,441,172			169,508,993				223,088,327
1997	51,562,609		136,838,852			106,440,456				188,862,094
1998	105,974,000		137,572,000			103,675,000				195,162,063
1999	133,200,000		131,200,000			123,900,000				213,906,642
2000	142,537,692		132,236,317			116,069,339				195,763,690
2001	150,287,930		139,226,716			127,651,881				203,897,201
2002	155,982,828		138,626,713			106,229,524				202,573,328
2003	146,407,222		135,584,680			119,553,743				206,397,607
2004	170,460,145		136,288,850			109,640,296				222,457,568
2005	131,197,783		126,575,805			84,060,920				222,218,569
2006	159,616,613		138,157,160			84,795,328				216,921,213
2007	179,000,000		141,000,000			77,200,000				220,410,000
10-Yr Ave	134,722,682		135,230,709			108,201,649				206,815,998

^a Reared at Cannery Creek Hatchery

^b Reared at W. Noerenberg Hatchery

^c Reared at Main Bay Hatchery

^d Reared at Solomon Gulch Hatchery

^e Reared at Nerka (Perry Island) Hatchery

^f Stocking discontinued.

Appendix A6.–Chum salmon stocking by year and release site, Prince William Sound Management Area, 1980-2007.

Year	AFK Hatchery		Cannery Creek Hatchery		Main Bay Hatchery		W. Noerenberg Hatchery		Solomon Gulch Hatchery	Totals
	Port San Juan	Sawmill Bay	Cannery Creek	Unakwik Inlet	Lake Bay	Main Bay	Lake Bay	Port Chalmers	Solomon Gulch	
1980	395,000		462,849							857,849
1981	745,668		2,448,611							3,194,279
1982	7,616,000		866,890						400,000	8,882,890
1983						8,644,179			617,000	9,261,179
1984	7,654,000		1,796,000		7,355,000	7,490,291			900,000	25,195,291
1985	10,944,308		760,000		12,559,082	11,033,065	12,466,732		2,146,017	49,909,204
1986			278,900		4,251,497	5,258,175	15,172,261		2,256,291	27,217,124
1987			34,800		^a	76,646,750	36,479,000		3,419,000	116,579,550
1988			200,000			^a	68,388,000		1,614,000	70,202,000
1989			^a	4,487,000			79,845,000		2,900,000	87,232,000
1990				^a			46,980,000		3,100,000	50,080,000
1991							76,843,000		1,607,000	78,450,000
1992							97,953,492		2,690,414	100,643,906
1993	9,484,200						108,026,724		17,670,620	135,181,544
1994							82,029,558	18,078,640	6,088,063	106,196,261
1995							72,254,939	24,211,065	1,393,586	97,859,590
1996							79,543,524	22,770,999	^a	102,314,523
1997	8,524,584						77,399,969	17,272,475		103,197,028
1998	10,121,000						77,839,000	22,106,000		110,066,000
1999							75,000,000	24,300,000		99,300,000
2000							79,306,351	24,045,577		103,351,928
2001							57,712,566	18,403,759		76,116,325
2002							75,341,899	25,913,467		101,255,366
2003		15,661,413					59,649,039	23,555,057		98,865,509
2004		16,198,524					73,883,852	43,263,743		133,346,119
2005		15,163,742					71,343,434	40,678,949		127,186,125
2006		15,797,568					90,403,140	39,815,183		146,015,891
2007		15,500,000					73,500,000	40,100,000		129,100,000
10-Yr Ave	1,864,558	6,282,125					73,787,925	27,935,421		109,870,029

^a Stocking discontinued.

Appendix A7.—Sockeye salmon stocking by year and release site, Prince William Sound Management Area, 1980-2007.

Main Bay/ W. Noerenberg/ Trail Lake Hatcheries										
Year	Coghill Lake ^a	Davis Lake ^a	Eshamy Lake	Esther Pass Lake ^a	Eyak Lake ^a	Main Bay ^a	Marsha Lake ^a	Pass Lake ^a	Solf Lake ^a	Totals
1986			516,000 ^c							
1987			396,000 ^b							
1988		657,287 ^d	764,000 ^b	153,031		330,025		594,210		924,235
1989			2,055,000 ^b	154,644		3,925,357		603,219		4,528,576
1990			0	25,000 ^d		2,616,498		100,121 ^d		2,716,619
1991	443,000		1,279,475 ^a		47,609	2,363,337				2,363,337
1992	720,875		1,043,356 ^a		0	1,914,927	691,405			2,606,332
1993	806,218		966,750 ^a		0	2,597,284	0			2,597,284
1994	1,219,354		691,633 ^a		^d	2,400,666	0			2,400,666
1995	865,020 ^d		^d			5,348,092	215,944			5,564,036
1996						3,227,685				3,227,685
1997						1,215,716				1,215,716
1998						2,666,000			109,800	2,775,800
1999						6,970,000			0	6,970,000
2000						8,181,502			116,473	8,297,975
2001						7,379,733			116,144	7,495,877
2002						7,858,190				7,858,190
2003						790,604			256,020	1,046,624
2004						7,607,383	946,336		248,090	8,801,809
2005						7,641,728	419,336		260,971	8,322,035
2006						8,302,760			126,002	8,428,762
2007						9,270,000				9,270,000
10-Yr Ave						5,861,362				6,121,279

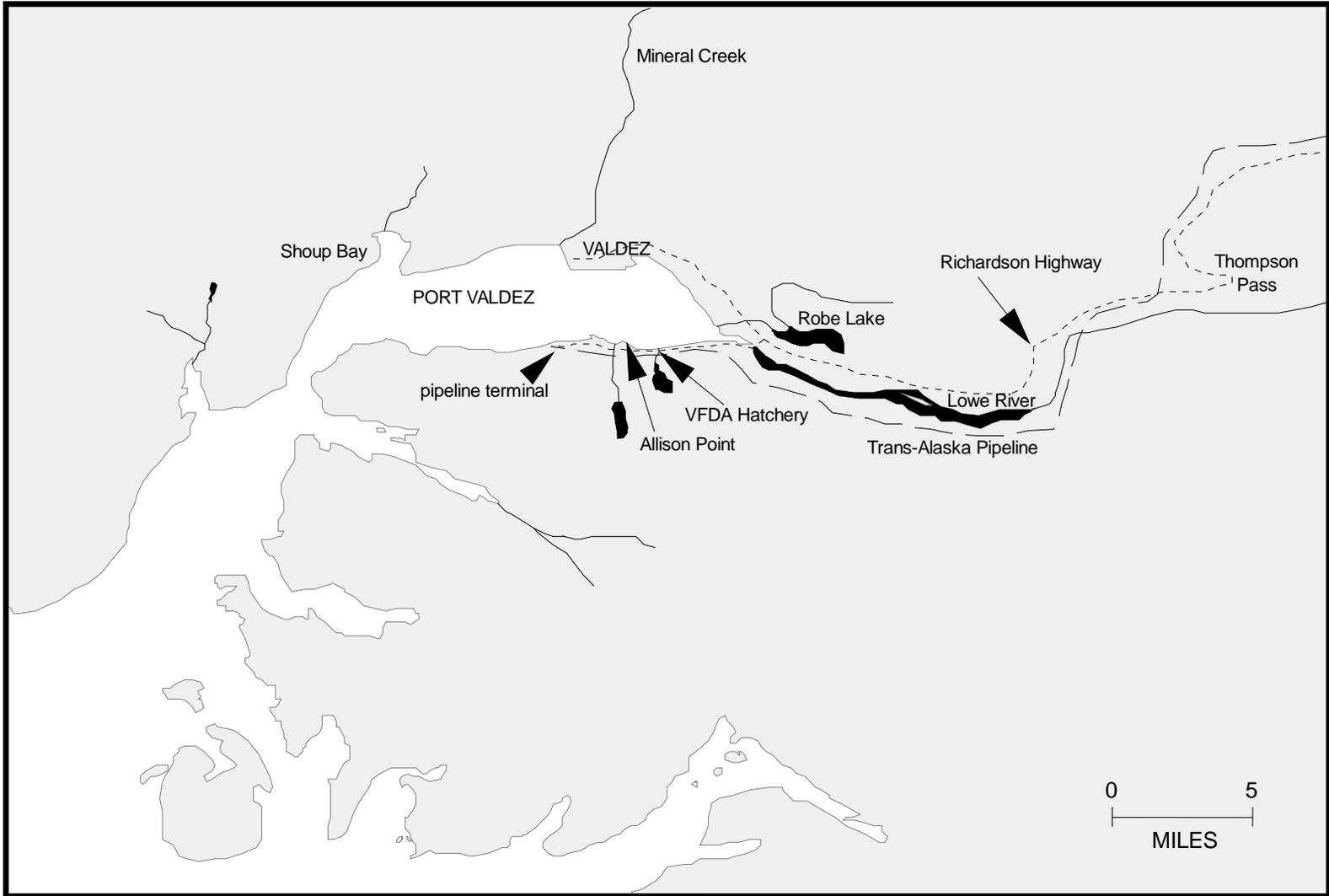
^a Reared at Main Bay Hatchery.

^b Reared at W. Noerenberg Hatchery.

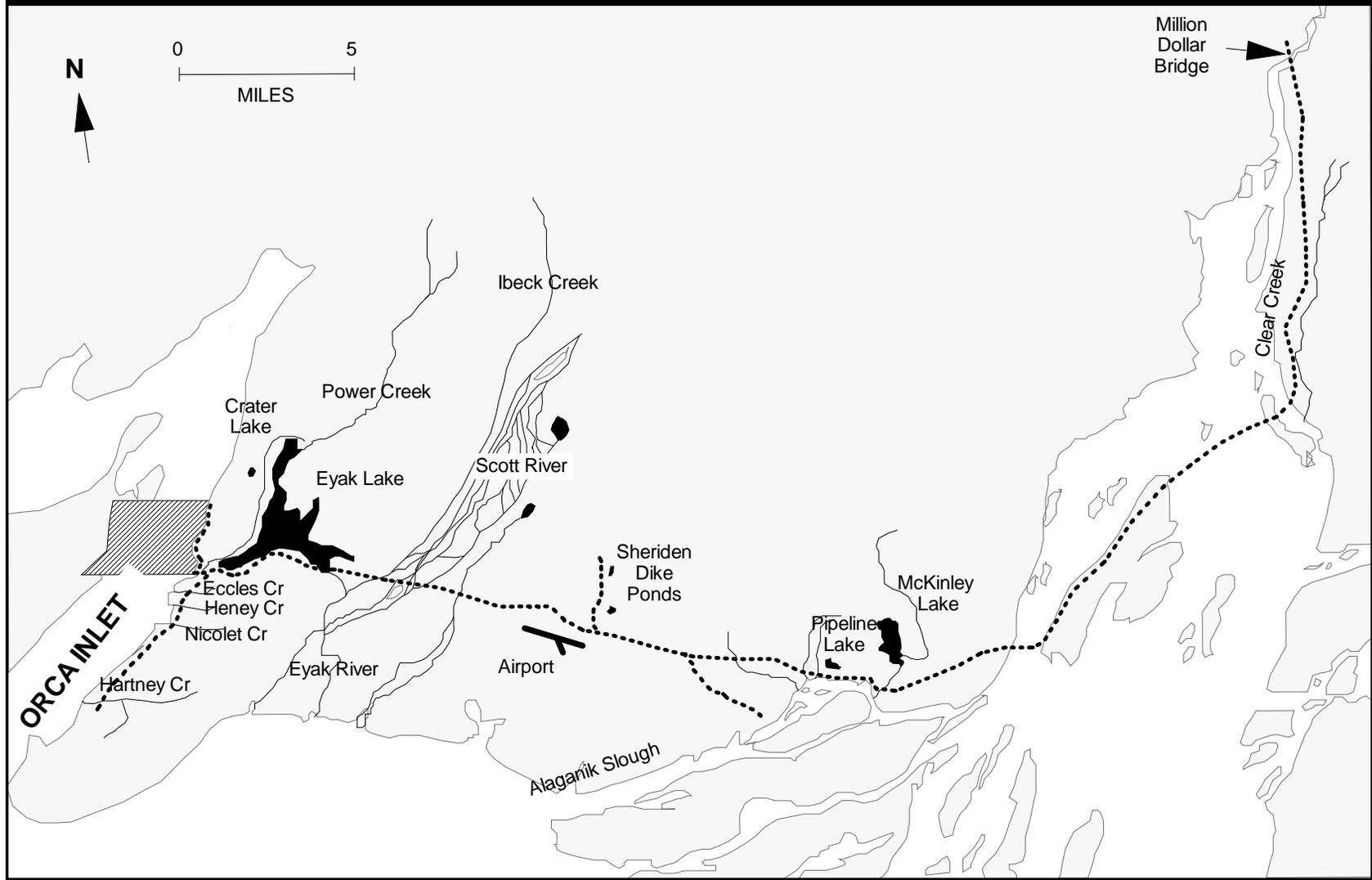
^c Reared at Trail Lake Hatchery.

^d Stocking discontinued.

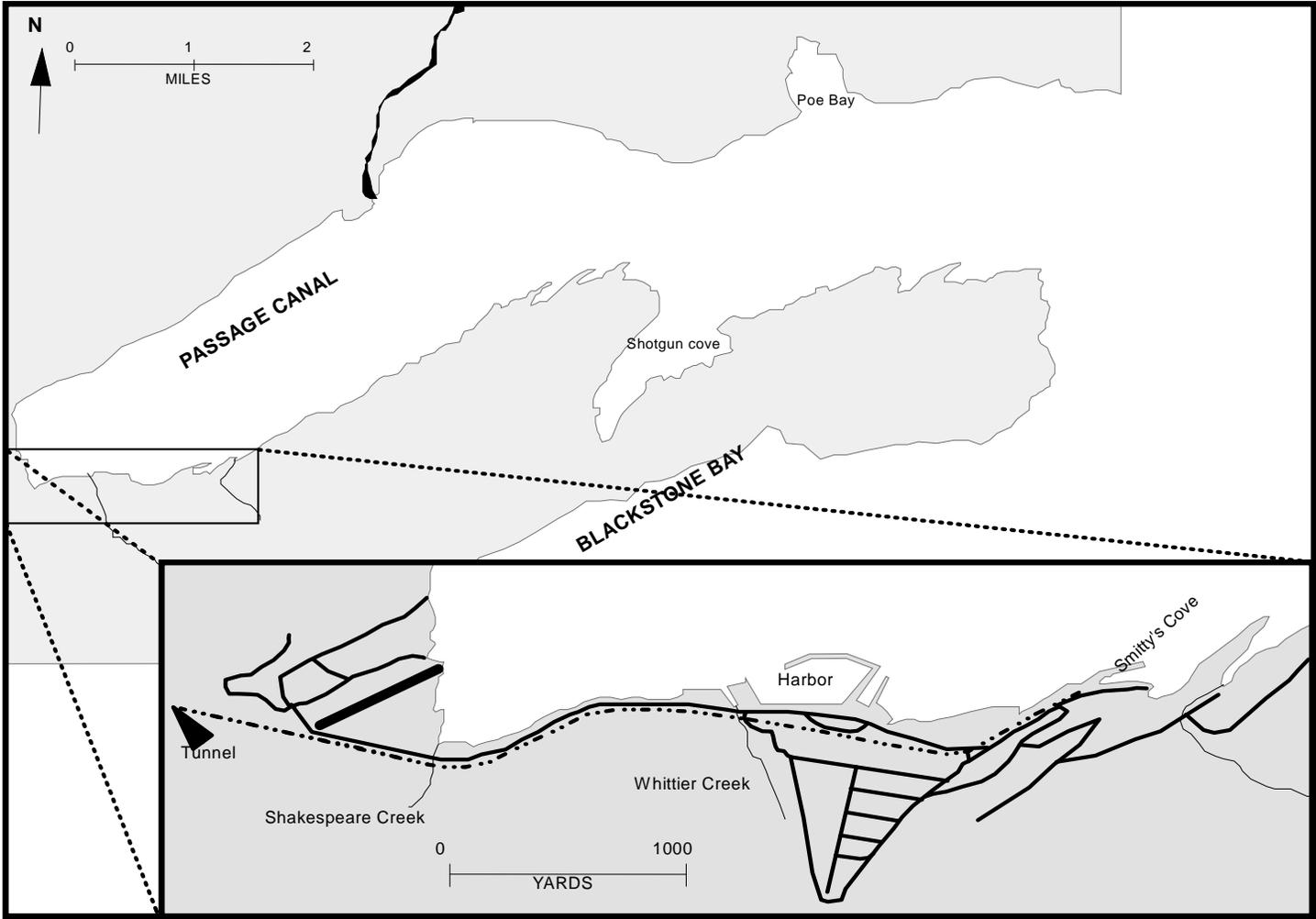
APPENDIX B



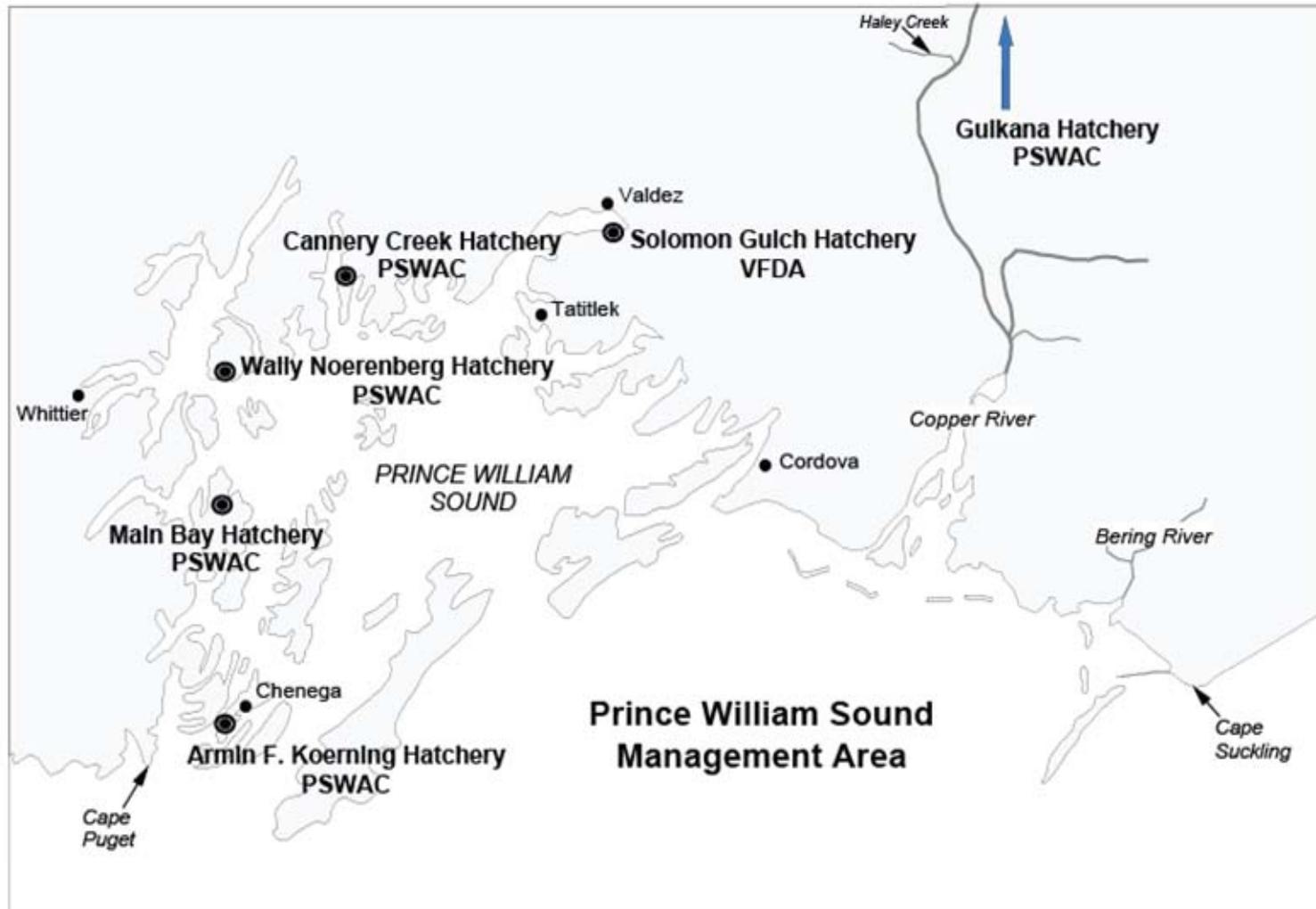
Appendix B1.—Valdez area, Prince William Sound Management Area.



Appendix B2.—Cordova area, Prince William Sound Management Area.



Appendix B3.-Whittier area, Prince William Sound Management Area.



Appendix B4.–Hatchery locations, Prince William Sound Management Area.