

Fishery Management Report No. 13-30

**Annual Management Report for Pacific Cod
Fisheries in the Prince William Sound and Cook
Inlet Management Areas, 2012**

by

Elisa Russ,

Maria Wessel,

Jan Rumble,

and

Chris Russ

September 2013

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		Mathematics, statistics	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	H_A
gram	g	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	base of natural logarithm	e
hectare	ha	at	@	catch per unit effort	CPUE
kilogram	kg	compass directions:		coefficient of variation	CV
kilometer	km	east	E	common test statistics	(F, t, χ^2 , etc.)
liter	L	north	N	confidence interval	CI
meter	m	south	S	correlation coefficient	
milliliter	mL	west	W	(multiple)	R
millimeter	mm	copyright	©	correlation coefficient (simple)	r
		corporate suffixes:		covariance	cov
Weights and measures (English)		Company	Co.	degree (angular)	$^\circ$
cubic feet per second	ft ³ /s	Corporation	Corp.	degrees of freedom	df
foot	ft	Incorporated	Inc.	expected value	E
gallon	gal	Limited	Ltd.	greater than	>
inch	in	District of Columbia	D.C.	greater than or equal to	\geq
mile	mi	et alii (and others)	et al.	harvest per unit effort	HPUE
nautical mile	nmi	et cetera (and so forth)	etc.	less than	<
ounce	oz	exempli gratia	e.g.	less than or equal to	\leq
pound	lb	(for example)		logarithm (natural)	ln
quart	qt	Federal Information Code	FIC	logarithm (base 10)	log
yard	yd	id est (that is)	i.e.	logarithm (specify base)	log ₂ , etc.
		latitude or longitude	lat or long	minute (angular)	'
Time and temperature		monetary symbols (U.S.)	\$, ¢	not significant	NS
day	d	months (tables and figures): first three letters	Jan, ..., Dec	null hypothesis	H_0
degrees Celsius	$^\circ\text{C}$	registered trademark	®	percent	%
degrees Fahrenheit	$^\circ\text{F}$	trademark	™	probability	P
degrees kelvin	K	United States (adjective)	U.S.	probability of a type I error (rejection of the null hypothesis when true)	α
hour	h	United States of America (noun)	USA	probability of a type II error (acceptance of the null hypothesis when false)	β
minute	min	U.S.C.	United States Code	second (angular)	"
second	s	U.S. state	use two-letter abbreviations (e.g., AK, WA)	standard deviation	SD
Physics and chemistry				standard error	SE
all atomic symbols				variance	
alternating current	AC			population	Var
ampere	A			sample	var
calorie	cal				
direct current	DC				
hertz	Hz				
horsepower	hp				
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

FISHERY MANAGEMENT REPORT NO. 13-30

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THE PRINCE WILLIAM SOUND AND COOK INLET MANAGEMENT
AREAS, 2013**

by

Elisa Russ, Maria Wessel, Jan Rumble, and Chris Russ
Alaska Department of Fish and Game, Division of Commercial Fisheries, Homer and Cordova

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1565

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*Elisa Russ, Jan Rumble, Chris Russ,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
3298 Douglas Place, Homer, AK 99603, USA*

and

*Maria Wessel
Alaska Department of Fish and Game, Division of Commercial Fisheries,
PO Box 669, Cordova, AK 99574, USA*

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ABSTRACT

The Alaska Department of Fish and Game (ADF&G) Division of Commercial Fisheries manages commercial groundfish fisheries, including Pacific cod (*Gadus macrocephalus*), within all state (or territorial) waters, which are defined as from shore to 3 nautical miles. Commercial fisheries for Pacific cod in the Prince William Sound (PWS) and Cook Inlet (CI) management areas are managed by ADF&G during 2 distinct seasons: a parallel season concurrent with the Central Gulf of Alaska (CGOA) season in adjacent federal waters and a state-waters season with specific guideline harvest levels (GHLs). This report summarizes harvest and effort from parallel and state-waters commercial Pacific cod fisheries in the PWS and CI areas through 2012 and includes preliminary 2013 data through June 30. The 2011 and 2012 PWS Pacific cod state-waters season harvests of 1,594,590 lb and 1,395,483 lb were the highest since the fishery began in 1997. The PWS GHLs have been achieved since the addition of longline as a legal gear type for the fishery in 2009. The 2011 and 2012 CI Pacific cod state-waters season harvests of 4,400,330 lb and 4,236,395 lb, respectively, were also the 2 highest harvests since the fishery began in 1997. In October 2011, the Alaska Board of Fisheries (BOF) adopted regulations that allowed for coordination of parallel and state-waters seasons by gear type in response to new federal gear sector splits. In 2012, all gear sectors in federal Pacific cod fisheries achieved their respective “A” season total allowable catch (TAC) and management of state Pacific cod fisheries went smoothly. The combined fishery value for the parallel and state-waters seasons for 2012 were approximately \$691,000 for PWS and \$2,422,600 for CI. Regulatory changes, management actions, and a summary of fishery information are provided in this report.

Key words: Prince William Sound, Registration Area E, Cook Inlet, Registration Area H, commercial fisheries, groundfish, Pacific cod, *Gadus macrocephalus*, state-waters, parallel, Annual Management Report (AMR)

INTRODUCTION

The Alaska Department of Fish and Game (ADF&G) Division of Commercial Fisheries manages all commercial groundfish fisheries within state, or territorial waters which are defined as those waters from the shoreline to 3 nautical miles (nmi) offshore (5 AAC 39.975), including waters of the Prince William Sound (PWS; 5 AAC 28.200) and Cook Inlet (CI; 5 AAC 28.300) management areas. Under state regulation, groundfish are defined as all marine finfish except halibut (*Hippoglossus stenolepis*), osmerids (longfin smelt *Spirinchus thaleichthys*; night smelt *Spirinchus starski*; capelin *Mallotus villosus*; eulachon *Thaleichthys pacificus*; rainbow smelt *Osmerus mordax*; pond smelt *Hypomesus olidus*; surf smelt *Hypomesus pretiosus*), herring (*Clupea pallasii*), and salmonids (*Oncorhynchus* spp.) and includes Pacific cod (*Gadus macrocephalus*). For territorial waters, the Alaska Board of Fisheries (BOF) establishes management regulations and ADF&G uses its emergency order (EO) authority to make adjustments to fishing time and area. The BOF schedules regular meetings for PWS and CI groundfish on a triennial basis. Except for lingcod (*Ophiodon elongates*), black rockfish (*Sebastes melanops*), and dark rockfish (*Sebastes ciliates*), the National Marine Fisheries Service (NMFS) manages groundfish resources in waters of the exclusive economic zone (EEZ), located from 3 to 200 nmi offshore, under fishery management plans (FMPs) developed by the North Pacific Fishery Management Council (NPFMC). Gulf of Alaska (GOA) waters under federal jurisdiction and located adjacent to the PWS and CI areas are divided into 2 management units and named the Central Gulf of Alaska (CGOA) and Eastern Gulf of Alaska (EGOA).

Pacific cod parallel fisheries and state-waters fisheries occur within the PWS and CI areas. While these fisheries share the same target species, they also have distinct characteristics and regulatory requirements. The parallel Pacific cod fisheries are generally managed by adopting management actions from adjacent federal waters during concurrent federal fisheries, while the state-waters Pacific cod fisheries are managed according to area-specific plans adopted by the BOF in 1996 (5 AAC 28.267 *Prince William Sound Pacific Cod Management Plan* and 5 AAC 28.367 *Cook*

Inlet Pacific Cod Management Plan). Numerous “general” statewide groundfish regulations also affect Pacific cod fishing. These include a vessel registration requirement, legal gear definitions, bycatch allowances, and requirements for seabird avoidance measures to be used when fishing with longline gear. Vessel registration for Pacific cod may be nonexclusive, which allows a vessel to register with ADF&G to fish more than 1 management area, but not concurrently, within a calendar year; or exclusive, which restricts a vessel from fishing in another exclusive area, but would allow a vessel to fish in a nonexclusive area. Legal gear for Pacific cod is restricted to trawl, longline, pot, or jig depending upon the fishery and area although use of nonpelagic trawl is prohibited. Groundfish pots must have a biodegradable escape mechanism as described in 5 AAC 39.145 and pot tunnels may not exceed 36 inches in perimeter. Bycatch retention is restricted to a maximum of 20%, by weight, of the directed groundfish and halibut aboard a vessel. Finally, vessels greater than 26 ft in overall length and fishing longline gear in state waters must employ seabird avoidance measures to reduce seabird mortality related to feeding attempts on baited longlines, but the PWS Inside District and the Cook Inlet District are exempt from this requirement.

Historically, commercial Pacific cod seasons in both PWS and CI were managed via EO to coincide with seasons and allowable gear set by NMFS in the adjacent federal CGOA. These fisheries were adopted into regulation in November 1996 as part of the PWS and CI Pacific cod management plans and defined as parallel seasons. Similar to historical seasons, current parallel seasons are set by EO to coincide with the federal CGOA fishery for Pacific cod with respect to season dates and allowable gear types; provided those gear types are legal in state waters. There is an initial parallel season to coincide with the federal “A” season and there may be a second parallel season to coincide with the federal “B” season. Additionally, there may be parallel season openings to coordinate with unanticipated federal openings. Parallel season Pacific cod fishery harvests, as well as any Pacific cod bycatch to other directed fisheries in state waters, are accounted against the total allowable catch (TAC) set by NMFS for the EGOA for PWS and the CGOA for CI. Vessel registration for parallel seasons is nonexclusive, meaning a vessel can register with ADF&G to fish more than 1 management area within a calendar year.

The PWS and CI Pacific cod management plans adopted in 1996 also established the state-waters season which opens following the initial parallel season. This fishery is managed for a guideline harvest level (GHL) that is calculated annually as a fixed percentage of the acceptable biological catch (ABC) set by NMFS for adjacent federal waters. The PWS GHL is calculated as 25% of the EGOA and the CI GHL as 3.75% of the CGOA ABC. State-waters Pacific cod seasons provide Pacific cod harvest opportunity by local fleets with low halibut bycatch. Vessel registration for state-waters seasons is exclusive which restricts a vessel from fishing in another exclusive or superexclusive registration area, but would allow a vessel to fish in a nonexclusive area.

Additionally, ADF&G can open and close fishing seasons by EO at times other than those specified in the management plan, if the GHL has been reached and a federal season is ongoing in adjacent federal waters, or if ADF&G determines it is necessary to adapt to unanticipated openings or closures of the federal season, maintain sustained yield management, or provide for orderly fisheries. This allows flexibility and ADF&G has been able to open additional parallel seasons concurrent with NMFS CGOA Pacific cod openings.

There have been other BOF actions affecting the Pacific cod fisheries. In 2001, the BOF recognized NMFS fishing gear closures for Pacific cod in critical habitat around haulouts and

rookeries of endangered Steller sea lions (SSL) *Eumetopias jubatu* by giving the commissioner EO authority to adopt federal closures surrounding these areas. Beginning in 2002, the BOF also adopted the federal vessel monitoring system (VMS) requirement for all parallel fisheries. This action was adopted to provide more precise harvest location information in support of fishery enforcement efforts to protect SSL and some protected habitats.

Commercial Pacific cod harvests are monitored inseason primarily through ADF&G fish tickets (5 AAC 39.130) with additional information derived from dockside sampling of the commercial catch and dockside interviews. Dockside sampling involves collection of biological data such as species, size, sex, gonad condition, and age structures, as well as information on harvest location and effort. In PWS and CI, reporting requirements specify that all groundfish retained, but not delivered for sale, such as catch that is retained for personal use or used as bait at sea, must be reported on an ADF&G fish ticket.

FEDERAL REGULATORY CHANGES IMPLEMENTED IN 2012

In 2012, significant changes in management of the federal Pacific cod fisheries in the GOA took effect. Due to anticipated impacts on state-managed Pacific cod fisheries, a special BOF meeting was held in October 2011 to address these changes and provide for orderly Pacific cod fisheries. The federal change that had the most impact on Pacific cod management in the PWS and CI areas was the split of the TAC by gear sector, which resulted in staggered federal Pacific cod seasons for vessels fishing with jig, pot, trawl, and longline (<50 ft and \geq 50 ft) gear. Additionally, a new federal jig “B” season regulatory opening date of June 10 was implemented in the CGOA. Federal “B” season opening dates for pot and longline gear remained set for September 1. The BOF in turn adopted regulatory changes to the Pacific cod management plans and related regulations to take effect in 2012, which allowed for staggered parallel Pacific cod seasons and discrete state-waters seasons for each gear type. Changes specific to PWS and CI are addressed below in their respective sections.

This report describes annual harvests and exvessel values for the commercial Pacific cod fisheries managed by ADF&G in the PWS and CI management areas through 2012, with an outlook for the 2013 season including preliminary data through June 30, 2013.

PRINCE WILLIAM SOUND AREA

REGULATION OVERVIEW

Prince William Sound Management Area boundaries have been adjusted several times since 1996. The PWS Area currently encompasses waters of Alaska from 144° 00' W longitude, near Cape Suckling, to a line along the longitude of Cape Fairfield at 148° 50.25' W longitude south to the latitude of Cape Douglas at 58° 51.10' N latitude then west to 149° W longitude, and south along 149° W longitude (Figure 1). The area is divided into the Inside and Outside Districts. The Inside District is waters enclosed by lines from Point Whithshed to Point Bentinck, from Cape Hinchinbrook to Zaikof Point, and from Cape Cleare to Cape Puget. The Outside District, comprised of the Gulf of Alaska waters 0–3 miles from shore, is divided into the Eastern and Western sections. The Eastern Section includes waters between 144° 00' W longitude and 147° 00' W longitude and the Western Section includes waters west of 147° 00' W longitude.

The *Prince William Sound Pacific Cod Management Plan* (5 AAC 28.267) has been modified several times following its establishment in 1996. Most importantly, in October of 2011, the plan

was amended to coordinate the parallel and state-waters Pacific cod seasons with new federal gear sector allocations, in the following manner:

- For longline gear, the parallel season coincides with the federal season in the CGOA for the less than 50 ft hook and line gear group. The state-waters season for longline gear opens 7 days following the closure of the parallel longline season or concurrent with the individual fishing quota (IFQ) halibut season opening date, whichever occurs later. The state-waters season for longline gear closes when 85% of the GHL is achieved, a parallel season for longline gear is opened, or on December 31, whichever occurs first.
- For pot gear, the parallel season coincides with the federal season in the CGOA for pot gear. The state-waters season for pot gear opens 24 hours following the closure of the parallel season for pot gear. The state-waters season for pot gear will close when 90% of the GHL is achieved, a parallel season for pot gear is opened, or on December 31, whichever occurs first.
- For jig gear (mechanical or hand troll), the parallel season coincides with the federal season in the CGOA for jig gear. The state-waters season for mechanical jiggling machines and handtroll gear opens 24 hours following the closure of the parallel season for jig gear. The state-waters season for all jig gears closes when the GHL is achieved, a parallel season for jig gears is opened, or on December 31, whichever occurs first.

There are other regulations that affect the Pacific cod fisheries in PWS. Groundfish fishing closures related to SSL conservation include waters surrounding 2 rookeries in the PWS area: Seal Rocks and Wooded Island (Fish Island). Directed commercial fishing for groundfish is closed to all gear types by EO within 3 nmi of each of these rookeries (Figure 2). Additionally, area regulations specify a groundfish pot closure area, to protect recovering Tanner crab (*Chionectes bairdi*) stocks, in waters of eastern PWS, except Orca Bay and in waters greater than 75 fathoms deep in Hinchinbrook Entrance (Figure 2).

Another regulation requires that all groundfish pots must be removed from the water following the closure of the parallel season, except that groundfish pots may be stored as specified in 5 AAC 28.232 in a designated area 10 days prior to and 10 days following a state-waters season, if the vessel is registered for the state-waters season. Also, in 2008 a regulation was adopted allowing a separate 20% bycatch allowance of Pacific cod, in addition to any other bycatch allowance.

PRINCE WILLIAM SOUND PARALLEL PACIFIC COD FISHERY

Early PWS Pacific cod seasons spanned January 1 to approximately mid-March and more recently, have ranged from 1 to 2 months in duration (Berceli et al. 2008b; Table 1). This coincided with the initial or “A” federal season. During 1997–1999, NMFS reopened Pacific cod for a second directed fishing period in September or October. These were typically short openings ranging from 4 days to 5 weeks in duration, and ADF&G opened parallel seasons to coincide. Beginning in 2007, the parallel season has been reopened on September 1 concurrent with the federal “B” season. In 2007, the parallel season remained open through December 31. In more recent years, seasons have lasted approximately 1 month, and in 2011 there was a short additional period opened in the parallel fishery at the end of the year to coincide with a federal opening to harvest the remaining available TAC. In 2012, federal gear sector splits went into effect which has resulted in staggered parallel seasons for jig, pot, and longline gear.

Harvest has varied in this fishery since 1988. Annual harvest and effort in the parallel Pacific cod fishery has ranged from 11,294 lb from 38 landings by 24 vessels in 2005 to 2.2 million lb from 234 landings by 88 vessels in 1991 (Berceli et al. 2008a; Table 2; Figure 3). Peak harvests occurred during 1990–1995 and averaged 1.7 million lb annually. From 1996 to 2000, harvests declined to less than 1.0 million lb in all years, except 1999, when the harvest surpassed 1.3 million lb. In 2001, harvest declined to approximately 170,000 lb and during 2002–2006 averaged just over 15,000 lb. Harvests began to increase again from 2007 through 2012 with the highest harvests since 2000, averaging 400,000 lb. Preliminary 2013 data indicates harvest is nearly 700,000 lb through June 30.

Prior to 1990, nearly all Pacific cod was harvested by longline gear. Following expansion of the pot fishery for Pacific cod in 1991, the proportion harvested by pot gear increased to a high of 83% in 1994. However, since 2001, longline has again accounted for the majority of the parallel season harvest, ranging from 81% to 100%. The decline in parallel season catch and effort after 2000 can be attributed to a variety of factors: shortened season, high exvessel prices for halibut and sablefish (*Anoploma fimbria*), increased fixed costs, and loss of a directed yelloweye rockfish (*Sebastes ruberrimus*) harvest opportunity due to restructuring of the PWS rockfish fishery (Trowbridge et al. 2011; Berceli et al. 2008a). The recent increases in longline harvest during the parallel season may be attributed to the addition of longline as a legal gear type in the PWS state-waters season in 2009 and the restructuring of the federal fishery with gear sector splits in 2012; more of the fleet has remained in PWS, not switching to participate in the Kodiak fishery.

Value of the PWS Pacific cod parallel fishery during the period 1988–2012 ranged from \$3,923 in 2002 to \$556,857 in 1991 with an average of just under \$160,000 for all years (Table 3).

PRINCE WILLIAM SOUND STATE-WATERS PACIFIC COD FISHERY

The state-waters fishery was created with the adoption of the *Prince William Sound Pacific Cod Management Plan* (5 AAC 28.267) in 1996. In the original management plan, the GHL was calculated as 25% of the EGOA ABC of Pacific cod, the fishery was prosecuted entirely in the PWS Inside District, and it was only open to pot and jig gear, with a closure to pot gear when 60% of the GHL was achieved. In 2000, regulations were modified to allow fishing in the Western Section of the Outside District of PWS. Starting in 2003, the BOF reduced the PWS state-waters Pacific cod percent allocation for the GHL to 10% and provided for the allocation to increase to 15%, and then 25%, following years when the GHL was harvested (Berceli et al. 2008a). Providing for an incremental percentage increase was also consistent with the initial structure of other state-waters Pacific cod fisheries. However, despite the adjustments in the fishery, the GHL was not achieved for the next 6 years. In 2009, new regulations expanded fishing into Eastern Section waters located west of Hook Point (146° 15.12 W longitude) and added longline as a legal gear in the PWS state-waters Pacific cod fishery. The addition of longline as a legal gear type resulted in the achievement of the GHL for the next 4 years (2009–2012) with resultant increases in percent allocation for the GHL to the 25% maximum. In 2011, the BOF adopted harvest caps for longline and pot gear at 85% and 90% of the GHL respectively.

Current elements of the PWS state-waters Pacific cod fishery include:

- PWS is an exclusive registration area for Pacific cod.
- GHL is calculated as 25% of the ABC of Pacific cod for the federal EGOA.
- Legal gear is 60 pots (buoy tag requirement), 5 jigging machines, or longline.
- The season opens to longline gear 7 days following the closure of the parallel longline season or concurrent with the individual fishing quota (IFQ) halibut season opening date whichever occurs later, and closes when 85% of the GHL is achieved, a parallel season for longline gear is opened, or on December 31, whichever occurs first.
- The season opens to pot gear 24 hours following the closure of the parallel season for pot gear, and closes when 90% of the GHL is achieved, a parallel season for pot gear is opened, or on December 31, whichever occurs first.
- The season opens to jig gear (mechanical or hand troll) 24 hours following the closure of the parallel season for jig gear, and closes when the GHL is achieved, a parallel season for jig gear is opened, or on December 31, whichever occurs first.
- Pacific cod may be taken in the waters of the PWS Area, except those waters of the Outside District east of 146° 15.12' W longitude (Figure 2).
- Any GHL remaining on October 1 may become available to all legal gear types.
- After October 30, ADF&G may relax gear limits and registration requirements to promote full utilization of the state-waters GHL (5 AAC 28.267 (g)).
- Rockfish bycatch is limited to 5%.

Total harvest for the PWS state-waters fishery has ranged from 0 to 418,994 lb between 1996 and 2008 (Table 4; Figure 3), with effort ranging from 0 to 12 vessels. The highest GHLs between 2000 and 2003 coincided with a period of steady decline in harvest that continued with small catches through 2006; most of the data are confidential due to low participation. The disparity between harvest and GHL was the result of a decline in Pacific cod fishing effort and an increase in Pacific cod ABC in the EGOA.

Although the pot limit and exclusive area registration requirements were relaxed on October 31 each year, as stipulated in the management plan, these changes had no apparent effect on the fishery. Pot gear harvested up to 45% of the GHL in the early years, peaking at 385,817 lb in 1998, and declining to 0 in 2001. Jig harvest peaked in 1999 at 79,147 lb before declining to 0 in 2002. In 2007, total harvest increased to 345,684 lb, or 38% of the GHL, before again declining to 1% in 2008 (Table 5). In 2009, longline became a legal gear type and the GHL was achieved in 13 days, exclusively by this gear type, marking the first time the GHL was achieved since the fishery began. With the attainment of the GHL, the allocation from the EGOA ABC increased to 15% in 2010 and then to its maximum of 25% in 2011 where it currently remains. Short seasons and a fully utilized GHL continued through 2011, when harvest peaked at 1,594,590 lb. Beginning in 2012, longline gear was constrained to a maximum of 85% of the GHL.

Value for the PWS state-waters Pacific cod fishery has ranged from \$0 to \$637,836 during the years 1997–2012 with the highest value occurring in 2011 (Table 3).

2012 SEASON SUMMARY

The 2012 PWS parallel Pacific cod seasons were the first prosecuted after implementation of federal gear sector splits. The initial parallel season opened to all legal gear types January 1. The initial parallel season closures were February 10 for pot gear, March 4 for longline vessels, and March 6 for jig gear (Table 1). The parallel “B” season opened to jig gear on June 10 and closed on June 29. The parallel “B” season opened to pot and longline gear on September 1 and closed to pot gear on October 12, while remaining open to longline gear through December 31. An additional parallel season opened to pot gear on October 29 until December 31. Total harvest for the 2012 parallel seasons and harvest as bycatch to other directed fisheries was 422,507 lb from 82 landings by 32 vessels. The majority was caught by vessels fishing longline gear (Table 2; Figure 3). The 2012 PWS parallel fishery value was \$160,598, well above the recent 10-year average value of just under \$50,000 (Table 3).

The 2012 PWS state-waters seasons were also the first prosecuted with staggered opening dates in response to federal gear sector splits. The state-waters season for jig gear opened on March 7 and closed June 10 when the parallel “B” season opened, then reopened on June 29 and remained open through December 31. The state-waters season for pot gear opened February 11 and closed March 26 when 90% of the GHL was achieved, as specified in the management plan. The state-waters season for longline gear opened on March 17 and closed March 23 when 85% of the GHL was achieved. The GHL was set at 1,448,437 lb and vessels fishing with longline gear harvested 1,395,483 lb or 96%. Jig harvest remains confidential due to small number of participants and there was 0 pot harvest. Total effort in the fishery was 70 landings by 38 vessels. Fishery value in 2012 was \$530,284 (Table 3), the second highest since the fishery began.

2013 SEASON OUTLOOK

The 2013 parallel Pacific cod season is currently in progress. The initial parallel season opened to all legal gear types January 1. The initial parallel season closed to pot gear February 10 and to longline gear March 21. The initial parallel season did not close to jig gear and rolled into the parallel “B” season June 10. Total preliminary harvest through June 30 for the 2013 parallel season, which also includes bycatch to other directed fisheries, is 687,826 lb from 61 landings by 25 vessels predominantly fishing longline gear (Table 2; Figure 3). The 2013 harvest is already the highest total harvest since 2000 and the highest by longline gear since 1993.

The 2013 PWS state-waters fishery is currently in progress. The GHL is 1,781,335 lb and the season opened to pot gear February 11 and to longline gear March 28 (Table 1). The state-waters season has not opened to jig gear since the parallel season has remained open continuously since January 1. Total preliminary harvest through June 30 for the 2013 state-waters season is 1,270,855 lb from 75 landings by 26 vessels, all fishing with longline gear (Table 4). The total harvest of Pacific cod from both parallel and state-waters fisheries is 1,958,681 lb thus far in 2013, the largest overall harvest since 1992.

HARVEST MONITORING

Dockside sampling of Pacific cod and fishermen interviews were conducted during the PWS state-waters season. Information collected by dockside samplers included fishing location and effort, as well as fish length, weight, sex, maturity stage, and they also collected age structures for future analysis.

In 2012, 500 Pacific cod were sampled in the PWS fisheries, a majority from the Cape Puget area. Pacific cod from PWS averaged 64 cm in fork length, which was similar in size to fish sampled from the North Gulf District (NGD) of the CI Area (Figure 4). Pacific cod sampled in 2008 from PWS had an average length of 70 cm and have shown a steady decrease in size through 2012, which is also very similar to data from the NGD of CI. Length frequency data from the most recent 4 years, 2008 through 2012 are depicted in Figure 5. Otoliths were collected from 20% of samples. Pacific cod age determination can be problematic and age accuracy has been unresolved in past years (Carlile 2005). Because Pacific cod in the GOA are managed by NMFS using a length, rather than age-structured model, otolith sampling was reduced and those collected are being archived. However, recent indications of greater site fidelity in Pacific cod than previously assumed suggests further analysis and more focused assessment of state-waters Pacific cod may be warranted.

Other information on Pacific cod age, sex, size, and distribution is also collected during the trawl surveys in Prince William Sound; survey results are available in other reports (Bechtol 2001).

COOK INLET AREA

REGULATION OVERVIEW

The Cook Inlet Management Area, Registration Area H, consists of all waters of Alaska enclosed by a line extending east from Cape Douglas (58° 51.10' N latitude) and a line extending south from Cape Fairfield (148° 50.25' W longitude; Figure 6). The CI Area is divided further into the CI and North Gulf districts. The CI District includes all waters of Alaska in the CI Area north of a line from Cape Douglas to Point Adam (59° 15.27' N latitude). The NGD includes all waters of Alaska in the CI Area north of Cape Douglas and west of the longitude of Cape Fairfield, excluding the CI District.

Legal gear types for groundfish fishing in the CI Area are longline, pelagic trawl, hand troll, mechanical jig, and pots. In most area fisheries, if more than 1 gear type is legal, only 1 gear type may be aboard at a time.

Similar to PWS, ADF&G has adopted fishing closures to complement NMFS actions to protect SSLs. Fishing with longline or pot gear within 10 nmi of Sugarloaf Island (within the Barren Islands group) and Outer Pye Island has been closed annually since 2001 via EO (Figure 7).

Area regulations specify localized closures to groundfish pots in portions of Kachemak and Kamishak bays to protect depressed red king and Tanner crab populations (Bechtol et al. 2002) (Figures 8 and 9). Limited onboard observer data from vessels using pot gear in Kachemak Bay suggest this closure area achieves the goal of protecting crab in critical habitat.

Pot gear may be stored in the water following a closure of a parallel season as specified in 5 AAC 28.332 with all bait and bait containers removed and all doors secured fully open if pots are rectangular, or doors not secured closed if pots are conical or pyramid. All groundfish pots must be removed from the water no later than 5 days after the closure of a season.

COOK INLET PARALLEL PACIFIC COD FISHERY

Early parallel seasons lasted from January 1 to approximately mid-March, and more recently, have ranged from 1 to 2 months in duration (Table 6). This coincided with the initial or “A” federal season. During 1997–1999, NMFS reopened Pacific cod for a second directed fishing

period in September or October (Trowbridge et al. 2008). These were short openings ranging from 4 days to 5 weeks in duration and ADF&G opened parallel seasons to coincide. In 2006, ADF&G opened a second parallel season on October 2 that overlapped with the second or “B” federal season. Beginning in 2007, ADF&G opened a parallel season on September 1 concurrent with the federal “B” season. In both 2006 and 2007, these seasons remained open through December 31. In recent years, seasons have lasted approximately 1 month, and in 2011 there was a short additional period opened in the parallel fishery at the end of the year to coincide with a federal opening to harvest the remaining available TAC. In 2012, federal gear sector splits went into effect, which resulted in additional federal Pacific cod seasons by gear type. This resulted in staggered parallel seasons for jig, pot, and longline (<50 ft and ≥50 ft vessels) gear.

Since 1988, annual catch and effort in the CI parallel Pacific cod fishery ranged from 36,846 lb from 21 landings by 9 vessels in 1989 to 5,441,421 lb from 868 landings by 190 vessels in 1992 (Table 7; Figure 10). Peak harvests occurred during 1991–2000; averaging 3.3 million lb with longline gear. During this period, longline gear accounted for 60% and pot gear averaged 34% of the total harvest. After 2000, parallel season harvests declined to less than 1.0 million lb annually, primarily due to a shift to the Kodiak Area by the local longline fleet. Pot gear took the largest percentage of the harvest between 2003 and 2006, the longline fleet took the majority of the harvest between 2007 and 2009, and then there was a shift back to pot gear in 2010 and 2011. In 2012, coinciding with the implementation of federal gear sector splits, an increase in parallel season harvest took place by both pot and longline gear with highest harvests for both gear types since 1999.

Fishery value for the CI Pacific cod parallel fishery has ranged from \$2,579 to \$1,251,527 during 1988–2012, with an average value of \$476,412 for those years (Table 8). The fishery value has only exceeded \$1 million in 4 of those years.

COOK INLET STATE-WATERS PACIFIC COD FISHERY

Since adoption in 1997, the state-waters Pacific cod season has been modified numerous times. The plan originally specified a state-waters season that began 7 days following closure of the parallel season and the state-waters season closing each time the federal CGOA directed Pacific cod season reopened, with concurrent parallel season opening. In addition, a pot closure between April 7 and June 15 was implemented, addressing industry concern for reduced quality of post-spawn product. Each of these original plan elements has been amended.

In 2000, the 7 day closure between the parallel and state-waters seasons, meant to ensure separation of the fisheries and facilitate accurate seasonal catch accounting, was reduced to 24 hours. The plan was further modified to enable the state-waters season to remain open despite subsequent federal CGOA openings, which would have normally resulted in a parallel season. The pot closure was retained, not due to quality concerns, but due to user interest in ensuring a fall season Pacific cod fishing opportunity while providing an additional 3 weeks of pot fishing time. This fishing period was reduced in duration from May 1 to June 15 in 1999. At the 2011 Pacific cod meeting, the pot closure period was removed from regulation by the BOF and implemented in the 2012 season.

Because the GHF was achieved in 2003, and staying consistent with the management plan, beginning in 2004, the state-waters Pacific cod allocation increased from 2.25% to 3% of the federal CGOA ABC. During its 2004 meeting cycle, the BOF adopted several changes to state-waters Pacific cod regulations that became effective during 2005. These changes included

increasing the percent calculation for the GHL from 3.00% to 3.75%, setting a harvest cap of 25% of the GHL for vessels greater than 58 ft in length, and new gear allocations that changed from 50% for each gear type to 75% for pot and 25% for jig gear. At the 2011 Pacific cod meeting, the BOF adopted new gear allocations of 85% for pot and 15% for jig gear with a step-up provision of 5% for jig gear for the following year when 90% of the jig allocation is reached in any calendar year, up to a maximum of 25%.

Current elements of the Cook Inlet state-waters season include:

- Season for pot and jig gear opens by EO 24 hours following closure of the initial federal season for each corresponding gear sector in the CGOA area by NMFS.
- Exclusive area registration: stipulates a vessel may not validly register for more than 1 exclusive Pacific cod registration area during a state-waters season.
- GHL calculated as 3.75% of the CGOA ABC.
- Legal gear is 60 pots (buoy tag requirement) or 5 jigging machines.
- Allocated 85% to pot gear prior to October 1 and 15% to jig gear, with a 5% step-up provision for jig gear if 90% of jig allocation is achieved, up to a maximum of 25%.
- A 25% cap on vessels longer than 58 ft and fishing pot gear.
- If the jig allocation is not achieved before September 1, the balance of the allocation becomes available to pot gear.
- Gear limits and the exclusive area registration requirement may be relaxed after October 30 if ADF&G judges the action necessary to achieve the GHL.

State-waters season Pacific cod harvests have ranged from 730,469 lb from 306 landings by 42 vessels in 1998 to just over 4.4 million lb from 359 landings by 40 vessels in 2011 (Table 9; Figure 10). A significant GHL increase beginning in 2010 prompted the largest state-waters season harvests since the fishery began, with the GHL reaching over 4 million lb and peaking at 4.7 million lb in 2012.

Pot gear has remained the dominant gear in the fishery. Harvest from jig gear has gone up and down but never achieved its allocation. Jig gear harvested 67% of the 1997 season harvest total; this high percentage was because of the timing of regulation implementation. Jig harvest fell to 26% of the 1998 harvest and averaged less than 2% of the harvest between 2000 and 2002. Jig harvest rebounded to 30% in 2003 before dropping again to below 1% between 2006 and 2008, rebounding to 11% in 2011 before decreasing again in 2012.

The CI state-waters Pacific cod GHL has only been fully achieved in 2003 (Table 10) although it was nearly achieved in 2011 and may have been fully achieved if not for a late season parallel fishery opening. However, the pot allocation has been achieved in all years between 2002 and 2012, except 2006 and 2007 when catch rates were low despite relatively high estimates of Pacific cod abundance.

Vessels fishing with pots or jig have had success in the late winter through late spring, but the most effective period for jig gear has been the March to May period. Although ADF&G has only limited data on spring Pacific cod distributions in the CI Area (Bechtol 2001), studies from other areas suggest that cod aggregate in major spawning areas during January through March, then

migrate to shallower, nearshore waters as part of a spring post spawning migration (Shimada and Kimura 1994).

Value for the CI Pacific cod state-waters fishery has ranged from \$175,313 to just over \$1.7 million during the period 1997–2012, with an average value of \$753,500 for those years (Table 8). The highest values have occurred during the most recent 2 years.

2012 SEASON SUMMARY

The 2012 CI parallel Pacific cod seasons were the first fisheries prosecuted after federal gear sector split implementation. The new regulations adopted by the BOF aided management by coordinating parallel seasons by gear type with federal seasons in the CGOA. The parallel seasons for jig, pot, and longline vessels opened January 1 and closures were staggered (Table 6). Initial parallel season closures were February 10 for pot gear, March 4 for longline vessels less than 50 ft, March 6 for jig gear, and March 20 for longline vessels greater than or equal to 50 ft. The parallel season for jig gear reopened on June 10 and closed on June 29. The parallel season for pot gear reopened September 1, closed October 12, then reopened on October 29 until December 31. The parallel season for longline gear reopened on September 1 and stayed open through December 31. Total harvest for the 2012 parallel season, which also includes bycatch to other directed fisheries, was 1,975,434 lb from 216 landings by 51 vessels, with the catch split 52% to 48% between vessels fishing longline and pot gear, respectively (Table 7; Figure 10). The 2012 harvest was the highest since 1999. The 2012 CI Pacific cod parallel fishery value was \$770,419; the highest since 1999 (Table 8).

The 2012 Cook Inlet state-waters fishing seasons were also the first prosecuted with staggered opening dates in response to federal gear sector splits and also had different parallel season closure dates (Table 6). The state-waters season for jig gear opened on March 7 and closed June 10 to allow for parallel season opening. It was then reopened on June 29 and remained open through December 31. The state-waters season for pot gear opened on February 11 and closed to vessels greater than 58 ft on March 2 and closed to vessels less than or equal to 58 ft on October 29 after achieving the large vessel cap and the pot gear allocation, respectively. The GHV was 4,707,420 lb; the highest since the fishery began with 85% allocated to pot gear and 15% to jig gear (Table 9). Harvest totaled 4,236,395 lb and pot gear landed 4,043,548 lb, which 95% of the total. Following the fall parallel season closure for pot gear, the remaining jig allocation became available to both gear types without vessel size restrictions. The state-waters season reopened to pot gear October 12 and then closed October 29 to allow for the third parallel opening for pot gear. Total value of the 2012 harvest was estimated at \$1,652,194; the second highest since the fishery began (Table 8).

2013 SEASON OUTLOOK

The 2013 CI Pacific cod season is in progress. The initial parallel seasons for jig, pot, and longline vessels opened January 1. The parallel jig season is ongoing and because the federal “A” season rolled into the federal “B” season (June 10) in 2013, there has not been a parallel jig closure to date (Table 6). The parallel pot season closed February 10 and the season closed to all longline vessels on March 21. The parallel seasons for pot and longline gear are expected to reopen September 1. Total preliminary harvest through June 30 for the 2013 parallel season, which also includes bycatch to other directed fisheries, is 1,243,533 lb from 156 landings by 46 vessels (Table 7; Figure 10). This is nearly double the recent 10-year average harvest of

642,136 lb. Of the total parallel harvest, longline vessels took 81%, pot vessels 19%, and jig vessels 0.4%.

The 2013 CI Area state-waters season for pot gear opened February 11. The season closed to pot vessels larger than 58 ft March 11 and the season currently remains open to pot vessels less than or equal to 58 ft. The state-waters season for jig gear is closed and has not opened to date since the parallel season remained open since January 1. The jig gear sector did not achieve the “A” season TAC in the CGOA.

The GHL is 4,074,804 million lb, with 85% allocated to pot gear and 15% to jig gear. Total preliminary harvest through June 30 for the 2013 state-waters season is 2,754,265 lb or 68% of the total GHL. All the GHL has been taken by vessels fishing pot gear (Table 10; Figure 10). The remaining jig allocation will become available to both pot and jig gear September 1, although this action will take effect following closure of the second parallel season and subsequent reopening of the state-waters season to pot gear. It is unlikely that the state-waters season will open to jig gear in 2013, as the federal jig season in CGOA may remain open until December 31, although NMFS may reallocate to other gear sectors.

HARVEST MONITORING

Dockside sampling of Pacific cod and fishermen interviews were conducted during the CI parallel and state-waters seasons. Information collected by dockside samplers included fishing location and effort, as well as fish length, weight, sex, maturity stage and age structures for future analysis.

In 2012, 2,824 Pacific cod were sampled in the CI Area, 1,969 from the CI District (CID) and 855 from the NGD. Historically, fish sampled from the NGD have had a higher average length than those in the CID, and that trend continued in 2012, although to a lesser degree. Cook Inlet District fish averaged 63 cm in fork length, while fish from the North Gulf District averaged 64 cm (Figure 4). Pacific cod from CID had an average length of 61 cm in 2008, showing a slight increase in size to 2012 (Figure 11). However, Pacific cod sampled in 2008 from NGD had an average length of 70 cm and have shown a steady decrease in size through 2012, which is very similar to data from PWS (Figure 12). Otoliths were collected from 20% of fish sampled and similar to PWS and are being archived at this time.

Other information on Pacific cod age, sex, size, and distribution is also collected during the trawl surveys in Kachemak and Kamishak bays; survey results are available in other reports (Bechtol 2001).

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TABLES AND FIGURES

Table 1.–Prince William Sound Pacific cod parallel and state waters season dates, 1997–2012, with available data for 2013.

Year	Dates and Times ^a	Season and Gear
1997 ^b	1/1/97–3/11/97; 10/2/97–10/26/97	Parallel season, all gear
	4/4/97 ^a –10/2/97; 10/26/97–12/31/97	State season, jig and pot gear
1998 ^b	1/1/98–3/10/98; 10/5/98–10/9/98	Parallel season, all gear
	3/17/98–10/5/98; 10/9/98–12/31/98	State season, jig and pot gear
1999 ^b	1/1/99–3/14/99; 9/1/99–10/5/99	Parallel season, all gear
	3/21/99–9/1/99; 10/5/99–12/31/99	State season, jig and pot gear
2000 ^{bc}	1/1/00–3/4/00	Parallel season, all gear
	3/11/00–12/31/00 (PWS Inside District)	State season, jig and pot gear
	7/5/00–12/31/00, PWS Outside District, Western Section ^c	State season, jig and pot gear
2001 ^b	1/1/01–2/26/01	Parallel season, longline only
	1/1/01–3/4/01	Parallel season, all remaining gear
	3/11/01–12/31/01	State season, jig and pot gear
2002 ^b	1/1/02–3/9/02	Parallel season, all gear
	3/16/02–12/31/02	State season, jig and pot gear
2003 ^b	1/1/03–2/9/03; bycatch until 9/9 then closed to retention	Parallel season, all gear
	2/16/03–12/31/03	State season, jig and pot gear
2004 ^b	1/1/04–1/31/04	Parallel season, all gear
	2/07/04–12/31/04	State season, jig and pot gear
2005 ^b	1/1/05–1/26/05	Parallel season, all gear
	2/02/05–12/31/05	State season, jig and pot gear
2006 ^b	1/1/06–2/28/06	Parallel season, all gear
	3/7/06–12/31/06	State season, jig and pot gear
2007	1/1/07–2/27/07; 9/1/07–12/31/07	Parallel season, all gear
	3/6/07–9/1/07	State season, jig and pot gear
2008 ^b	1/1/09–2/20/08; 9/1/08–10/3/08	Parallel season, all gear
	2/27/08–9/1/08; 10/4/08–12/31/08	State season, jig and pot gear
2009 ^d	1/1/09–1/27/09; 9/1/09–10/1/09	Parallel season, all gear
	2/3/09–3/27/09	State season, jig and pot gear
	12:01 AM 3/14/09–3/27/09 ^d	State season, longline ^d

-continued-

Table 1.–Page 2 of 2.

Year	Dates and Times ^a	Season and Gear
2010	1/1/10–1/31/10; 9/1/10–9/13/10	Parallel season, all gear
	2/7/10–2/23/10	State season, jig, pot, and longline
2011	1/1/11–1/29/11; 9/1/11–10/9/11; 12/27–12/31	Parallel season, all gear
	2/5/11–2/23/11	State season, jig, pot, and longline
2012 ^e	1/1/12–3/6/12; 6/10/12–6/29/12	Parallel season, jig gear
	1/1/12–2/10/12; 9/1/12–10/12/12; 10/29/12–12/31/12	Parallel season, pot gear
	1/1/12–3/4/12; 9/1/12–12/31/12	Parallel season, longline gear
	3/7/12–6/10/12; 6/29/12–12/31/12 ^b	State season, jig gear
	2/11/12–3/26/12	State season, pot gear
	3/17/12–8:00 PM 3/23/12	State season, longline gear
2013	1/1/13–(<i>currently open</i>)	Parallel season, jig gear
	1/1/13–2/10/13; <i>expected to reopen September 1</i>	Parallel season, pot gear
	1/1/13–3/21/13; <i>expected to reopen September 1</i>	Parallel season, longline gear
	Closed (<i>no open season to date in 2013</i>)	State season, jig gear
	2/11/13–(<i>currently open</i>)	State season, pot gear
	3/28/13–(<i>currently open</i>)	State season, longline gear

^a Opening and closure times occurred at noon unless otherwise noted; except that openings on January 1 occurred at 12:01 am and closures on December 31 occurred at midnight.

^b Gear and area registration requirements relaxed on October 31.

^c New regulations became effective allowing fishing in PWS Western Section of Outside District.

^d New regulations became effective allowing longline as a legal gear for state waters season; fishing allowed in Eastern District to west of Hook Point.

^e Implementation of separate parallel seasons by gear type in response to federal gear sector splits.

Table 2.—Annual effort and harvest by gear type of Pacific cod from the Prince William Sound parallel fisheries, 1988–2012, and preliminary 2013 data.

Year	Vessels	Landings	Harvest (lb) ^a				Total
			Other ^b	Longline	Pot	Jig ^c	
1988	39	87		330,718			330,718
1989	23	45	d	71,845		d	73,600
1990	84	307	d	1,203,118	d	d	1,219,979
1991	88	234	17,074	1,248,217	961,912	d	2,227,204 ^e
1992	140	524	d	1,359,176	594,741	d	1,972,969
1993	57	205	d	810,831	466,202	d	1,304,977
1994	46	197		316,550	1,584,722	d	1,901,272 ^e
1995	75	205	24,539	359,765	1,204,451	6,982	1,595,736
1996	50	135	218,170	214,021	420,183	1,663	854,037
1997	60	172	1,506	334,086	582,325	4,333	922,249
1998	50	150	5,879	534,553	138,243		678,675
1999	54	196	1,909	687,169	641,523	d	1,330,601 ^e
2000	58	175	d	403,230	332,310		735,540 ^e
2001	23	63	d	143,641	d		170,445
2002	22	51	d	17,700			17,700 ^e
2003	26	45	234	14,051		d	14,285 ^e
2004	17	45	d	13,247			13,247 ^e
2005	24	38	221	11,073			11,294
2006	30	59	587	18,407			18,988
2007	31	82	d	64,807	d	d	80,417
2008	35	78		66,563			66,563
2009	41	90	d	166,190			166,190 ^e
2010	40	93	326	88,700			89,026
2011	39	93	345	359,402	720		360,468
2012	32	82	1,963	420,544	d		422,507 ^e
2013 ^f	25	61	182	687,644	d	d	687,826

^a Harvest is reported in round pounds.

^b “Other” includes trawl and gillnet gear.

^c Includes mechanical jig and hand troll.

^d Confidential data due to limited number of participants.

^e Total harvest does not include confidential data.

^f Preliminary data through June 30, 2013.

Table 3.—Annual harvest and value for the Prince William Sound Area Pacific cod parallel and state-waters seasons, 1988–2012 and preliminary 2013 data.

Year	Price per lb	Parallel Season Harvest (lb) ^{ab}	Parallel Season Value	State-waters Season Harvest (lb) ^a	State-waters Season Value	Total Combined Pacific cod Fishery Value
1988	\$0.21	330,718	\$69,451			\$69,451
1989	\$0.19	73,600	\$13,984			\$13,984
1990	\$0.20	1,219,979	\$243,996			\$243,996
1991	\$0.25	2,227,428	\$556,857			\$556,857
1992	\$0.13	1,972,969	\$256,486			\$256,486
1993	\$0.18	1,304,977	\$234,896			\$234,896
1994	\$0.19	1,902,336	\$361,444			\$361,444
1995	\$0.24	1,595,736	\$382,977			\$382,977
1996	\$0.22	854,037	\$187,888			\$187,888
1997 ^c	\$0.26	922,249	\$239,785	200,520	\$52,135	\$291,920
1998	\$0.24	678,675	\$162,882	418,994	\$100,559	\$263,441
1999	\$0.34	1,330,710	\$452,441	394,134	\$134,006	\$586,447
2000	\$0.38	735,963	\$279,666	291,142	\$110,634	\$390,300
2001	\$0.35	170,445	\$59,656	228	\$80	\$59,736
2002	\$0.22	17,831	\$3,923	0	\$0	\$3,923
2003	\$0.33	14,292	\$4,716	^d	^d	^d
2004	\$0.46	13,604	\$6,258	^d	^d	^d
2005	\$0.44	11,204	\$4,930	^d	^d	^d
2006	\$0.42	18,994	\$7,977	^d	^d	^d
2007	\$0.48	80,417	\$38,600	345,684	\$165,928	\$204,528
2008	\$0.60	66,563	\$39,938	7,557	\$4,534	\$44,472
2009	\$0.35	166,401	\$58,240	704,866	\$246,703	\$304,943
2010	\$0.28	89,026	\$24,927	825,226	\$231,063	\$255,991
2011	\$0.40	360,468	\$144,187	1,594,590	\$637,836	\$782,023
2012	\$0.38	422,625	\$160,598	1,395,483	\$530,284	\$690,881
2013 ^e	\$0.28	687,826	\$192,591	1,270,855	\$355,839	\$548,430

^a Harvest is reported in round pounds.

^b Includes Pacific cod bycatch to other directed groundfish and halibut fisheries in state waters.

^c State-waters season implemented in 1997.

^d Confidential data due to limited number of participants.

^e Preliminary data through June 30, 2013.

Table 4.—Annual effort, guideline harvest level (GHL), and harvest by gear type of Pacific cod from the Prince William Sound state-waters season, 1997–2012, and preliminary 2013 data.

Year	Vessels	Landings	GHL	Harvest (lb) ^a			Total
				Longline	Pot	Jig ^b	
1997	9	36	880,000		192,142	8,378	200,520
1998	9	33	860,000		385,817	33,177	418,994
1999	7	27	930,000		314,987	79,147	394,134
2000	12	36	2,950,000		268,765	22,377	291,142
2001	3	3	2,620,000		0	228	228
2002	0	0	1,900,000		0	0	0
2003	^c	4	750,000		^c	0	^c
2004	^c	6	970,000		^c	0	^c
2005	^c	3	897,000		^c	0	^c
2006	^c	7	911,000		^c	^c	^c
2007	3	20	911,000		^c	^c	345,684
2008	4	6	586,000		^c	^c	7,557
2009 ^d	19	37	487,746	704,866	0	0	704,866
2010	24	45	784,735	822,747	^c	^c	825,226
2011 ^e	25	63	1,435,195	1,594,590	0	0	1,594,590
2012 ^f	38	70	1,448,437	1,395,483	0	^c	1,395,483 ^g
2013 ^h	26	75	1,781,335	1,270,855	0	0	1,270,855

^a Harvest is reported in round pounds.

^b Includes mechanical jig and hand troll.

^c Confidential data due to limited number of participants.

^d Longline became an allowable gear type for the Prince William Sound state-waters season.

^e Achieved maximum GHL allocation of 25% of Eastern Gulf of Alaska acceptable biological catch.

^f Regulatory change implemented to close season to longline gear when 85% of GHL attained.

^g Total harvest does not include confidential data.

^h Preliminary data through June 30, 2013; state-waters season has not opened to jig gear in 2013.

Table 5.—Annual guideline harvest level (GHL), harvest by gear type, and percent of GHL harvested by gear type of Pacific cod from the Prince William Sound state-waters season, 1997–2012, and preliminary 2013 data.

Year	GHL	Harvest (lb) ^a							
		Total	Total % GHL	Longline	Longline % GHL	Pot	Pot % GHL	Jig ^b	Jig % GHL
1997	880,000	200,520	23%			192,142	22%	8,378	1%
1998	860,000	418,994	49%			385,817	45%	33,177	4%
1999	930,000	394,134	42%			314,987	34%	79,147	9%
2000	2,950,000	291,142	10%			268,765	9%	22,377	1%
2001	2,620,000	228	<1%			0	0%	228	<1%
2002	1,900,000	0	0%			0	0%	0	0%
2003	750,000	c	c			c	c	0	0%
2004	970,000	c	c			c	c	0	0%
2005	897,000	c	c			c	c	0	0%
2006	911,000	c	c			c	c	c	c
2007	911,000	345,684	38%			c	c	c	c
2008	586,000	7,557	1%			0	0%	7,557	1%
2009 ^d	487,746	704,866	145%	704,866	145%	0	0%	0	0%
2010	784,735	825,226	105%	822,747	105%	c	c	c	c
2011	1,435,195	1,594,590	111%	1,594,590	111%	0	0%	0	0%
2012 ^e	1,448,437	c	c	1,395,483	96%	0	0%	c	c
2013 ^f	1,781,335	c	c	1,270,855	71%	c	c	0	0%

^a Harvest is reported in round pounds.

^b Includes mechanical jig and hand troll.

^c Confidential data due to limited number of participants.

^d Longline became an allowable gear type for the Prince William Sound state-waters season.

^e Regulation adopted to close longline when 85% of GHL achieved.

^f Preliminary data through June 30, 2013.

Table 6.–Cook Inlet Area Pacific cod parallel and state-waters season dates, 1997–2012, with available data for 2013.

Year	Dates and Times ^a	Season and Gear
1997 ^b	1/1/97–3/11/97; 10/2/97–10/26/97	Parallel season, all gear
	4/4/97–10/2/97; 10/26/97–12/31/97	State season jig
	4/4/97–4/7/97; 6/15/97–10/2/97; 10/26/97–12/31/97	State season pot
1998 ^b	1/1/98–3/1/98; 10/5/98–10/9/98	Parallel season, all gear
	3/17–10/5/98; 10/9/98–12/31/98	State season jig
	3/17/98–4/7/98; 6/15/98–10/5/98; 10/9/98–12/31/98	State season pot
1999 ^b	1/1/99–3/14/99; 9/1/99–10/5/99	Parallel season, all gear
	3/21/99–9/1/99; 10/5/99–12/31/99	State season jig
	3/21/99–5/1/99; 6/15/99–9/1/99; 10/5/99–12/31/99	State season pot
2000 ^b	1/1/00–3/4/00	Parallel season, all gear
	3/5/00–12/31/00	State season jig
	3/5/00–5/1/00; 6/15/00–12/31/00	State season pot
2001 ^b	1/1/01–2/26/01	Parallel season, longline gear
	1/1/01–3/4/01	Parallel season, pot/jig gears
	3/5/01–12/31/01	State season jig
	3/5/01–5/1/01; 6/15/01–12/31/01	State season pot
2002 ^b	1/1/02–3/9/02	Parallel season, all gear
	3/10/02–12/31/02	State season jig
	3/10/02–5/1/02; 6/15/02–8/5/02; 9/1/02–12/31/02	State season pot
2003 ^b	1/1/03–2/9/03; bycatch until 9/9 then closed to retention	Parallel season, all gear
	2/10/03–5:00 PM 12/8/03	State season jig
	2/10/03–5:00 PM 2/27/03; 9/1/03–5:00 PM 12/8/03	State season pot
2004 ^b	1/1/04–1/31/04	Parallel season, all gear
	2/1/04–12/31/04	State season jig
	2/1/04– 5:00 PM 2/23/04; 9/1/04–12/31/04	State season pot
2005 ^{bcd}	1/1/05–1/26/05	Parallel season, all gear
	1/27/05–12/31/05	State season jig
	1/27/05–3/16/05 ^d ; 3/16/05 ^d –3 PM 3/26/05 ; 9/1/05–12/31/05	State season pot vessels <58
	1/27/05–3/16/05 ^d ; 3/16/05 ^d –3 PM 3/26/05 ; 9/1/05–12/31/05	State season pot vessels >58
2006	1/1/06–2/28/06; 10/2/06–12/31/06	Parallel season, all gear
	3/1/06–10/2/06	State season jig
	3/1/06–5/1/06; 6/15/06–10/2/06	State season pot vessels <58
	3/1/06–5/1/06; 6/15/06–10/2/06	State season pot vessels >58

-continued-

Table 6.–Page 2 of 2.

Year	Dates and Times ^a	Season and Gear
2007	1/1/07–2/27/07; 9/1/07–12/31/07	Parallel season, all gear
	2/28/07–12/31/07	State season jig
	2/28/07–5/1/07; 6/15/07–9/1/07	State season pot vessels ≤58'
	2/28/07–5/1/07; 6/15/07–9/1/07	State season pot vessels >58'
2008 ^b	1/1/08–2/20/08; 9/1/08–10/3/08	Parallel season, all gear
	2/21/08–9/1/08; 10/4/08–12/31/08	State season jig
	2/21/08–5/1/08; 6/15/08–9/1/08; 10/4/08–12/31/08	State season pot vessels ≤58'
	2/21/08–10 AM 4/1/08; 10/4/08–12/31/08	State season pot vessels >58'
2009 ^b	1/1/09–1/27/09; 9/1/09–10/1/09	Parallel season, all gear
	1/28/09–9/1/09; 10/1/09–12/31/09	State season jig
	1/28/09–3/18/09; 10/1/09–12/31/09	State season pot vessels ≤58'
	1/28/09–6:00 AM 3/18/09; 10/1/09–12/31/09	State season pot vessels >58'
2010 ^b	1/1/10–1/31/10; 9/1/10–9/13/10	Parallel season, all gear
	2/1/10–9/1/10; 9/13/10–12/31/10	State season jig
	2/1/10–4 PM 3/28/10; 9/13/10–12/31/10	State season pot (all vessels)
2011 ^b	1/1/11–1/29/11; 9/1/11–10/9/11; 12/27–12/31	Parallel season, all gear
	1/30/11–9/1/11; 10/9/11–12/27/11	State season jig
	1/30/11–3/19/11; 10/9/11–12/27/11	State season pot vessels ≤58'
	1/30/11–3/13/11; 10/9/11–12/27/11	State season pot vessels >58'
2012 ^e	1/1/12–3/6/12; 6/10/12–6/29/12	Parallel season, jig gear
	1/1/12–2/10/12; 9/1/12–10/12/12; 10/29/12–12/31/12	Parallel season, pot gear
	1/1/12–3/4/12; 9/1/12–12/31/12	Parallel season longline vessels <50'
	1/1/12–3/20/12; 9/1/12–12/31/12	Parallel season longline vessels ≥50'
	3/7/12–6/10/12; 6/29/12–12/31/12 ^b	State season jig
	2/11/12–3/29/12; 10/12/12–10/29/12	State season pot vessels ≤58'
2013	2/11/12–3/2/12; 10/12/12–10/29/12	State season pot vessels >58'
	1/1/13–(currently open)	Parallel season, jig gear
	1/1/13–2/10/13; <i>expected to reopen September 1^e</i>	Parallel season, pot gear
	1/1/13–3/21/13; <i>expected to reopen September 1^e</i>	Parallel season longline vessels (all)
	Closed (<i>no open season to date in 2013</i>)	State season jig
	2/11/13–(currently open)	State season pot vessels ≤58'
	2/11/13–5:00 PM 3/11/13	State season pot vessels >58'

^a Opening and closure times occurred at noon unless otherwise noted; except that openings on January 1 occurred at 12:01 am and closures on December 31 occurred at midnight.

^b Gear and area registration requirements relaxed on October 31.

^c New regulations became effective in 2005 limiting vessels >50' to 25% of the guideline harvest level.

^d New regulations became effective 3/16/05 changing the allocation from 3% to 3.75% of the federal acceptable biological catch.

^e Implementation of separate parallel seasons by gear type in response to federal gear sector splits.

Table 7.—Annual effort and harvest by gear type of Pacific cod from the Cook Inlet Area parallel fisheries, 1988–2012, and preliminary 2013 data.

Year	Vessels	Landings	Harvest (lb) ^a				Total
			Other ^b	Longline	Pot	Jig ^c	
1988	59	213	^d	482,365	^d	^d	517,497
1989	9	21		35,978	^d	^d	36,846
1990	52	127	107,505	250,888	20,244	^d	378,637 ^e
1991	122	489	25,819	1,347,759	525,774	17,284	1,916,636
1992	190	868		3,553,709	1,873,717	13,995	5,441,421
1993	109	427	8,454	2,316,492	1,336,799		3,661,744
1994	74	386	^d	1,386,775	1,290,860	5,487	2,685,562
1995	140	669	433,528	2,250,472	1,721,079	3,572	4,408,651
1996	106	567	1,411,726	2,219,948	987,626	25,645	4,644,945
1997	137	576	72,354	2,049,394	1,114,131	37,362	3,273,240
1998	116	519	211,406	1,900,375	529,355	42,453	2,683,589
1999	112	457	8,296	2,171,877	981,674	21,331	3,183,178
2000	101	417		815,742	770,298	^d	1,586,041 ^e
2001	86	243		301,654	314,098		615,752
2002	65	222		582,635	307,937	^d	890,573 ^e
2003	45	142		126,168	294,630		420,798
2004	62	133		27,026	360,637	^d	387,662 ^e
2005	44	118		25,720	167,320	^d	193,040 ^e
2006	51	171		70,507	520,613		591,121
2007	47	202		364,427	328,878		693,305
2008	52	161		267,991	145,473		413,464
2009	57	172		452,796	88,657		541,453
2010	50	124		197,795	228,429	^d	426,223 ^e
2011	49	144		199,613	579,007	237	778,857
2012	51	216		1,018,217	957,217	^d	1,975,434 ^e
2013 ^f	46	156		1,003,263	235,453	4,817	1,243,533

^a Harvest is reported in round pounds.

^b “Other” includes trawl and gillnet gear.

^c Includes mechanical jig and hand troll.

^d Confidential data due to limited number of participants.

^e Total harvest does not include confidential data.

^f Preliminary data through June 30, 2013.

Table 8.—Annual harvest and value for the Cook Inlet Area Pacific cod parallel and state-waters seasons, 1988–2012, and preliminary 2013 data.

Year	Price per lb	Parallel Season Harvest (lb) ^{ab}	Parallel Season Value	State-waters Season Harvest (lb) ^a	State-waters Season Value	Total Combined Pacific cod Fishery Value
1988	\$0.21	517,497	\$108,674			\$108,674
1989	\$0.07	36,846	\$2,579			\$2,579
1990	\$0.13	378,799	\$49,244			\$49,244
1991	\$0.27	1,916,636	\$517,492			\$517,492
1992	\$0.23	5,441,421	\$1,251,527			\$1,251,527
1993	\$0.24	3,661,744	\$878,819			\$878,819
1994	\$0.19	2,685,562	\$510,257			\$510,257
1995	\$0.24	4,408,651	\$1,058,076			\$1,058,076
1996	\$0.24	4,644,945	\$1,114,787			\$1,114,787
1997 ^c	\$0.27	3,273,240	\$883,775	838,913	\$226,507	\$1,110,281
1998	\$0.24	2,683,589	\$644,061	730,469	\$175,313	\$819,374
1999	\$0.37	3,183,178	\$1,177,776	1,517,907	\$561,625	\$1,739,401
2000	\$0.40	1,587,390	\$634,956	1,149,788	\$459,915	\$1,094,871
2001	\$0.39	615,752	\$240,143	895,351	\$349,187	\$589,330
2002	\$0.33	891,970	\$294,350	1,328,847	\$438,520	\$732,869
2003	\$0.37	420,798	\$155,695	1,453,538	\$537,809	\$693,504
2004	\$0.32	387,902	\$124,129	2,111,685	\$675,739	\$799,868
2005	\$0.31	193,075	\$59,853	2,318,151	\$718,627	\$778,480
2006	\$0.43	591,121	\$254,182	1,477,521	\$635,334	\$889,516
2007	\$0.49	693,305	\$339,720	1,442,349	\$706,751	\$1,046,471
2008	\$0.60	413,464	\$248,079	2,393,541	\$1,436,125	\$1,684,203
2009	\$0.34	541,453	\$184,094	2,532,535	\$861,062	\$1,045,156
2010	\$0.29	426,241	\$123,610	3,123,626	\$905,852	\$1,029,461
2011	\$0.39	778,857	\$303,754	4,400,339	\$1,716,132	\$2,019,886
2012	\$0.39	1,975,434	\$770,419	4,236,395	\$1,652,194	\$2,422,613
2013 ^d	\$0.30	1,243,533	\$373,060	4,074,804	\$1,222,441	\$1,595,501

^a Harvest is reported in round pounds.

^b Includes Pacific cod bycatch to other directed groundfish and halibut fisheries in state waters.

^c State-waters season implemented in 1997.

^d Preliminary data through June 30, 2013.

Table 9.—Annual effort, guideline harvest level (GHL), and harvest by gear type of Pacific cod from the Cook Inlet Area state-waters season, 1997–2012, and preliminary 2013 data.

Year	All Gear				Pot			Jig		
	Vessels	Landings	Harvest (lb) ^a	GHL (lb)	Vessels	Landings	Harvest (lb) ^a	Vessels	Landings	Harvest (lb) ^{a,b}
1997	55	367	838,913	2,549,646	10	136	276,966	46	233	561,947
1998	42	306	730,469	2,434,565	13	183	542,260	29	123	188,209
1999	38	329	1,517,907	2,637,445	24	278	1,390,678	14	51	127,229
2000	21	331	1,149,788	2,160,255	17	219	1,135,903	5	12	13,885
2001	14	209	895,351	1,917,195	9	196	875,923	5	13	19,428
2002	15	321	1,328,847	1,571,455	9	306	1,310,684	6	15	18,163
2003	19	300	1,453,538	1,438,516	10	140	1,023,854	15	160	429,684
2004	25	290	2,111,685	2,367,765	12	170	1,785,386	18	120	326,298
2005	17	233	2,318,151	2,737,893	10	205	2,227,417	8	28	90,734
2006	12	149	1,476,115 ^c	3,131,088	^d	^d	1,476,115	^d	^d	^d
2007	17	152	1,442,349	3,131,088	13	145	1,436,804	4	7	5,545
2008	16	234	2,393,541	3,133,403	13	227	2,379,085	3	7	14,456
2009	18	222	2,532,535	2,606,393	13	181	2,393,574	9	41	138,960
2010	15	148	3,123,626	4,054,466	9	128	3,074,871	6	20	48,754
2011	40	359	4,400,339	4,449,911	11	156	3,902,154	31	203	498,185
2012	39	292	4,236,395	4,707,420	13	155	4,043,548	27	137	192,847
2013 ^e	13	154	2,754,265	4,074,804	13	154	2,754,265	0	0	0

^a Harvest is reported in round pounds.

^b Includes mechanical jig and hand troll.

^c Total harvest does not include confidential data.

^d Confidential data due to limited number of participants.

^e Preliminary data through June 30, 2013; state-waters season has not opened to jig gear in 2013.

Table 10.—Annual guideline harvest level (GHL), harvest by gear type, and percent of GHL harvested by gear type of Pacific cod from Cook Inlet Area state-waters season, 1997–2012, and preliminary 2013 data.

Year	GHL	Harvest (lb) ^a					
		Total	Total % GHL	Pot	Pot % GHL	Jig ^b	Jig % GHL
1997	2,549,646	838,913	33%	276,966	11%	561,947	22.0%
1998	2,434,565	730,469	30%	542,260	22%	188,209	7.7%
1999	2,637,445	1,517,907	58%	1,390,678	53%	127,229	4.8%
2000	2,160,255	1,149,788	53%	1,135,903	53%	13,885	0.6%
2001	1,917,195	895,351	47%	875,923	46%	19,428	1.0%
2002	1,571,455	1,328,847	85%	1,310,684	83%	18,163	1.2%
2003	1,438,516	1,453,538	101%	1,023,854	71%	429,684	29.9%
2004	2,367,765	2,111,685	89%	1,785,386	75%	326,298	13.8%
2005	2,737,893	2,318,151	85%	2,227,417	81%	90,734	3.3%
2006	3,131,088	^c	^c	1,476,115	47%	^c	^c
2007	3,131,088	1,442,349	46%	1,436,804	46%	5,545	0.2%
2008	3,133,403	2,393,541	76%	2,379,085	76%	14,456	0.5%
2009	2,606,393	2,532,535	97%	2,393,574	92%	138,960	5.3%
2010	4,054,466	3,123,626	77%	3,074,871	76%	48,754	1.2%
2011	4,449,911	4,400,339	99%	3,902,154	88%	498,185	11.1%
2012	4,707,420	4,236,395	90%	4,043,548	86%	192,847	4.1%
2013 ^d	4,074,804	2,754,265	68%	2,754,265	68%	0	0.0%

^a Harvest is reported in round pounds.

^b Includes mechanical jig and hand troll.

^c Confidential data due to limited number of participants.

^d Preliminary data through June 30, 2013.



Figure 1.—Groundfish fishing districts of the Prince William Sound Management Area.

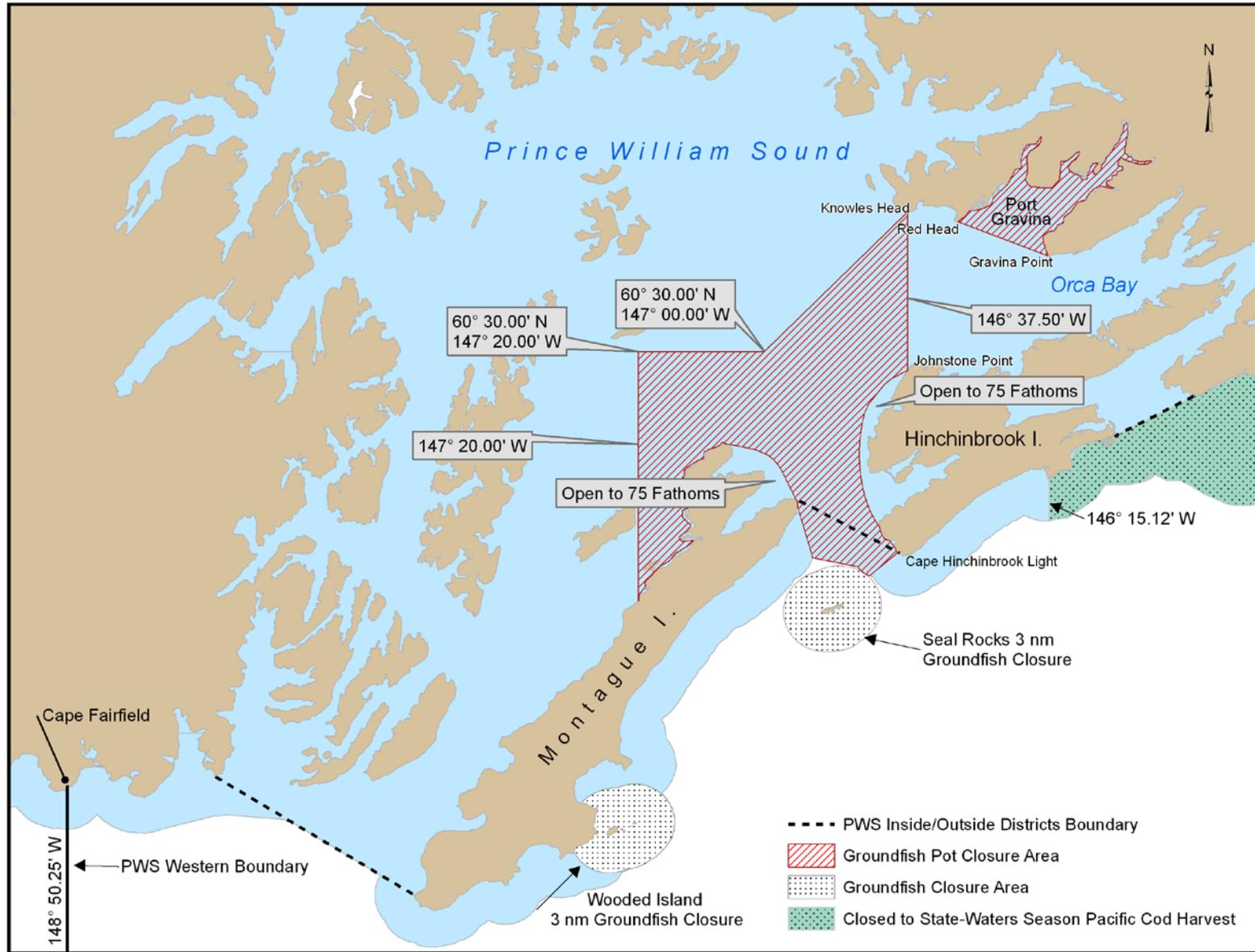


Figure 2.—Prince William Sound closed waters to groundfish pot gear, groundfish fishing, and to the state-waters Pacific cod season.

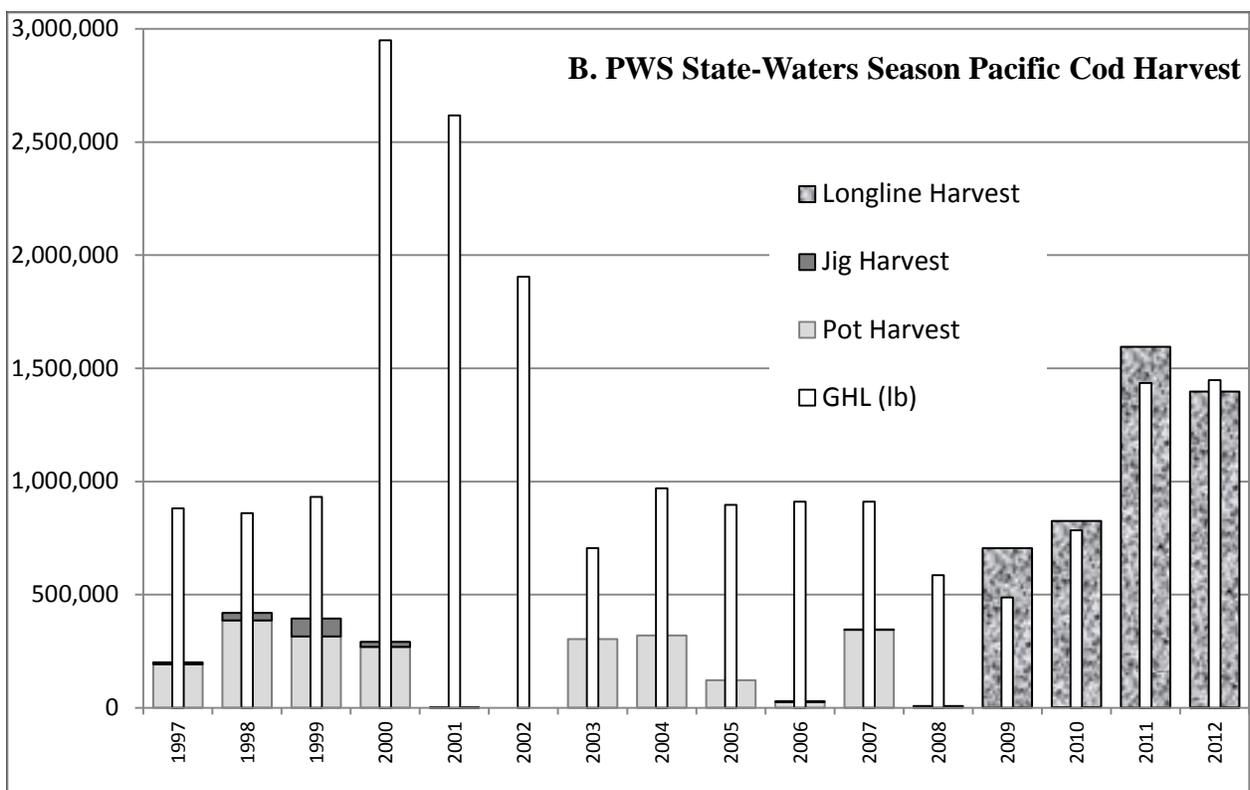
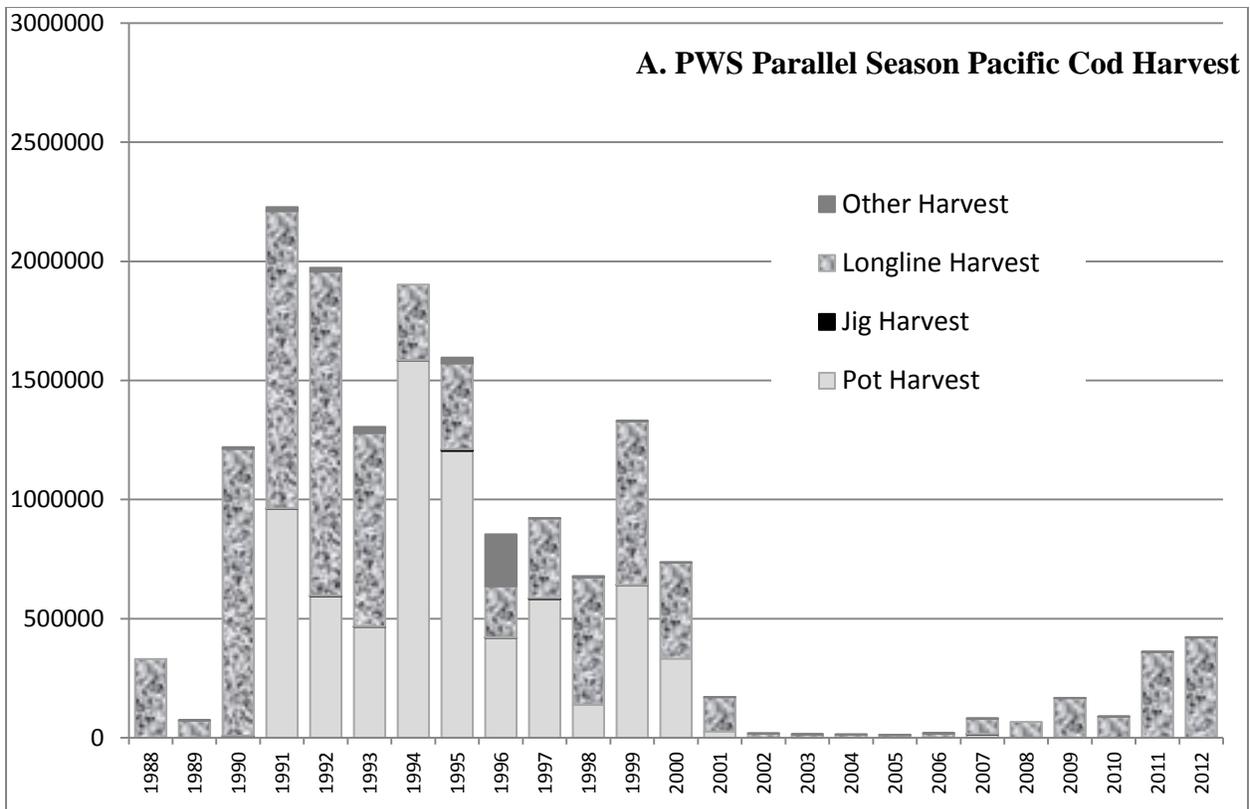


Figure 3.—Pacific cod harvest (in round pounds) by gear type in the Prince William Sound (PWS) parallel season, 1988–2012 (A), and PWS state-waters season with GHGs, 1997–2012 (B).

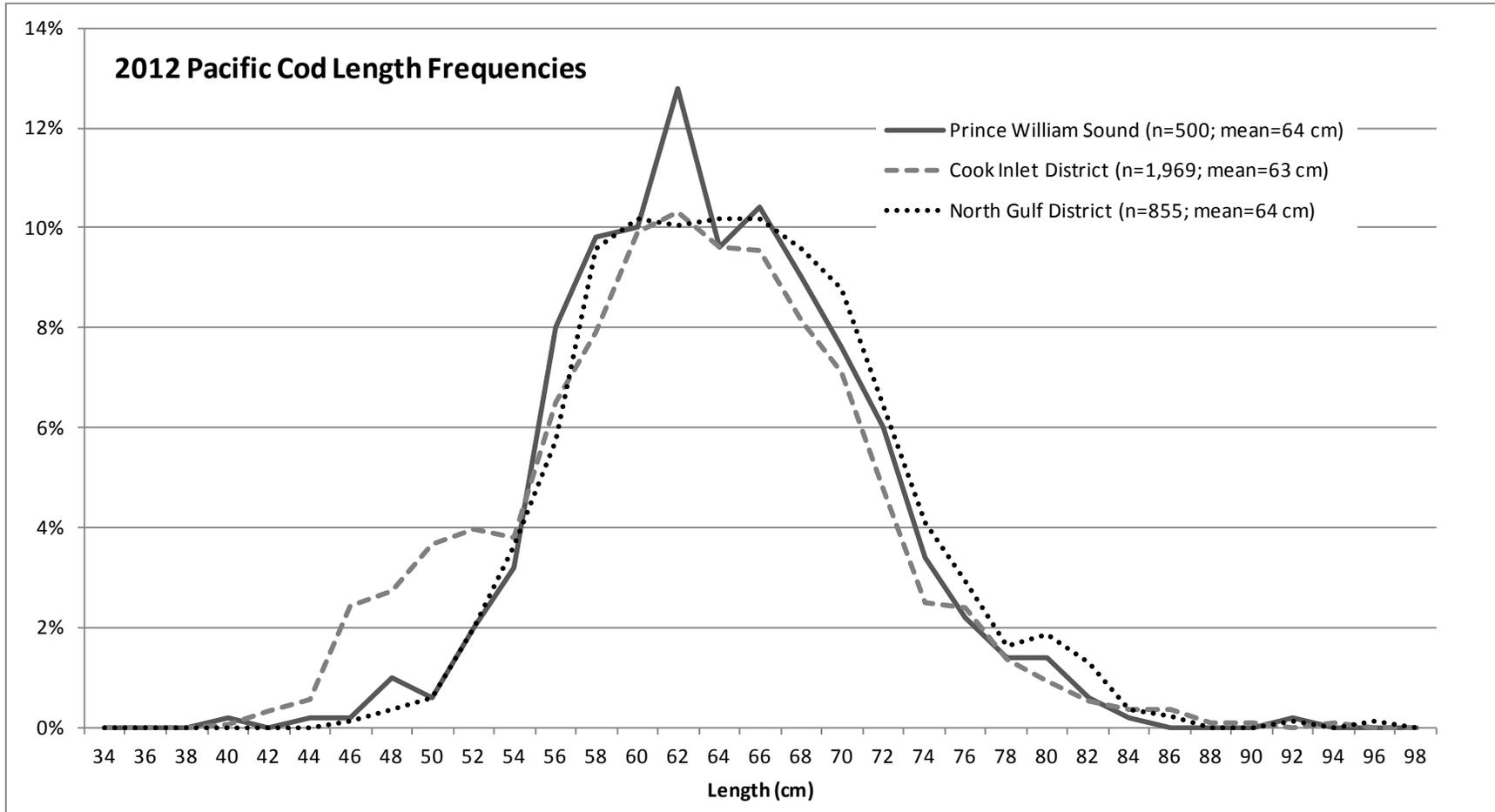
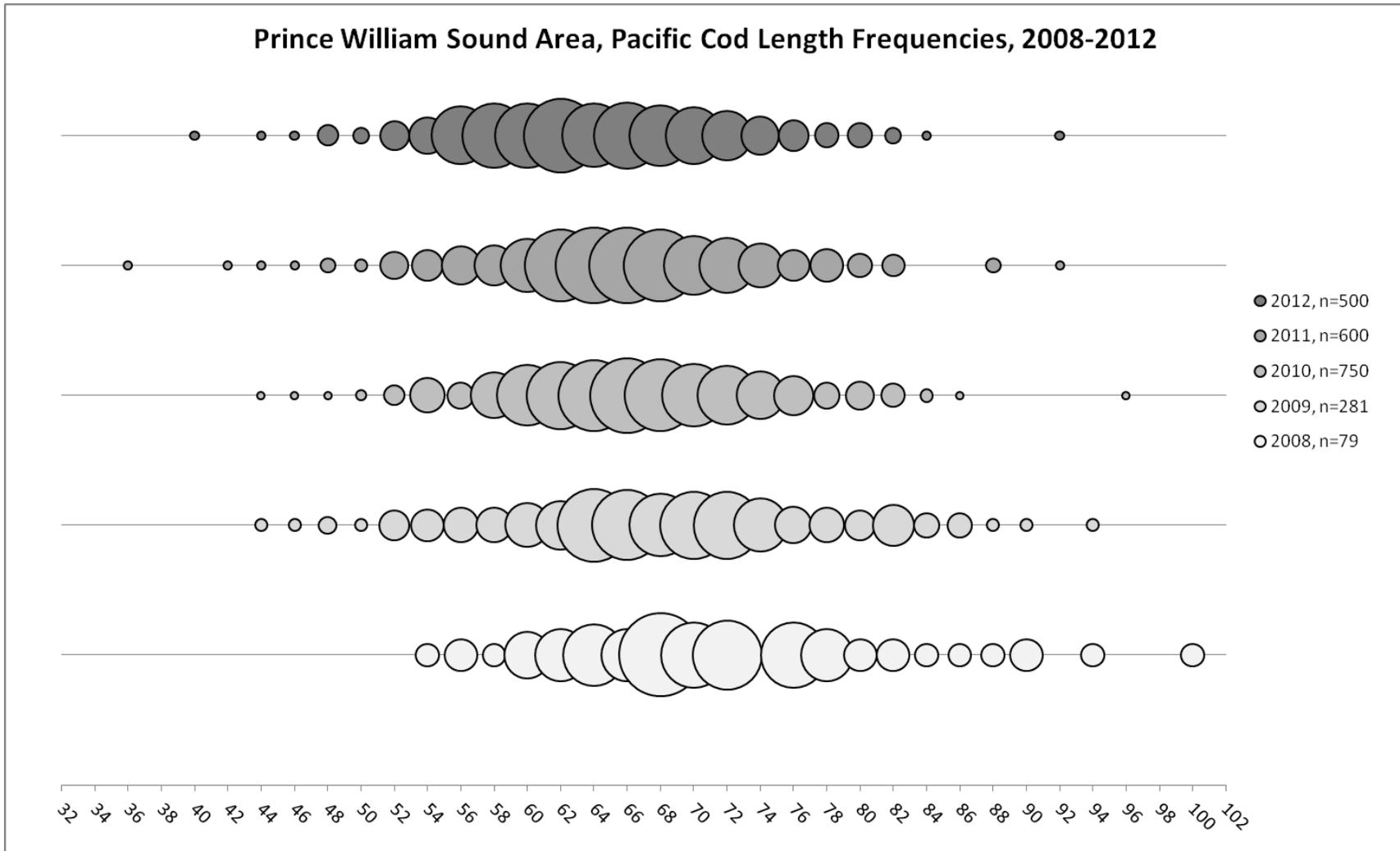


Figure 4.—Pacific cod lengths from 2012 fisheries in the Prince William Sound Area, and the Cook Inlet and North Gulf districts of the Cook Inlet Area.



Note: Percent represented by bubble area.

Figure 5.—Pacific cod length frequencies from the Prince William Sound Area, 2008–2012.

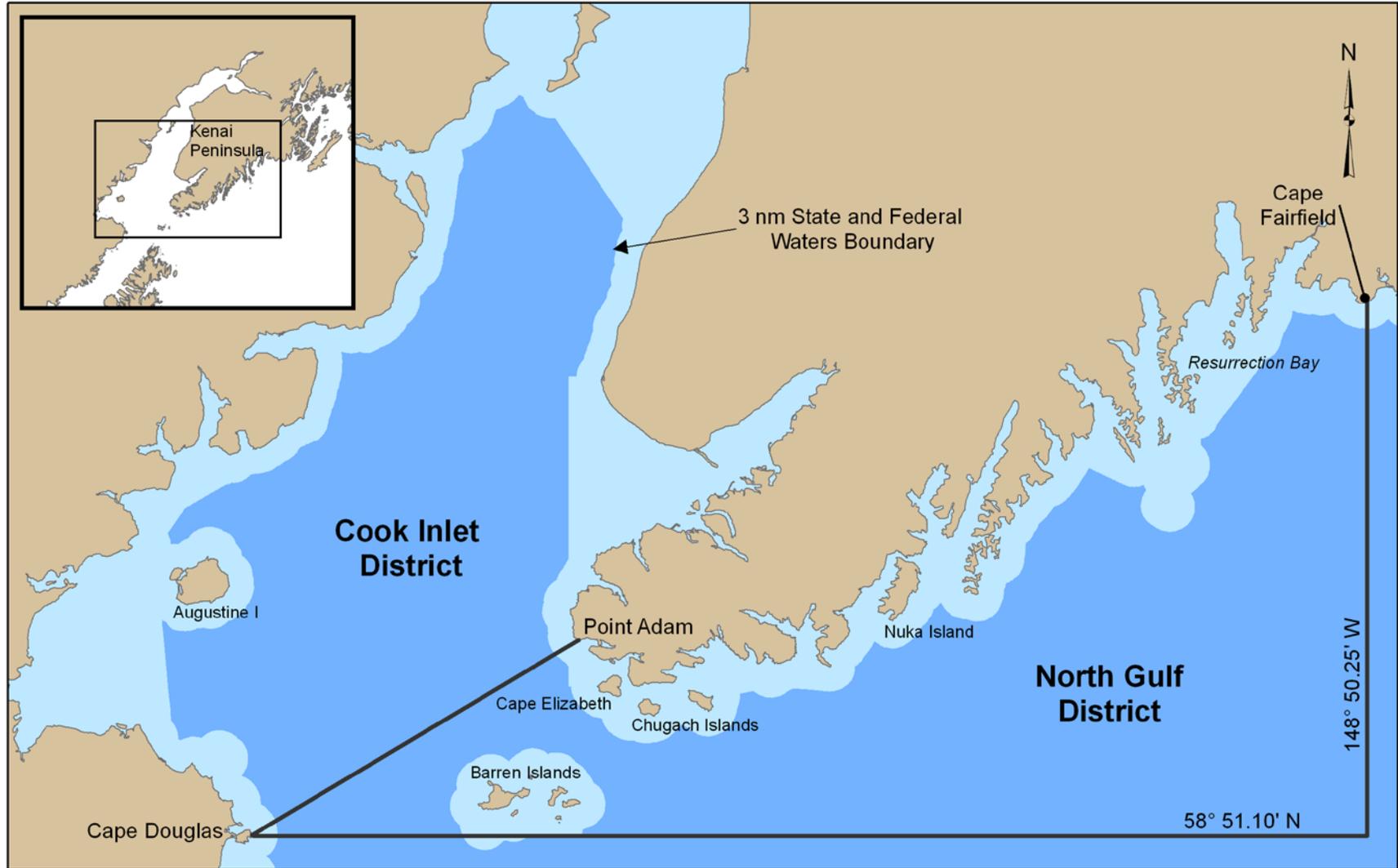


Figure 6.—Cook Inlet Area commercial groundfish area and district boundaries from 1997 to present.

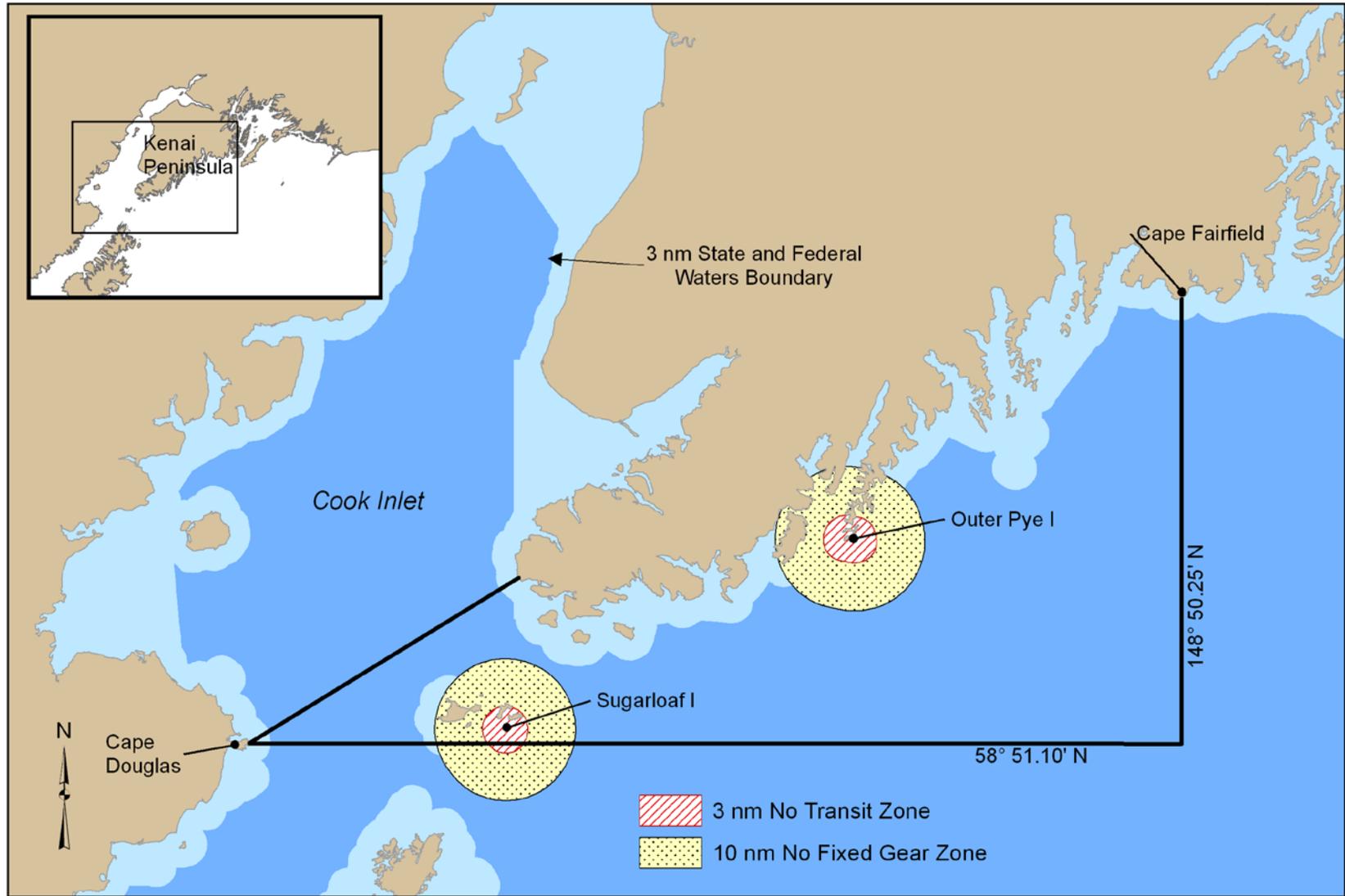


Figure 7.—Vessel no-transit and fixed gear Pacific cod fishing closure zones around Steller sea lion rookeries within the Cook Inlet Management Area.

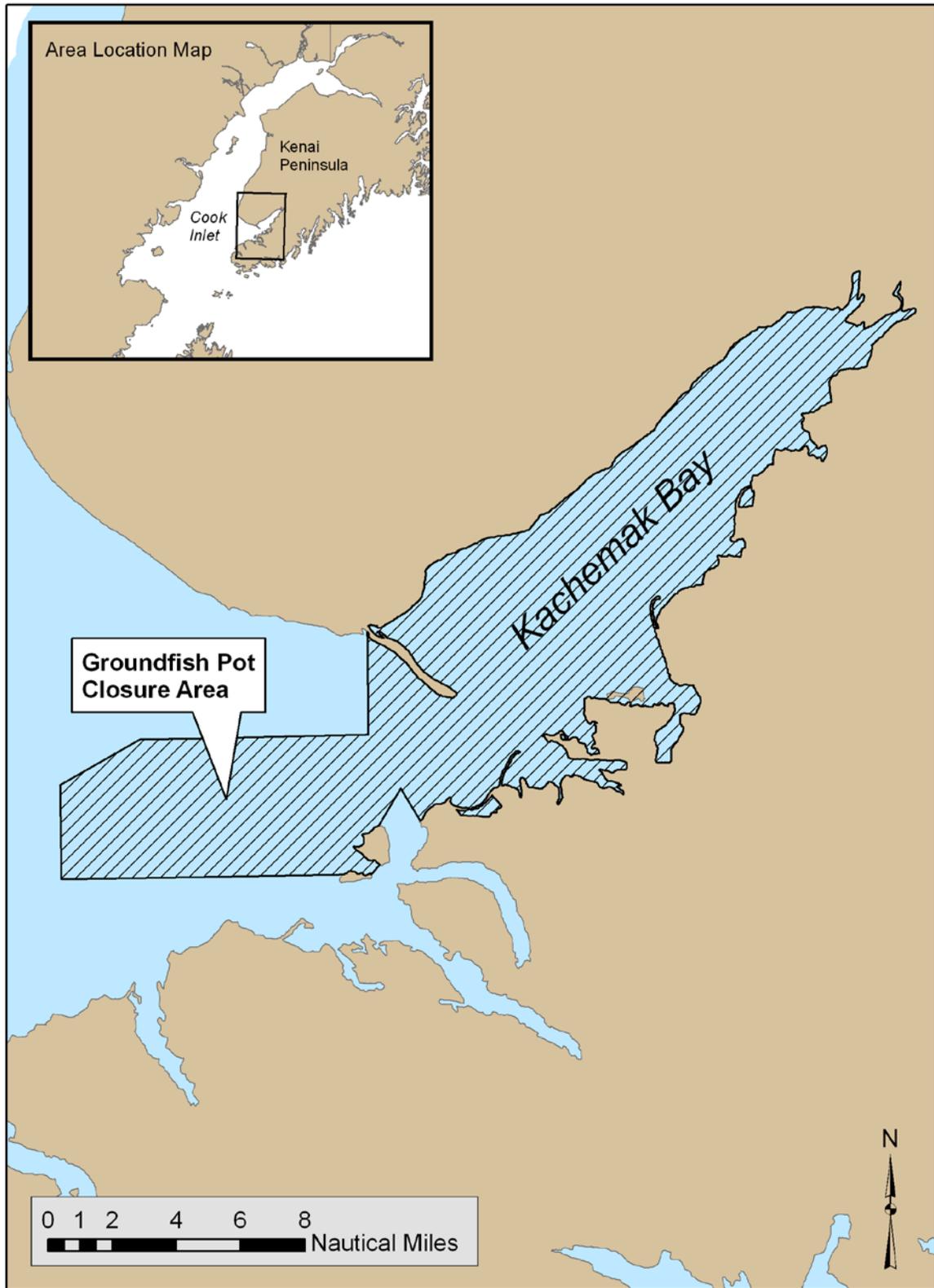


Figure 8.—Kachemak Bay groundfish pot closure area.

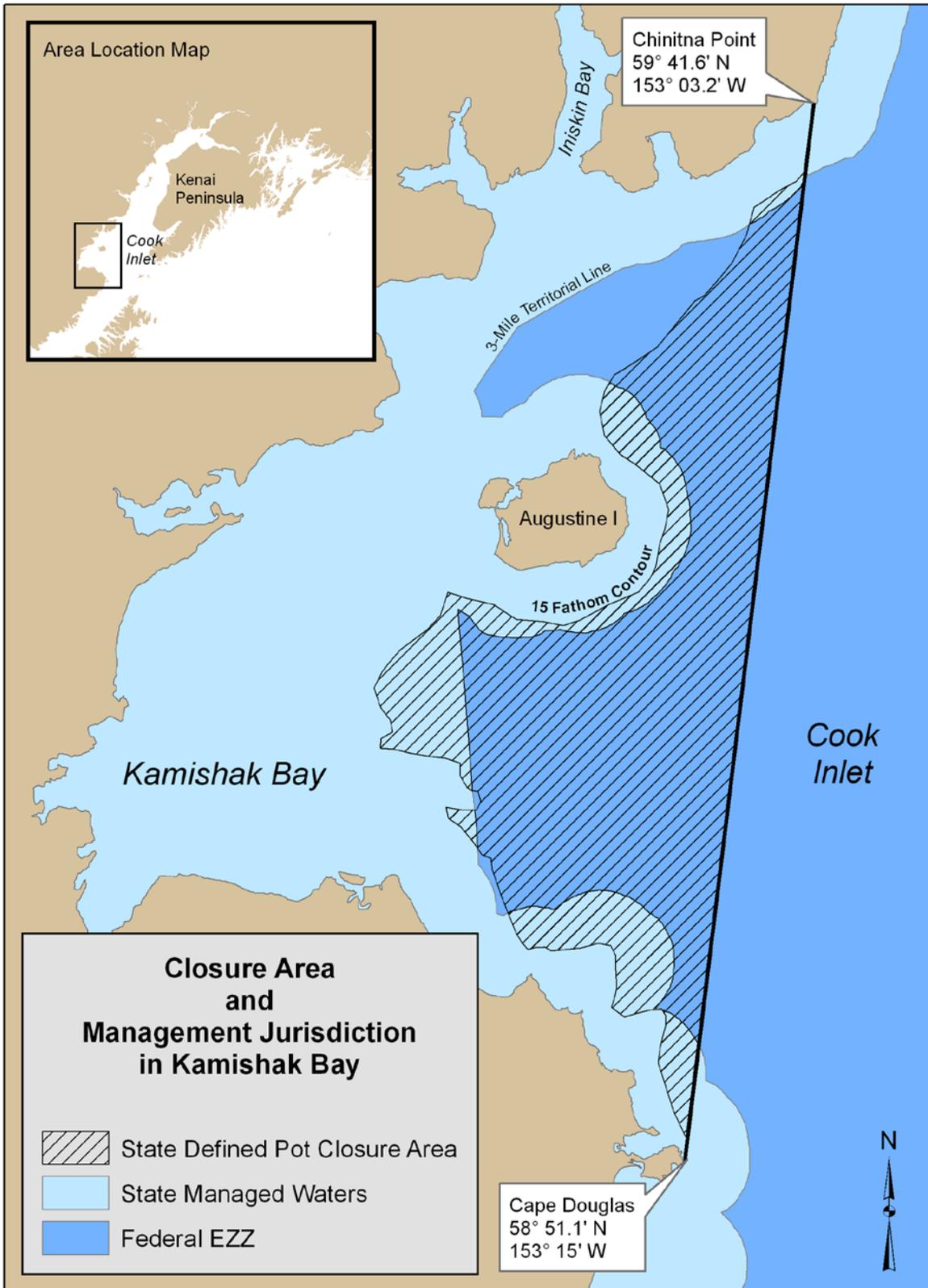


Figure 9.–Kamishak Bay groundfish pot closure area.

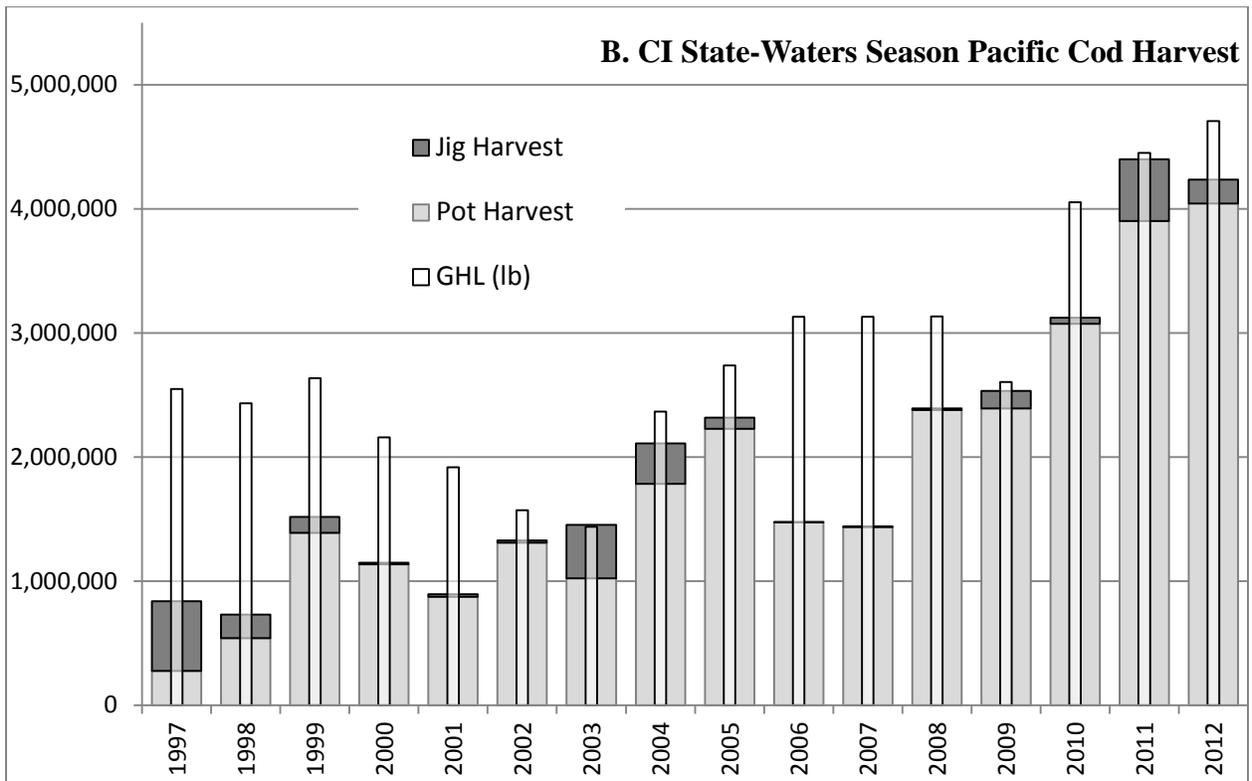
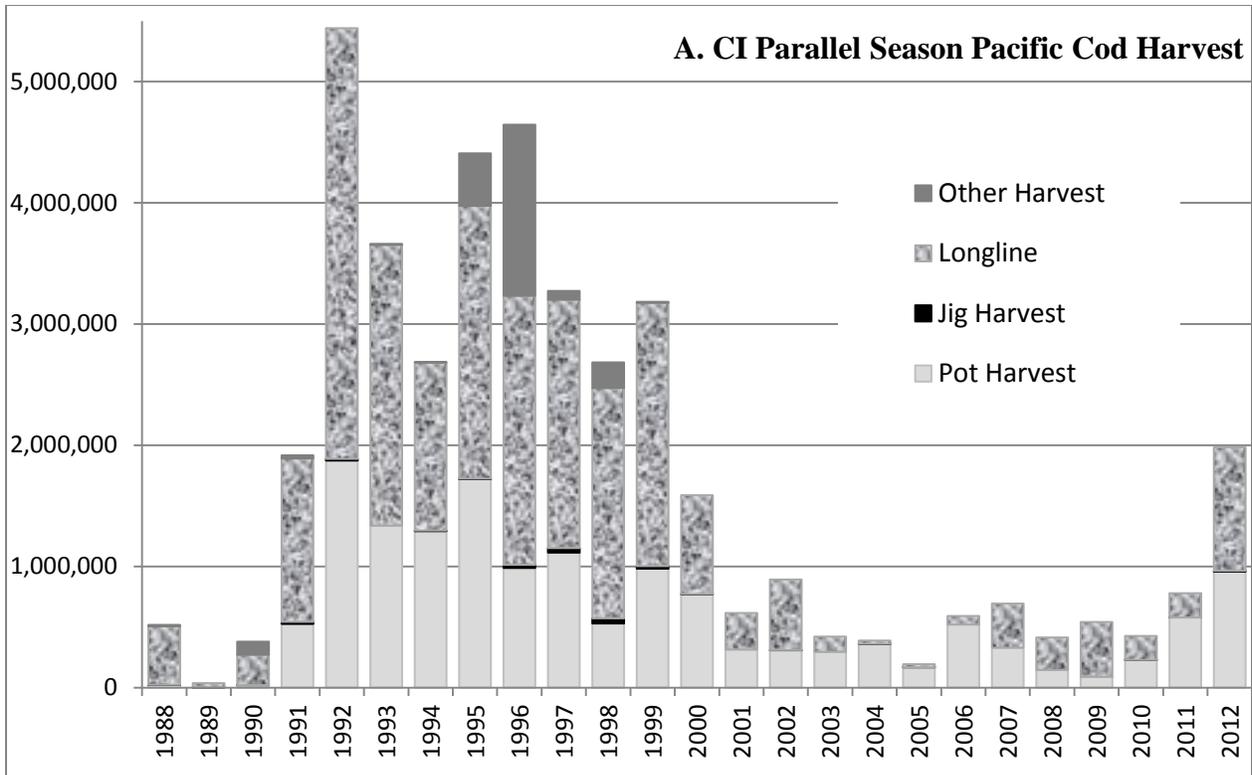
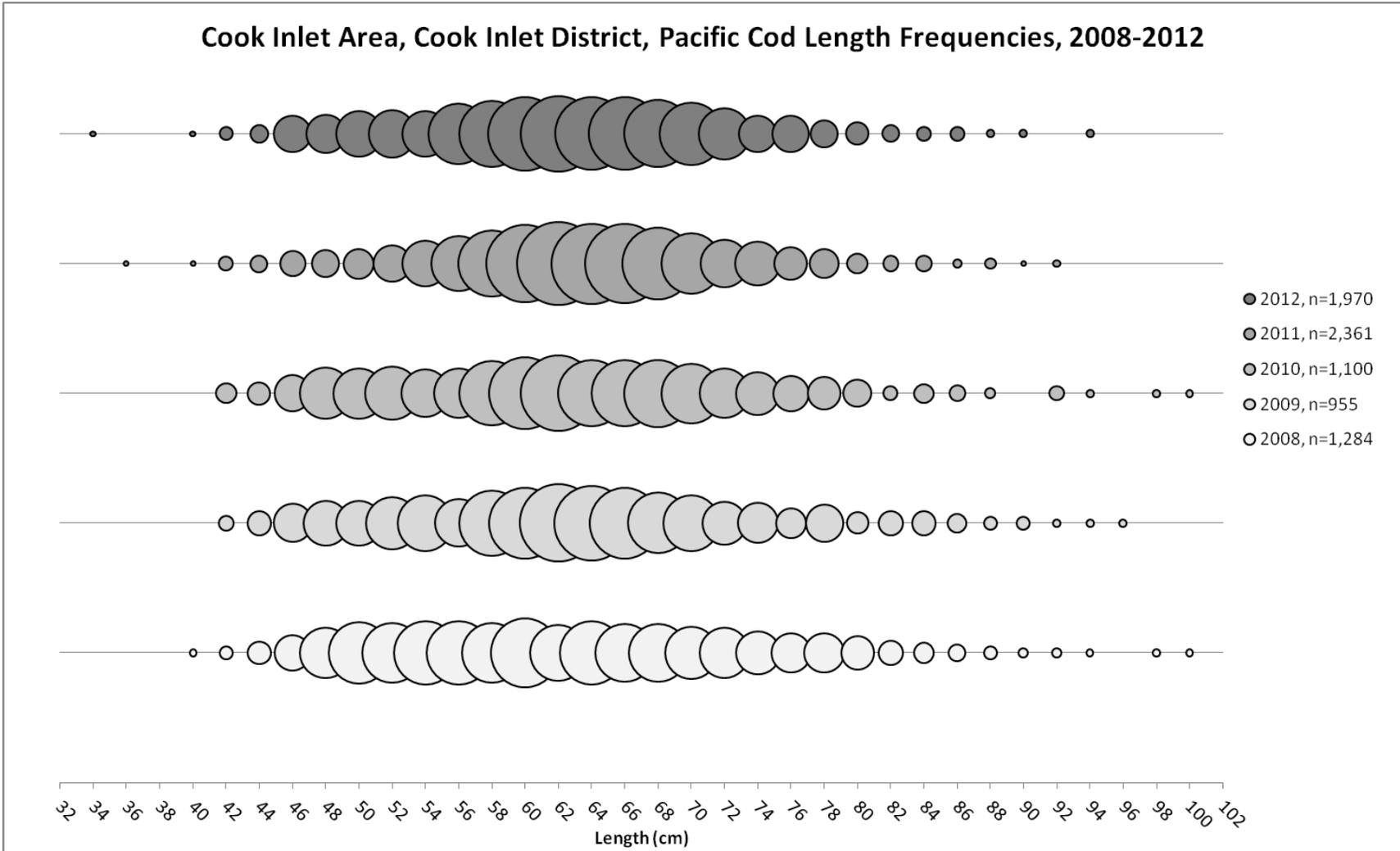
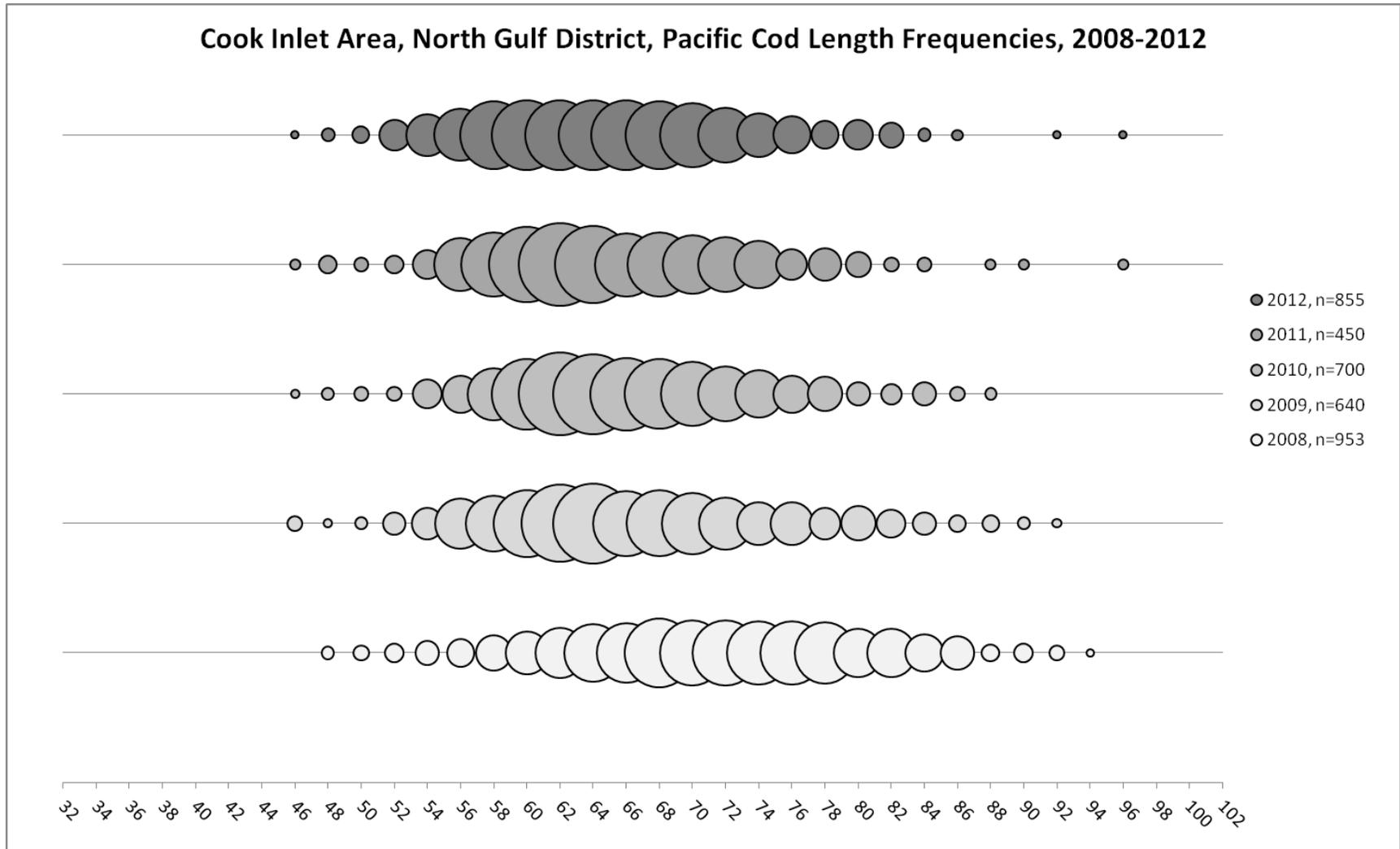


Figure 10.—Pacific cod harvest (in round pounds) by gear type in the Cook Inlet (CI) parallel season, 1988–2012 (A), and CI state-waters season with GHLs, 1997–2012 (B).



Note: Percent represented by bubble area.

Figure 11.—Pacific cod length frequencies from the Cook Inlet District of the Cook Inlet Area, 2008–2012.



Note: Percent represented by bubble area.

Figure 12.—Pacific cod length frequencies from the North Gulf District of the Cook Inlet Area, 2008–2012.

**APPENDIX A:
FREQUENTLY USED ACRONYMS AND KEY WORDS**

Appendix A1.–Frequently used acronyms and key words.

Acronym	Definition
ABC	Acceptable biological catch, stock specification as set annually by the NPFMC.
ADF&G	Alaska Department of Fish and Game
BOF	The Alaska Board of Fisheries
CGOA	Central Gulf of Alaska; management areas 620 and 630
EGOA	Eastern Gulf of Alaska; management area 640
EEZ	Exclusive economic zone; from 3 to 200 nautical miles offshore
EO	Emergency order, management action taken by ADF&G to effect regulatory change
GHL	Guideline harvest level
GOA	Gulf of Alaska
mt	Metric tons (equal to 2,204.62 pounds)
nmi	Nautical mile (equal to 6,076 feet)
NMFS	National Marine Fisheries Service
NPFMC	North Pacific Fishery Management Council
Parallel fishery	State waters from 0 to 3 nautical miles opened via EO but with the same gear and seasons that apply to the federal fishery in the adjacent EEZ
State waters	Territorial sea from shore to 3 nautical miles offshore
State-waters fishery	Fishery occurring from shore to 3 nautical miles, open under state rules and managed exclusively by ADF&G
TAC	Total allowable catch, final federal harvest specification as recommended by NPFMC and set by NMFS
