

Fishery Management Report No. 10-32

**Annual Management Report for Shellfish Fisheries in
the Kodiak, Chignik and Alaska Peninsula Areas,
2009**

by

Mark A. Stichert

August 2010

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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

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ABSTRACT

This annual management report summarizes 2009 Alaska Department of Fish and Game shellfish fisheries, excluding weathervane scallops *Patinopecten caurinus*, in the Kodiak, Chignik, and South Peninsula Districts of the Westward Region. Commercial fisheries occurred for Tanner crab *Chionoecetes bairdi*, Dungeness crab *Cancer magister*, giant Pacific octopus *Octopus dofleini*, and red sea cucumber *Parastichopus californicus*. Historically, these management districts also supported Pandalid shrimp and red king crab *Paralithodes camtschaticus* fisheries.

Key words: Tanner crab, *Chionoecetes bairdi*, Dungeness crab, *Cancer magister*, red sea cucumber, *Parastichopus californicus*, red king crab, *Paralithodes camtschaticus*, Pacific octopus, *Octopus dofleini*, Pandalid shrimp, catch per unit effort, exclusive economic zone, EEZ, guideline harvest level, GHL, Board of Fisheries, BOF, Kodiak, Chignik, Alaska Peninsula.

INTRODUCTION

This report provides information on shellfish fisheries managed by the Alaska Department of Fish and Game (ADF&G) in the Gulf of Alaska south of Cape Douglas (58°51.10' N lat.), west of Cape Fairfield (148°50.25' W long.), and east of Scotch Cap Light (164°44' W long.). The three primary management divisions within this area are Kodiak, Chignik, and the South Alaska Peninsula (Figure 1). All shellfish fisheries, excluding octopus, are managed by ADF&G in both the territorial sea (0–3 nmi) as well as the Exclusive Economic Zone (EEZ; 3–200 nmi).

Shellfish fisheries are regulated using management areas, districts, and sections that vary by species. For example, Tanner crab management is defined by district (e.g., Kodiak, Chignik, and South Peninsula districts), king crab management is defined by area (e.g., Kodiak and Alaska Peninsula), while shrimp management is defined by area and section. The purpose of this report is to summarize current commercial shellfish fishery regulations and management actions as well as review fishery-specific harvest, effort, and value with emphasis on the 2009 fisheries.

KODIAK

Management boundaries for most shellfish fisheries around Kodiak Island include Pacific Ocean waters south of the latitude of Cape Douglas (58°51.10' N lat.), east of the longitude of Cape Kumlik (157°27' W long.), and west of Cape Fairfield (148°50.25' W long.; Figure 2). The management boundaries vary slightly for Dungeness crab *Cancer magister* and Pandalid shrimp, which extend from the latitude of Cape Douglas to the longitude of Kilokak Rocks on the Alaska Peninsula (156°19' W long.).

Historically, Kodiak waters supported significant red king crab *Paralithodes camtschaticus* and trawl shrimp fisheries. The Kodiak Area red king crab stock has not supported a commercial fishery since the early 1980s. Shrimp stocks currently support only negligible harvests. Minor harvests of green sea urchins *Strongylocentrotus droebachiensis*, golden king crab *Lithodes aequispinus*, and grooved Tanner crab *Chionoecetes tanneri* have also occurred. Various clam species, primarily razor clams *Siliqua sp.* were historically harvested in large quantities but are no longer targeted in commercial fisheries.

The predominant commercial shellfish species harvested from Kodiak waters in 2009 were Tanner crab *Chionoecetes bairdi*, Dungeness crab, giant Pacific octopus *Octopus dofleini*, and red sea cucumber *Parastichopus californicus*. The 2009 Kodiak Area weathervane scallop *Patinopecten caurinus* fishery is summarized in a separate report. In recent years, Dungeness crab has replaced Tanner crab as the most valuable shellfish species in the area, worth an estimated \$2.1 million to the fleet in 2009. Bering Sea snow crab *Chionoecetes opilio* and Bristol

Bay red king crab were landed in Kodiak during 2009. Overall, more than 3.03 million pounds of shellfish were also landed at the Port of Kodiak in 2009 for an estimated exvessel value of approximately \$6.39 million.

ADF&G issues emergency orders to enact regulatory action for time and area changes to commercial shellfish fisheries. These changes affect commercial fishery openings and closures and modify fishing periods or fishing areas. In total, 12 emergency orders were issued during 2009 for Kodiak Area shellfish fisheries (Table 1).

ALASKA PENINSULA

Management boundaries for most shellfish fisheries along the Alaska Peninsula include Pacific Ocean waters west of Kilokak Rocks (156°19' W long.) and east of Scotch Cap Light (164°44' W long). However, for several fisheries the eastern boundary is located at the longitude of Cape Kumlik (157°27' W long.; Figure 3). Specific information on Alaska Peninsula management boundaries is described in detail in the fishery descriptions that follow.

Historically, commercial shellfish fisheries for red king crab, Tanner crab, grooved Tanner crab, Dungeness crab, Pandalid shrimp, red sea cucumber, and giant Pacific octopus have occurred along the Alaska Peninsula. Most shellfish stocks in the region are depressed and commercial fisheries for red king crab and shrimp have not occurred since 1982. During 2009, Dungeness crab, Tanner crab, and octopus were commercially harvested. ADF&G issued two emergency orders pertaining to shellfish fisheries along the Alaska Peninsula during 2009 (Table 1).

TANNER CRAB

INTRODUCTION

Tanner crab fisheries in the Kodiak, Chignik, and South Peninsula districts open by regulation on January 15 unless delayed by weather as specified in regulation (e.g. 5 AAC 35.510(2)). Commercial harvest strategies contain both biological (mature male abundance) and fishery management thresholds that must be achieved before any commercial fishing may occur. Guideline harvest levels (GHL) are determined annually using information collected during ADF&G trawl surveys on the *R/V Resolution*.

KODIAK DISTRICT

Description of the District

The Kodiak District for Tanner crab includes Pacific Ocean waters south of the latitude of Cape Douglas (58°51.10' N lat.), west of the longitude of Cape Fairfield (148°50.25' W long.), and east of the longitude of Cape Kumlik (157°27' W long.). The district is further subdivided into eight sections: Northeast, Eastside, Southeast, Southwest, Semidi Island Overlap, Westside, North Mainland, and South Mainland (Figure 2).

Overview of Current Fishery Regulations

The Kodiak District is a limited entry, superexclusive registration district for Tanner crab. Criteria within the harvest strategy specify at least two sections within the district must be above the mature male abundance threshold to open a commercial fishery. Overall, the total district GHL must be at least 400,000 pounds, and each section open to fishing must have a minimum GHL of at least 100,000 pounds. The Kodiak District pot limit is based on a sliding scale,

depending on the district GHL, and ranges from 20 to 60 pots per vessel. Crab pots may only be set or retrieved during daily fishing periods from 8:00 AM to 5:59 PM although fishing periods may be extended depending on ADF&G's assessment of effort, fishery manageability, available harvest, and harvest rate.

Historical Background

The domestic Tanner crab fishery in the Kodiak District began in 1967 when 110,961 pounds were landed (Table 2). Compared to king crab fisheries, the Tanner crab fishery was slower to develop, as consumers did not readily accept Tanner crab compared to king crab and processing facilities had yet to develop effective meat extraction techniques for canning.

Once developed, the fishery quickly expanded and harvests averaged approximately seven million pounds per year from 1968 through the 1971/72 season. In response, ADF&G initiated a pot survey in 1973 to better estimate relative abundance, predict recruitment trends, and establish annual harvest levels. Harvests increased to 30 million pounds annually by the mid-1970s. During the 1970s, ADF&G implemented an April 30 fishing season closure date to protect crab during mating and molting cycles, and established a minimum legal retention carapace width (CW) of 5.5 inches. The commercial fishery peaked during the 1977/78 season when over 33 million pounds were harvested (Table 2).

Beginning in December 1978, the federal government assumed joint responsibility of Tanner crab management with the State of Alaska in the EEZ. Under joint management, the state managed crab in waters from shore to three nautical miles (nmi) offshore while the federal government managed crab in waters 3 to 200 nmi offshore under a fishery management plan (FMP). Joint-jurisdiction occurred until 1987, when the state again assumed full management authority for Tanner crab in the Kodiak District.

In the early 1980s, Tanner crab abundance and commercial harvests began to decline. Concerns about the effectiveness of pot surveys to predict recruitment of sub-legal crabs prompted ADF&G to test trawl gear as a viable survey tool. In 1988, trawl surveys became the preferred stock assessment method based on study results that indicated trawl surveys were more efficient and sampled a wider range of crab sizes and thus better represented the entire crab population (Jackson 1990).

The Tanner crab stock continued to decline in the Kodiak District, and by the early 1990s, annual harvests averaged less than two million pounds. Beginning with the 1994/95 season, the fishery was closed due to a progressive decline in harvestable surplus of Tanner crabs. The fishery did not reopen until the 2000/01 season. During the six-year closure period a new harvest strategy was developed by ADF&G and adopted by the Alaska Board of Fisheries (BOF). The purpose of the revised harvest strategy was to implement a more conservative management measures aimed at preventing overharvest and localized depletion. To accomplish this goal, biological thresholds (minimum district-wide population levels) as well as management thresholds (minimum section GHLs) must be achieved prior to commercial harvest (Urban et al. 1999).

After ADF&G revised the harvest strategy, the Commercial Fisheries Entry Commission (CFEC) developed a limited entry program for the Kodiak District Tanner crab fishery using 1993/94, 1994/95, 2000/01, and 2001/02 as qualifying years to determine eligibility. The 2003/04 Kodiak District Tanner crab season was the first season under limited entry. Approximately 180 limited entry permits were initially allocated to the fishery.

Overview of the 2008/09 Kodiak District Tanner Crab Fishery

The Northeast and Eastside sections of the Kodiak District met criteria specified in the harvest strategy for a commercial fishery opening in 2009. The combined Kodiak District GHL was 400,000 pounds, which was 100,000 pounds less than the 2007/08 GHL (Table 3). The Northeast Section GHL was established at 100,000 pounds and the Eastside Section GHL was established at 300,000 pounds.

The scheduled opening date for the Kodiak District Tanner crab fishery was January 15. However, due to severe weather January 14–16 the opening date was delayed for 48 hours until NOON on January 17. A total of 31 vessels participated in the 2008/09 fishery. Harvest, including deadloss, was 359,056 pounds from 48 landings. The estimated ex-vessel fishery value was approximately \$644,000 based on an average price of \$1.80 per pound (Table 2).

Northeast Section Fishery

Based on the 2008 trawl survey, the Northeast Section population estimate of mature male Tanner crab in the Northeast Section was 2,090,161 crabs (Spalinger 2009), which exceeded the regulatory threshold of 1,123,000 crabs necessary for a commercial fishery. Application of the harvest strategy to the 2008 abundance estimate resulted in a GHL of 230,000 pounds for the 2008/09 fishery. However, successive declines in fishery catch per unit effort (CPUE) from prior seasons and a reduction in observed Tanner crab abundance during annual trawl surveys prompted ADF&G to lower the exploitation rate of legal males from 30% to 13% resulting in a 2008/09 GHL of 100,000 pounds. ADF&G did not open Chiniak Bay to commercial Tanner crab fishing and limited harvest within specific areas of the section proportional to the Northeast Section trawl survey estimate for legal male Tanner crab. The 2008/09 Northeast Section GHL was identical to the GHLs from the previous two seasons (Table 3).

Most commercial fishing effort in the Northeast Section occurred within Marmot Bay. CPUE varied by location and ranged from 2 to 37 legal males per pot. CPUE declined steadily as the season progressed and by January 29, ADF&G closed most of Marmot Bay to prevent overharvest in areas of high effort and diminishing catch. Through the first week of February effort declined and most vessels switched to other fisheries. ADF&G extended the daily fishing period from 10 to 15 hours on February 6 to provide additional opportunity for the remaining vessels. Despite the increase in daily fishing time, harvest was nominal through the end to the regulatory season on March 31. In total, 11 vessels harvested 61,092 pounds from the Northeast Section (Table 3). The Northeast Section CPUE averaged 18 crabs per pot for the season. Approximately 48,000 pounds of the total 61,092 pound Northeast Section harvest were landed from Marmot Bay while the remainder of the harvest primarily occurred in Danger and Izhut bays.

Eastside Section Fishery

Based on the 2008 trawl survey, the estimated population of mature male Tanner crab in the Eastside Section was 3,767,333 crabs (Spalinger 2009), well above the regulatory threshold of 1,552,000 crabs necessary for a 2008/09 commercial fishery. Application of the harvest strategy to the 2008 abundance estimate resulted in a GHL of 718,000 pounds for the 2008/09 season. However, fishery CPUE from the 2006/07 and 2007/08 Eastside Section fisheries were less than expected based on survey results and fewer vessels operated in offshore areas that contribute large numbers of crab to the overall population estimate. Based on these factors, ADF&G

lowered the Eastside Section exploitation rate on legal-sized crab to 11.5% resulting in a GHL of 300,000 pounds (Table 3).

Twenty-four vessels registered to harvest Tanner crabs in the Eastside Section. Over the course of the fishery CPUE averaged 24 crabs per pot, with most vessels pulling gear twice per day. Harvest and effort in the Eastside Section were evenly distributed throughout the season and the section was closed January 24. A total of 297,964 pounds of Tanner crab were harvested from the Eastside Section during the 2008/09 fishery. Most harvest occurred in the Outer Barnabus and Ugak areas as well as offshore from Kiliuda Bay.

Status of Kodiak District Tanner Crab Stock

The 2008/09 Kodiak District Tanner crab population estimate (120 million crabs of all sizes and sex) was 36% lower than the 2007/08 estimate (186 million crabs) and 27% lower than the 2006/07 estimate (165 million crabs). Most of the population decrease was due to a reduction in the number of sublegal males (> 70 mm and between 71 and 91 mm CW) observed during the 2008 trawl survey. Despite the decline in sublegal Tanner crab abundance, the 2008/09 population estimate is the fourth highest on record since trawl assessment surveys were started in 1988. The highest densities of crabs were found in the Eastside Section (Figure 4).

Egg clutches of 8,094 mature female Tanner crabs from the Kodiak District were examined during the survey. Of all mature females sampled, 77.2% were primiparous and 72.0% had clutches that were more than half full (Spalinger 2009).

CHIGNIK DISTRICT

Description of the District

The Chignik District for Tanner crab includes Pacific Ocean waters east of a line from the southernmost tip of Kupreanof Point to the easternmost point of Castle Rock, and extending southeast 135° from the easternmost point of Castle Rock, and west of the longitude of the easternmost tip of Cape Kumlik (Figure 3).

Overview of Current Fishery Regulations

The Chignik District is a superexclusive registration district for Tanner crab. Criteria within the harvest strategy specify the district GHL must be at least 200,000 pounds for a commercial fishery to occur. Vessel size is limited to 58 feet in overall length or less and the pot limit is based on a sliding scale. The number of pots is limited to no more than 30 pots per vessel when the district GHL is less than 600,000 pounds. Pot limits for GHLs greater than 600,000 pounds are 1,000 pots for the entire fishing fleet with no more than 75 pots per vessel. The individual pot limit is calculated by dividing the 1,000 total pot limit by the number of vessels that register prior to the preseason registration deadline on December 24 (5 AAC 35.506 (e)(6)).

Historical Background

The Chignik District Tanner crab fishery began in 1968 when 21,100 pounds were harvested (Table 4). The fishery peaked during the 1975/76 season when 35 vessels harvested approximately 11.0 million pounds. Annual harvests declined through the late 1970s and recruitment failures in the early 1980s led to consecutively smaller annual harvests until 1988, when a small increase in harvest occurred. Historically, most effort occurred during late March

following the closure of the Tanner crab fisheries in the Kodiak and South Peninsula districts. The areas of highest production were offshore between Mitrofanina Island and Lighthouse Rocks.

ADF&G began Chignik District Tanner crab surveys in 1981. Surveys in the early 1980s predicted poor recruitment and subsequent fisheries had lower harvests. Catches declined first in productive offshore areas, followed later by declines inside bays and near shore waters. The district was closed to commercial fishing in 1990 and remained closed through the 2003/04 season. The Chignik District reopened to commercial Tanner crab fishing during the 2004/05 and 2005/06 seasons prior to closing again before the 2006/07 season. No commercial Tanner crab fisheries have occurred since that time.

Overview of the 2008/09 Chignik District Tanner Crab Fishery

The Chignik District Tanner crab population was above threshold necessary for a commercial fishery. However, the district did not meet the GHL doubling requirement for a commercial fishery following a closed season as specified in 5 AAC 35.507(e). As a result there was no commercial fishery during the 2008/09 season.

Status of Chignik District Tanner Crab Stock

Based on 2008 trawl survey data, the total estimated Tanner crab abundance in the Chignik District was 26,039,590 crabs, up from approximately 20 million crabs in 2007 (Spalinger 2009). An increase in the number of sublegal males observed during the 2008 survey accounted for most of the increase in population size. The 2008 population estimate was the second highest Tanner crab estimate on record since trawl surveys were implemented in 1989. Egg clutches of 1,133 mature female Tanner crabs were examined during the Chignik District survey. Approximately 63.4% of all mature females sampled had clutches that were more than half full.

SOUTH PENINSULA DISTRICT

Description of the District

The South Peninsula District for Tanner crab includes the Pacific Ocean waters west of a line from the southernmost tip of Kupreanof Point to the easternmost tip of Castle Rock, west of a line extending southeast 135° from the easternmost tip of Castle Rock, and east of a line extending south from Scotch Cap Light (164°44' W long.; Figure 3).

Overview of Current Fishery Regulations

The South Peninsula District is a nonexclusive registration district for Tanner crab. Vessels are limited to 58 feet in overall length or less and the pot limit is based on a sliding scale ranging from 30 to 75 pots per vessel depending on the GHL. Crab pots may only be set or retrieved during daily fishing periods from 8:00 AM to 5:59 PM. Pots may soak from 6:00 PM until 7:59 AM. Additional criteria within the harvest strategy specify a section GHL must be at least 200,000 pounds for a commercial fishery to occur.

Historical Background

Harvest of Tanner crab in the South Peninsula District first occurred in 1967 when 3,100 pounds were landed (Table 5). The fishery grew quickly and by the 1973/74 season, the annual harvest exceeded eight million pounds. In response to expanding harvests, GHLs were established in 1974, fishing seasons were established in 1975, and a minimum crab size limit of 5.5" CW was established in 1976. During the five fishing seasons from 1974/75 through 1978/79, yearly harvests

averaged approximately seven million pounds. From 1979 to 1984, harvest and CPUE declined and in the 1983/84 season, the fleet landed a total 1.8 million pounds. Recruitment improved in subsequent years and harvest increased to almost four million pounds by 1985/86. At the conclusion of the 1988/89 season, ADF&G predicted a decline in recruitment based on analysis of ADF&G trawl survey data. The fishery was subsequently closed from 1990 through 2000 due to low abundance of legal-sized crab.

During the extended closure, a comprehensive harvest strategy was developed to guide commercial Tanner crab fisheries in the South Peninsula District. Similar to the harvest strategies implemented in Kodiak and Chignik, the South Peninsula District harvest strategy specified that minimum population levels (biological thresholds) and minimum GHLS (management thresholds) must be achieved prior to opening a commercial fishery. Criteria in the strategy were satisfied for a commercial fishery in 2000/01 and the South Peninsula District opened for the first time since 1989 with a 375,000-pound GHLS. Fifty-five vessels harvested 258,631 pounds from 67 landings. The fishery was open for four days.

The South Peninsula District was again closed from 2001/02 season through 2003/04 season due to low recruitment of legal sized male Tanner crab. The district reopened for the 2004/05 season with a GHLS of 300,000 pounds.

The South Peninsula District is large in comparison to the Kodiak and Chignik districts and historically was not separated into smaller management units (e.g., sections). Consequently, high concentrations of crabs in a small number of bays or marginally commercial quantities spread across large areas allowed for district-wide commercial fisheries to occur although certain portions of the district were likely not capable of sustaining commercial harvest (Urban and Vining 2005). Therefore, ADF&G submitted a proposal to the BOF in 2005 to divide the district into two sections at 162° W. longitude (Figure 3). This allowed for a fishery to occur in areas where stocks are capable of sustaining a harvest while protecting other areas where stocks are weak or rebuilding. The proposal was approved by the BOF and the Eastern and Western sections were implemented prior to the 2005/06 fishery. Since that time, commercial harvests have averaged approximately 250,000 pounds harvest per year in the Western Section. The Eastern Section has not met the regulatory criteria for a commercial Tanner crab fishery.

Overview of the 2008/09 South Peninsula District Tanner Crab Fishery

The Western Section of the South Peninsula District opened as scheduled on January 15, 2009 although weather delayed most of the fleet from leaving port for approximately 24 hours. Throughout the season, effort was limited by high winds, rough seas, and freezing spray.

A total of 12 vessels and one processor participated in the fishery. Most effort and harvest occurred in the Morzhovoi Bay area although several vessels targeted Tanner crab in Lenard's Harbor near Cold Bay and Deer Island adjacent to King Cove. Harvest from the 2008/09 South Peninsula District fishery, including deadloss, totaled 265,560 pounds from 66 landings. The estimated exvessel value of the fishery was \$347,884 based on an initial average payment of \$1.31 per pound (Table 5).

ADF&G regulated the 2008/09 commercial fishery to ensure commercial harvest was proportional to the abundance level of legal sized male Tanner crab observed during the 2008 assessment survey. By February 3, approximately 40,000 pounds of Tanner crab had been harvested near Lenard's Harbor, prompting the closure of Cold Bay on February 4. By February

27, declining CPUE warranted closure of the remainder of the Western Section to protect the long term health of the stock. Most Tanner crab vessels had switched to other commercial fisheries at the time of the closure.

Status of South Peninsula District Tanner Crab Stock

Based on 2008 trawl survey data, the total estimated Tanner crab abundance in the South Peninsula District was 92,842,908 crabs, which represents the highest South Peninsula Tanner crab population estimate on record since trawl surveys were adopted as the primary survey tool in 1988 (Spalinger 2009). The 2008 estimate was an increase of approximately 16 million crabs (24%) compared to the 2007 (77.0 million) and 2006 (77.4 million) estimates and an increase of approximately 70 million crabs compared to the 2005 population estimate of 22.3 million crabs. Recent increases in Tanner crab abundance result from higher levels of sublegal male Tanner crabs observed during the survey. Based on survey data, Morzhovoi Bay supported the highest densities of crab during 2008 (Figure 5) although crab abundance was observed to be higher throughout the South Peninsula District. Egg clutches of 5,228 mature female Tanner crabs showed approximately 68.3% of all mature females examined had a clutch fullness of 50% or higher.

DUNGENESS CRAB

INTRODUCTION

Dungeness crab fisheries in the Kodiak, Chignik, and Alaska Peninsula districts are part of Registration Area J and are managed from the ADF&G Kodiak office. There are no GHGs for Dungeness crab in the registration area. The commercial fishery is managed by regulating sex, size, and season ('3-S' management). Under 3-S management, only male crabs 6.5" CW or larger may be retained during the open fishing season. There are no pot limits or vessel size restrictions established for any Dungeness crab fishing district in Registration Area J. However, participants must hold a valid CFEC interim-use permit card and ADF&G shellfish registration and have circulating seawater tanks inspected prior to participating in the fishery.

KODIAK DISTRICT

Description of the Area

The Kodiak District for Dungeness crab includes waters south of the latitude of Cape Douglas (58°51.85' N lat.), west of the longitude of Cape Fairfield (148°50.25' W long.) and east of the longitude of Kilokak Rocks (156°19' W long.; Figure 6).

Overview of Current Fishery Regulations

The Kodiak District is a nonexclusive open access fishery for Dungeness crab. Due to the lack of stock specific data, there are no GHGs or other harvest thresholds established for the fishery. Dungeness crab may be taken from May 1 to January 1 in most areas of the Kodiak District. However, south of the line from the southernmost tips of Boot Point (Eastside Kodiak Island) and Cape Ikolik (Westside Kodiak Island), Dungeness crab may only be taken from June 15 through January 1 (Figure 6).

Historical Background

Dungeness crabs were commercially harvested in the Kodiak District beginning in 1962. Harvest peaked in the late 1960s then slowly declined through the late 1970s (Table 6). This trend was reversed starting in the early 1980s when declines of other commercially harvested Alaskan shellfish created renewed interest in Kodiak Dungeness crab (Jackson 1997). As a result, effort and harvest rebounded considerably and remained relatively stable through the late 1980s. Beginning in 1991, Dungeness crab harvests again declined and remained depressed through the 2007/08 season (Table 6). During the 2008/09 season, approximately one million pounds of Dungeness crab were harvested which was the highest reported harvest since the 1993/94 season. Historically, most Dungeness crab harvested in the Kodiak District were taken adjacent to Sitkinak and Tugidak Islands (Figure 6).

Due to occurrence of paralytic shellfish poisoning (PSP) in Kodiak District Dungeness crabs the Alaska Department of Environmental Conservation (ADEC) placed restrictions on the sale of live and whole cooked crabs starting in 1992. Prices paid for Kodiak Dungeness crabs dropped significantly after ADEC restrictions took effect and remain at comparatively low levels today.

2009/10 Kodiak District Dungeness Crab Fishery

The 2009/10 fishery opened on May 1, 2009 except in the southern portion of Kodiak Island which opened June 15 (Figure 6). Vessels registered for Dungeness crab in the Kodiak District ranged from 24 to 95 feet in total length with a district-wide average of 54 feet. The number of pots ranged from 100 to 1,800 pots per vessel with a district-wide average of 750 pots per vessel. By regulation, the fishery closed on January 1, 2010.

In total, 17 vessels harvested 1,335,503 pounds from 108 landings (Table 6). The majority of harvest came from statistical area 545601 near Sitkinak and Tugidak Islands and statistical area 525701 inside Ugak Bay (Table 7). The first delivery occurred shortly after the season opened on May 1. Harvest peaked during July then steadily declined through the last delivery which occurred in November (Figure 7). CPUE averaged five legal crabs per pot for the season. Similar to prior seasons, CPUE was highest in July and August during peak effort. Based on 2,331 samples taken from the commercial fishery, the average weight of Dungeness crabs harvested during the 2009/10 fishery was 2.1 pounds. The mean CW was 177 mm compared to a mean CW of 174 observed in 2008/09 (Figure 8). The 2009/10 season had a predominance of old shell crab harvested in contrast to the 2008/09 season when predominantly new shell Dungeness crab were harvested.

The average price per pound of Dungeness crab in 2009/10 was \$1.58, down from \$2.20 the previous season (Table 6). The estimated exvessel value for the 2009/10 fishery was \$2.1 million, compared to \$2.3 million in 2008/09.

CHIGNIK DISTRICT

Description of the District

The Chignik District for Dungeness crab includes waters west of Kilokak Rocks (156°19' W long.), and east of a line extending 135° southeast from Kupreanof Point (55°33.98' N lat., 159°35.88' W long.; Figure 9).

Overview of Current Fishery Regulations

The Chignik District is a superexclusive registration district for Dungeness crab. Only male Dungeness crab with a 6.5" CW or larger may be taken from May 1 to January 1.

2009/10 Chignik District Dungeness Crab Fishery

Through 2001, the Chignik and Alaska Peninsula districts were separate districts. The Chignik District was created by the Alaska BOF prior to the 2002/03 season and less than three vessels or processors have participated in the fishery annually since that time. Therefore, harvest and effort data is combined with the Alaska Peninsula District to ensure confidentiality. During the 2009/10 season, seven vessels participated in either the Chignik or Alaska Peninsula district, landing approximately 543,000 pounds of Dungeness crab (Table 8).

ALASKA PENINSULA DISTRICT

Description of the District

The Alaska Peninsula District for Dungeness crab includes all waters west of a line extending 135° southeast from Kupreanof Point (55°33.98' N lat., 159°35.88' W long.), and east of the longitude of Scotch Cap Light (164°44' W long.; Figure 9).

Overview of Current Fishery Regulations

The Alaska Peninsula District is a superexclusive registration district for Dungeness crab. Only male Dungeness crab with a 6.5" CW or larger may be taken from May 1 to January 1.

Historical Background

Historically, annual Dungeness crab harvest levels in the Alaska Peninsula District were sporadic, ranging from a low of 11,000 pounds in 1971 to a high of approximately 1.3 million pounds recorded in 1968 (Table 8). Overall, poor market conditions and better prospects in other crab fisheries generally limited the amount of commercial effort and harvest. However, during the early 1980s, the decline in king crab stocks and a stronger market for Dungeness crabs generated renewed interest in the fishery and harvests rapidly increased. In response, the BOF specified the Alaska Peninsula District as a superexclusive registration district in 1983. Since that time effort in the district has declined and recent catches remain relatively small.

2009/10 Alaska Peninsula District Dungeness Crab Fishery

The 2009/10 Alaska Peninsula District Dungeness crab season opened May 1. Due to the limited number of participants, harvest data is combined with the Chignik District to maintain confidentiality. During the 2009/10 season, seven vessels participated in either the Chignik or Alaska Peninsula district landing approximately 543,000 pounds of Dungeness crab (Table 8). The average price was \$1.49 per pound resulting in an exvessel value of approximately \$809,000.

STATUS OF KODIAK, ALASKA PENINSULA, AND CHIGNIK DISTRICTS DUNGENESS CRAB STOCKS

In the Kodiak, Chignik, and Alaska Peninsula districts stock assessment activities are limited to monitoring and sampling commercial fishery deliveries. Measures of stock size or status are not possible based on this limited data.

KING CRAB

GENERAL RED KING CRAB INFORMATION

Red king crab fisheries in the Kodiak Area open by regulation on September 25 if biomass estimates met or exceeded threshold levels contained in the Harvest Strategy for Kodiak and Bristol Bay Red King Crab and Saint Matthew Island and Pribilof Blue King Crab, Special Publication Number 7 (Pengilly and Schmidt 1995). In the Kodiak Area, a population threshold of 5.12 million mature females is necessary for a commercial fishery to occur. The female threshold is further broken down by individual management districts. Additional harvest strategy criteria restricts harvest to only 20% of mature males and caps harvest on legal-sized males at 60% of the estimated legal-sized population. Stock size is estimated annually by a trawl survey conducted aboard the *R/V Resolution*. Trawl surveys indicate red king crab population levels remain below the threshold to consider a commercial fishery in the Kodiak and Alaska Peninsula areas.

GENERAL GOLDEN KING CRAB INFORMATION

Minor harvests of golden king crab have occurred in the Kodiak Area. The Alaska Peninsula Area remains largely unexplored for golden king crabs. Golden king crabs in the Kodiak and Alaska Peninsula areas may be harvested from January 1 to December 31. GHL's are not established for either fishery; however, effort, reporting, harvest, and legal gear are closely regulated through a commissioner's permit.

KODIAK AREA

Description of the Area

The Kodiak King Crab Management Area includes waters of the Gulf of Alaska south of the latitude of Cape Douglas (58°51.10' N lat.), and east of the longitude of Cape Kumlik (157°27' W long.). The Kodiak Area is further subdivided into five districts for king crab management, the Northeast, Southeast, Southwest, Semidi Island, and Shelikof districts (Figure 10).

RED KING CRAB

Overview of Current Fishery Regulations

The Kodiak Area is an exclusive registration area for red king crab. The Kodiak Area pot limit ranges from 25 to 75 pots per vessel depending on the GHL. GHLS are established annually based on the surveyed king crab population when provisions of the harvest strategy are achieved (Pengilly and Schmidt 1995).

Historical Background

Beginning in 1936, small amounts of red king crab were landed in Kodiak, but catches were not officially recorded until 1950. During this time, the fishery was largely exploratory as fishermen were developing gear, locating commercially harvestable quantities of crab, and expanding markets. Once established, the fishery grew rapidly and by 1960, 21 million pounds of red king crab were harvested during a year-long season (Table 9). Harvest peaked during the 1965/66 season, when over 94 million pounds of crab were landed during a 12 month fishing season. The fishing season was reduced to 10 months beginning with the 1966/67 season. From that time catches ranged from approximately 11 to 74 million pounds annually through the 1981/82 season.

Harvest declined sharply during the 1982/83 season, totaling 8.7 million pounds which was the lowest recorded catch in 23 years (Table 9). High effort and low catch resulted in an average CPUE of only four legal crabs per pot for the season. These factors, combined with rapidly declining abundance estimates observed during annual assessment surveys prompted ADF&G to close the commercial red king crab fishery prior to the start of the 1983/84 season. The red king crab fishery has not reopened since that time.

ADF&G annually conducts trawl surveys to assess king and Tanner crab populations around Kodiak Island, along the Alaska Peninsula, and the Eastern Aleutian Islands. The Kodiak Area remains closed to red king crab fishing based on low abundance. In the event stocks rebound and a commercial fishery reopens, ADF&G developed a harvest strategy that includes a minimum threshold of 5.1 million female red king crabs that must be met prior to considering any future fishery openings (Pengilly and Schmidt 1995). Similarly, the pot limit for commercial king crab fishing in the Kodiak Area was reduced in 1993. Pot limits are currently based on a sliding scale of 25–75 pots per vessel depending on the projected harvest guideline.

STATUS OF KODIAK AREA RED KING CRAB STOCKS

The Kodiak red king crab population remains at historically low levels. The 2008 Kodiak trawl survey completed 217 hauls in known king crab habitat. The red king crab population was estimated to be 28,257 crabs, down from 71,877 crabs in 2007 and 754,730 crabs in 2006 (Spalinger 2010). The majority of king crabs were located in Uyak and Alitak Bays (Figure 11). Annual fluctuation in total population estimates is often large when populations, such as Kodiak red king crab, become depressed and unevenly distributed. In these situations, a small increase or decrease in the absolute number of king crabs encountered during the trawl survey can result in large fluctuations in the population estimate from year to year.

Overall, the mature female red king crab abundance was estimated to be 5,865 crabs, well below the 5.1 million crab threshold required for a fishery opening. Approximately 63% of all mature female crabs sampled during the 2009 trawl survey had egg clutches at least half full.

GOLDEN KING CRAB

Overview of Current Fishery Regulations

The Kodiak Area is a nonexclusive registration area for golden king crab. Under provisions of a commissioner's permit, vessels are limited to a maximum of 75 pots, and only male crabs 6.5 inches CW or larger may be retained. To minimize bycatch of red king crab, all golden king crab pots must be fished at a minimum of 100 fathoms in depth. There is no closed season for golden king crab.

Historical Background

Interest in exploiting golden king crab increased after the collapse of regional red king crab stocks in the early 1980s. Although golden king crabs were occasionally landed incidental to red king crab, the first targeted landings occurred in 1983. In that year, 12 vessels explored the Kodiak Area with limited success. The catch totaled 111,398 pounds from 36 landings (Table 10). Peak harvest occurred in 1986 when 146,478 pounds were landed.

Due to the limited number of vessels that annually target golden king crab, catch and effort information often remains confidential. No commissioner's permits were issued for golden king crab during 2009.

STATUS OF KODIAK AREA GOLDEN KING CRAB STOCK

ADF&G does not assess the Kodiak Area golden king crab stock. The population is believed to be small when compared to golden king crab stocks in the Bering Sea, Aleutian Islands, and inside waters of Southeast Alaska.

ALASKA PENINSULA AREA

Description of the Area

The Alaska Peninsula King Crab Management Area includes waters between Cape Kumlik (157°27' W long.) and Scotch Cap Light (164°44' W long.). The Alaska Peninsula is further divided into the Unimak Bight, Central, and West Chignik districts (Figure 12).

RED KING CRAB

Overview of Current Fishery Regulations

The Alaska Peninsula Area is a superexclusive registration area for red king crab. The pot limit ranges from 40 to 75 pots per vessel depending on the GH. GHs are established annually based on the surveyed king crab population when provisions of the harvest strategy are achieved (Pengilly and Schmidt 1995).

Historical Background

The red king crab fishery in the Alaska Peninsula Area began in 1947, when 141,000 pounds were landed. The fishery expanded through the early 1960s then increased substantially starting in 1964. The largest recorded catch of 22.6 million pounds occurred in 1966 (Table 11). Following peak harvest, catches diminished and averaged approximately 3.5 million pounds per year during throughout 1970s. Most harvest occurred in the Central District near Pavlof Bay and in the Unimak Bight District. Catches in the West Chignik District during this period varied depending on effort, but annually did not exceed 386,000 pounds.

During the 1980/81 season, Alaska Peninsula Area harvest totaled just over 5.0 million pounds, which was the highest catch on record since the 1968/69 season. Recruitment of crabs into the fishery declined appreciably after the 1980/81 season, resulting in an area-wide closure prior to the 1983/84 fishery. The Alaska Peninsula Area has not reopened to commercial red king crab fishing since that time.

STATUS OF ALASKA PENINSULA AREA RED KING CRAB STOCKS

Based on the 2009 ADF&G trawl survey, the red king crab stock remains at historically low levels. The population estimate for 2009 was 22,569 crabs, down from 26,569 crabs estimated in 2008 (Spalinger 2010). Wide ranges in sizes of both sexes were observed. Similar to the Kodiak Area, annual fluctuations in population estimates are due to sampling variability associated with depressed and unevenly distributed crab populations.

GOLDEN KING CRAB

Overview of Current Fishery Regulations

The Alaska Peninsula Area is a superexclusive registration area for golden king crab. Similar to the Kodiak District, golden king crab may only be taken under the guidelines of a commissioner's permit. Male golden king crab 6.5 inches or greater in CW may be taken from January 1 through December 31.

Historical Background

On occasion, fishermen have expressed interest in exploring the Alaska Peninsula Area for golden king crab although little effort has occurred. No vessels registered to fish for golden king crab in the Alaska Peninsula Area during 2009.

STATUS OF ALASKA PENINSULA AREA GOLDEN KING CRAB STOCK

ADF&G does not assess the golden king crab stock in the Alaska Peninsula Area. Exploratory efforts by commercial fishermen have yet to locate quantities sufficient for a commercial fishery.

SHRIMP

SHRIMP TRAWL FISHERY INTRODUCTION

The trawl shrimp fisheries that occur in the Kodiak, Chignik, and South Peninsula districts are part of shrimp Registration Area J. Registration Area J is a nonexclusive registration area for shrimp caught with trawl gear. Most shrimp sections within these districts have established management thresholds referred to as minimum acceptable biomass indices (MABI). For a commercial fishery to occur in a section with an established threshold, the surveyed shrimp biomass must meet or exceed the MABI. Additional information on MABI is found in the Westward Region Shrimp Fishery Management Plan (ADF&G 1982; Jackson 2005). Commercial shrimp fishing in sections with MABI may open by emergency order between June 15 and February 28 in the Kodiak District and between May 15 and February 14 in the Chignik and South Peninsula districts. The remaining general section or undescribed waters within these districts open by regulation, without threshold criteria or established GHs. Shrimp abundance estimates are determined by trawl surveys conducted aboard the *R/V Resolution*.

SHRIMP POT FISHERY INTRODUCTION

Shrimp pot fisheries in the Kodiak, Chignik, and South Peninsula districts are part of shrimp Registration Area J. All of Registration Area J is a nonexclusive registration area for shrimp caught with pot gear. With the exception of six sections located in the Kodiak and Chignik districts, fishing for shrimp with pots is open all year, and no GHs are established.

KODIAK DISTRICT

Description of the District

The Kodiak District for shrimp includes waters east of the longitude of Kilokak Rocks. The Kodiak District is further divided into fifteen sections: Inner Marmot Bay, Ugak Bay, Kiliuda Bay, Two Headed Island, Alitak Bay, Olga Bay, Uyak Bay, Uganik Bay, West Afognak, North Afognak, Mainland, Marmot Island, Chiniak Bay, Alitak Flats, and General sections (Figure 13).

Historical Background

Trawl fishing for shrimp in the Kodiak District began with a harvest of 31,886 pounds in 1958 (Jackson and Ruccio 2003; Table 12). The fishery grew rapidly before the 1964 earthquake and tsunami destroyed most shore-based processing capacity. Once processors were reestablished the shrimp fishery rebounded and a record 82.2 million pounds were harvested in 1971. Following the peak harvest, Kodiak Area shrimp harvests declined through the 1970s and most effort shifted to the Chignik and South Peninsula districts (Jackson and Ruccio 2003). The Westward Region harvest peaked in 1973 at over 120 million pounds (Figure 14). Stock abundance and harvests declined sharply thereafter. Throughout this time period, pink shrimp (*Pandalus eous*) accounted for over 95% by weight of the total harvest. Other species landed included sidestripe (*Pandalopsis dispar*), coonstripe (*Pandalus hypsinotus*), spot (*Pandalus platyceros*), and humpy (*Pandalus goniurus*) shrimp.

ADF&G initiated a voluntary logbook program in 1967. The resulting information, plus data from trawl surveys conducted by ADF&G since the early 1970s, guided the process for establishing harvest levels. In 1981 the industry requested harvest levels be defined and adopted into regulation. Subsequently, the WESTWARD REGION SHRIMP MANAGEMENT PLAN (5 AAC 31.590) was approved by the BOF in 1982. The objectives of this management plan are to maintain shrimp stocks at a level termed "representative biomass index" (RBI) as determined by trawl surveys, while allowing for a fishery during rebuilding periods. A minimum level at which any harvest could occur was established and termed the MABI (Table 13).

Concurrent with approval of the WESTWARD REGION SHRIMP MANAGEMENT PLAN, the BOF enacted the MAINLAND SHRIMP MANAGEMENT PLAN (5 AAC 31.530) as an "economic alternative" to the more comprehensive regional plan. The mainland plan allowed for shrimp fishing in some bays on the Alaska Peninsula and around Afognak Island regardless of survey results. In September of 1997, the BOF repealed the MAINLAND SHRIMP MANAGEMENT PLAN due to concerns regarding the lack of specific stock information and thus the sustainability of the fishery. Currently, only the General Section which is mostly composed of offshore waters surrounding Kodiak Island (Figure 13) remains open to trawl gear from June 15 through February 28. However, most state waters within the General Section are closed to non-pelagic trawls, including otter and beam shrimp trawl nets. Overall, little commercial trawl effort has occurred in the General Section since the mid-1980s.

Pot fishing for shrimp in the Kodiak District began in 1969 although the pot fishery never developed into a large fishery (Jackson and Ruccio 2003). The largest annual harvest of shrimp with pot gear was less than 19,000 pounds in 1983 (Table 14). Although pot harvests were minor compared to trawl harvests, the North Afognak, West Afognak, and Mainland sections of the Kodiak District were closed to all commercial shrimp fishing in 1997 due to inadequate information regarding the biology and stock status of shrimp in the area. In March 2003, the BOF amended 5 AAC 31.590 WESTWARD AREA SHRIMP FISHERIES MANAGEMENT PLAN and implemented conservative management tools to allow some pot shrimp fishing opportunities. Under the plan, season dates, guideline harvest ranges (GHR), and mandatory logbook requirements were adopted. In areas outside of the management plan, shrimp may be taken year round with pots.

Overview of Current Fishery Regulations

In the Kodiak District, vessel operators must obtain a shellfish registration from ADF&G and an interim-use permit card from CFEC prior to any fishing. Vessel operators may not be registered to take shrimp in more than one district concurrently.

Shrimp may be taken with trawl gear in the Kodiak District General Section from June 15 through February 28. The remaining sections of the Kodiak District are only opened by emergency order. Currently, there is no closed season for shrimp fishing with pot gear in the Kodiak District with the exception of the North Afognak, West Afognak, and Mainland Sections, which have fishing seasons from May 1 through February 28, unless closed earlier by emergency order. The North Afognak, West Afognak, and Mainland sections GHR is established at 0 to 40,000 pounds whole weight, and no more than 15,000 pounds may be harvested from any individual section during a calendar year¹.

2008/09 KODIAK DISTRICT SHRIMP POT AND TRAWL FISHERIES

There was no shrimp trawl effort during the 2008/09 season. Harvest information from the 2008/09 pot fishery is confidential due to the limited number of participating vessels and processors. Historic catch information is located in Table 14.

STATUS OF KODIAK DISTRICT SHRIMP STOCKS

ADF&G conducts trawl surveys to assess shrimp biomass. From 1989 to 2001, surveys were conducted once every 3 years in the Kodiak District. Beginning in 2001, portions of the Kodiak District have been surveyed on an annual basis. Most of the General Section is not surveyed. The highest survey catch of shrimp per kilometer towed in the Kodiak District during the 2009 trawl survey occurred in Marmot Bay and Shelikof Strait (Ellsworth *in prep*). Most sections remain well below MABI. Shrimp biomass in most sections remains at low levels although surveyed biomass in portions of Shelikof Strait increased from 3.4 million pounds in 2008 to 14.7 million pounds in 2009 (Table 13). Trawl gear does not adequately sample the rocky habitat typically associated with spot and coonstripe shrimp. Therefore, no inferences about these species are drawn from the trawl survey.

SOUTH PENINSULA AND CHIGNIK DISTRICTS

Description of the Districts

The Chignik District for shrimp includes all waters west of a line extending south from Kilokak Rocks, east of a line from Kupreanof Point to the easternmost point of Castle Rock, and east of a line extending 135° southeast from the easternmost point of Castle Rock. The Chignik District is divided into nine sections: Kujulik Bay, Chignik Bay, Kuiukta Bay, Mitrofanina Island, Ivanof Bay, Chiginagak Bay, Seal Cape, Nakalilok Bay, and Aniakchak Bay (Figure 13). The offshore waters in the Chignik District are not divided into sections.

The South Peninsula District for shrimp includes all waters west of a line from Kupreanof Point to the easternmost point of Castle Rock, west of a line extending 135° southeast from the easternmost point of Castle Rock and Gulf of Alaska waters east of the longitude of Cape

¹ The current regulation 5 AAC 31.590 limits harvest to 15,000 pounds per calendar year; however, registration and guideline harvest levels are from May 1 through February 28. ADF&G intends to submit a proposal to the BOF to clarify this discrepancy.

Sarichef. The South Peninsula District is divided into eight sections: Stepovak Bay, Unga Straits, West Nagai, Beaver Bay, Kenoys Island, Pavlof Bay, Belkofski Bay, and Morzhovoi Bay sections (Figure 13). The offshore waters in the South Peninsula District are not divided into sections.

Historical Background

Shrimp fishing in the South Peninsula and Chignik districts began in 1968. Harvest peaked at 27 million pounds in the Chignik District (1976/77) and 44 million pounds in the South Peninsula District (1977/78; Table 15). After peak harvest, the South Peninsula District fishery experienced a rapid decline then closed prior to the start of the 1980/81 season. In contrast, shrimp harvests in the Chignik District declined steadily for several years after peak harvest then dropped suddenly to approximately 71,000 pounds during the 1981/82 season. Since that time, all inshore waters in the Chignik District have remained closed and no fishing has occurred in the offshore areas.

The Chiginagak, Nakalilok, and Aniakchak sections of the Chignik District were closed to all commercial shrimp fishing in 1997. The BOF closed these sections due to concerns that inadequate information existed regarding the biology and stock status of shrimp in the Westward Area. In March 2003, the BOF created 5 AAC 31.592 CHIGNIK DISTRICT POT SHRIMP FISHERIES MANAGEMENT PLAN to guide pot fisheries.

Overview of Current Fishery Regulations

Shrimp fisheries in the Chignik and South Peninsula districts are part of Registration Area J. Vessel operators are required to obtain an interim-use permit card from CFEC and a shellfish registration from ADF&G prior to any fishing.

In the Chignik and South Peninsula districts, shrimp may be taken with trawl gear from May 15 through February 14 provided shrimp population estimates are above established MABI thresholds. Most sections are opened and closed by emergency order when abundance thresholds are achieved. Similar to the General Section of the Kodiak District, the remaining waters of the Chignik and South Peninsula districts have no established MABI and are open annually during the established season.

Currently there is no closed season for shrimp fishing with pot gear in the Chignik District with the exception of Chiginagak, Nakalilok, and Aniakchak Bay sections, which have a fishing season of May 1 through February 28, unless closed earlier by emergency order. A GHR of 0 to 40,000 pounds whole weight is established for these three sections, and no more than 15,000 pounds may be harvested from any individual section during a calendar year. There are no closed sections in the South Peninsula District for vessels using pot gear.

2008/09 SOUTH PENINSULA AND CHIGNIK DISTRICTS SHRIMP POT AND TRAWL FISHERIES

There was no fishing effort for shrimp with pot or trawl gear in the South Peninsula or Chignik districts during the 2008/09 seasons.

STATUS OF SOUTH PENINSULA AND CHIGNIK DISTRICTS SHRIMP STOCKS

Only Beaver and Pavlof bays in the South Peninsula district were surveyed in 2009. Survey data suggests both bays remain at historically low shrimp abundance (Ellsworth *in prep*). Population

estimates derived from 2008 survey data are well below MABI throughout the South Peninsula and Chignik districts (Table 13).

RED SEA CUCUMBER

INTRODUCTION

Historically, dive gear has been the only method used to harvest sea cucumbers in the Kodiak, Chignik, and South Peninsula districts. Diving for sea cucumbers may occur from October 1 through April 30 under authority of a commissioner's permit although sea cucumbers may only be taken during specified weekly fishing periods established by emergency order. Similar to Tanner crab, each management district is divided into multiple sections to distribute effort. GHLS are established for each section, and fisheries remain open until section GHLS are attained or the season closes. Fishing periods typically begin on or shortly after October 1. Most fishing periods are 1 to 3 days in length.

Divers are required to submit dive logs along with ADF&G fish tickets for each landing. All divers are required to have a CFEC interim-use card and register with ADF&G prior to participating in the fishery.

KODIAK AND CHIGNIK DISTRICTS

Description of the Districts

The Kodiak District for sea cucumbers includes Pacific Ocean waters of miscellaneous shellfish Registration Area J south of the latitude of Cape Douglas (58°51.10' N lat.), west of the longitude of Cape Fairfield (148°50.25' W long.), and east of the longitude of Cape Kumlik (157°27' W long.). The district is further subdivided into 8 sections: Northeast, Eastside, Southeast, Southwest, Semidi Island, Westside, North Mainland, and South Mainland (Figure 2).

The Chignik District includes the Pacific Ocean waters of Registration Area J west of the longitude of Cape Kumlik (157°27' W long.), and east of a line from the southernmost tip of Kupreanof Point (55°34' N lat., 159°36' W long.) to the easternmost point of Castle Rock, and east of a line extending 135° from the easternmost point of Castle Rock (Figure 3). The Chignik District is not subdivided into sections for sea cucumber management.

Historical Background

Prior to 1991 red sea cucumbers were not commercially harvested in the Westward Region (Table 16). During 1991 and 1992, processors recruited divers to gather small numbers of red sea cucumbers in the Kodiak and Chignik areas to test marketability. In the spring of 1993, processors enlisted several divers to prosecute a commercial fishery. Due to the limited number of participants, harvest information remains confidential.

As the fishery developed, ADF&G announced several management measures intended to prevent overharvest. A seasonal closure from May 1 through September 30 was established to protect spawning aggregates of sea cucumbers, GHLS were established for the Kodiak and Chignik districts, and fishing periods were implemented to allow ADF&G opportunity to accurately track harvest and assess inseason fishery performance. Additionally, management areas for sea cucumbers based on Tanner crab sections were established in the Kodiak District to distribute effort and prevent localized depletion.

Prior to the start of the 1994/95 season, GHGs were set for each newly established section based on production and fisheries performance from the 3 previous seasons. The combined Kodiak and Chignik district GHG was 225,000 pounds for the 1994/95 season. Approximately 167,000 pounds of red sea cucumber were harvested (Table 16). Most effort occurred in the Eastside, Southeast, Southwest, and Westside sections of Kodiak.

Due to low CPUE during the previous season, GHGs for the 1995/96 sea cucumber fishery were lowered to 135,000 pounds in the Kodiak District and 25,000 pounds in the Chignik District. Despite some fluctuation, GHGs have largely remained at similar levels since (Table 17). From 1997 to 2009 effort was concentrated in the Eastside, Southeast, Southwest, and Westside sections of the Kodiak District.

2009/10 KODIAK AND CHIGNIK DISTRICTS RED SEA CUCUMBER FISHERY

The 2009/10 fishery opened October 1, 2009. GHGs for the Kodiak District totaled 140,000 pounds of eviscerated product compared to the Chignik District GHG of 25,000 pounds (Table 17). Given a single processor purchased all sea cucumbers harvested, catch data remains confidential. The Eastside, Southeast, Southwest, and Westside sections of the Kodiak Area were all closed by emergency order when GHGs were attained. The Northeast and Mainland sections remained open for the entire season. The 2009/10 Kodiak District fishery was composed of 5 fishing periods totaling 16 days of fishing. There was no effort in the Chignik District during the 2009/10 season.

STATUS OF KODIAK AND CHIGNIK DISTRICTS RED SEA CUCUMBER STOCKS

There are no population estimates for red sea cucumbers in the Kodiak or Chignik districts. Catch data from commercial fishery logbooks suggests sustained recruitment in areas where sea cucumbers are commercially targeted. Population levels, particularly at depths unavailable to divers, are unknown.

SOUTH PENINSULA DISTRICT

Description of the Area

The South Peninsula District for red sea cucumbers includes all Pacific Ocean waters west of a line from the southernmost tip of Kupreanof Point to the easternmost tip of Castle Rock, west of a line extending southeast 135° from the easternmost tip of Castle Rock, and east of the latitude of Scotch Cap Light (Figure 3).

Historical Background

Waters on the south side of the Alaska Peninsula were initially explored for red sea cucumber in 1993. Overall, little effort has occurred in the South Peninsula District and harvest data are confidential due to the limited number of participants. There have been no landings in the South Peninsula District since 1994.

2009/10 SOUTH PENINSULA DISTRICT RED SEA CUCUMBER FISHERY

No fishing occurred during the 2009/10 season in the South Peninsula District sea cucumber fishery. The season was open from October 1 through April 30 with a GHG of 5,000 pounds for exploratory fishing.

STATUS OF SOUTH PENINSULA DISTRICT RED SEA CUCUMBER STOCKS

Biomass assessment is not conducted on red sea cucumbers in the South Peninsula District; therefore, actual population levels are unknown. In addition, the distribution limit of red sea cucumbers is not well documented. ADF&G trawl surveys have encountered red sea cucumbers as far west as Pavlof Bay.

GREEN SEA URCHINS

INTRODUCTION

Green sea urchins may be harvested under the provisions of a miscellaneous shellfish permit authorized in 5 AAC 38.062. Permit provisions allow for commercial fishing to occur from October 1 to January 31. Sea urchins may only be taken by hand picking, which may be aided by the use of diving gear, abalone iron, or sea urchin rake. A valid CFEC interim-use permit card and vessel registration is required. There are no minimum size limits in regulation, although buyers have only purchased green sea urchins that are approximately 2 or 2.25 inches or greater in test (shell) diameter.

HISTORICAL BACKGROUND

Green sea urchins were not harvested commercially in the Westward Region until 1980 when a small amount was taken in the Kodiak Area to test marketability. There was little further interest in green sea urchins until 1985 when several thousand pounds were harvested. The fishery continued to expand and peak harvest occurred in 1988 at 158,969 pounds (Table 18). Most green sea urchins harvested in Kodiak were shipped live to Japan for processing.

In 2000, ADF&G developed conservative GHLS for the green sea urchin fisheries based on historic harvest information. Similar to red sea cucumbers, Tanner crab management sections were adopted for green sea urchin management. Sections without historic harvest data were assigned a 5,000-pound GHSL. Previously exploited sections were assigned a 10,000-pound GHSL.

2009/10 GREEN SEA URCHIN FISHERY

No divers registered to harvest green sea urchin in the Kodiak or South Peninsula areas during the 2009/10 season.

STATUS OF GREEN SEA URCHIN STOCKS

Green sea urchin stocks in the Kodiak and Alaska Peninsula areas are not assessed. Given the low effort levels, fishery performance data is highly variable and does not allow for inferences on stock status. However, past harvest data indicates biomass in the Kodiak Area is small compared to other areas on the Pacific coast (Lourie and Sanders 2000).

OCTOPUS

INTRODUCTION

Harvest of giant Pacific octopus occurs in the Kodiak, Chignik, and South Peninsula districts of miscellaneous shellfish Registration Area J. There is no closed season for octopus; however, directed fisheries may only occur under the provisions of a commissioner's permit. A valid octopus permit card for the appropriate gear type must be obtained from CFEC prior to participating in a

directed fishery. While in possession of a commissioner's permit for octopus, vessel operators may not participate in other directed fisheries such as the state-waters Pacific cod fishery. However, vessel operators may retain octopus bycatch up to 20% of their target species weight with any valid CFEC permit card when participating in other commercial fisheries. Vessel operators registered for directed harvest may only retain the permissible bycatch levels of other species. No GHs are established for octopus in the Westward Region.

In 2001, ADF&G adopted a revised product recovery rate for octopus designated as "gutted" on fish tickets. The revision has changed historic data within the department's fish ticket database from 1995 to present; therefore, this report may contain data that is different from previously published reports on octopus harvest.

HISTORICAL BACKGROUND

Octopus is considered a groundfish species by National Marine Fisheries Service (NMFS) and a shellfish species under BOF regulation. Prior to 1985, octopus harvests in state and federal waters were negligible and most octopus were retained for bait or kept for personal consumption. Octopus is commonly used as bait in the Pacific halibut *Hippoglossus stenolepis* longline and Pacific cod pot fisheries.

Octopus harvests increased substantially during the 1990s. The decline of many crab stocks in the Gulf of Alaska resulted in reduced fishing opportunities for many pot vessels. In response, those vessels began to target Pacific cod in the Gulf of Alaska which subsequently increased retention of octopus. ADF&G worked with industry to ensure that all octopus harvested, particularly octopus retained as bait, were documented on fish tickets. Historically, most octopus in the Kodiak, Chignik, and South Peninsula districts were harvested within state waters (Tables 19 and 20), and generally corresponds with the distribution of Pacific cod effort.

2009 KODIAK DISTRICT OCTOPUS FISHERY

All octopus harvested in the Kodiak Area during 2009 were taken subsequent to other commercial fisheries. The 2009 Kodiak District incidental harvest totaled 271,320 pounds. Most harvest occurred during state and federal Pacific cod pot fisheries. Forty-five vessels harvested 91,483 pounds from 156 landings in state waters (Table 19). A total of 179,837 pounds were harvested by 56 vessels in federal waters. Fish tickets with price information reported an initial average price of \$0.44 per pound for an estimated total exvessel value of \$104,310.

2009 ALASKA PENINSULA AND CHIGNIK DISTRICTS OCTOPUS FISHERIES

Similar to Kodiak, all octopus harvested in the Chignik and South Peninsula districts during 2009 were taken subsequent to other commercial fisheries. The 2009 incidental harvest totaled 273,823 pounds from state and federal waters combined (Table 20). Forty-three vessels harvested 242,164 pounds in state waters and 31 vessels harvested 31,659 pounds in federal waters. Fish tickets containing price information listed an initial average of \$0.38 per pound for an estimated total exvessel value of \$98,576.

STATUS OF KODIAK, CHIGNIK, AND ALASKA PENINSULA DISTRICTS OCTOPUS STOCKS

Octopus stocks in the Kodiak, Chignik, and Alaska Peninsula districts are not assessed; the population status is unknown.

RAZOR CLAMS

The commercial razor clam fishery in the Kodiak, Chignik and South Peninsula districts are part of miscellaneous shellfish Registration Area J. The Alaska razor clam *Siliqua alta* and the Pacific razor clam *S. patula* may only be harvested under authority of a commissioner's permit. There are no established GHs for clam fisheries.

HISTORICAL BACKGROUND

Razor clams were harvested in the Kodiak District from the early 1920s through 1986 (Table 21). Though many Kodiak Island beaches were explored with some success, commercial harvest primarily occurred about 70 miles northwest of Kodiak in the Kukak Bay, Hallo Bay, Big River, and Swikshak Beach regions. Digging continued on a regular basis until the early 1960s when a combination of increasing federal and state clam processing regulations, poor market conditions, and the 1964 earthquake precipitated harvest declines. Commercial harvesting of clams for human consumption has not been re-established although some hand digging occurs to collect bait for the Dungeness crab fishery. The certification program conducted by the Alaska Department of Environmental Conservation in support of clam fisheries ended in July 1980. Currently, there are no clam beaches in the Kodiak District commercially certified as safe for human consumption.

Many of the principal harvest areas in the Kodiak District are adjacent to the Katmai National Monument, which includes all the land above mean high water from Cape Douglas to Cape Kubugakli. Commercial activity within the monument is restricted as the U.S. Park Service imposes a ban on all camping in support of a business enterprise in the monument. In 1986, the BOF adopted a regulation prohibiting hydraulic mechanical dredges from harvesting clams in the Kodiak District east of Kilokak Rocks.

STATUS OF KODIAK, CHIGNIK, AND ALASKA PENINSULA DISTRICTS RAZOR CLAM STOCKS

Currently, clam stocks in the Westward region are not assessed for population abundance. Past harvest levels in the Kodiak District have been established by reviewing historic catch records and studies conducted by ADF&G. These studies, however, were conducted in the mid-1970s and are of little benefit in assessing current stock status.

OTHER MISCELLANEOUS SHELLFISH FISHERIES

Occasionally, requests to harvest other miscellaneous shellfish in the Kodiak, Chignik, and South Peninsula districts occur. Fishing permit for snails, intertidal mollusks, other crabs, and mussels have been authorized. Information on harvesting shellfish species not described in this report can be obtained by contacting ADF&G. Regulations governing other miscellaneous shellfish can be found in Chapter 38 of the Alaska administrative code.

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TABLES AND FIGURES

Table 1.–Shellfish emergency orders issued for the Kodiak and South Peninsula areas, 2009.

Emergency Order	Effective Date	Explanation
Kodiak Tanner Crab		
4-S-01-09	01/14/09	Delayed opening of the Kodiak District Tanner crab fishery 24 hours due to weather as specified in regulation.
4-S-02-09	01/15/09	Delayed opening of the Kodiak District Tanner crab fishery 24 hours due to weather as specified in regulation.
4-S-03-09	01/16/09	Delayed opening of the Kodiak District Tanner crab fishery 24 hours due to weather as specified in regulation.
4-S-04-09	01/24/09	Closed Eastside Section to Tanner crab fishing for the remainder of the 2008/2009 season.
4-S-07-09	01/29/09	Closed waters of Marmot Bay north of Spruce Cape for the remainder of the 2008/2009 season.
4-S-08-09	02/06/09	Extended daily fishing period in the Northeast District from 10 hours to 15 hours.
Kodiak Sea Cucumber		
4-S-05-09	01/27/09	Opened the Northeast Section of the Kodiak District to red sea cucumber fishing for a 96-hour fishing period.
4-S-06-09	01/31/09	Extended the Northeast Section for an additional 48 hours.
4-S-13-09	10/01/09	Opened the Kodiak District for a 48-hour fishing period.
4-S-14-09	10/13/09	Opened the Northeast, Eastside, Southwest, Westside, North Mainland, and South Mainland sections for a 48-hour fishing period.
4-S-16-09	10/24/09	Opened the Eastside and Westside sections for a 6-hour fishing period and a 72-hour fishing period in the Northeast, North Mainland, and South Mainland sections.
4-S-17-09	10/29/09	Opened the Eastside Section for a 24-hour fishing period and a 72-hour fishing period in the North and South Mainland sections.
South Peninsula Tanner Crab		
4-S-09-09	02/04/09	Closed Cold Bay in the Western Section of the South Peninsula District for the remainder of the 2008/2009 season.
4-S-11-09	02/27/09	Closed the Western Section of the South Peninsula District for the remainder of the 2008/2009 season.

Table 2.—Tanner crab commercial catch, effort, and value for the Kodiak District, 1967–2008/09.

Year/Season	GHL	Number				Pots Lifted	Average CPUE	Average Weight	Avg. Price (\$ Per Pound)	Exvessel Value (\$)
		Vessels	Landings	Crabs ^a	Pounds ^a					
1967	NA	NA	83	NA	110,961	NA	NA	NA	\$0.07	NA
1968	NA	NA	817	NA	2,560,687	NA	NA	NA	\$0.10	NA
1969	NA	85	955	NA	6,827,312	72,748	43	NA	\$0.11	\$751,004
1969/70	NA	67	833	3,237,244	8,416,782	78,266	42	2.6	\$0.11	\$925,846
1970/71	NA	82	453	2,686,067	6,744,163	60,967	44	2.5	\$0.11	\$741,858
1971/72	NA	46	505	3,878,618	9,475,902	65,907	59	2.4	\$0.13	\$1,231,867
1972/73	NA	105	1,466	13,609,688	30,699,777	188,158	72	2.3	\$0.17	\$5,218,962
1973/74	NA	123	1,741	11,857,573	29,820,899	217,523	55	2.5	\$0.20	\$5,964,180
1974/75	NA	74	471	5,459,940	13,649,966	73,826	74	2.5	\$0.17	\$2,320,494
1975/76	NA	104	1,168	10,748,958	27,336,909	199,304	54	2.5	\$0.20	\$5,467,382
1976/77	NA	102	998	7,830,727	20,720,079	164,213	48	2.6	\$0.33	\$6,837,626
1977/78	NA	148	1,483	12,401,243	33,281,472	251,621	49	2.6	\$0.43	\$14,311,033
1978/79	NA	218	1,225	10,702,829	29,173,807	275,455	38	2.7	\$0.55	\$16,045,594
1979/80	NA	211	1,385	6,813,128	18,623,875	282,946	24	2.7	\$0.55	\$10,243,131
1980/81	NA	188	771	4,398,631	11,748,629	174,351	25	2.7	\$0.65	\$7,636,609
1981/82	NA	221	950	5,413,467	13,756,159	230,403	24	2.5	\$1.65	\$22,697,662
1982/83	NA	348	1,439	7,744,812	18,927,061	377,562	21	2.4	\$1.25	\$23,658,826
1983/84	NA	303	1,229	5,891,968	14,478,066	303,764	19	2.5	\$1.20	\$17,373,679
1984/85	NA	216	710	4,540,114	11,947,696	176,215	26	2.6	\$1.46	\$17,404,393
1985/86	NA	233	602	3,454,957	8,990,612	160,220	22	2.6	\$1.78	\$15,984,432
1986/87	NA	190	506	1,832,962	4,839,446	111,198	16	2.6	\$2.24	\$10,819,836
1987/88	NA	178	560	1,648,064	3,959,504	103,391	16	2.4	\$2.27	\$8,969,526
1988/89	NA	171	566	2,096,540	5,185,563	86,056	24	2.5	\$2.84	\$14,703,552
1989/90	NA	232	547	1,437,905	3,446,937	96,956	15	2.4	\$2.36	\$7,989,025
1990/91	2,300,000	135	445	764,357	1,917,713	54,110	14	2.5	\$1.56	\$2,990,659
1991/92	2,600,000	143	434	982,391	2,400,213	47,384	21	2.4	\$2.23	\$5,343,087
1992/93	1,100,000	140	353	518,982	1,318,446	43,528	12	2.5	\$2.11	\$2,780,410
1993/94	1,300,000	130	379	511,131	1,253,462	41,587	12	2.5	\$2.25	\$2,732,432
1994/95 - 1999/00						NO COMMERCIAL FISHERY				
2000/01	500,000	145	192	193,138	510,407	7,233	27	2.6	\$2.29	\$1,147,022
2001/02	500,000	181	279	146,672	361,086	10,446	14	2.5	\$2.04	\$735,995
2002/03	510,000	72	276	215,924	511,324	11,108	19	2.4	\$2.32	\$1,173,440
2003/04	795,000	66	252	254,990	566,218	15,550	16	2.2	\$2.30	\$1,297,405
2004/05	1,750,000	76	290	778,023	1,804,533	23,040	34	2.3	\$1.71	\$2,923,213
2005/06	2,100,000	68	249	890,901	2,123,931	22,145	40	2.4	\$1.43	\$3,030,417
2006/07	800,000	50	96	318,815	765,092	7,834	41	2.4	\$1.77	\$1,345,188
2007/08	500,000	33	64	172,240	425,589	5,569	31	2.5	\$2.00	\$847,178
2008/09	400,000	31	48	148,882	359,056	5,835	26	2.4	\$1.80	\$644,137
5 yr average	1,110,000	52	149	461,772	1,095,640	12,885	34	2.4	\$1.74	\$1,758,027

Note: NA = not available.

^a Includes deadloss.

Table 3.–Tanner crab guideline harvest level, effort, and harvest by section for the Kodiak District, 2004/05–2008/09.

Year	Section ^a	GHL	Vessels ^b	Harvest (lbs)	Pots Lifted	CPUE
2004/05						
	Northeast	550,000	43	467,516	6,876	25
	Eastside	650,000	27	665,339	8,607	33
	Southeast	100,000	9	92,398	1,711	20
	Southwest	450,000	20	574,944	4,021	56
	Semidi	NA		CONFIDENTIAL		
	<i>Total^c</i>	1,750,000	99	1,800,197	21,215	34
2005/06						
	Northeast	550,000	41	519,730	8,565	27
	Eastside	1,300,000	43	1,302,378	10,478	51
	Southeast	100,000	9	130,292	1,489	35
	Southwest	150,000	7	168,984	1,108	61
	Semidi	NA		CONFIDENTIAL		
	<i>Total^c</i>	2,100,000	67	2,121,384	21,640	40
2006/07						
	Northeast	100,000	22	88,584	1,613	24
	Eastside	700,000	39	676,508	6,034	45
	<i>Total^c</i>	800,000	50	765,092	7,834	41
2007/08						
	Northeast	100,000	9	87,774	1,697	22
	Eastside	400,000	30	337,815	3,783	33
	<i>Total^c</i>	500,000	33	425,589	5,569	31
2008/09						
	Northeast	100,000	11	61,092	1,467	18
	Eastside	300,000	24	297,964	4,368	24
	<i>Total^c</i>	400,000	31	359,056	5,835	26

^a The Semidi Island Overlap Section (abbreviated Semidi) does not have a GHL.

^b Total unique vessels; several vessels participated in multiple sections.

^c Totals do not include confidential data.

Table 4.–Tanner crab commercial catch, effort, and value for the Chignik District, 1968–2008/09.

Year/Season	Number				Pots Lifted	Average CPUE	Average Weight	Average Price (\$ Per Pound)	
	GHL	Vessels	Landings	Crabs ^b Pounds ^b					
1968	NA	NA	NA	NA	21,100	NA	NA	NA	
1969	NA	NA	NA	NA	38,100	NA	NA	NA	
1969/70	NA	NA	NA	NA	2,800	NA	NA	NA	
1970/71	NA	NA	NA	NA	152,300	NA	NA	NA	
1971/72	NA				CONFIDENTIAL				
1972/73	NA	15	56	297,363	747,788	8,080	51	2.5	\$0.16
1973/74	NA	25	115	1,585,560	4,054,873	28,083	57	2.6	\$0.20
1974/75	NA	25	91	1,438,508	3,649,444	22,675	63	2.5	\$0.14
1975/76	NA	35	217	4,434,381	11,201,941	59,377	75	2.5	\$0.19
1976/77	NA	21	141	2,098,226	5,672,919	40,604	52	2.7	\$0.33
1977/78	NA	32	140	1,725,042	4,693,830	38,414	45	2.8	\$0.42
1978/79	NA	39	126	926,253	2,536,105	28,378	33	2.7	\$0.55
1979/80	NA	42	155	2,340,004	3,517,920	54,627	25	2.6	\$0.54
1980/81	NA	24	112	1,534,847	3,653,723	44,022	35	2.4	\$0.64
1981/82	NA	45	174	1,343,500	3,240,476	47,830	28	2.4	\$1.21
1982/83	NA	48	136	1,432,029	3,497,370	60,210	24	2.4	\$1.12
1983/84	NA	15	30	148,232	343,579	14,162	10	2.3	\$1.66
1984/85	NA	7	14	91,008	199,452	8,246	11	2.2	\$2.10
1985/86	NA	9	18	86,732	189,087	6,819	13	2.2	\$2.30
1986/87	NA	5	10	53,958	112,513	4,641	12	2.1	\$2.22
1987/88	NA	6	35	152,250	346,556	10,345	15	2.3	NA
1988/89	NA	6	34	142,470	323,120	9,845	15	2.3	\$3.05
1989/90 - 2003/04					NO COMMERCIAL FISHERY				
2004/05	400,000	22	59	184,706	410,741	7,456	25	2.2	\$1.66
2005/06	200,000	4	7	57,547	143,164	2,037	28	2.5	\$1.20
2006/07 - 2008/09					NO COMMERCIAL FISHERY				
5 year average ^a		9	29	118,186	267,219	6,865	19	2.3	\$2.03

Note: NA = not available.

^a Five-year average is the last 5 years of fishery data (1986/87–1988/89 and 2004/05–2005/06).

^b Includes deadloss.

Table 5.—Tanner crab commercial catch, effort, and value for the South Peninsula District, 1967–2008/09.

Year/Season	Number					Pots Lifted	Average CPUE	Average Weight	Average Price (\$ Per Pound)
	GHL	Vessels	Landings	Crabs ^a	Pounds ^a				
1967	NA	NA	NA	NA	3,100	NA	NA	NA	NA
1968	NA	NA	155	36,835	110,610	NA	NA	3.0	NA
1969	NA	NA	173	221,946	606,178	NA	NA	2.7	NA
1969/70	NA	NA	NA	NA	2,093,600	NA	NA	NA	NA
1970/71	NA	17	242	813,610	2,140,585	NA	NA	2.6	\$0.10
1971/72	NA	NA	NA	NA	3,618,900	NA	NA	NA	NA
1972/73	NA	36	390	2,213,006	5,615,563	53,573	41	2.5	NA
1973/74	NA	44	386	3,504,668	8,300,578	58,444	60	2.4	NA
1974/75	NA	44	131	2,053,530	5,195,800	38,153	54	2.5	\$0.14
1975/76	NA	36	288	2,724,509	6,926,161	52,381	52	2.5	\$0.20
1976/77	NA	28	289	2,524,565	6,773,838	63,143	40	2.7	\$0.32
1977/78	NA	36	374	2,847,948	7,446,270	70,587	40	2.6	\$0.40
1978/79	NA	48	332	3,267,122	8,684,408	82,374	40	2.7	\$0.51
1979/80	NA	61	363	2,581,544	6,961,251	96,989	27	2.7	\$0.54
1980/81	6,000,000	43	268	1,274,539	3,294,106	59,560	21	2.6	\$0.58
1981/82	4,500,000	72	365	1,815,060	4,589,042	81,008	22	2.5	\$1.05
1982/83	3,000,000	82	230	1,144,096	2,863,798	70,524	16	2.5	\$1.20
1983/84	2,750,000	61	207	775,472	1,789,883	50,726	15	2.3	\$1.04
1984/85	1,930,000	52	187	1,085,864	2,514,843	48,416	22	2.3	\$1.36
1985/86	3,900,000	75	187	1,589,757	3,781,950	65,078	24	2.4	\$1.67
1986/87	2,000,000	55	106	950,300	2,400,784	37,506	25	2.5	\$1.95
1987/88	3,431,000	73	148	1,360,367	3,328,799	52,516	26	2.4	\$2.17
1988/89	700,000	65	87	433,112	1,055,082	27,958	15	2.4	\$2.68
1989/90 - 1999/00				NO COMMERCIAL FISHERY					
2000/01	375,000	55	67	107,653	258,631	4,426	24	2.4	\$1.32
2001/02 - 2003/04				NO COMMERCIAL FISHERY					
2004/05	300,000	42	68	134,019	295,741	5,655	24	2.2	\$1.67
2005/06	290,000	15	47	126,383	287,749	3,703	34	2.3	\$1.21
2006/07	200,000	6	15	74,187	165,811	1,959	38	2.2	\$0.79
2007/08	250,000	9	42	102,290	236,241	3,368	30	2.3	\$1.01
2008/09	275,000	12	66	122,441	265,560	5,311	23	2.2	\$1.31
5 yr average	263,000	17	48	111,864	250,220	3,999	30	2.2	\$1.22

Note: NA = not available.

^a Includes deadloss.

Table 6.—Dungeness crab commercial catch, effort, and value for the Kodiak District, 1962–2009/10.

Year/Season	Number			Pounds ^a	Pots Lifted	Average Lbs Per Landing	Average CPUE	Average Price (\$ Per Pound)	Exvessel (\$ Value)
	Vessels	Landings	Crab						
1962	NA	149	NA	1,904,567	NA	12,782	NA	\$0.09	\$171,000
1963	NA	354	NA	2,487,512	NA	7,026	NA	\$0.09	\$224,000
1964	29	395	NA	4,254,565	NA	10,537	NA	\$0.09	\$375,000
1965	25	351	NA	3,311,571	NA	9,434	NA	\$0.12	\$397,000
1966	12	144	NA	1,416,174	NA	7,976	NA	\$0.13	\$149,000
1967	18	439	NA	6,663,668	NA	15,179	NA	\$0.13	\$866,000
1968	43	536	NA	6,829,061	NA	12,741	NA	\$0.14	\$956,000
1969	29	455	NA	5,834,628	190,967	12,823	12	\$0.16	\$934,000
1970	33	318	NA	5,741,438	249,800	18,005	9	\$0.14	\$804,000
1971	24	173	515,653	1,445,864	90,913	8,358	6	\$0.18	\$260,000
1972	34	316	766,960	2,059,536	140,921	6,517	6	\$0.40	\$824,000
1973	42	487	879,484	2,000,526	251,467	4,108	3	\$0.50	\$1,000,000
1974	23	172	337,839	750,057	104,062	4,361	3	\$0.47	\$353,000
1975	15	154	307,272	639,813	76,411	4,154	4	\$0.61	\$390,000
1976	4	6	38,072	87,110	4,410	14,518	9	\$0.15	\$13,000
1977					CONFIDENTIAL				
1978	20	173	618,357	1,362,306	93,633	7,875	6	\$0.75	\$1,022,000
1979	28	237	595,850	1,311,275	137,951	5,543	4	\$0.75	\$943,000
1980	21	197	968,829	2,011,736	107,261	10,212	9	\$0.45	\$905,000
1981/82	50	466	2,614,545	5,566,463	295,138	11,945	9	\$0.70	\$3,897,000
1982/83	111	991	2,004,075	4,546,311	481,542	4,588	4	\$0.75	\$3,410,000
1983/84	103	1,079	2,044,505	4,752,148	503,464	4,408	4	\$1.05	\$4,989,000
1984/85	106	1,163	2,393,974	5,303,052	627,441	4,564	4	\$1.45	\$7,689,000
1985/86	125	1,243	1,791,446	4,160,435	599,291	3,347	3	\$1.20	\$4,992,522
1986/87	81	577	439,738	967,423	199,881	1,667	2	\$1.15	\$1,112,500
1987/88	45	379	747,117	1,450,983	150,067	3,828	5	\$1.26	\$1,828,000

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Table 6.–Page 2 of 2.

Year/Season	Number			Pots Lifted	Average Lbs Per Landing	Average CPUE	Average (\$ Price/Pound)	Exvessel (\$ Value)	
	Vessels	Landings	Crab Pounds ^a						
1988/89	50	364	1,064,427	2,125,114	203,237	5,838	5	\$1.06	\$2,243,032
1989/90	47	359	1,428,973	3,077,937	185,242	8,574	8	\$1.10	\$3,378,229
1990/91	62	519	1,301,465	2,937,168	296,168	5,659	4	\$1.54	\$4,497,344
1991/92	62	732	695,470	1,414,499	279,872	1,932	2	\$1.37	\$1,931,178
1992/93	46	501	805,215	1,656,793	218,602	3,306	3	\$0.86	\$1,424,814
1993/94	42	263	647,736	1,369,889	180,534	5,209	5	\$0.92	\$1,258,325
1994/95	31	162	426,848	948,461	151,888	5,855	5	\$1.20	\$1,138,139
1995/96	24	106	257,677	527,434	107,506	4,976	2	\$1.72	\$906,670
1996/97	21	113	334,237	668,772	88,682	5,918	4	\$1.00	\$668,772
1997/98	21	123	257,697	529,550	95,066	4,305	3	\$2.04	\$1,069,892
1998/99	12	60	185,249	371,241	63,926	6,187	3	\$1.45	\$534,055
1999/00	13	72	269,277	551,183	65,721	7,655	4	\$1.57	\$861,957
2000/01	12	69	114,038	238,955	57,037	3,463	2	\$1.65	\$394,173
2001/02	21	57	101,371	208,265	41,760	3,654	2	\$1.95	\$399,341
2002/03	18	74	181,698	355,943	71,096	4,810	3	\$1.46	\$516,325
2003/04	17	89	228,309	467,623	48,715	5,254	5	\$1.50	\$695,031
2004/05	11	57	169,899	352,216	42,990	6,175	4	\$1.50	\$526,644
2005/06	14	75	185,358	390,995	38,422	5,213	5	\$1.25	\$479,726
2006/07	12	62	74,044	148,583	31,670	2,397	2	\$1.45	\$215,147
2007/08	12	86	323,489	663,077	65,071	7,710	10	\$2.19	\$1,370,292
2008/09	15	86	517,567	1,030,498	93,414	11,983	6	\$2.20	\$2,263,001
2009/10	17	108	614,793	1,335,503	129,003	12,366	5	\$1.58	\$2,096,810
5 year average	14	83	343,050	713,731	71,516	7,934	6	\$1.73	\$1,284,995

Note: The western boundary of the Kodiak District for Dungeness crab fishing is the longitude located at Kilokak Rocks, (156°19' W long.). Prior to 2001, the western boundary was located at the longitude located at Cape Kumlik, (157°27' W long.).

^a Includes deadloss.

Table 7.—Harvest, vessels, and landings by statistical area from the Kodiak District Dungeness crab fisheries, 2005/06–2009/10.

Statistical Area	2005/06			2006/07			2007/08			2008/09			2009/10		
	Vessels	Landings	Pounds ^a	Vessels	Landings	Pounds ^a	Vessels	Landings	Pounds ^a	Vessels	Landings	Pounds ^a	Vessels	Landings	Pounds ^a
525701	5	33	69,654	5	22	33,896	3	24	60,622	3	15	30,768	7	32	147,403
525703	3	18	39,331	4	13	14,076	CONFIDENTIAL			3	14	17,548	3	18	41,477
525733	9	43	17,883	7	30	7,403	3	23	6,483	4	6	1,618	CONFIDENTIAL		
535635	0	0	0	0	0	0	3	13	13,114	3	6	5,578	CONFIDENTIAL		
535701	0	0	0	0	0	0	CONFIDENTIAL			4	20	75,782	CONFIDENTIAL		
535703	CONFIDENTIAL			CONFIDENTIAL			3	11	9,923	0	0	0	3	10	26,554
535705	3	19	16,758	CONFIDENTIAL			3	23	39,082	5	19	14,963	CONFIDENTIAL		
535706	CONFIDENTIAL			CONFIDENTIAL			CONFIDENTIAL			0	0	0	3	12	23,640
545601	3	10	187,078	CONFIDENTIAL			4	22	221,937	5	29	543,795	7	30	566,529
545602	0	0	0	0	0	0	CONFIDENTIAL			0	0	0	CONFIDENTIAL		
545632	4	13	15,576	CONFIDENTIAL			4	22	45,188	7	33	243,557	6	28	144,977
Other	10	37	44,715 ^b	6	28	93,208 ^c	6	47	266,728 ^c	14	34	96,890 ^d	17	69	384,923 ^c
Total ^f	37	173	390,995	22	93	148,583	29	185	663,077	48	176	1,030,498	46	199	1,335,503

^a Includes deadloss.

^b Total of 7 statistical areas.

^c Total of 9 statistical areas.

^d Total of 10 statistical areas.

^e Total of 11 statistical areas.

^f Some vessels made landings from more than one statistical area.

Table 8.—Dungeness crab commercial catch, effort, and value for the Alaska Peninsula and Chignik districts combined, 1968–2009/10.

Year/Season	Number			Pounds ^a	Pots Lifted	Average CPUE	Average Weight	Average Price (\$ Per Pound)
	Vessels	Landings	Crab ^a					
1968	NA	NA	434,142	1,259,013	NA	NA	2.9	NA
1969	NA	NA	411,000	1,056,000	NA	NA	NA	NA
1970	NA	NA	4,200	13,000	NA	NA	NA	NA
1971	NA	NA	3,900	11,000	NA	NA	NA	NA
1972	NA	NA	29,400	65,000	NA	NA	NA	NA
1973	CONFIDENTIAL							
1974 -1978	NO COMMERCIAL FISHING EFFORT							
1979	CONFIDENTIAL							
1980	NO COMMERCIAL FISHING EFFORT							
1981/82	CONFIDENTIAL							
1982/83	16	79	357,955	779,600	59,265	6	2.2	\$0.75
1983/84	18	132	565,430	1,207,128	113,061	5	2.1	\$0.97
1984/85	13	99	294,191	647,497	106,056	3	2.1	\$1.38
1985/86	7	31	243,203	497,367	52,717	5	2.05	\$1.29
1986/87	7	28	87,998	180,261	30,280	3	2.05	\$1.05
1987/88	5	21	88,744	182,744	22,588	4	2.06	\$1.09
1988/89	CONFIDENTIAL							
1989/90	CONFIDENTIAL							
1990/91	4	10	31,074	65,806	5,225	6	2.11	\$1.53
1991/92	7	18	39,069	80,248	12,813	3	2.05	\$1.24
1992/93	CONFIDENTIAL							
1993/94	3	15	127,979	273,811	15,675	8	2.14	\$0.79
1994/95	4	24	134,429	277,639	27,590	5	2.07	1.01
1995/96	CONFIDENTIAL							
1996/97	4	9	52,694	112,438	16,557	3	2.1	\$1.11
1997/98	7	17	120,935	240,128	42,703	3	2.0	\$2.06
1998/99	3	8	60,049	116,757	19,800	3	2.0	\$1.44
1999/00-2001/02 ^b	3	7	49,314	95,311	9,651	5		\$1.66
2002/03	4	30	83,208	192,627	12,203	7	2.3	\$1.35
2003/04	5	42	146,469	292,931	14,137	10	2.0	\$1.36
2004/05	6	53	131,640	264,096	22,786	6	2.0	\$1.38
2005/06	6	35	156,045	314,938	16,695	9	2.0	\$1.22
2006/07	4	26	141,747	284,954	15,850	9	2.0	\$1.45
2007/08	4	36	241,550	465,261	19,334	12	1.9	\$1.90
2008/09	7	39	261,681	517,141	27,847	9	2.0	\$2.02
2009/10	7	56	266,075	542,831	42,691	6	2.0	\$1.49
5 year average	6	38	213,420	425,025	24,483	9	2.0	\$1.62

Note: In 2001/02 the Alaska Peninsula District was divided into the Alaska Peninsula and Chignik districts.
NA = not available.

Confidential = Less than three vessels participated or less than three processors purchased product.

^a Includes deadloss.

^b Seasons combined to maintain confidentiality.

Table 9.—Red king crab commercial catch, effort, and value for the Kodiak Area, 1960/61–2009/10.

Fishery Year ^a	Vessels	Landings	Number of Crab ^b	Number of Pounds ^b	Pots Lifted	Average		
						CPUE	Weight Per Crab	Price Per (\$) Pound
1960/61	143	NA	2,116,375	21,064,871	NA	NA	NA	\$0.09
1961/62	148	NA	3,181,554	28,962,900	NA	NA	NA	\$0.10
1962/63	195	NA	4,146,143	37,626,703	NA	NA	NA	\$0.10
1963/64	181	NA	4,158,988	37,716,223	NA	NA	NA	\$0.10
1964/65	189	NA	4,923,309	41,596,518	95,951	51	NA	\$0.10
1965/66	175	NA	11,061,709	94,431,026	173,083	64	NA	\$0.13
1966/67	213	NA	8,476,299	73,817,779	223,174	38	NA	\$0.11
1967/68	227	3,847	5,147,321	43,448,492	207,392	25	NA	\$0.26
1968/69	178	1,839	2,348,950	18,211,485	119,146	20	NA	\$0.26
1969/70	136	978	1,606,181	12,200,571	96,841	17	NA	\$0.28
1970/71	100	830	1,561,318	11,719,970	119,192	13	NA	\$0.30
1971/72	89	507	1,539,157	10,884,152	66,166	23	NA	\$0.39
1972/73	88	683	2,029,670	15,479,916	70,806	29	NA	\$0.55
1973/74	129	837	1,847,679	14,397,287	77,826	24	NA	\$0.45
1974/75	158	1,195	2,910,201	23,582,720	110,297	26	NA	\$0.45
1975/76	169	1,569	2,976,909	24,061,651	113,795	26	8.1	\$0.66
1976/77	195	1,165	2,177,956	17,966,846	130,777	17	8.2	\$1.37
1977/78	179	1,186	1,590,477	13,503,666	145,867	11	8.5	\$1.34
1978/79	194	1,077	1,464,021	12,021,850	177,261	8	8.2	\$1.60
1979/80	247	1,346	1,979,394	14,608,900	207,991	9	7.3	\$0.95
1980/81	164	1,175	2,787,199	20,448,654	201,531	14	7.3	\$1.05
1981/82	246	2,214	3,035,674	24,237,601	388,751	8	8.0	\$2.00
1982/83	309	1,373	1,011,109	8,729,761	283,795	4	8.6	\$3.75
1983/84 - 2009/10								NO COMMERCIAL FISHERY

Note: NA = not available.

^a Fishery year defined as: May 1–April 30 from 1960/61–1965/66,
July 1–April 30 from 1966/67–1968/69, and
August 15–January 15 from 1969/70–1982/83

^b Includes deadloss.

Table 10.—Golden king crab commercial catch, effort, and value for the Kodiak Area, 1983–2009.

Year	Vessels	Landings	Number		Pots Lifted	Average			Exvessel Value (\$)
			Crab ^a	Pounds ^a		CPUE	Weight (lbs)	Price Per (\$) Pound	
1983	12	36	16,349	111,398	8,490	2.0	6.8	\$3.00	\$334,194.0
1984	6	8	3,513	22,066	1,950	2.0	6.3	\$2.50	\$55,165.0
1985	4	19	10,005	63,641	2,693	4	6.4	\$1.96	\$124,736
1986	4	31	21,862	146,679	5,463	4	6.7	\$2.99	\$438,570
1987	5	38	9,485	67,191	3,187	3	7.1	\$3.17	\$212,995
1988									CONFIDENTIAL
1989									CONFIDENTIAL
1990	3	6	1,214	7,314	1,090	1	6.0	\$3.00	\$21,942
1991	0	0	0	0	0	0	0	0	0
1992									CONFIDENTIAL
1993									CONFIDENTIAL
1994	0	0	0	0	0	0	0	0	0
1995									CONFIDENTIAL
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0
2000									CONFIDENTIAL
2001									CONFIDENTIAL
2002	3	7	5,464	25,184	990	6	4.6	\$3.14	\$79,078
2003									CONFIDENTIAL
2004									CONFIDENTIAL
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0

Note: NA = not available.

Confidential = less than 3 vessels participated or less than 3 processors purchased product.

^a Includes deadloss.

Table 11.—Red king crab commercial catch, effort, and value for the Alaska Peninsula Area, 1947–2009/10.

Year/Season	Number				Pots Lifted	Average CPUE	Average Weight	Average Price (\$ Per Pound)
	Vessels	Landings	Crab ^a	Pounds ^a				
1947	NA	NA	18,800	141,000	NA	NA	7.5	NA
1948	NA	NA	518,500	3,363,000	NA	NA	6.5	NA
1949	NA	NA	205,500	3,476,000	NA	NA	12.0	NA
1950	NA	NA	270,000	2,124,000	NA	NA	7.9	NA
1951	NA	NA	86,500	599,000	NA	NA	6.9	NA
1952	NA	NA	32,400	298,000	NA	NA	7.6	NA
1953	NA	NA	38,400	380,000	NA	NA	10.0	NA
1954	NA	NA	31,666	316,660	NA	NA	10.0	NA
1955	NA	NA	164,069	1,640,688	NA	NA	10.0	NA
1956	NA	NA	421,651	4,221,496	NA	NA	10.0	NA
1957	NA	NA	668,709	6,687,092	NA	NA	10.0	NA
1958	NA	NA	724,595	7,245,947	NA	NA	10.0	NA
1959	NA	NA	568,303	6,166,974	NA	NA	10.0	NA
1960	NA	1,496	677,100	6,700,000	NA	NA	9.9	NA
1961	NA	959	419,354	3,900,000	NA	NA	9.3	NA
1962	NA	657	287,624	2,273,013	NA	NA	7.9	NA
1963	27	1,037	970,739	6,539,129	NA	NA	6.7	\$0.09
1964	40	1,297	1,906,018	14,354,060	NA	NA	7.5	\$0.10
1965	36	1,081	1,813,728	14,713,501	NA	NA	8.1	\$0.10
1966	37	1,255	2,494,949	22,577,587	NA	NA	9.0	\$0.10
1967	39	1,062	1,943,463	17,252,307	NA	NA	8.9	\$0.19
1968/69	34	885	1,273,567	10,944,472	NA	NA	8.6	\$0.34
1969/70	33	415	558,800	4,137,000	51,300	11	7.7	\$0.25
1970/71	25	339	446,042	3,425,760	38,995	11	7.7	\$0.25
1971/72	26	364	597,394	4,123,130	41,759	14	6.9	\$0.28
1972/73	29	301	610,300	4,069,362	34,408	18	6.7	NA
1973/74	36	389	658,632	4,260,674	53,642	12	6.9	\$0.72
1974/75	36	318	644,054	4,572,101	44,951	14	7.1	\$0.43
1975/76	37	248	367,221	2,605,310	35,104	11	7.2	\$0.41
1976/77	26	122	125,778	958,069	17,748	7	7.7	\$0.61
1977/78	15	73	119,641	726,382	10,551	11	6.1	\$1.00
1978/79	33	226	520,168	3,093,859	31,142	17	5.9	\$1.27
1979/80	68	288	738,859	4,453,557	41,753	18	6.0	\$0.92
1980/81	51	358	821,071	5,080,632	54,114	15	6.2	\$0.96
1981/82	56	341	515,882	3,168,689	51,776	10	6.1	\$1.40
1982/83	63	157	271,237	1,683,654	30,894	9	6.2	\$3.20
1983/84 - 2009/10								NO COMMERCIAL FISHERY

Note: NA = not available.

^a Includes deadloss

Table 12.—Shrimp trawl fishery catch, effort, and value for the Kodiak District, 1958–2009/10.

Year/Season	Vessels	Landings	Harvest in Pounds	Average Price (\$ Per Pound)	Year/Season	Vessels	Landings	Harvest in Pounds	Average Price (\$ Per Pound)
1958	NA	NA	31,886	\$0.04	1983/84	14	63	2,779,030	\$0.35
1959	NA	NA	2,861,900	\$0.04	1984/85	13	59	2,942,922	\$0.33
1960	11	94	3,197,985	\$0.04	1985/86	6	26	1,145,980	\$0.20
1961	12	203	11,083,500	\$0.04	1986/87			CONFIDENTIAL	
1962	11	204	12,654,027	\$0.04	1987/88			CONFIDENTIAL	
1963	NA	NA	10,118,472	\$0.04	1988/89	0	0	0	NA
1964	6	NA	4,339,114	\$0.04	1989/90	0	0	0	NA
1965	11	320	13,823,061	\$0.04	1990/91	0	0	0	NA
1966	17	551	24,097,141	\$0.05	1991/92	0	0	0	NA
1967	23	NA	38,267,856	\$0.05	1992/93	0	0	0	NA
1968	16	NA	34,468,713	\$0.04	1993/94	3	3	1,704	NA
1969	26	935	41,353,461	\$0.06	1994/95	0	0	0	NA
1970	18	1,024	62,181,204	\$0.04	1995/96	0	0	0	NA
1971	49	1,746	82,153,724	\$0.04	1996/97			CONFIDENTIAL	
1972	63	1,398	58,352,319	\$0.04	1997/98			CONFIDENTIAL	
1973	50	1,283	70,511,477	\$0.06	1998/99	5	8	12,724	\$3.25
1973/74	63	1,029	56,203,992	\$0.08	1999/00	3	4	4,325	\$3.00
1974/75	75	1,100	58,235,982	\$0.08	2000/01			CONFIDENTIAL	
1975/76	58	884	49,086,591	\$0.08	2001/02			CONFIDENTIAL	
1976/77	62	762	46,712,083	\$0.10	2002/03			CONFIDENTIAL	
1977/78	58	653	26,409,366	\$0.13	2003/04			CONFIDENTIAL	
1978/79	50	328	20,506,021	\$0.17	2004/05	0	0	0	NA
1979/80	37	242	12,863,536	\$0.23	2005/06			CONFIDENTIAL	
1980/81	67	462	27,101,218	\$0.29	2006/07-2009/10	0	0	0	NA
1981/82	55	298	19,112,367	\$0.27					
1982/83	40	224	10,391,207	\$0.27					

Table 13.—Shrimp minimum acceptable biomass indices (MABI) and population estimates in millions of pounds from surveyed districts and sections, 1998–2009.

District	Section	MABI	Survey Year									
			2009	2008	2007	2006	2005	2004	2003	2002	2001	1998
Kodiak	Inner Marmot Bay	3.6	0.8	1.2	1.2	1.8	1.2	1.5	1.1	1.5	2.8	0.8
	Outer Marmot Bay	24.9	8.6	12.2	10.9	25.0	15.7	10.6	19.8	23.0	71.0	11.4
	Chiniak Bay	1.5	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.6	0.1
	Ugak Bay	4.0	0.1	ND	0.0	ND	0.0	ND	0.0	ND	0.2	ND
	Kiliuda Bay	5.2	0.3	ND	0.1	ND	0.1	ND	0.4	0.6	0.2	0.2
	Twoheaded Island	7.4	0.0	ND	0.3	ND	0.2	ND	0.0	ND	0.2	0.2
	Alitak Bay	4.2	0.1	ND	0.1	ND	0.2	ND	0.2	ND	0.6	0.2
	Uyak Bay	3.2	0.5	ND	0.2	ND	0.6	ND	0.8	ND	0.7	0.4
	Uganik Bay	2.6	0.3	ND	0.1	ND	0.6	ND	0.7	ND	1.3	0.3
	Kukak Bay	none	0.1	ND	0.1	ND	0.1	ND	0.2	ND	0.4	0.1
	Wide Bay	1.1	0.4	0.2	1.5	0.4	0.5	0.8	0.9	2.0	2.2	ND
	Puale Bay	1.2	ND	ND	0.0	ND	0.0	ND	0.1	ND	0.1	ND
	Shelikof Strait	none	14.7	3.4	ND	5.3	30.0	4.1	13.6	ND	27.6	ND
Alitak Flats	2.8	ND	ND	ND	ND	ND	ND	0.1	ND	0.0	ND	
Chignik	Kujulik Bay	3.8	ND	0.1	ND	0.2	ND	ND	ND	0.0	ND	ND
	Chignik Bay	4.6	ND	1.0	ND	1.9	ND	1.2	ND	1.0	ND	ND
	Chiginagak Bay	0.7	ND	0.1	ND	ND	ND	0.1	ND	ND	ND	ND
	Nakalilok Bay	0.8	ND	0.1	ND	ND	ND	0.1	ND	ND	ND	ND
	Kuiukta Bay	1.9	ND	0.0	ND	0.4	ND	0.5	ND	0.4	ND	ND
	Mitrofanía Island	5.2	ND	0.2	ND	ND	ND	0.0	ND	0.3	ND	ND
	Ivanof Bay	5.7	ND	ND	ND	ND	ND	ND	ND	0.0	ND	ND
South Peninsula	Stepovak Bay	23.5	ND	3.3	ND	29.6	ND	2.5	ND	2.4	ND	ND
	Unga Strait	7.5	ND	0.4	ND	2.1	ND	0.4	ND	0.3	ND	ND
	Beaver Bay	4.3	0.0	ND	ND	ND	ND	0.0	ND	0.0	ND	ND
	Pavlof Bay	18.0	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1
	Morzhovoi Bay	10.8	ND	ND	ND	0.0	ND	ND	ND	ND	ND	ND

Note: ND = Not surveyed/No data.

BOLD indicates population estimate above established MABI.

Table 14.–Pot Shrimp fishery catch and effort for the Kodiak District, 1980–2009.

Year	Vessels	Landings	Whole Pounds
1980	4	22	4,485
1981	4	7	2,919
1982	6	18	9,754
1983	12	31	18,686
1984	6	21	4,361
1985-1989 ^a	4	24	8,484
1990-1999 ^a	4	5	515
2000-2009 ^a	3	16	3,201
Total			52,405

^a Years combined to maintain confidentiality.

Table 15.–Trawl shrimp fishery catch, effort, and value for the South Peninsula and Chignik districts, 1968–2009/10.

Year/Season	SOUTH PENINSULA				CHIGNIK			
	Vessels	Landings	Pounds	Average Price (\$ Per Pound)	Vessels	Landings	Pounds	Average Price (\$ Per Pound)
1968	NA	NA	4,465,732	NA	NA	NA	1,062,585	NA
1969		CONFIDENTIAL				CONFIDENTIAL		
1970	4	172	4,425,909	NA	2	23	863,773	NA
1971	3	212	5,212,590	NA	5	27	1,091,711	NA
1972	11	408	14,705,809	NA	18	61	4,110,318	NA
1973	6	66	1,837,401	NA	2	9	951,817	NA
1973/74	12	345	19,960,612	NA	35	316	25,497,942	NA
1974/75	24	403	26,145,720	NA	34	355	23,392,352	NA
1975/76	21	325	20,044,112	NA	53	317	24,435,480	NA
1976/77	59	437	37,147,932	\$0.10	55	345	27,232,630	\$0.10
1977/78	53	403	44,223,213	\$0.13	52	271	26,612,791	\$0.13
1978/79	14	68	5,259,241	\$0.16	40	201	23,257,869	\$0.16
1979/80	10	40	3,134,367	\$0.28	37	192	23,722,330	\$0.22
1980/81 ^a		CLOSED			57	153	13,777,649	\$0.28
1981/82		CLOSED			3	4	70,948	\$0.27
1982/83 - 2009/10		CLOSED				NO EFFORT		

Note: NA = not available.

Confidential = Less than 3 vessels made landings or less than 3 processors purchased product.

^a South Peninsula District closed to trawl gear after the 1979/80 fishery.

Table 16.—Red sea cucumber commercial catch, effort, and value for the Kodiak and Chignik districts combined, 1991–2009/10.

Year/Season	Number			Whole Pounds Harvested ^a	Average Price (\$) ^b Per Pound
	Vessels	Dive Permits	Landings		
1991				CONFIDENTIAL	
1992				CONFIDENTIAL	
1993	37	50	487	564,516	\$0.91
1994 ^b	36	69	164	256,659	\$1.08
1994/95	20	42	113	167,009	\$1.24
1995/96	8	18	52	135,000	\$1.25
1996/97	16	31	88	162,451	\$1.25
1997/98	16	26	65	132,337	\$1.16
1998/99	8	16	44	142,313	\$1.20
1999/00	8	18	56	116,134	\$1.20
2000/01	8	19	56	139,264	\$1.57
2001/02	7	18	51	152,613	\$1.25
2002/03	9	24	65	190,217	\$1.23
2003/04		21		CONFIDENTIAL	
2004/05		15		CONFIDENTIAL	
2005/06		20		CONFIDENTIAL	
2006/07		19		CONFIDENTIAL	
2007/08		16		CONFIDENTIAL	
2008/09		21		CONFIDENTIAL	
2009/10		16		CONFIDENTIAL	

Note: Confidential = Less than 3 permits fished or less than 3 processors purchased product.

^a Pounds of eviscerated product.

^b Covers the period from Jan. 1, 1994 to Sept. 30, 1994.

Table 17.—Red sea cucumber guideline harvest levels, 2009/10.

Area/Section	Sea Cucumber GHL (pounds) ^a
Kodiak District	
Northeast Section	5,000
Eastside Section	40,000
Southeast Section	30,000
Southwest Section	20,000
Westside Section	30,000
North Mainland Section	5,000
South Mainland Section	5,000
Semidi Island Section	5,000
Total Kodiak District	140,000
Chignik District	25,000
Alaska Peninsula District	5,000
Totals	170,000

^a Pounds of eviscerated product.

Table 18.—Green sea urchin commercial catch, effort, and value for the Kodiak District, 1980–2009/10.

Year/Season	Number			Whole Pounds Harvested	Average Price (\$ Per Pound)
	Vessels	Dive Permits	Landings		
1980/81				CONFIDENTIAL	
1981/82	0	0	0	0	ND
1982/83	0	0	0	0	ND
1983/84	0	0	0	0	ND
1984/85	0	0	0	0	ND
1985/86				CONFIDENTIAL	
1986/87				CONFIDENTIAL	
1987/88	12	15	143	142,520	\$0.64
1988/89	12	28	203	158,969	\$0.82
1989/90	14	32	83	49,745	\$0.84
1990/91	13	23	78	72,537	\$0.83
1991/92	5	7	27	33,119	\$0.92
1992/93	8	9	44	39,054	\$1.00
1993/94	7	11	16	8,847	\$1.09
1994/95	5	11	66	45,601	\$1.34
1995/96				CONFIDENTIAL	
1996/97	3	7	26	27,841	\$1.08
1997/98				CONFIDENTIAL	
1998/99				CONFIDENTIAL	
1999/00				CONFIDENTIAL	
2000/01				CONFIDENTIAL	
2001/02				CONFIDENTIAL	
2002/03 - 2009/10	0	0	0	0	ND

Note: Confidential = Less than 3 permits fished or less than 3 processors purchased product.
 ND = No data.

Table 19.—Octopus commercial catch, effort, and value for the Kodiak District, 1985–2009.

Year	State waters			Federal waters			Combined				
	Vessels	Landings	Pounds ^a	Vessels	Landings	Pounds ^a	Vessels ^b	Landings	Pounds ^a	Average Price Per Pound (\$)	Exvessel Value (\$)
1985	6	5	2,299	5	6	2,513	11	11	4,812	\$0.85	\$4,090
1986	CONFIDENTIAL			CONFIDENTIAL			CONFIDENTIAL				
1987	7	13	12,136	2	2	2,015	9	15	14,151	\$1.07	\$15,142
1988	3	3	1,397	1	1	552	4	4	1,949	\$0.73	\$1,423
1989	CONFIDENTIAL			CONFIDENTIAL			CONFIDENTIAL				
1990	28	96	56,052	19	51	20,127	47	147	76,179	\$1.13	\$86,082
1991	56	260	106,748	28	84	22,607	84	344	129,355	\$1.07	\$138,410
1992	69	252	103,230	35	152	44,551	104	404	147,781	\$0.94	\$138,914
1993	18	51	95,899	23	41	8,453	41	92	104,352	\$0.71	\$74,090
1994	4	8	4,504	4	9	613	8	17	5,117	NA	NA
1995	38	293	66,935	20	89	3,673	58	382	70,608	\$0.49	\$34,598
1996	33	194	67,898	26	142	20,670	59	336	88,568	\$0.45	\$39,856
1997	67	526	230,606	57	278	46,296	124	804	276,902	\$0.46	\$127,375
1998	59	406	258,942	57	290	117,332	116	696	376,274	\$0.43	\$161,798
1999	51	308	198,330	30	147	54,676	81	455	253,006	\$0.33	\$83,492
2000	47	292	98,833	46	239	61,550	93	531	160,383	\$0.39	\$62,549
2001	27	206	99,665	30	79	12,712	57	285	112,377	\$0.38	\$42,703
2002	31	214	208,991	26	96	23,078	57	310	232,069	\$0.48	\$111,393
2003	39	119	55,628	20	49	15,527	59	168	71,155	\$0.35	\$24,904
2004	14	42	11,816	15	50	29,718	29	92	41,534	\$0.36	\$14,952
2005	38	109	36,879	68	193	96,354	106	302	133,233	\$0.42	\$55,958
2006	41	183	69,029	43	240	168,110	84	423	237,139	\$0.39	\$92,484
2007	35	270	122,159	62	322	188,811	97	592	310,970	\$0.40	\$124,388
2008	53	367	249,667	131	279	128,960	184	646	378,627	\$0.56	\$212,031
2009	45	156	91,483	56	182	179,837	101	338	271,320	\$0.44	\$104,310

Note: Confidential = less than 3 vessels participated or less than 3 processors purchased product.

^a Does not include discards.

^b Some vessels made landings from both state and federal waters.

Table 20.—Octopus commercial catch, effort, and value for the Chignik and South Peninsula districts combined, 1980–2009.

Year	State waters			Federal waters			Combined				
	Vessels	Landings	Pounds ^a	Vessels	Landings	Pounds ^a	Vessels ^b	Landings	Pounds ^a	Average Price Per Pound (\$)	Exvessel Value (\$)
1980-1985	CONFIDENTIAL			CONFIDENTIAL			CONFIDENTIAL				
1986-1987	NO EFFORT			NO EFFORT			NO EFFORT				
1988	22	58	9,946	16	132	34,622	38	190	44,568	\$0.99	\$12,140
1989	12	40	5,309	15	82	9,581	27	122	14,890	\$0.75	\$11,153
1990	7	45	6,746	15	33	2,393	22	78	9,139	NA	NA
1991	18	71	15,103	14	34	4,267	32	105	19,370	NA	NA
1992	37	149	42,486	34	98	14,027	71	247	56,513	\$0.95	\$53,789
1993	20	62	20,547	16	30	1,994	36	92	22,541	\$0.89	\$16,109
1994	21	43	19,149	4	6	1,271	25	49	20,420	\$0.72	\$15,747
1995	8	14	3,100	2	4	89	10	18	3,189	\$0.43	\$1,373
1996	17	48	10,467	9	26	3,881	26	74	14,348	\$0.35	\$5,187
1997	25	144	51,184	5	11	815	30	155	51,999	\$0.42	\$21,215
1998	9	17	4,712	8	14	2,085	17	31	6,797	\$0.12	\$1,157
1999	4	4	450	6	12	351	10	16	801	NA	NA
2000	6	6	474	10	20	1,426	16	26	1,900	NA	NA
2001	3	6	420	6	17	3,160	9	23	3,580	NA	NA
2002	2	2	918	10	16	6,492	12	18	7,410	NA	NA
2003	15	21	1,404	12	25	18,589	27	46	19,993	\$0.61	\$3,108
2004	64	324	131,791	34	134	161,484	98	458	293,275	\$0.45	\$96,606
2005	39	103	31,816	19	76	75,444	58	179	107,260	\$0.50	\$46,341
2006	40	148	49,083	15	46	18,154	55	194	67,237	\$0.53	\$30,207
2007	51	256	95,139	18	39	20,759	69	295	115,898	\$0.43	\$49,986
2008	43	183	104,498	34	80	95,887	77	263	200,385	\$0.49	\$92,129
2009	43	256	242,164	31	71	31,659	74	327	273,823	\$0.38	\$98,576

Note: NA = not available.

Confidential = less than 3 vessels participated or less than 3 processors purchased product.

^a Does not include discards.

^b Some vessels made landings in both state and federal waters.

Table 21.—Razor clam commercial catch, effort, and value for the Kodiak District, 1960–2009.

Year	Number		Pounds		Ave. Price (\$ Per Pound)	Est. Fishery (\$ Value)
	Registered Diggers ^a	Landings	Ave. per landing	Total		
1960	76	NA	NA	420,636	\$0.11	\$44,000
1961	95	NA	NA	381,971	\$0.11	\$40,000
1962	66	NA	NA	297,516	\$0.11	\$31,000
1963	39	NA	NA	323,757	\$0.11	\$35,600
1964	2	NA	NA	0	\$0.00	\$0
1965	4	NA	NA	20,000	\$0.25	\$5,000
1966	29	NA	NA	15,429	\$0.38	\$6,000
1967	9	NA	NA	2,155	\$0.40	\$900
1968	19	NA	NA	6,384	\$0.40	\$2,600
1969	5	6	2,005	12,029	\$0.40	\$4,812
1970	6	32	4,133	132,261	\$0.40	\$53,000
1971	73	82	2,322	190,394	\$0.30	\$57,000
1972	95	128	1,188	152,116	\$0.35	\$53,000
1973	64	140	1,181	165,282	\$0.40	\$66,000
1974	58	74	2,681	198,381	\$0.50	\$99,000
1975	18	5	1,238	6,188	\$0.50	\$3,000
1976	9	0	0	0	\$0.00	\$0
1977				CONFIDENTIAL		
1978				CONFIDENTIAL		
1979	0	0	0	0	\$0.00	\$0
1980	NA	8	1,001	8,006	\$0.79	\$6,325
1981	NA	5	1,637	8,186 ^b	\$1.00	\$8,186
1982	NA	11	1,055	11,608 ^c	\$1.00	\$11,608
1983	NA	7	1,131	7,920	\$1.00	\$7,920
1984	NA	21	1,613	33,972	\$1.00	\$33,972
1985	NA	11	1,540	16,945 ^d	\$1.00	\$16,945
1986	NA	4	998	3,993	\$1.00	\$3,993
1987 - 2009				NO COMMERCIAL HARVEST		

Note: NA = not available.

Confidential = less than 3 diggers made landings or less than 3 processors purchased product.

^a Represents registered diggers not actual diggers. No data after 1977 due to issuance of statewide Interim-Use Permits.

^b Additional 1,985 pounds of hardshell clams harvested.

^c Additional 1,506 pounds of hardshell clams harvested.

^d Additional 1,496 pounds of hardshell clams harvested.

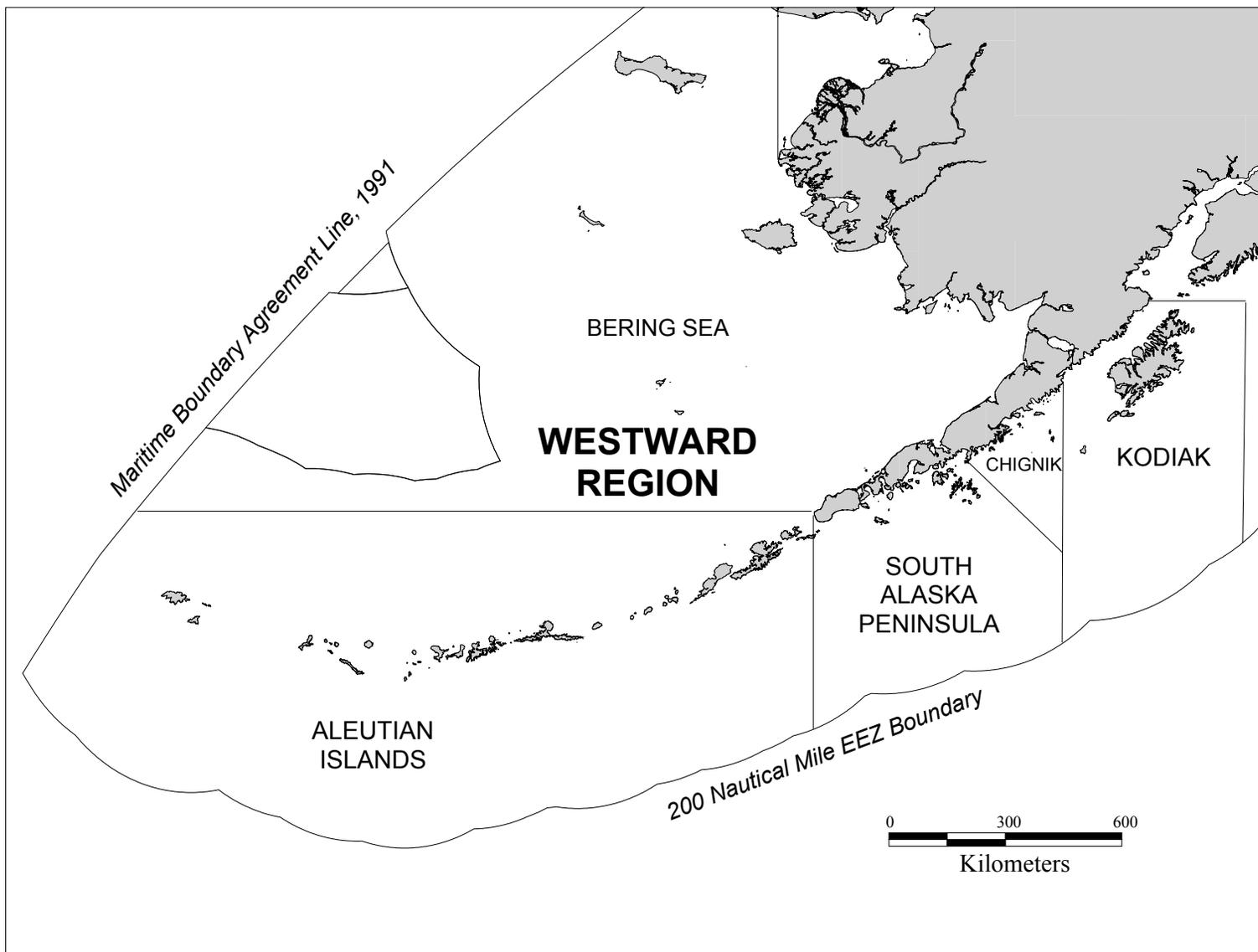


Figure 1.—Alaska Department of Fish and Game shellfish management areas in the Westward Region, 2009.

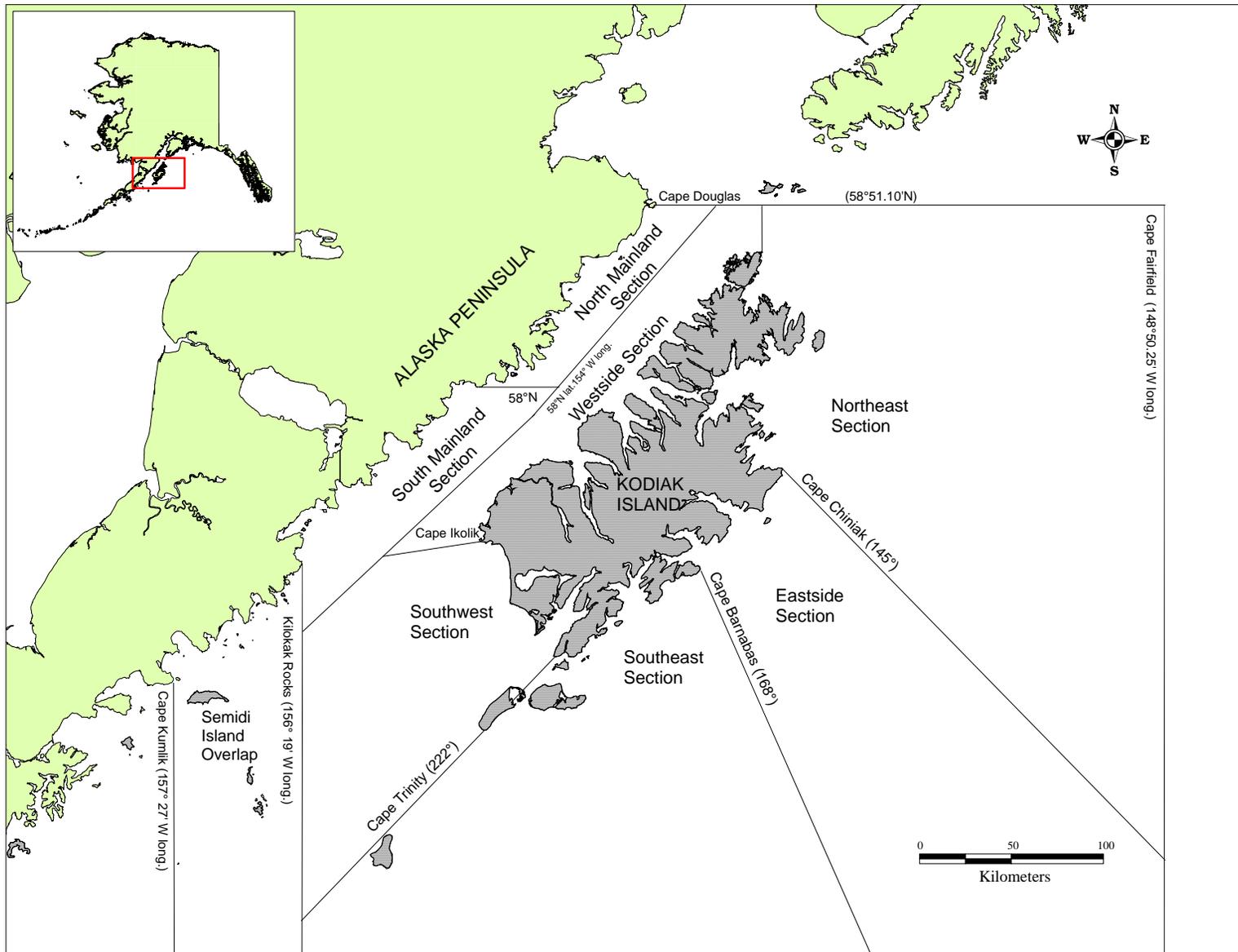


Figure 2.—Kodiak District and sections for Tanner crab and sea cucumber fishery management, 2009

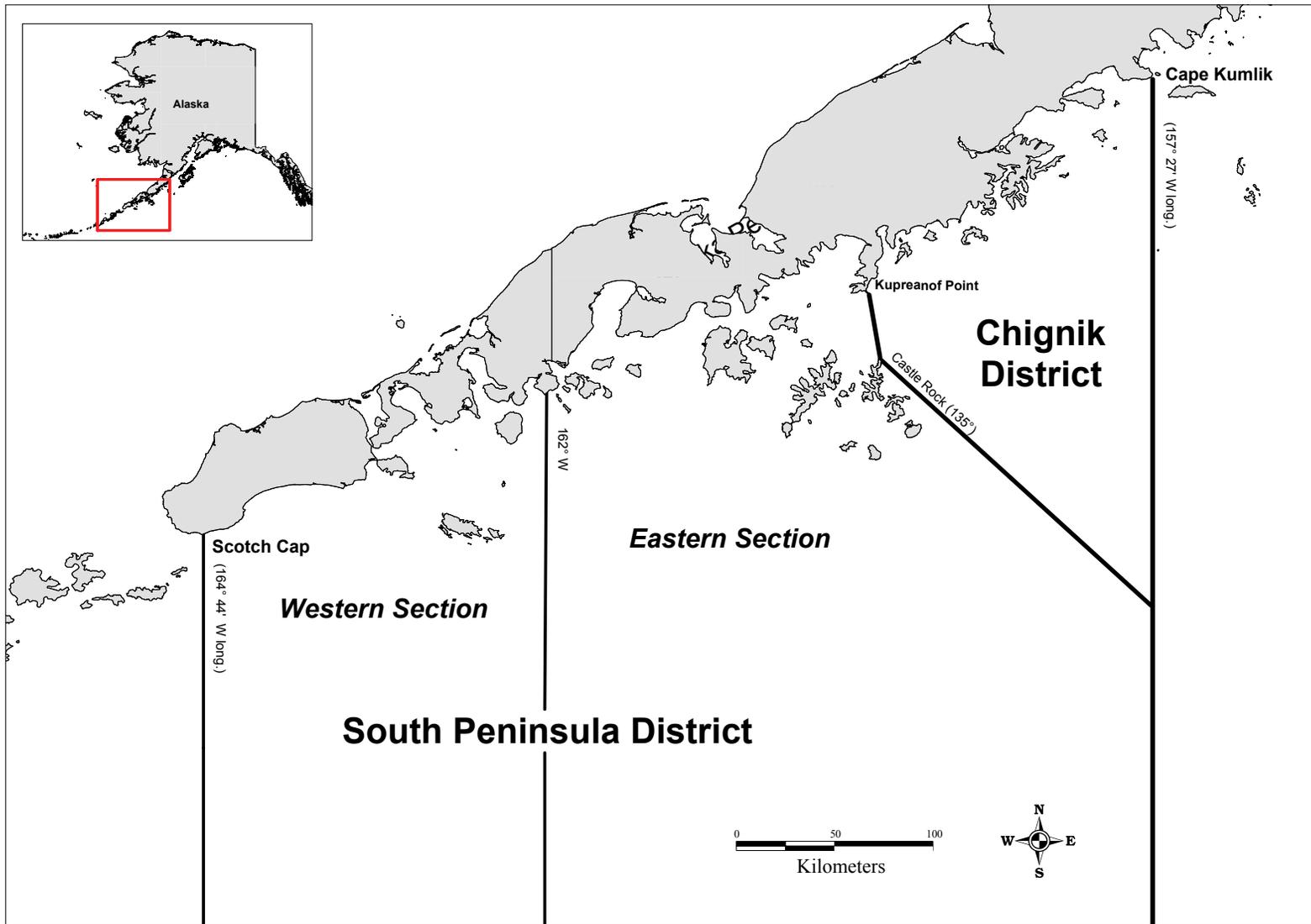


Figure 3.—Chignik and South Peninsula districts for Tanner crab and sea cucumber fishery management, 2009.

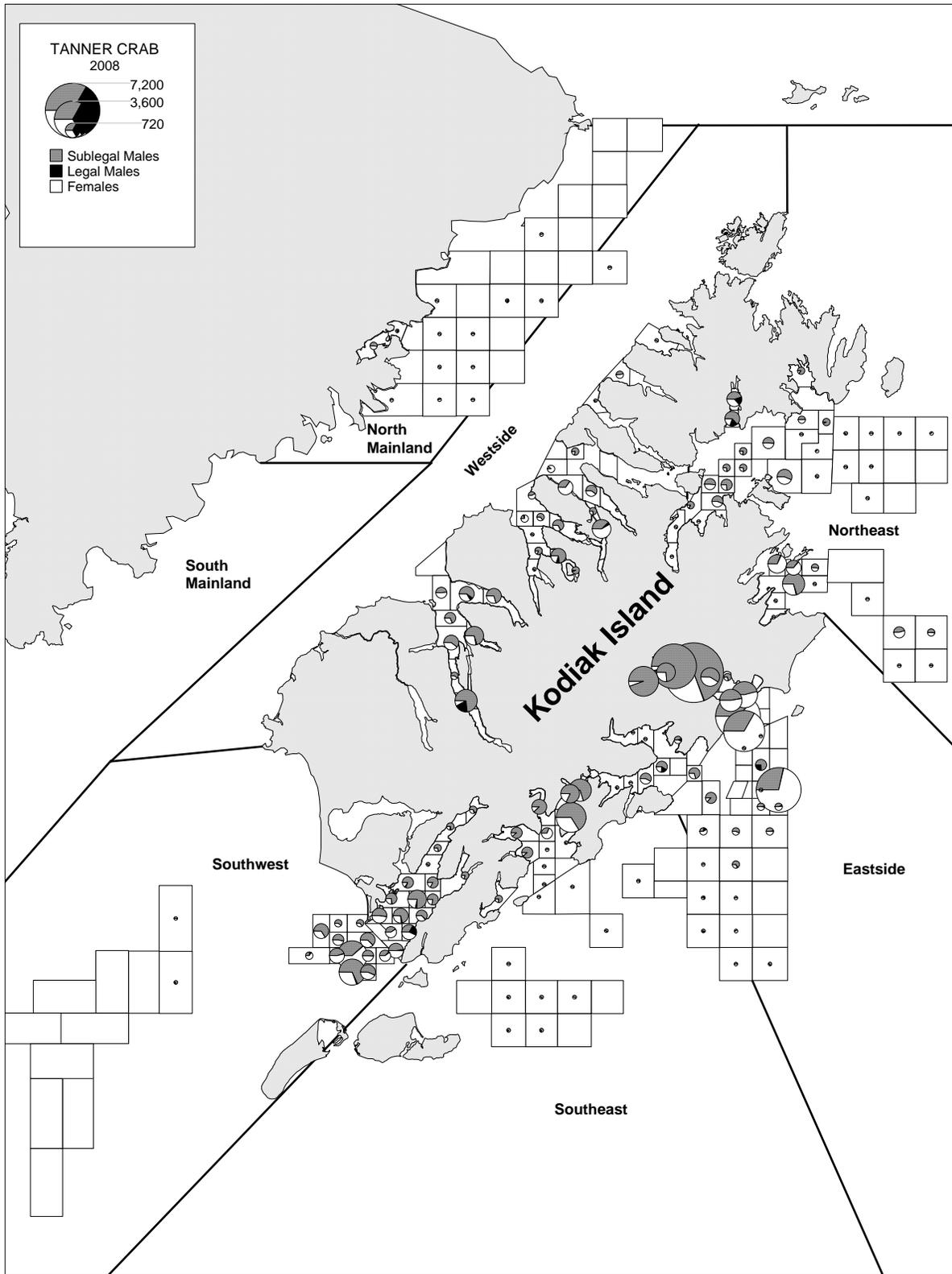


Figure 4.—Number of Tanner crabs per kilometer towed in the 2008 Kodiak District trawl survey.

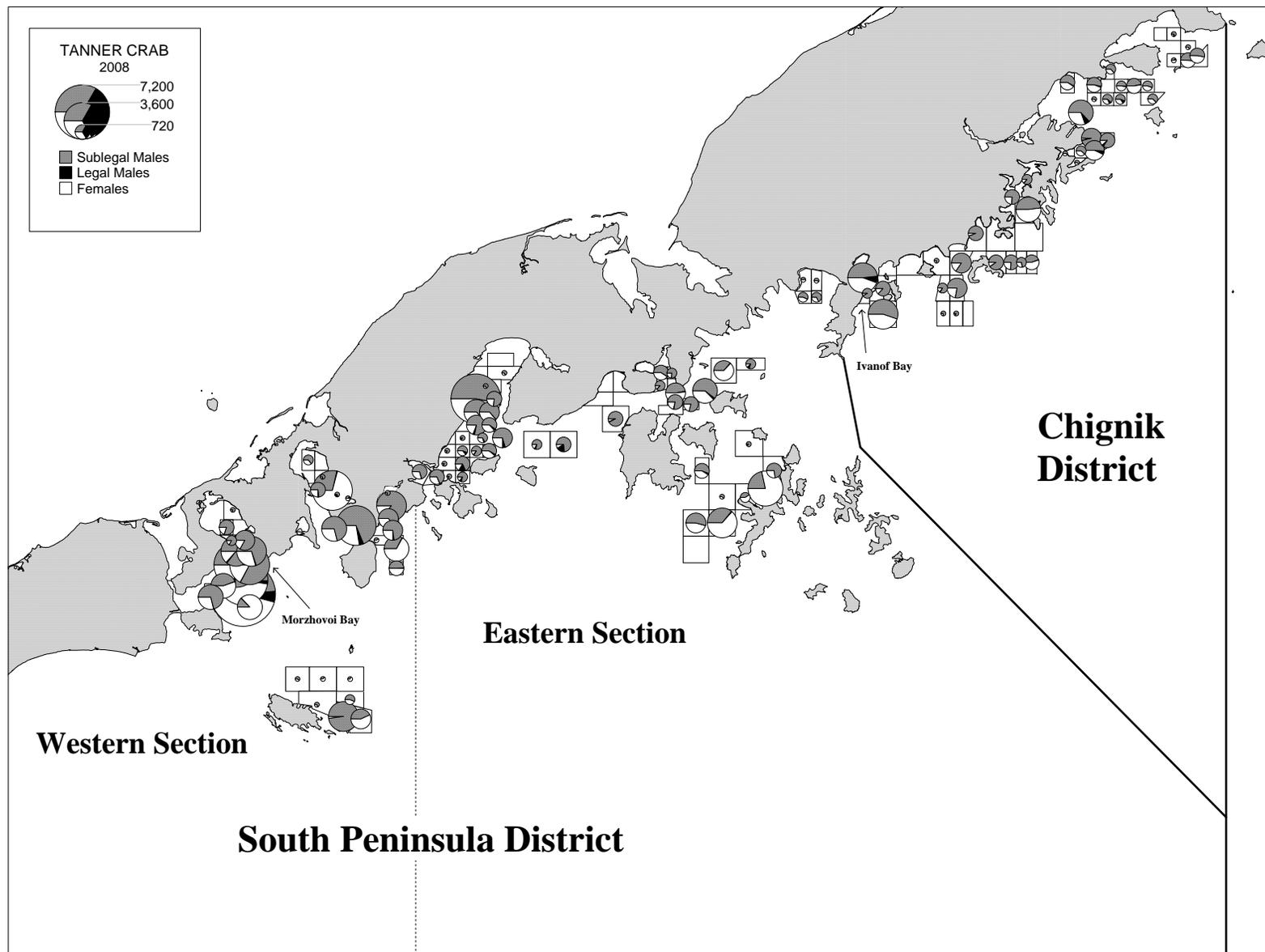


Figure 5.—Number of Tanner crabs per kilometer towed in the 2008 Chignik and South Peninsula districts trawl survey.

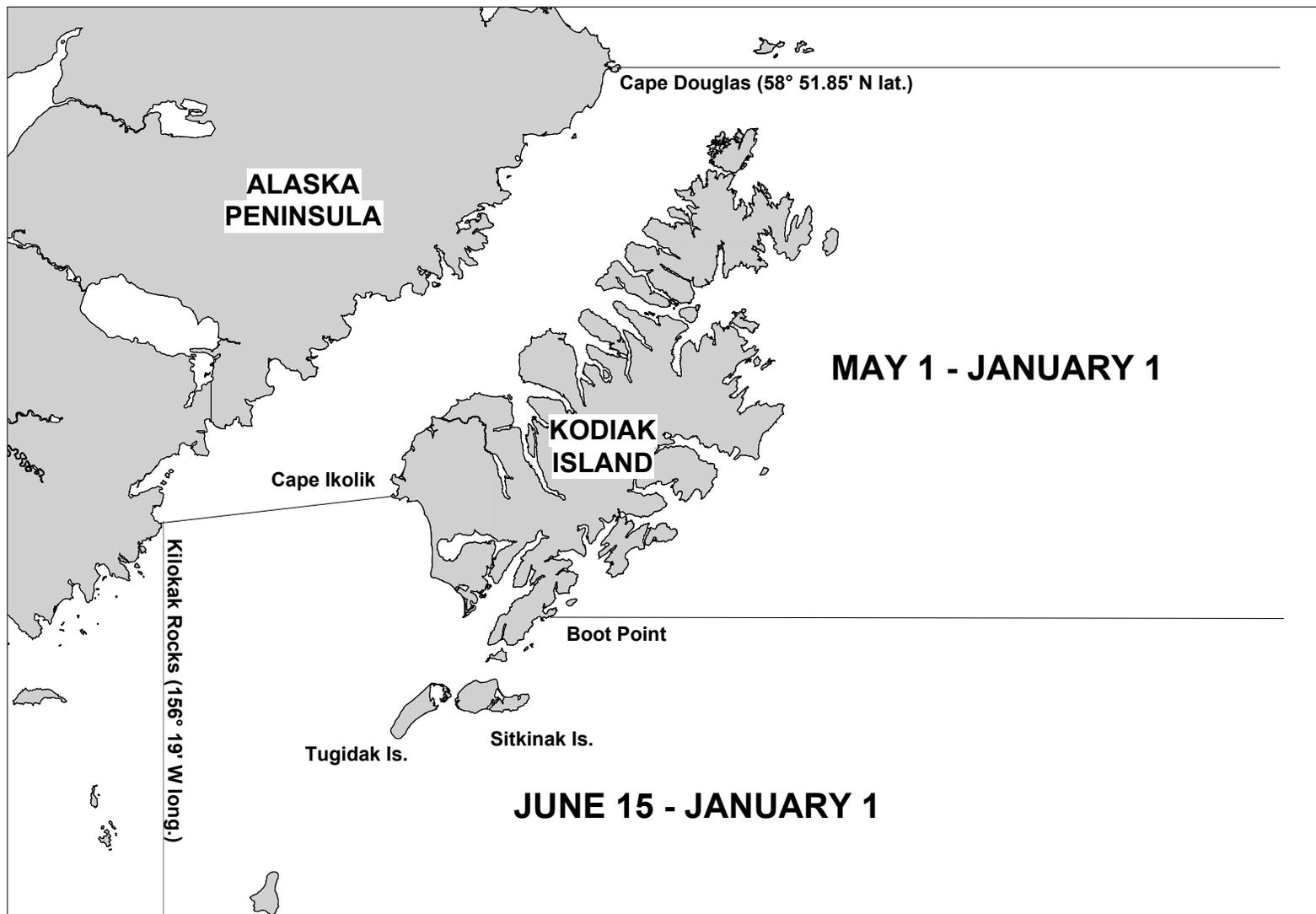


Figure 6.–Kodiak District Dungeness crab boundaries and fishing seasons, 2009.

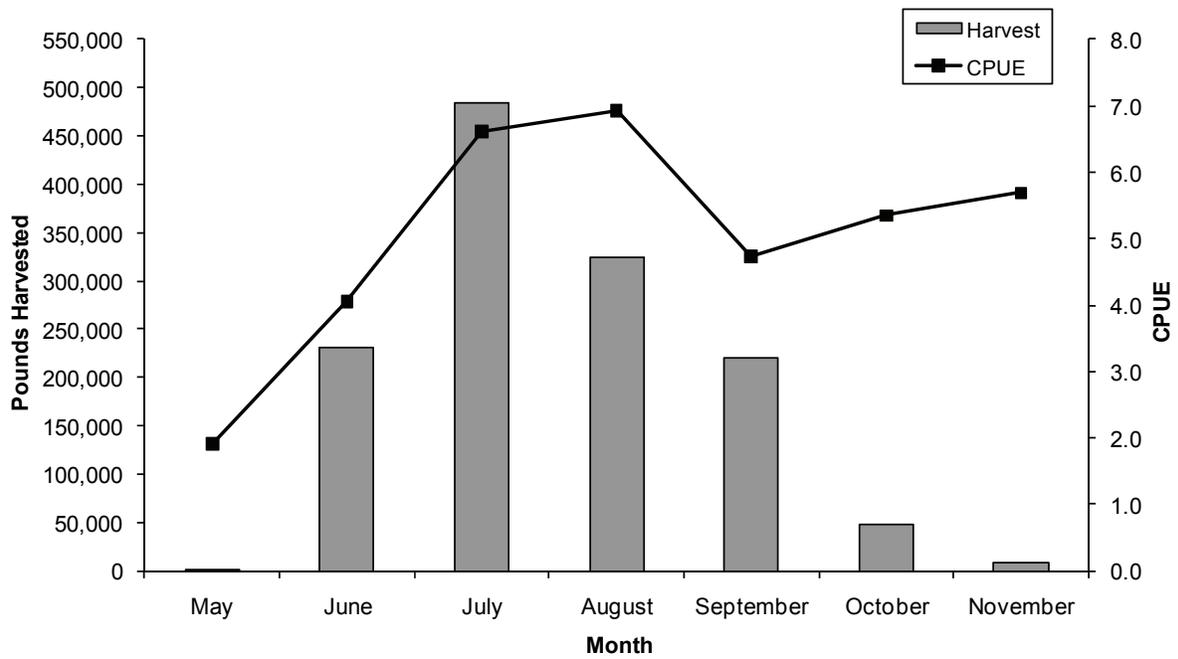


Figure 7.–Kodiak District Dungeness crab harvest, in pounds, and CPUE by month, 2009.

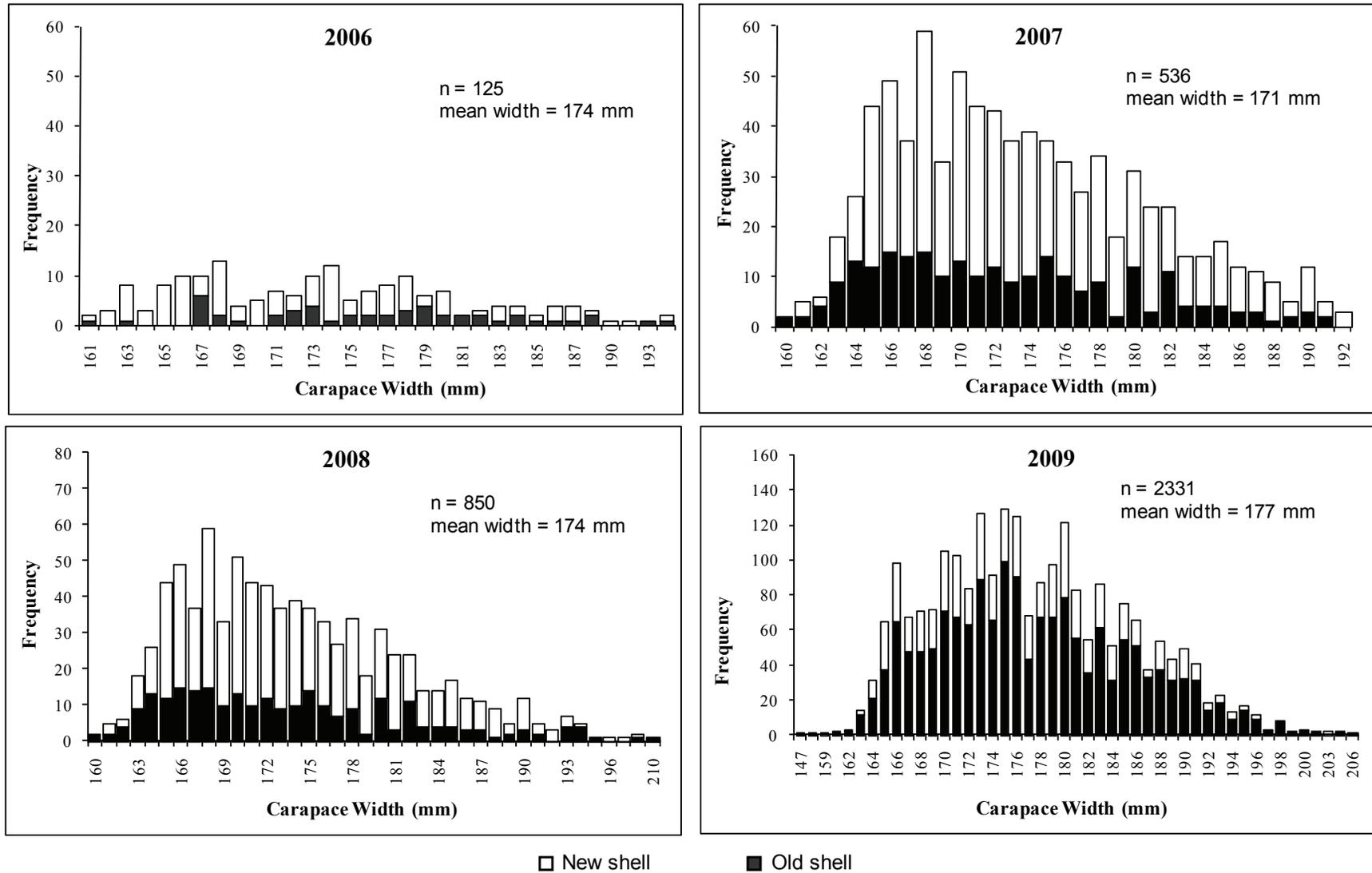


Figure 8.—Kodiak District Dungeness crab carapace width frequencies and shell condition from dockside samples, 2006–2009.

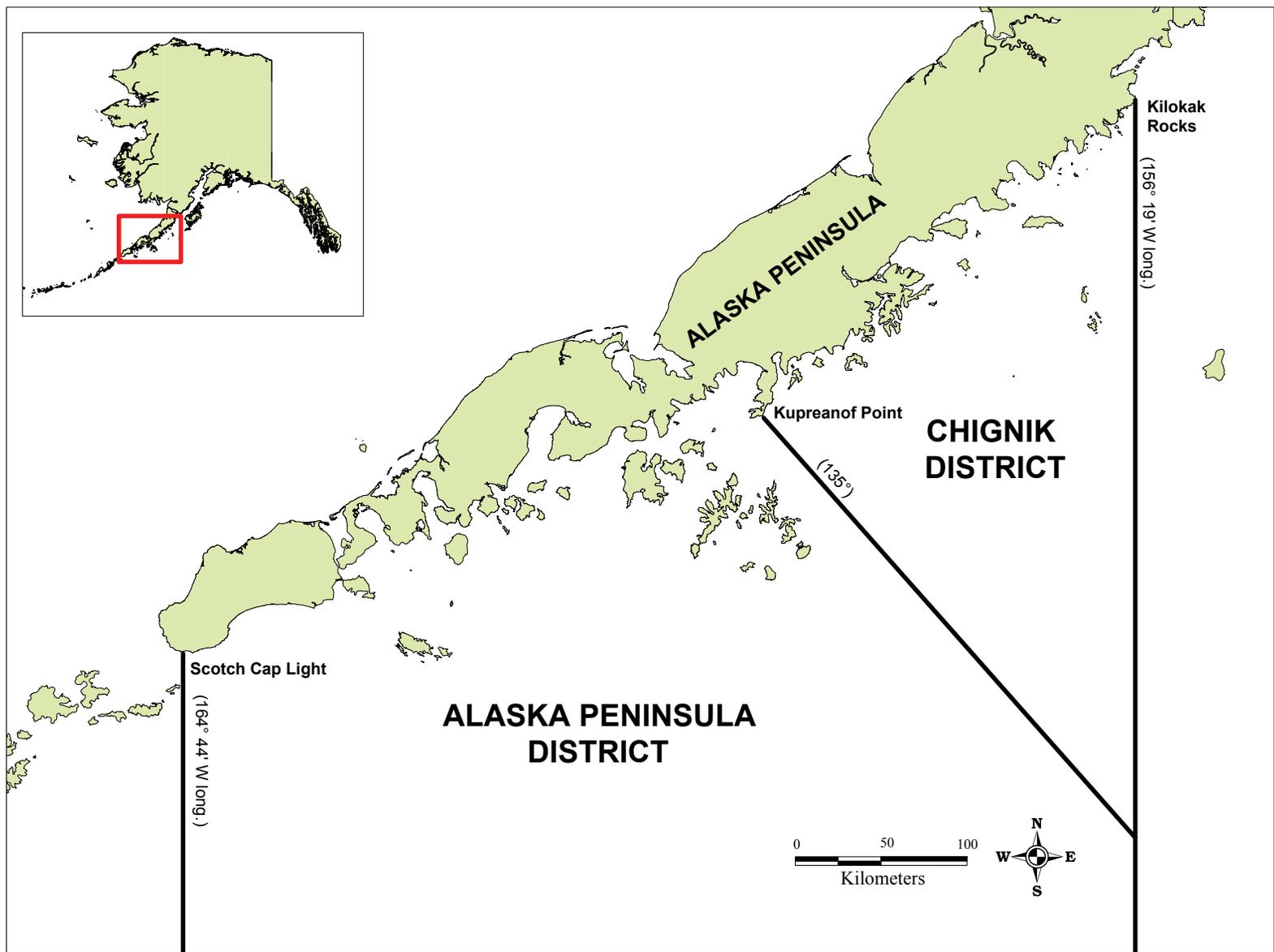


Figure 9.—Chignik and Alaska Peninsula districts for Dungeness crab fishery management, 2009.

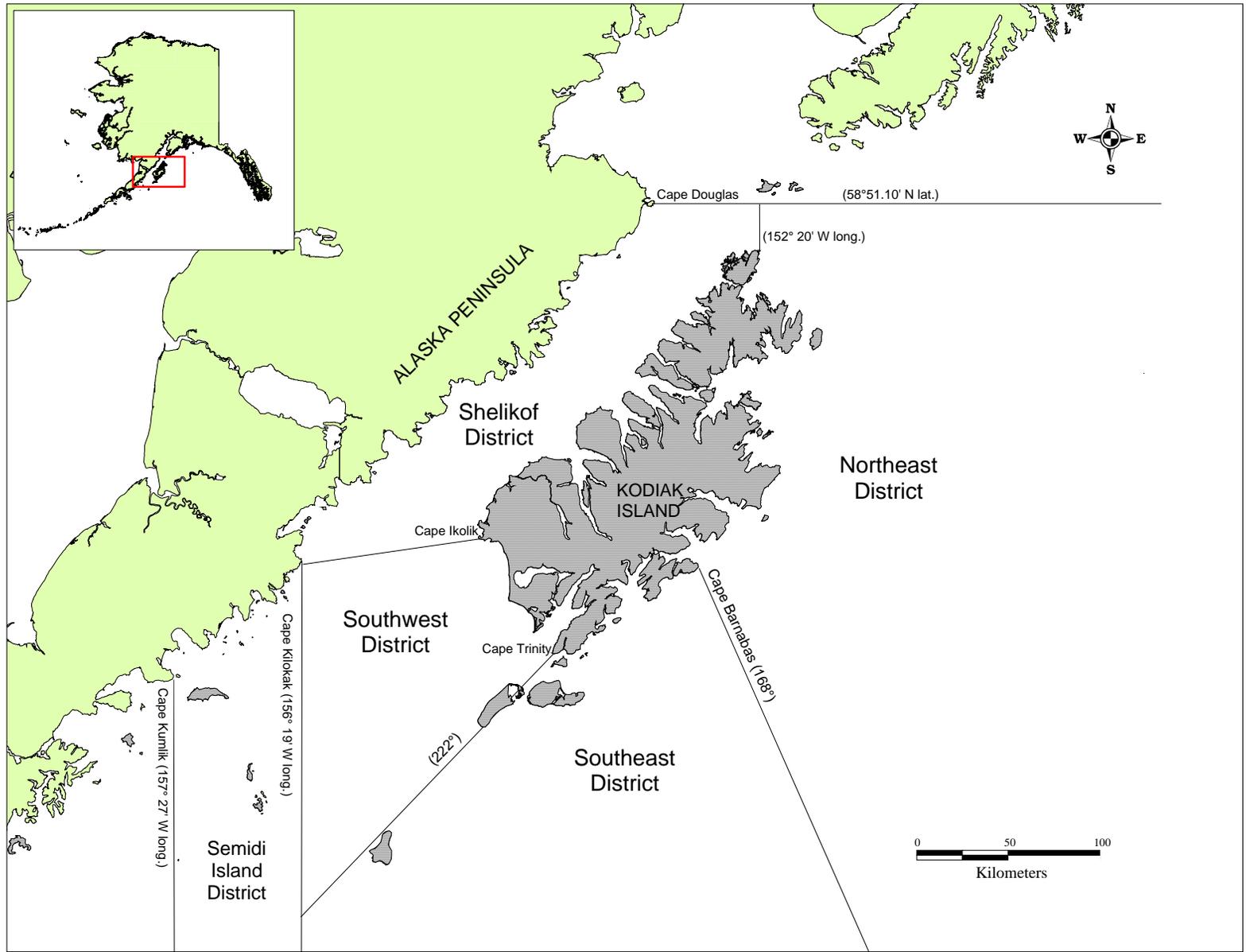


Figure 10.—Kodiak Area districts for king crab fishery management, 2009.

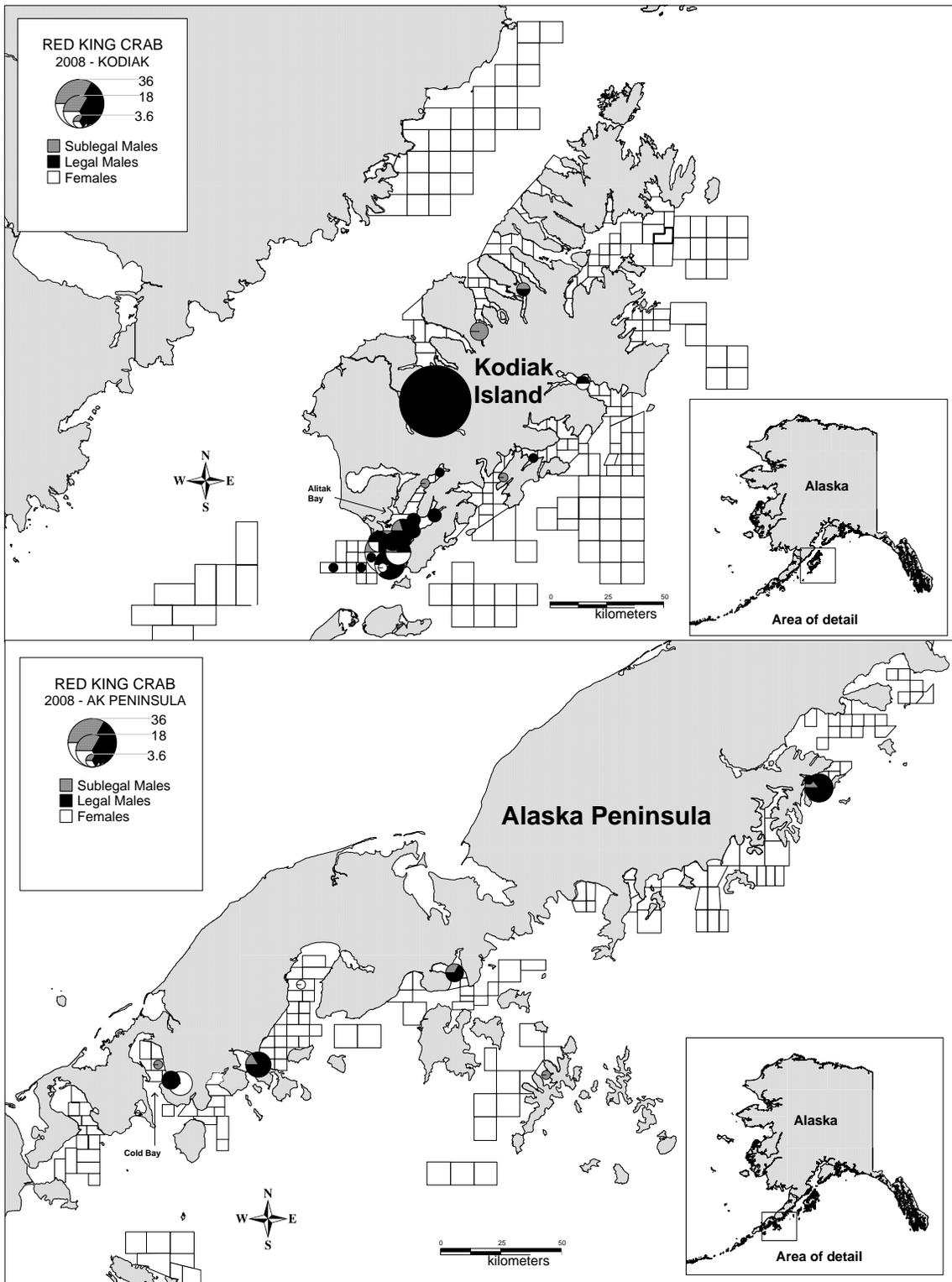


Figure 11.—Number of red king crabs per kilometer towed from the 2008 Kodiak and Alaska Peninsula Area trawl survey.

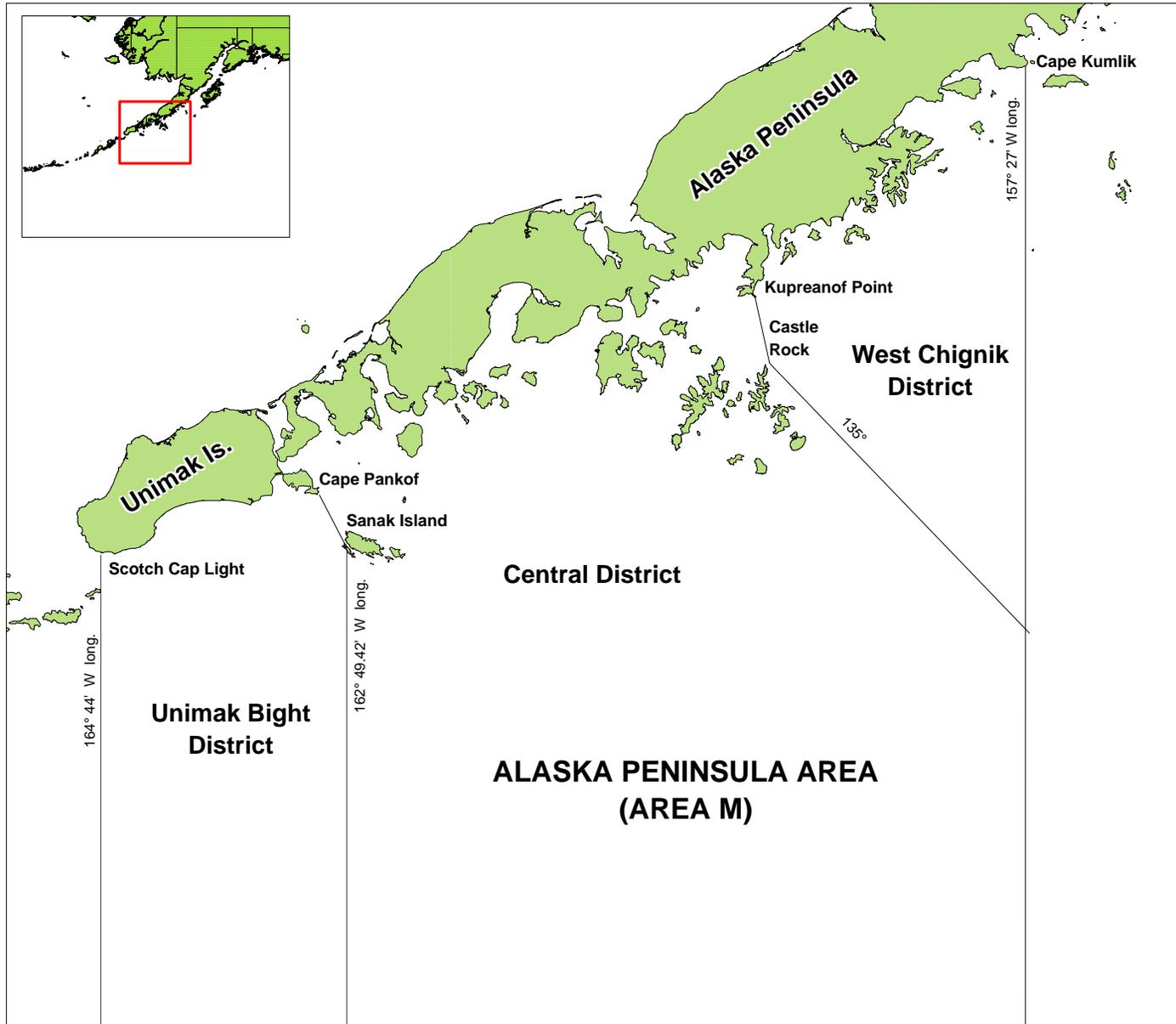


Figure 12.—Alaska Peninsula Area and districts for king crab fishery management, 2009.

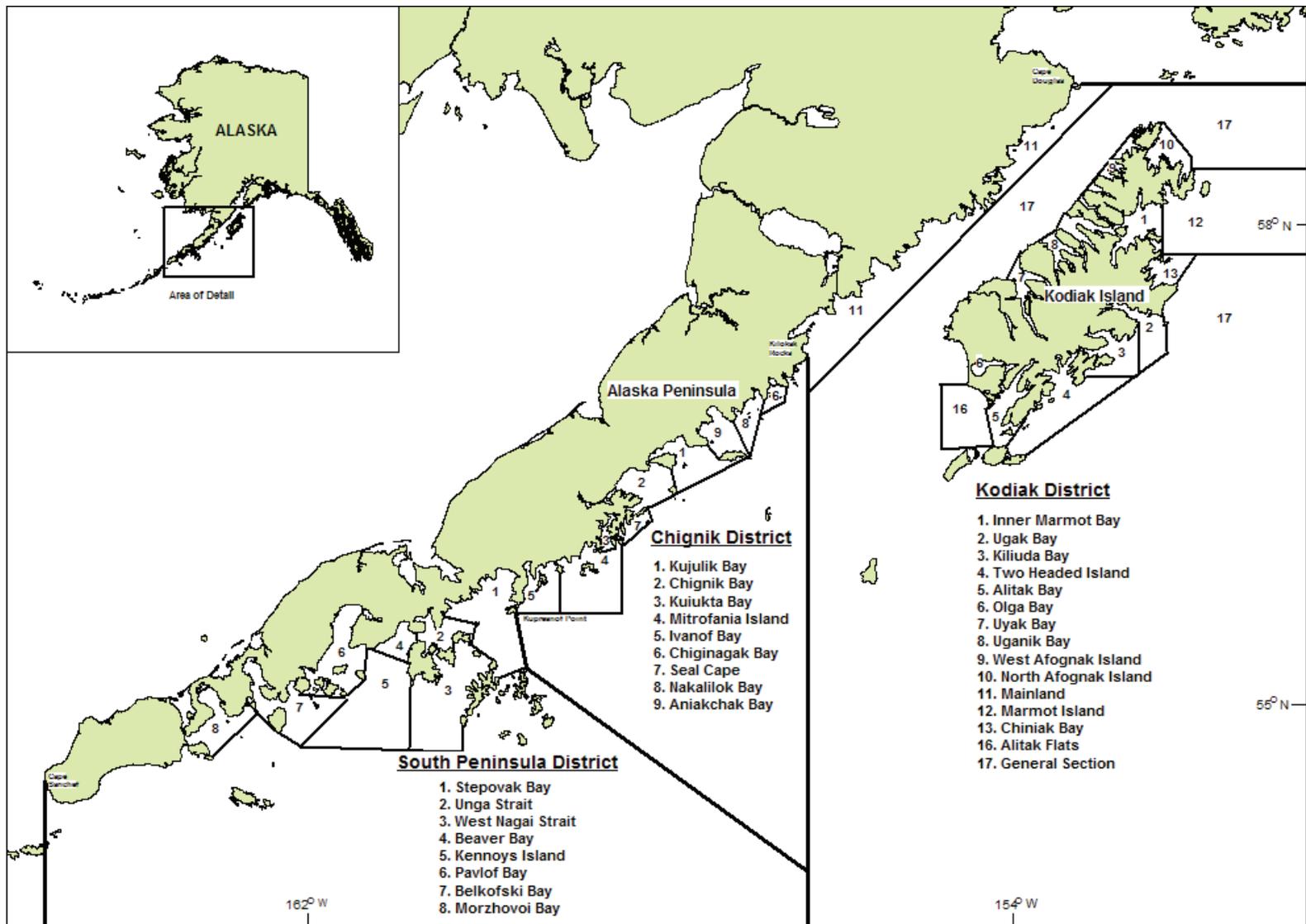


Figure 13.–Kodiak District and sections for shrimp fishery management, 2009.

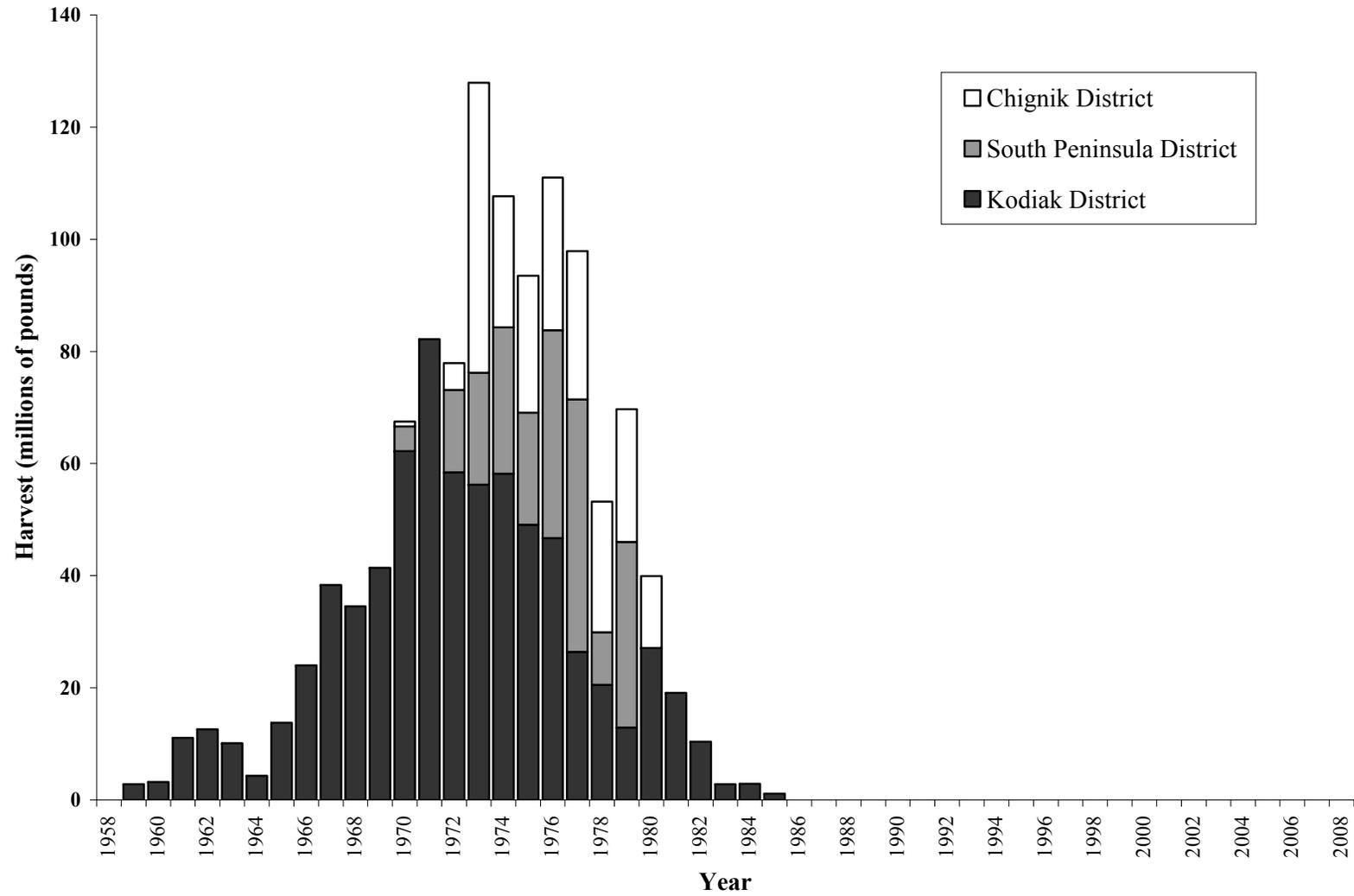


Figure 14.—Shrimp harvests from the Kodiak, Chignik, and South Peninsula districts, 1958–2009