

**Fishery Management Report No. 05-49**

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**Annual Management Report for the Shellfish Fisheries  
of the Kodiak, Chignik and Alaska Peninsula Areas,  
2004**

by

**Lynn A. Mattes**

and

**Kally Spalinger**

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September 2005

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



## Symbols and Abbreviations

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

<b>Weights and measures (metric)</b>		<b>General</b>		<b>Measures (fisheries)</b>	
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	all commonly accepted		total length	TL
kilometer	km				
liter	L	professional titles	e.g., Dr., Ph.D., R.N., etc.		
meter	m			<b>Mathematics, statistics</b>	
milliliter	mL	at	@	<i>all standard mathematical signs, symbols and abbreviations</i>	
millimeter	mm	compass directions:		alternate hypothesis	H <sub>A</sub>
		east	E	base of natural logarithm	<i>e</i>
		north	N	catch per unit effort	CPUE
		south	S	coefficient of variation	CV
		west	W	common test statistics	(F, t, $\chi^2$ , etc.)
		copyright	©	confidence interval	CI
		corporate suffixes:		correlation coefficient (multiple)	R
		Company	Co.	correlation coefficient (simple)	r
		Corporation	Corp.	covariance	cov
		Incorporated	Inc.	degree (angular)	°
		Limited	Ltd.	degrees of freedom	df
		District of Columbia	D.C.	expected value	<i>E</i>
		et alii (and others)	et al.	greater than	>
		et cetera (and so forth)	etc.	greater than or equal to	≥
		exempli gratia	e.g.	harvest per unit effort	HPUE
		(for example)		less than	<
		Federal Information Code	FIC	less than or equal to	≤
		id est (that is)	i.e.	logarithm (natural)	ln
		latitude or longitude	lat. or long.	logarithm (base 10)	log
		monetary symbols		logarithm (specify base)	log <sub>2</sub> , etc.
		(U.S.)	\$, ¢	minute (angular)	'
		months (tables and figures): first three letters	Jan,...,Dec	not significant	NS
		registered trademark	®	null hypothesis	H <sub>0</sub>
		trademark	™	percent	%
		United States (adjective)	U.S.	probability	P
		United States of America (noun)	USA	probability of a type I error (rejection of the null hypothesis when true)	$\alpha$
		U.S.C.	United States Code	probability of a type II error (acceptance of the null hypothesis when false)	$\beta$
		U.S. state	use two-letter abbreviations (e.g., AK, WA)	second (angular)	"
				standard deviation	SD
				standard error	SE
				variance	
				population	Var
				sample	var

<b>Weights and measures (English)</b>					
cubic feet per second	ft <sup>3</sup> /s				
foot	ft				
gallon	gal				
inch	in				
mile	mi				
nautical mile	nmi				
ounce	oz				
pound	lb				
quart	qt				
yard	yd				

<b>Time and temperature</b>					
day	d				
degrees Celsius	°C				
degrees Fahrenheit	°F				
degrees kelvin	K				
hour	h				
minute	min				
second	s				

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

***FISHERY MANAGEMENT REPORT NO. 05-49***

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by

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September 2005

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## ABSTRACT

This annual management report summarizes shellfish fisheries, excluding weathervane scallops *Patinopecten caurinus*, for the Kodiak, Chignik and South Peninsula Areas during 2004. Shellfish harvests in the Kodiak, Chignik and South Peninsula Areas during 2004 totaled approximately 1.3 million pounds worth an estimated exvessel value of approximately \$2.1 million. Commercial fisheries occurred for Tanner crab *Chionoecetes bairdi*, Dungeness crab *Cancer magister*, golden king crab *Lithodes aequispinus*, giant Pacific octopus *Octopus dofleini*, red sea cucumber *Parastichopus californicus*, and various pandalid shrimp species. Historically, these management areas have supported red king crab *Paralithodes camtschaticus* and shrimp fisheries. These summaries provide descriptions of the management area, a brief overview of the regulations, historic backgrounds, harvest strategies, management practices, summaries of the 2004 fisheries, and status of stocks.

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

## INTRODUCTION

This report covers shellfish fisheries of Alaska in the 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 Scotch Cap Light (164° 44' W long.). The 3 primary management divisions within this report are the Kodiak, Chignik, and South Peninsula Areas (Figure 1).

During 2004, harvesting and processing involved 95 catcher vessels, 4 catcher-processors, 15 shorebased processors, 2 floating processors and 2 catcher-sellers. Shellfish harvested from these 3 areas were landed and processed in 5 different ports, Kodiak, Sand Point, King Cove, Akutan and Dutch Harbor. Shellfish harvests in the Kodiak, Chignik and South Peninsula Areas during 2004 totaled approximately 1.3 million pounds worth an estimated exvessel value of approximately \$2.1 million.

### KODIAK AREA

The Kodiak Area includes the Pacific Ocean waters south of the latitude of Cape Douglas (58° 51.10' N lat.) on the Alaska Peninsula, east of the longitude of Cape Kumlik (157° 27' W long.), and west of the longitude of Cape Fairfield (148° 50.25' W long.) (Figure 2). The Kodiak Area encompasses both the waters of the territorial sea, 0–3 nautical miles (nmi), and waters of the Exclusive Economic Zone (EEZ), (3–200 nmi). The management area varies slightly for Dungeness crab *Cancer magister* and pandalid shrimp, where it extends from the latitude of Cape Douglas to the longitude of Cape Kilokak on the Alaska Peninsula (156° 19' W long.). Management may occur at the area, district, or section level depending upon the target species.

Historically, the Kodiak area supported red king crab *Paralithodes camtschaticus* and trawl-caught shrimp fisheries. King crab stocks are currently depressed and no fishing has occurred since the early 1980s for red king crab. Minor harvests of green sea urchins *Strongylocentrotus droebachiensis* and grooved Tanner crabs *Chionoecetes tanneri* have also occurred sporadically. Various clam species, primarily razor clams *Siliqua sp.* were once harvested in large quantities.

The principal commercial shellfish species harvested from the Kodiak area in 2004 were Tanner crab *Chionoecetes bairdi*, Dungeness crab, giant Pacific octopus *Octopus dofleini*, golden king crab *Lithodes aequispinus*, and red sea cucumber *Parastichopus californicus*. A small harvest of trawl-caught shrimp occurred during 2004. Small harvests of Pacific littleneck clams *Protothaca*

*staminea* and Butter clams *Saxidomus giganteus* were taken in 2004 for use as bait in the Dungeness crab fishery.

The single most valuable shellfish species harvested were Tanner crabs, worth an estimated \$1,324,950 to the fleet. Occasionally, shellfish are landed at the Port of Kodiak which were harvested from management areas other than the Kodiak, Chignik and Alaska Peninsula Areas. In 2004, harvests of Bering Sea snow crabs *Chionoecetes opilio* and Bristol Bay red king crabs were landed in Kodiak. More than 2.0 million pounds of shellfish were landed at the Port of Kodiak during 2004, with an estimated exvessel value exceeding \$5.8 million. A discussion of each fishery that was active during 2004 is provided. The Kodiak area weathervane scallop fishery will be summarized in a separate Regional Information Report.

The Alaska Department of Fish and Game (ADF&G) issues emergency orders (EOs) to enact regulatory actions for time and area changes to commercial fisheries. These changes affect commercial fishery openings, closures, and modifications of fishing periods, or fishing areas. There were 16 EOs issued during 2004 for shellfish fisheries mentioned in this report, in the Kodiak Area (Table 1).

## **ALASKA PENINSULA AREA**

The Alaska Peninsula Area includes waters of the Pacific Ocean west of Cape Kilokak (156° 19' W long.), and east of Scotch Cap Light (164° 44' W long.; Figure 3). However, in some fisheries the eastern boundary is located at the longitude of Cape Kumlik (157° 27' W long.). The Alaska Peninsula Area is divided into separate districts, Chignik and the Alaska Peninsula, for some fisheries.

Commercial shellfish fisheries have historically occurred in the Alaska Peninsula Area for red king crab, Tanner crab, grooved Tanner crab, Dungeness crab, various pandalid shrimp, red sea cucumber, and giant Pacific octopus. Shellfish stocks are considered depressed for most species within the management area. No commercial fishery for red king crab or shrimp has occurred since 1982. Effort did occur in 2004 for Dungeness crab and octopus. Only 1 EO was issued in 2004 that pertained to shellfish fisheries in the Alaska Peninsula Area (Table 2).

Occasionally, shellfish are landed in the ports of King Cove, Sand Point and Chignik that were harvested from management areas other than the Kodiak, Chignik and Alaska Peninsula Areas. In 2004, harvests of Bering Sea snow crabs and Bristol Bay red king crabs were landed in King Cove, Sand Point and Chignik. More than 4.1 million pounds of shellfish were landed in these ports during 2004, with an estimated exvessel value exceeding \$12.8 million.

## **TANNER CRAB**

### **INTRODUCTION**

The Tanner crab fisheries in the Kodiak, Chignik, and South Peninsula Districts are part of Registration Area J. Tanner crab fisheries open by regulation within each of the 3 districts on January 15 if the provisions of 5 AAC 35.507 KODIAK, CHIGNIK, AND SOUTH PENINSULA DISTRICTS *C. BAIRDI* TANNER CRAB, HARVEST STRATEGIES are met. Harvest strategies contain a threshold of mature male abundance as well as additional criteria that must be met for each district or section to open to commercial fishing. Mature male abundance is determined annually by a trawl survey conducted by ADF&G on the *R/V Resolution*. The survey data are also used to determine an annual guideline harvest level (GHL). Commercial fisheries remain open until this

harvest level is attained or biological considerations occur that warrant closure to protect the long-term health of the stocks.

## **KODIAK DISTRICT**

### **Description of the District**

The Kodiak District for Tanner crab is defined as the Pacific Ocean waters of 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).

### **Overview of Fishery Regulations**

The Kodiak District is superexclusive registration for Tanner crab fishing. Criteria within the harvest strategy specify that at least 2 sections in the district must be above the mature male threshold to have a fishery. The district GHL must be at least 400,000 pounds, with each section having a GHL of 100,000 pounds or more. The Kodiak District has a sliding scale pot limit based on the district GHL that ranges from 20 to 60 pots per vessel. Gear may only be set or retrieved during daily fishing periods from 8:00 AM to 5:59 PM.

### **Historic Background**

The domestic Tanner crab fishery in the Kodiak District began in 1967 when 110,961 pounds were landed (Table 3). Compared to king crab fisheries, the Tanner crab fishery was slower to develop. Consumers did not accept Tanner crab as readily and processing facilities had yet to develop effective meat extraction techniques for canning.

By the 1969/70 season, over 8 million pounds were harvested. The fishery quickly became a major fishery in the North Pacific. In 1973, ADF&G initiated a pot survey to estimate relative abundance, predict recruitment trends, and develop annual harvest levels. The fishery continued to grow with harvests increasing to 30 million pounds in the mid-1970s. ADF&G implemented an April 30 season closure date in 1975 to protect crab at the onset of the mating and molting season. The minimum carapace width (CW) of 5.5 inches was established in 1976. The commercial fishery peaked during the 1977/78 season when over 33 million pounds were harvested.

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

In the early 1980s, Tanner crab stocks and commercial harvest began to decline. Concerns about the ability of the pot survey to predict recruitment from animals smaller than 114 mm CW prompted ADF&G to test trawl gear as a viable survey tool. In 1988, trawl surveys replaced pots for crab stock assessment because they are faster and sample a wider range of crab sizes (Jackson 1990).

Tanner crab stocks continued to decline in the Kodiak District, and by the early 1990s, annual harvests averaged less than 2 million pounds. The 1994/95 season was closed due to the progressive decline in the harvestable surplus of Tanner crabs in the Kodiak District. The

commercial fishery remained closed until the 2000/01 season. During the 6 year closure period a harvest strategy was developed which was adopted by the Board of Fisheries (BOF) in 1999.

The following regulations were adopted by the BOF in the 2001/02 cycle, and were in effect starting with the 2002/03 season: 1) The Kodiak District was designated superexclusive for Tanner crab, 2) criteria was adopted to delay the fishery opening for severe weather, 3) if less than 6 hours notice is provided for a fishery closure, baited gear may be left in waters deeper than 25 fathoms for up to 3 days following the closure, and 4) daily fishing periods were reduced from 12 hours to 10 hours per day. When the season is open, gear may only be operated from 8:00 AM to 5:59 PM, and may be left to soak from 6:00 PM until 7:59 AM.

### **Overview of the 2003/04 Kodiak District Tanner Crab Season**

The Northeast, Eastside and Southeast Sections of the Kodiak District met criteria specified in the harvest strategy for a commercial fishery opening in 2004, with a combined GHL of 795,000 pounds; an increase of 285,000 pounds from the 2003 fishery (Tables 4 & 5). The Northeast Section GHL was set at 245,000 pounds, the Eastside Section GHL was set at 450,000 pounds and the Southeast Section GHL was set at 100,000 pounds.

The scheduled opening date for the Kodiak District Tanner crab fishery is January 15 unless the fishery is delayed for weather due to gale force winds, as outlined in 5 AAC 35.510 FISHING SEASONS FOR REGISTRATION AREA J. The criteria for a weather delay was not met in 2004, therefore, the season opened as scheduled at noon on January 15 (Table 6). Approximately 68 permit holders recorded landings on 66 unique vessels during the 2004 fishery (Table 5). The total harvest was 566,218 pounds from 251 landings (Table 3). The estimated exvessel fishery value was \$1,324,950, as indicated by the price per pound on fish tickets.

The Northeast Section had a partial closure; the territorial waters (0-3 nmi) of Chiniak Bay, between Cape Chiniak and Miller Point, were closed at 3:00 PM on January 22, 2004, during the 8<sup>th</sup> day of fishing. The remaining waters of the section were open until February 1 (Table 6) for a total of 18 days of fishing. The Northeast Section harvest was 259,572 pounds taken by 43 vessels. The Northeast Section catch per unit effort or catch of legal crabs per pot (CPUE) averaged 18 crabs for the 2003/04 season (Table 5).

The Eastside Section waters were open until the regulatory closure at noon on March 31 (Table 6). The Eastside Section harvest was 219,980 pounds from 20 vessels. The Eastside Section CPUE averaged 14 crabs (Table 5).

The Southeast Section had 3 partial closures; Three Saints Bay during the second day of fishing on January 16, Sitkalidak Strait on January 19 during the 5<sup>th</sup> day of fishing, the remaining inside waters on January 22 during the 8<sup>th</sup> day of fishing. The remaining waters were open until noon on March 31, the regulatory closure (Table 6). The Southeast Section harvest was 86,666 pounds taken by 15 vessels. The Southeast Section CPUE averaged 12 crabs (Table 5).

There were 15 vessels used in more than 1 section during the 2004 fishery. Vessels 40 to 49 feet in length took the majority of the 2004 harvest (Table 7).

The 2004 Kodiak District Tanner crab fishery was the 4<sup>th</sup> season operating under the harvest strategy adopted by the BOF in 1999. It was the 2<sup>nd</sup> season that occurred under Commercial Fisheries Entry Commission (CFEC) limitation. CFEC set the end of the qualification period for limited entry as January 1, 2003. Though the actual limitation criteria and reduction of permits had yet to be completed by the start of the fishery, the moratorium on qualification was in place

and a total of 326 permit holders qualified to participate in the 2004 fishery. CFEC will develop a point system that will eventually reduce the number of qualified permit holders to 180.

### **Northeast Section Fishery**

Based on the 2003 trawl survey estimate of abundance, the population of mature male Tanner crab was 4,059,089 crabs, well above the regulatory threshold of 1,123,000 crabs for opening the fishery. The regulatory harvest strategy prescribed a 10% exploitation rate on molting mature male abundance, because the population estimate was less than the long-term average of mature male abundance. The harvest strategy also limits the removal of legal-size crabs to no more than 30%. This resulted in a GHL of 245,000 pounds, higher than the 170,000 pound GHL from the 2003 fishery.

For the Northeast Section, 36 vessels registered during tank inspections on January 14. Over the course of the fishery, 43 vessels participated in the Northeast Section (Table 5).

Chiniak Bay Vicinity: Approximately 25 vessels were operating in Chiniak and Kalsin Bays in the first few days of the fishery. CPUE in Chiniak Bay varied from the mid to high twenties in the first few days of fishing. Reports received on January 19, indicated that 8-10 vessels remained in the Chiniak Bay area. CPUE had declined to approximately 18 crab per pot, and the total harvest from the area was approximately 70,000 pounds. The harvest strategy capped harvest at 30% of the estimated legal sized males. Based on this harvest level for the section, a target harvest of 80,000 pounds was applied to the Chiniak Bay area. Catch reports and fish tickets received on January 20 indicated that the total harvest from Chiniak and the surrounding bays was approximately 80,000 pounds. Therefore, the territorial waters (0-3 nmi) of Chiniak Bay, between Cape Chiniak and Miller Point, were closed at 3:00 PM on January 22.

The closure was necessary to preserve the long term health of the stock, maintain an adequate large male to mature female ratio for reproductive success, and foster rebuilding within the inner bay which has been demonstrated by tagging studies to be a key area in the repopulating of other areas as the stock rebuilds. Additionally, Chiniak Bay is an important subsistence Tanner crab harvest area. Approximately 112,000 pounds were harvested from the Chiniak Bay vicinity by 25 vessels. CPUE in the Chiniak Bay vicinity averaged 15 crabs.

Remaining Northeast Section Waters: Fishing continued in the remainder of the Northeast Section with an average CPUE of 18. Most of the harvest came from Marmot Bay and the offshore waters adjacent to Chiniak Bay. Total harvest from the remaining open waters was approximately 147,500 pounds. By the time of the section closure on February 1, a total of 43 vessels harvest 259,572 pounds (5.9% above the GHL) from the Northeast Section (Table 5).

### **Eastside Section Fishery**

Based on the 2003 trawl survey estimates of abundance, the population of mature male Tanner crabs was 6,445,485 crabs, well above the regulatory threshold of 1,552,000 crabs for opening the fishery. The regulatory harvest strategy prescribed a 10% exploitation rate on molting mature male abundance because the population estimate was less than the long-term average of mature male abundance. This resulted in a GHL of 450,000 pounds, higher than the 340,000 pound GHL from the 2003 fishery.

The 2003 trawl survey results indicated a significant decline in the abundance of legal-sized male Tanner crabs in Ugak Bay, and the waters of Kiliuda and the surrounding bays. In recent seasons these areas provided a large portion of the harvest. The number of legal-sized males dropped

81% in Ugak Bay from 2002 to the 2003 trawl survey. Only 5% of the 2003 total section estimate of legal-sized males occurred in Ugak Bay. Kiliuda Bay and the surrounding waters inside Cape Barnabas contributed only 4% of the total estimated legal-sized male crabs to the 2003 population estimate. Therefore, to allow stock rebuilding in historically important bays, these areas were not open to commercial Tanner crab fishing for the 2003/04 season.

For the Eastside Section, 20 vessels registered during tank inspections on January 14. During February, 12 vessels remained in the Eastside Section, and by March, only 6 vessels were participating. The CPUE remained fairly constant throughout the entire season. Fishing during January and February produced an average CPUE of 14 and during March, it dipped only slightly to 13 legal crabs per pot. Some vessel operators explored new fishing grounds in this section; however, the fleet had difficulty finding large concentrations of crab.

The GHL was not attained by the regulatory closure date of March 31. A total of 20 vessels fished the Eastside Section, landing 219,980 pounds, or 49% of the section GHL (Table 5).

### **Southeast Section Fishery**

Based on the 2003 trawl survey estimates of abundance, the population of mature male Tanner crabs was 1,163,562 crabs, above the regulatory threshold of 733,000 crabs for opening the fishery. The regulatory harvest strategy prescribed a 10% exploitation rate on molting mature male abundance because the population estimate was less than the long-term average of mature male abundance. This resulted in a GHL of 100,000 pounds. For the Southeast Section, 13 vessels registered during tank inspections on January 14. After the fishery began 2 other vessels switched to the Southeast Section.

Three Saints Bay: The inseason target harvest for Three Saints Bay was 6,800 pounds, based on 28% of legal-sized males estimated from the trawl survey. Overflight information indicated that 10 vessels began fishing in Three Saints Bay. Voluntary Catch reports from the Three Saints Bay area reported CPUE of 23 crabs. Based on this information, the estimated harvest in the 1<sup>st</sup> fishing period was approximately 8,500 pounds. The estimated harvest had exceeded the inseason target; therefore, the waters of Three Saints Bay were closed on January 16, during the 2<sup>nd</sup> day of fishing (Table 6).

South Sitkalidak Strait Vicinity: After the closure of Three Saints Bay, 6 vessels moved into the upper portion of South Sitkalidak Strait. Reports on January 17 indicated that CPUE was below 10 crabs per pot in South Sitkalidak Strait. Reports on January 18 indicated that much of the area had been explored, and that the CPUE remained below 10 crabs per pot. To preserve the long term health of the stock, the South Sitkalidak Strait was closed to commercial Tanner crab fishing on January 19 during the 5<sup>th</sup> day of fishing (Table 6). Approximately 2,000 pounds were harvested from this area.

Remaining Southeast Section Waters: After the closure of Three Saints Bay and South Sitkalidak Strait, 4 vessels continued to participate in the Southeast Section. Voluntary catch reports from January 20 indicated the CPUE was below 12 crabs per pot, and that much of the inside waters had been explored. To preserve the long term health of the stock, the remaining inside waters of the Southeast Section were closed to commercial Tanner crab fishing on January 22 during the 7<sup>th</sup> day of fishing (Table 6). An estimated 30,000 pounds had been harvested from the inside waters of this section.

The number of vessels participating in the Southeast Section dropped during February and March with only 3 vessels participating in February, and 4 in March. CPUE was at its highest in January, with an average CPUE of 18 crabs per pot. As the season progressed, the average CPUE dropped to 12 in February and to 11 in March. Some vessel operators explored new fishing grounds in this section. Fishers reported that though they were able to find legal-sized male crab, they were unable to locate large schools. Fishers also reported that they were sorting through large numbers of crabs that were just under legal size.

The GHL for the Southeast Section was not attained by the regulatory closure date of March 31 (Table 6). A total of 15 vessels fished in the Southeast Section harvesting 86,666 pounds, or 87% of the section GHL (Table 5).

### **Dockside Sampling**

Tanner crabs were sampled at dockside from deliveries during the course of the season. Listed in priority order, samplers obtained the following information: confidential interviews with vessel captains, average weight, and carapace width/shell age data. During confidential interviews, samplers obtained detailed information regarding effort, location, fishery performance, and bycatch. Approximately 29% of all landings were sampled.

Of the crabs sampled, 52% were harvested in the Northeast Section. Of all crabs sampled 26% were harvested in the Eastside Section, and the remaining 22% were harvested in the Southeast Section. The average CW for the entire Kodiak District was 145.8 mm (Figure 4). The average CW of Northeast Section crabs was 145 mm. This was slightly smaller than the average CW from the Eastside (147 mm) and Southeast Section (146 mm). The average weight of the Northeast Section crabs that were sampled was also smaller. The average weight of crab from the Northeast Section was 2.17 pounds per crab, compared to 2.27 pounds for the Eastside Section and 2.25 pounds for the Southeast Section. Of the crabs sampled in the Northeast Section, 89.1% were new shell, 9.9% old shell and 1.0% very old shell. The new and old shell classes from the Northeast Section crabs were considerably different than those of the other 2 sections. Shell ages of crab from the Eastside Section were 74.9% new shell, 23.9% old shell and 1.2% very old. Shell ages of crab from the Southeast Section were 79.8% new shell, 19.6% old shell and 0.6% very old.

### **Status of Kodiak District Tanner Crab Stocks**

The 2004 Kodiak District estimate of 73.1 million crabs of all sizes and sex was similar to the 73.5 million crabs estimated in 2003. The population of legal-male Tanner crabs was estimated to be approximately 4.7 million crabs which is double the 2003 estimate. Prerecruit males between 92-114 mm CW comprised 33% of the total male population estimate. The highest densities of crabs were found in the Eastside Section (Figure 5); this is similar to the results of recent year's surveys.

Egg clutches of 5,166 mature female Tanner crabs were examined during the survey and 17% were primiparous. This was a decrease from the 46% in 2003. Approximately 70% of the mature females examined had a clutch fullness of 80% or higher. This was an increase from the 41% in 2003 (Spalinger *In prep*).

The Northeast, Eastside, Southeast and Southwest Sections satisfied the criteria of the harvest strategy for a commercial opening in 2004/05, 5AAC 35.507 KODIAK, CHIGNIK, AND SOUTH ALASKA PENINSULA DISTRICTS C. BAIRDI TANNER CRAB HARVEST STRATEGIES. The 2004/05 GHLs were 550,000 pounds for the Northeast Section, 650,000 pounds for the Eastside Section,

100,000 pounds for the Southeast Section and 450,000 pounds for the Southwest Section. The Westside and North Mainland Sections' mature male abundance estimates remain below their respective harvest strategy thresholds. The remaining sections of the Kodiak District remain below the established mature male abundance thresholds for a commercial fishery opening. Complete information on the 2004 trawl survey results is available in an ADF&G Regional Information Report (Spalinger *In prep*).

## **CHIGNIK DISTRICT**

### **Description of the District**

The Chignik District for Tanner crab includes Pacific Ocean waters of Registration Area J east of a line from the southernmost tip of Kupreanof Point to the easternmost point of Castle Rock, and east of a line 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 Fishery Regulations**

The Chignik District is superexclusive registration for Tanner crab. Vessels larger than 58 feet in overall length may not take Tanner crab in the Chignik District. Criteria within the harvest strategy specify that the district GHL must be at least 200,000 pounds for a commercial fishery to occur. Additionally, the South Peninsula District must also open before a commercial fishery in the Chignik District can occur. The Chignik District has a fixed pot limit regardless of the district GHL. No more than 30 pots per vessel may be used.

The following regulations were adopted by the BOF in the 2001/02 cycle, and were in effect for the 2003/04 season. 1) The Chignik District was designated superexclusive for Tanner crab, 2) if less than 6 hours notice is provided for a fishery closure, baited gear may be left in waters deeper than 25 fathoms for up to 3 days following the closure, and 3) daily fishing periods were established. When the season is open for a Tanner crab fishery, gear may only be operated from 8:00 AM to 5:59 PM. Gear may be left to soak from 6:00 PM until 7:59 AM.

### **Historic Background**

The Chignik District Tanner crab fishery began in 1968 when 21,100 pounds were harvested (Table 8). The fishery peaked during the 1975/76 season when 35 vessels harvested approximately 11.0 million pounds. Annual harvest declined in the late 1970s. Recruitment failures in the early 1980s led to consecutively smaller harvest until 1989, when a small increase in harvest occurred. Historically, much of the effort in the Chignik District occurred in late March following the closure of the Kodiak and South Peninsula Districts. Many of the most productive areas were offshore between Mitrofanina Island and Lighthouse Rocks.

ADF&G did not survey the Chignik District until 1981. Surveys in the early 1980s predicted poor recruitment. As expected, the recruitment was low, and subsequent fisheries had lower harvests. Catches declined first in the productive offshore areas, then later in bays. The district was closed to commercial fishing in 1990 and has remained closed.

### **2003/04 Chignik District Tanner Crab Season**

The 2003 trawl survey indicated the Chignik District was above the established threshold level of molting-mature male abundance for a commercial fishery opening in 2004. The established threshold is 973,000 mature males; the survey indicated 1,266,844 mature males in the district. In 2003 the Chignik District was above the threshold but below the regulatory minimum GHL of

200,000 pounds for a commercial fishery in 2004. Therefore, the fishery remained closed in 2004.

### **Status of Chignik District Tanner Crab Stock**

The overall crab abundance in the Chignik District increased from 5.7 million in 2003 to 12.1 million in 2004 (Spalinger *In prep*). The number of juvenile females, and prerecruit males from 70-114 mm CW showed the largest increase in 2004. Egg clutches of 1,181 mature female Tanner crabs were examined during the survey. Almost 68% percent of the mature females examined had a clutch fullness of 80% or higher.

The Chignik District satisfied the criteria of the harvest strategy for a commercial fishery opening in 2004/05, for the first time since 1989, 5AAC 35.507 KODIAK, CHIGNIK, AND SOUTH ALASKA PENINSULA DISTRICTS C. BAIRDI TANNER CRAB HARVEST STRATEGIES. The 2004/05 GH L was 400,000 pounds. Complete information on the 2004 trawl survey results is available in an ADF&G Regional Information Report (Spalinger *In prep*).

## **SOUTH PENINSULA DISTRICT**

### **Description of the District**

The South Peninsula District for Tanner crab includes the Pacific Ocean waters of Registration Area J 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 (Figure 3).

### **Overview of Fishery Regulations**

The South Peninsula District is nonexclusive registration for Tanner crab. Vessels length is restricted to 58 feet or less overall length during the Tanner crab fishery in the South Peninsula District. Additional criteria within the harvest strategy specify that the district GH L must be at least 200,000 pounds. The pot limit ranges from 30 to 75 pots per vessel depending on the GH L.

The following regulations were adopted by the BOF in the 2001/02 cycle, and were in effect for the 2003/04 season. 1) If less than 6 hours notice is provided for a fishery closure, baited gear may be left in waters deeper than 25 fathoms for up to 3 days following the closure, and 2) daily fishing periods were established. When the season is open for a Tanner crab fishery, gear may only be operated from 8:00 AM to 5:59 PM. Gear may be left to soak from 6:00 PM until 7:59 AM.

### **Historic Background**

The first harvest of Tanner crab in the South Peninsula District occurred in 1967 when 3,100 pounds were landed (Table 9). The fishery grew quickly and, by the 1972/73 season, the harvest exceeded 5 million pounds. GH Ls were established in 1974. In 1975, seasons were imposed to protect adult crab during the mating and molting period. In 1976, the minimum size limit of 5.5" CW was established. During the 6 fishing seasons from 1974/75 through 1978/79, harvests ranged from 5 million to almost 9 million pounds. The fishery peaked during the 1978/79 season when slightly less than 9 million pounds of crab were caught. From 1979 to 1984, harvest and CPUE declined as a result of low recruitment and in the 1983/84 season the fleet landed less than 2 million pounds. Recruitment improved in the years 1985 through 1988 and the harvest ranged from two million to almost 4 million pounds. The harvest decreased to 1 million pounds in the 1988/89 season and indications from the ADF&G trawl survey predicted a decline in recruitment. The

fishery was closed from 1990 to 2000 due to the low abundance of legal-sized crab and the lack of recruitment.

In 1999, ADF&G presented the BOF with a comprehensive harvest strategy for Tanner crab in the South Peninsula District. The criteria in the harvest strategy were met for a commercial fishery opening in 2001. The South Peninsula District opened for the first time since 1989 with a 375,000-pound GHL. Approximately 55 vessels harvested 258,631 pounds from 67 landings (Table 9). The fishery lasted for 4 days of fishing (44 hours total fishing time).

### **2003/04 South Peninsula District Tanner Crab Season**

The 2003 trawl survey indicated the South Peninsula District was above the established threshold level of molting-mature male abundance for a commercial fishery opening in 2004. The established threshold is 1,375,000 mature males; the survey indicated 1,616,022 mature males in the district. The calculated GHL for 2004 also met the minimum requirement of 200,000 pounds. However, stocks within the district have continued to decline since the most recent commercial fishery conducted in 2001. The number of legal-sized animals dropped 42% from the 2001 fishery. The majority of legal crabs were old or very old-shelled and limited to Morzhovoi and Pavlof Bays. Historically important areas of Tanner crab abundance, including Leonard Harbor and Cold Bay, which contributed significantly to the 2001 commercial fishery had few legal-sized animals and had populations that will likely continue to decline. The population of Tanner crabs in the South Peninsula District was not likely to remain above threshold. Therefore, the commercial fishery in the South Peninsula District remained closed.

### **Status of South Peninsula District Tanner Crab Stock**

The 2004 trawl survey completed 94 tows in the South Peninsula District (Figure 6). The abundance estimate for the South Peninsula District increased from 11.3 million animals of all sizes and sexes in 2003 to 16.1 million in 2004. The increase was largely due to the increase of sublegal males less than 70 mm. The 2004 population estimate of legal crabs increased from 0.37 million crabs in 2003 to 0.97 million crabs (Spalinger *In prep*). Egg clutches of 80% or higher were found in 53.3% of the 1,262 mature females examined.

Tanner crab population estimates from the 2004 survey met the regulatory requirements for opening the South Peninsula District; therefore, the Tanner crab fishery opened in 2004/05 for the first time since 2001, 5AAC 35.507 KODIAK, CHIGNIK, AND SOUTH ALASKA PENINSULA DISTRICTS C. *BAIRDI* TANNER CRAB HARVEST STRATEGIES. The 2004/05 GHL was set at 300,000 pounds. Complete information on the 2004 trawl survey results is available in an ADF&G Regional Information Report (Spalinger *In prep*).

## **DUNGENESS CRAB**

### **INTRODUCTION**

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

## **KODIAK DISTRICT**

### **Description of the District**

The Kodiak District for Dungeness crab includes the waters of Registration Area J 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 7).

### **Overview of Fishery Regulations**

The Kodiak District is nonexclusive registration for Dungeness crab fishing. In most waters of the Kodiak District, Dungeness crab may be taken from May 1 through January 1. In the waters south of the latitude of the southernmost tip of Boot Point and south of the latitude of the southernmost tip of Cape Ikolik, Dungeness crab may be taken only from June 15 through January 1.

### **Historic Background**

Dungeness crabs were first harvested commercially in 1962 when 1.9 million pounds were taken (Table 10). Minor increases in recruitment led to slight production increases in harvest during the late 1970s. Prior to 1977, the Dungeness crab fishery was open year round. Closures were first implemented by the BOF from January 1 to April 30 when fishers were unable to operate effectively in the winter due to storms. This season change was aimed at reducing the amount of gear left fishing with extremely long soak times. Some gear had been left fishing all winter without being checked or maintained. The June 15 opening date was set for the south end of Kodiak to avoid high incidences of female red king crab bycatch in Dungeness gear.

During the early 1980s, declines in abundance of other commercially harvested Alaskan shellfish occurred and created a void in markets that still demanded crab (Jackson 1997). This led to an increase in both effort and harvest of Dungeness crabs in the Kodiak District. A harvest of 5.6 million pounds occurred during the 1981/82 Kodiak District season. Effort peaked during the 1985/86 season when 125 vessels participated in the fishery (Table 10).

In recent years, the Kodiak District fishery has been prosecuted primarily on crabs newly recruited to legal size (Figure 8). The fishery has experienced years of low harvest that correspond to declines in recruitment. Reduced effort may also contribute to decreased fishery production. Participation decreased from 62 vessels in 1991 to only 21 or less since the 1996/97 season (Table 10).

Another factor limiting interest and effort in the Kodiak District Dungeness crab fishery during the 1990s was a lower market value. The toxin causing paralytic shellfish poisoning (PSP) was documented in the viscera of Dungeness crabs. The Alaska Department of Environmental Conservation (ADEC) placed restrictions on the sale of live and whole cooked crabs beginning in 1992. Prices paid for Kodiak Dungeness crabs dropped from \$1.37 per pound in 1991 to \$0.86 per pound in 1992 after the ADEC restrictions took effect (Table 10). ADEC restrictions have remained in place since their initial implementation in the early 1990s. Prices have fluctuated and reached a high of \$2.04 in 1997.

### **2004/05 Kodiak District Dungeness Crab Season**

The 2004/05 fishery opened on May 1 in all areas except Kodiak's south end, which opened on June 15. Approximately 11 vessels harvested 352,216 pounds from 59 landings (Table 10). All vessels that participated in the 2004 fishery were less than 80 feet overall length; 55% of the fleet consisted of vessels less than 50 feet overall length (Table 11).

Harvest peaked in July though effort remained relatively constant through August (Figure 9). As in 2001, 2002 and 2003, the majority of harvest during 2004 came from statistical area 545601, south of Sitkinak and Tugidak Islands (Table 12).

An average of 4 legal crabs per pot were landed during the 2004/05 season. CPUE has historically been highest in the late summer months, presumably as crabs molt to legal size and are then available to the commercial fishery under '3-S' management.

Price paid per pound in 2004 averaged \$1.48, down from \$1.50 in 2003. The estimated exvessel value for the 2004/05 season was \$518,000 (Table 10).

Dungeness crabs harvested in the Kodiak District had a mean CW of 175 mm in 2004, identical to the 175 mm CW in the 2003 (Figure 8). The percentage of postrecruit crabs taken in the commercial harvest during the 2004/05 season was 12%, which was lower than the 22% from the 2003/04 season.

## **CHIGNIK DISTRICT**

### **Description of the District**

The Chignik District for Dungeness crab includes waters of Registration Area J that are west of the longitude 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 10).

### **Overview of Fishery Regulations**

The Chignik District is superexclusive registration for Dungeness crab fishing. Male Dungeness crab 6.5" in CW or larger may be taken from May 1 to January 1.

### **2004/05 Chignik District Dungeness Crab Season**

Only 2 vessels registered for the Chignik District in 2004/05, therefore harvest data is confidential (Table 13). Since the creation of the Chignik District, less than 3 vessels or processors have participated annually. Therefore, all harvest information remains confidential, and is combined with the Alaska Peninsula District.

## **ALASKA PENINSULA DISTRICT**

### **Description of the District**

The Alaska Peninsula District for Dungeness crab includes all waters of Registration Area J 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 10).

### **Overview of Fishery Regulations**

The Alaska Peninsula District is a superexclusive registration area for Dungeness crab fishing. Male Dungeness crab 6.5" in CW or larger may be taken from May 1 to January 1.

### **Historic Background**

Prior to 2001, the Alaska Peninsula District also included the Chignik District. Historically, Dungeness crab catches from the district have been sporadic, with the highest catch recorded in 1968 when 1.3 million pounds were landed (Table 13). Subsequent effort and harvest remained low for many years presumably due to low prices and better prospects in other crab fisheries. During the early 1980s, the decline in king crab stocks and a stronger market for Dungeness crabs generated renewed interest in the fishery. The BOF specified the Alaska Peninsula District as superexclusive registration in 1983. Since then effort in the district has declined and recent catches have been small.

### **2004/05 Alaska Peninsula District Dungeness Crab Fishery**

The 2004/05 Alaska Peninsula District Dungeness crab season opened May 1. Approximately 4 vessels participated in the fishery; however, less than 3 processors purchased Dungeness crab. Therefore, harvest information remains confidential.

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

No stock assessments have been conducted for Dungeness crab in the Kodiak, Chignik, or Alaska Peninsula Districts. ADF&G activity has been limited to monitoring commercial fishery deliveries and conducting vessel operator interviews.

## **KING CRAB**

### **GENERAL RED KING CRAB INFORMATION**

Historically, major red king crab fisheries have occurred in the Kodiak and Alaska Peninsula Areas. Stock size is estimated annually by a trawl survey conducted aboard the *R/V Resolution*. Red king crab fisheries in the Kodiak Area open by regulation on September 25 if biomass estimates meet or exceed 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 threshold of 5.12 million fertilized females was established in this harvest strategy. The female threshold is further broken down by individual Kodiak Districts. Additional harvest strategy criteria restrict harvest to only 20% of mature males and caps harvest on legal-sized males at 60% of the estimated legal-sized population.

Trawl surveys indicate red king crab population levels remain low in the Alaska Peninsula Area. If stock status of red king crabs were healthy enough to allow for a commercial fishery, GHLS would be established utilizing similar criteria for other Westward Region king crab districts. Red king crab fisheries in the Kodiak and Alaska Peninsula Areas would be managed inseason until the GHLS was attained or biological considerations occurred that warranted closure of the fishery to protect the long-term health of the stocks.

### **GENERAL GOLDEN KING CRAB INFORMATION**

Small harvest of golden king crabs, previously called 'brown' king crab, has occurred in the Kodiak Area. ADF&G manages the golden king crab fishery by commissioner's permit. The Alaska Peninsula Area has not been explored for golden king crabs. In the Kodiak and Alaska Peninsula Areas golden king crabs may be harvested from January 1 to December 31. Conditions of the commissioner's permit for golden king crabs state that (1) a valid CFEC permit card is required, (2) tank inspection is required, (3) gear must comply with 5 AAC 34.425 LAWFUL GEAR FOR REGISTRATION AREA K, (4) only male golden king crab 6.5" carapace width or greater may be retained, (5) pots may not be longlined, (6) a 75 pot limit is in effect, and buoy tags supplied by ADF&G are required, (7) logbooks are required, (8) ADF&G must be notified of all deliveries, (9) pots must be fished 125 fathoms or deeper in all areas except Shelikof Strait and the Southeast and Eastside Districts of the Kodiak Area where they may be fished up to 100 fathoms, (10) retention of Pacific cod for sale is not permitted, nor is simultaneous participation in the state-waters Pacific cod fishery, (11) weekly radio schedule updates may be required, and (12) the department reserves the right to deploy ADF&G personnel on board the vessel as an

onboard observer with cost borne by the department. No GHL is established for the golden king crab fishery.

## **KODIAK AREA**

### **Description of the Area**

The Kodiak King Crab Management Area (Area K) has its northern boundary the latitude of Cape Douglas (58° 51.10' N lat.), and its western boundary the longitude of Cape Kumlik (157° 27' W long.). The Kodiak Area is further subdivided into 5 districts for king crab management, which include the Northeast, Southeast, Southwest, Semidi Island, and Shelikof Districts (Figure 11).

## **RED KING CRAB**

### **Overview of Fishery Regulations**

The Kodiak Area is exclusive registration for red king crab. The Kodiak Area has a sliding scale pot limit based on the GHL that ranges from 25 to 75 pots per vessel.

### **Historic Background**

Beginning in 1936, small amounts of red king crab were landed in Kodiak, but catches were not officially recorded until 1950. This period in the history of the fishery was exploratory in nature with fishers developing gear, locating commercially harvestable quantities of crab and developing markets for product. In 1960, the king crab season was open year round and 21 million pounds were landed (Table 14). The development period peaked during the 1965/66 season, when over 94 million pounds of crab were landed during a 10 month fishing season. From the peak in 1966, catches dropped to 12 million pounds by the 1969/70 season. By the 1972/73 season, the decline had been reversed and harvests started increasing. The 1972/73 fishery lasted 10 days under a fixed quota system. A single district was reopened for an additional 8 day fishery when it was determined that the initial harvest fell almost 3 million pounds short of the district quota.

During the 1970s, several fishing seasons for crabs with minimum sizes ranging from 7.0 to 8.0 inches occurred (Table 15). Often, second fishing seasons occurred that targeted larger, older crabs. Harvest ranged from 10.9 million pounds during the 1971/72 season to 24.0 million pounds during the 1975/76 season. Harvest declined in the late 1970s and by the 1978/79 season, harvest totaled 12.0 million pounds. The 1981/82 season harvest was the highest of the previous 13 years at 24.2 million pounds. The 1982/83 season had the highest effort on record and total harvest declined from the previous season to 8.7 million pounds, the lowest in 24 years.

ADF&G did not open the 1983/84 season to red king crab fishing due to poor stock condition. The population of adult male crabs was the lowest recorded in 13 years of annual population assessments. ADF&G established threshold levels of legal males needed before considering any future fishery openings. The threshold of 10.3 million pounds of legal crabs was nearly twofold the 5.5 million pound estimate of the 1983 survey. The king crab season has not opened since the 1982/83 season.

ADF&G has conducted trawl surveys to assess king and Tanner crab populations around Kodiak Island, along the Alaska Peninsula, and the eastern Aleutian Islands since 1988. The Kodiak Area remains closed because the abundance estimates of females are well below threshold levels. Complete information on the Westward Region trawl survey catches can be obtained from ADF&G in the Regional Information Report series.

The pot limit for commercial king crab fishing in the Kodiak area was reduced in 1993. A sliding scale of 25-75 pots per vessel was selected based on the projected harvest guideline. Although a fishery had not occurred in the prior 10 years, the pot limit was aimed at reducing effort when the fishery did reopen.

### **STATUS OF KODIAK AREA RED KING CRAB STOCK**

The Kodiak red king crab population remains at historically low levels, and fishing seasons for red king crabs have remained closed since the 1982/83 season. During the 2004 Kodiak trawl survey, ADF&G completed 226 hauls in known king crab habitat. The red king crab population was estimated to be 369,779 animals, of which 240,015 were legal-sized males. As seen in Figure 12, the majority of king crabs were found in the Uyak Bay portion of the Shelikof District and the Alitak Bay portion of the Southwest Section (Spalinger *In prep*). The mature red king crab female population was estimated to be 64,817 animals, well below the 5.1 million threshold required for a fishery opening. Approximately 67% of the mature female crab sampled had an estimated ovigerity of 80% or greater. In 2003, 56% of the mature female crab sampled had an estimated ovigerity of 80% or greater.

### **GOLDEN KING CRAB**

#### **Overview of Fishery Regulations**

The Kodiak Area is nonexclusive registration for golden king crab. Pot limits are stated in the commissioner's permit.

#### **Historic Background**

Interest in harvesting golden king crab increased after the collapse of the red king crab stocks. Although golden king crab were occasionally landed with red king crab in prior years, the first recorded 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 16). The largest harvest from this fishery totaled 146,478 pounds which was taken in 1986.

Since 1988, most of the effort consisted of no more than 2 vessels annually, therefore catch information is confidential. During most years, there has been no activity.

### **2004 KODIAK AREA GOLDEN KING CRAB FISHERY**

There were 2 vessels registered to fish golden king crab in the Kodiak Area during 2004; harvest information remains confidential.

### **STATUS OF KODIAK AREA GOLDEN KING CRAB STOCK**

ADF&G does not assess the golden king crab stock in the Kodiak Area. Given the low interest in the commercial fishery, the population is believed to be small when compared to populations in the Bering Sea, Aleutian Islands, and inside waters of Southeast Alaska. Detailed logbook data are collected, and this information may yield better insight to golden king crab distribution and stock size in the Kodiak Area.

### **ALASKA PENINSULA AREA**

#### **Description of the Area**

The Alaska Peninsula King Crab Management Area has as its eastern boundary the longitude of Cape Kumlik (157° 27' W long.), and as its western boundary the longitude of Scotch Cap Light (164° 44' W long.). The Alaska Peninsula is further divided into the Unimak Bight, Central, and West Chignik Districts (Figure 13).

## **RED KING CRAB**

### **Overview of Fishery Regulations**

The Alaska Peninsula Area is superexclusive registration for red king crab. The area has a sliding scale pot limit based on the GHJ that ranges from 40 to 75 pots per vessel.

### **Historic Background**

The red king crab fishery in the Alaska Peninsula Area began in 1947, when 141,000 pounds were landed. The largest historic catch of 22.6 million pounds occurred in 1966 (Table 17). Throughout the 1970s and early 1980s, most of the harvest occurred in the Central District with Pavlof Bay being the most productive area. The annual catch in the Unimak Bight District during the same period averaged less than half the annual harvest taken from the Central 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, the Alaska Peninsula Area harvest totaled just over 5 million pounds, the highest catch since the 1968/69 season (Table 17). The catch was the result of strong recruitment from 1978 through 1980. Recruitment of young crabs to legal size has declined severely since that time, resulting in a closure of the fishery since the 1983/84 season.

### **STATUS OF ALASKA PENINSULA AREA RED KING CRAB STOCK**

ADF&G has annually conducted a trawl survey of the Alaska Peninsula crab stocks since 1988 with the *R/V Resolution*. The 2004 survey consisted of 139 tows in king crab habitat throughout the registration area. Data from the survey indicate the red king crab population remains at very low levels. The estimated population from the 2004 survey was 54,167 crabs, an increase from the estimated 39,859 crabs from the 2003 survey (Spalinger *In prep*). Because the stock is at a very low level, with patchy distribution, population estimates can vary widely each year. As has been the case with previous surveys in the Alaska Peninsula Area, wide ranges in sizes of both sexes were captured.

## **GOLDEN KING CRAB**

### **Overview of Fishery Regulations**

The Alaska Peninsula Area is superexclusive registration for golden king crab. An aggregate of no more than 75 pots may be operated to harvest golden king crab.

### **Historic Background**

On occasion, fishers have expressed an interest in exploring the Alaska Peninsula Area for golden king crab. Little to no effort has occurred within the area. In 1983, 5 vessels registered but no catch was landed. Presently, male golden king crab 6 inches or greater in carapace width may be taken from January 1 through December 31 under a permit issued by the commissioner.

### **2004 ALASKA PENINSULA AREA GOLDEN KING CRAB FISHERY**

No vessels registered to fish for golden king crab in the Alaska Peninsula Area during 2004.

### **STATUS OF ALASKA PENINSULA AREA GOLDEN KING CRAB STOCK**

ADF&G does not assess golden king crab stocks in the Alaska Peninsula Area. Exploratory efforts by commercial fishers have yet to locate quantities sufficient to sustain a commercial fishery in this area.

# 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. All of Registration Area J is a nonexclusive registration area for trawl shrimp. The majority of historically productive, inshore sections have established thresholds for commercial fishery openings, called Minimum Acceptable Biomass Indices (MABI). These thresholds and their derivation are explained in the Westward Region Shrimp Fishery Management Plan (ADF&G 1982). Sections with MABI thresholds open and close by EO. An EO can be issued between June 15 and February 28 in the Kodiak District, and May 15 through February 14 in the Chignik and South Peninsula Districts. The remaining general section or undescribed waters within these districts open by established seasons, without threshold criteria, or established GHs. Shrimp abundance estimates are determined by trawl surveys conducted aboard the *R/V Resolution*.

## SHRIMP POT FISHERY INTRODUCTION

The pot shrimp fisheries that occur 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 pot shrimp. With the exception of 6 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 of shrimp Registration Area J that are east of the longitude of Kilokak Rocks. The Kodiak District is further divided into 15 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 14).

### Historic Background

The Kodiak trawl shrimp fishery began with a harvest of 31,886 pounds in 1958 (Jackson and Ruccio 2003). The fishery grew rapidly to an annual catch of 12.7 million pounds in 1962. The fishery slowed when shore plants and the fishing fleet were badly damaged by the 1964 earthquake and tsunami, but then quickly surged to a peak Kodiak District harvest of 82.2 million pounds in 1971 (Table 18). As Kodiak shrimp catches declined in the 1970s, much of the vessel effort shifted into the Chignik and South Peninsula Districts (Jackson and Ruccio 2003). The Westward Region harvest peaked in 1976 at 120 million pounds. Stock abundance and fisheries declined sharply thereafter. The northern pink shrimp *Pandalus borealis* has been the most prevalent species in the harvest contributing over 95% by weight. Other species landed included sidestriped *P. dispar*, coonstriped *P. hypsinotus*, spot *P. platyceros* and humpy *P. goniurus* shrimps.

ADF&G initiated a voluntary logbook program in 1967. The resulting database, plus data from trawl surveys conducted by ADF&G since the early 1970s, provided a means for establishing harvest levels. The system was flexible during its development stage, but in 1981, the industry requested this management scheme be defined and adopted into regulation. This led to the WESTWARD REGION SHRIMP MANAGEMENT PLAN, which was approved by the BOF in 1982. The objectives of this management plan were to maintain shrimp stocks at a level termed

"representative biomass index" (RBI) determined by survey trawls, while allowing a fishery during rebuilding periods. A minimum level at which any harvest would occur was established and termed the "minimum acceptable biomass index" (Table 19).

Concurrent with approval of the WESTWARD REGION SHRIMP MANAGEMENT PLAN, the BOF also enacted an additional management strategy as an "economic alternative" known as the MAINLAND SHRIMP MANAGEMENT PLAN. This alternative strategy allowed 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 about the lack of information needed for the sustainability of the fishery. This left only the General Section comprising offshore areas open annually from June 15 through February 28. Much of the state waters within the General Section are closed to non-pelagic trawls, including otter and beam shrimp trawl nets.

ADF&G requires vessels registering in the General Section to provide logbooks for fishery management and research. There has been little commercial trawl effort in the General Section since the 1986/87 season.

Pot fishing for shrimp has been recorded since 1969 in the Kodiak District but it has never been a large fishery (Jackson and Ruccio 2003). The North Afognak, West Afognak, and Mainland Sections of the Kodiak 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 amended 5 AAC 31.590 WESTWARD AREA SHRIMP FISHERIES MANAGEMENT PLAN to contain conservative management tools to allow pot shrimp fishing opportunities in these areas. Season dates, a guideline harvest range (GHR), and a mandatory logbook requirement was adopted. These new regulations became effective July 1, 2003. In all other areas, shrimp may be taken year round with pots, and ADF&G requests that logbooks be submitted with fish tickets. The largest landing of product was less than 19,000 pounds of spot shrimp tails in 1983 (Table 20).

### **Overview of Fishery Regulations**

To participate in commercial shrimp fishing in the Kodiak District, a vessel operator is required to obtain a shellfish registration from ADF&G and an interim use permit card from CFEC. Effective July 1, 2003, vessel operators may not be registered to take shrimp in more than one district at a time.

In the Kodiak District, shrimp may be taken with trawl gear in the General Section from June 15 through February 28. The remaining sections of the Kodiak District are only opened by EO. 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 a fishing season of May 1 through February 28, unless closed earlier by EO. There is a guideline harvest range of 0 to 40,000 pounds whole weight for these 3 sections, and no more than 15,000 pounds may be harvested from an individual section during a calendar year. Logbooks are required of fishers targeting shrimp in the North Afognak, West Afognak, and Mainland Sections.

### **2004/05 KODIAK DISTRICT SHRIMP POT AND TRAWL SEASONS**

There was no fishing effort for pot shrimp in 2004.

## **STATUS OF KODIAK DISTRICT SHRIMP STOCKS**

ADF&G conducts trawl surveys to assess shrimp biomass. In recent years, surveys have been conducted every 3 years in the Kodiak District. Beginning in 2003, portions of the Kodiak District were surveyed on an annual basis. Most of the General Section is not surveyed nor is there any established MABI in the General Section. In 2004, no sections in the Kodiak District produced shrimp population estimates above the department's established MABI. In the Kodiak District, the highest catch of shrimp per mile towed was found in Marmot and Wide Bays (Jackson 2005). Wide Bay is part of the territorial waters closed to non-pelagic trawl gear, including shrimp beam and otter trawls. Therefore, no commercial trawl fishery occurred in Wide Bay in 2004. Table 19 contains the population estimates and MABIs established for the Kodiak District Sections surveyed in 2004. Most sections remain well below historic population levels, but have shown some increases in recent years.

Trawl gear does not adequately sample the rocky habitat typically associated with shrimps taken by pot gear. Therefore, no inferences about spot and coonstriped shrimps are drawn from the trawl survey. It is reasonable to expect, based on the general population trends exhibited by pink shrimp through the trawl survey, that all shrimp populations remain constant, but at lower than historic levels.

## **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 and 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 further divided into nine sections: Kujulik Bay, Chignik Bay, Kuiukta Bay, Mitrofanina Island, Ivanof Bay, Chiginagak Bay, Seal Cape, Nakalilok Bay, and Aniakchak Bay Sections (Figure 15). The offshore waters in the Chignik District are not assigned sections.

The South Peninsula District for shrimp includes all waters west of a line from Kupreanof Point to the easternmost point of Castle Rock, and west of a line extending 135° southeast from the easternmost point of Castle Rock and Pacific Ocean waters east of the longitude of Cape Sarichef. The South Peninsula District is further divided into eight sections: Stepovak Bay, Unga Straits, West Nagai, Beaver Bay, Kenoy's Island, Pavlof Bay, Belkofski Bay, and Morzhovoi Bay Sections (Figure 16). The offshore waters in the South Peninsula District are not assigned sections.

### **Historic Background**

Shrimp fishing in the South Peninsula and Chignik Districts began in 1968, but catch levels remained relatively low until the 1972/73 season when 19.6 million pounds were harvested (Table 21). The historic high catch of 71.5 million pounds was reached in the 1977/78 season from the 2 districts. Catches declined rapidly until all South Peninsula sections were closed in 1980/81. Although the Sutwik Island Section and all offshore waters of the Chignik District remained open for the 1981/82 season, only 70,948 pounds of shrimp were landed from those areas. Since that time, all the inshore waters 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. This new regulation contains conservative management tools to allow pot shrimp fishing opportunities in these 3 sections. Season dates, a GHR, and a mandatory logbook requirement were created. These new regulations became effective July 1, 2003. In all other areas, shrimp may be taken year round with pots, and ADF&G requests that logbooks be submitted with fish tickets.

### **Overview of Fishery Regulations**

The shrimp fisheries that occur in the Chignik and South Peninsula Districts are part of Registration Area J. All of Registration Area J is a nonexclusive registration area for shrimp fishing. To participate in commercial shrimp fishing in Area J, a vessel operator is required to obtain an interim use permit card from CFEC and a shellfish registration from ADF&G.

In the Chignik and South Peninsula Districts, shrimp may be taken with trawl gear from May 15 through February 14 provided that estimated shrimp populations are above established thresholds. The majority of the sections in these 2 districts are open and closed by EO when abundance thresholds are met or exceeded. The remaining waters of the Chignik and South Peninsula Districts, similar to the General Section of the Kodiak District, 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 EO. There is a guideline harvest range of 0 to 40,000 pounds whole weight for these 3 sections, and no more than 15,000 pounds may be harvested from an individual section during a calendar year. Logbooks are required of fishers targeting shrimp in the Chiginagak, Nakalilok, and Aniakchak Bay Sections. There are no closed sections in the South Peninsula District for vessels using pot gear.

### **2004/05 SOUTH PENINSULA AND CHIGNIK DISTRICTS SHRIMP POT AND TRAWL SEASON**

There was no fishing effort for pot shrimp during the 2004 season and no fishing effort for shrimp with trawl gear for the 2004/05 season.

### **STATUS OF SOUTH PENINSULA AND CHIGNIK DISTRICTS SHRIMP STOCKS**

The South Peninsula and Chignik Districts were surveyed in 2004. In 2004, ADF&G conducted a trawl survey in the South Peninsula and Chignik Districts for the second time since 1995. Shrimp abundance indices from the 2004 survey were below MABI levels in all South Peninsula and Chignik District sections that were surveyed (Table 19). Shrimp densities within the South Peninsula and Chignik Districts were similar to those found during the 1995 and 2002 surveys (Jackson 2005).

## **RED SEA CUCUMBER**

### **INTRODUCTION**

The red sea cucumber fishery in the Kodiak, Chignik, and South Peninsula Districts is part of miscellaneous shellfish Registration Area J. The sea cucumber dive fisheries are nonexclusive registration. The districts and sections in use for Tanner crab management are used to delineate sea cucumber management. Sea cucumber fisheries are open by regulation from October 1 through April 30 under the authority of a commissioner's permit. GHLs are established annually

and fisheries remain open until section GHGs are attained or the biological closure (April 30). Weekly fishing periods are announced and established by EO. Fishing periods begin on or about October 1 and continue until the established GHGs are attained. In recent years, most sections where fishing activity occurred have been open from 1 to 3 days per fishing period. Historically, dive gear has been the only method used to harvest sea cucumbers in the Kodiak, Chignik, and South Peninsula Districts. The use of mixed gasses in the dive fishery is allowed. Divers are required to submit dive logs with the ADF&G fish ticket at the time of landing. Each diver is required to have a CFEC permit 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 for sea cucumbers 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 southern most 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.

### **Historic Background**

Red sea cucumbers were not harvested commercially in the Westward Region until 1991 (Table 22). In 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, several processors recruited divers to prosecute a commercial fishery for red sea cucumbers in those same areas.

In February of 1994, ADF&G announced several management measures intended to prevent over harvest of the red sea cucumber resource. A seasonal closure from May 1 through September 30 was established to protect spawning aggregates of red sea cucumbers. In addition, GHGs were established for the Kodiak and Chignik Districts. Management areas based on the Tanner crab fishing sections were utilized in the Kodiak District in an attempt to spread the effort and harvest around the island and prevent localized depletion. A GHG was set for each of the individual sections based on historic production and fisheries performance. Registration permit provisions included a weekly fishing period of 5 days and daily dive logs submitted by the divers with fish tickets. The fishery was reopened April 1, 1994 and closed on April 30.

Following the May 1 to September 30 closure in 1994, ADF&G again opened the Kodiak and Chignik Districts to red sea cucumber fishing. GHGs for the Kodiak and Chignik Districts combined during the 1994 season totaled 225,000 pounds with 3 day weekly fishing periods. The shortened fishing periods were set to allow ADF&G a better opportunity to assess inseason fishery performance. GHGs were quickly reached in the sections surrounding Kodiak Island.

The 1995 sea cucumber fishing season opened on October 1, 1995. Evaluation of another year of fishery performance resulted in a decreased GHG. The GHG for the Kodiak District was 135,000

pounds, and the Chignik District GHL was set at 25,000 pounds. Effort again concentrated on the Eastside, Southeast, Southwest, and Westside Sections of Kodiak. Although outlying areas along the Alaska Peninsula have historically remained open for the duration of the regulatory season, divers were reluctant to cross Shelikof Strait due to stormy weather and the expectation of marginal returns. From 1998-2001, the fishery in the Kodiak District has followed a similar pattern of approximately 5 fishing periods of varying length occurring before the areas around Kodiak Island obtained their respective GHLs and were closed for the season. The development of sea cucumber dive fisheries in both Kodiak and Chignik are very closely related. Therefore, the Chignik District information will continue to be reported in the Kodiak section of this Area Management Report.

### **2004/05 KODIAK AND CHIGNIK DISTRICTS RED SEA CUCUMBER SEASON**

The 2004/05 fishery opening was Friday, October 1, 2004. In recent years, the first fishing period has been scheduled on the first Thursday of October to allow management decisions to be made during the early portion of the following week.

The 2004/05 GHL for the Kodiak District totaled 150,000 pounds of eviscerated product. The Chignik District GHL was 25,000 pounds (Table 23). Approximately 13 permit holders made landings from the Kodiak and Chignik Districts, with most of the harvest occurring in the Kodiak District. To prevent overexploitation in the Uganik Bay area, a separate commissioner's permit was required to harvest sea cucumbers. Uganik Bay, which is part of the Westside Section, was assigned a GHL of 10,000 pounds. The Eastside, Southeast, Southwest, Westside Sections, and the Uganik Bay area of the Westside Section of the Kodiak Area were closed by EO to prevent divers from exceeding the GHLs. Only 1 processor purchased product; therefore, harvest information is confidential.

#### **First Fishing Period, October 1 to October 2**

The level of participation was anticipated to be similar to 2003. Based on anticipated participation, the first dive fishing period was established as a 2 day opening on Friday, October 1 and Saturday, October 2. Of the 13 divers registered for the first fishery opening, only 11 divers participated.

Effort occurred in the Eastside and Westside Sections. In past years, the fleet tended to target the Eastside and Southeast Sections first. In the Eastside Section, 5 divers harvested 5,775 pounds in 2 days. The average harvest per diver per day was 578 pounds. This harvest rate is similar to the rate observed in 2003 (682 pounds/diver/day), but considerably less than the rate observed in 2002 (1,097 pounds/diver/day).

In the Westside Section, 6 divers harvested 15,875 pounds. The average harvest per diver per day was 1,323 pounds, an increase from the 967 pounds that occurred in the 2003 fishery.

#### **Second Fishing Period, October 8 to October 10**

After the first period 2 divers dropped out of the fishery. Based on the harvest in the first period, the Westside Section was opened for 2 days in the second fishing period. All remaining sections were open for 3 days.

All effort was concentrated in the Eastside Section. In the Eastside Section, 9 divers took 33,104 pounds of sea cucumbers, bringing the section total to 38,789 pounds. Harvest rates improved in the second period for the Eastside Section. Divers averaged 1,223 pounds per day during the

opening. As the GHL had been attained (1,211 pounds remaining), the Eastside Section was closed for the remainder of the season.

### **Third Fishing Period, October 15 to October 17**

The fleet was interested in harvesting sea cucumbers from the Southeast Section. The Westside Section was opened for 1 day, all other areas not previously closed were open for 3 days. The 3 boats (9 divers) all fished in the Southeast Section.

In the Southeast Section, 9 divers took 39,777 pounds of sea cucumbers, exceeding the GHL by 9,777 pounds. Divers averaged 1,473 pounds per day during the opening. Past performance in this section ranged from approximately 750 pounds of seas cucumbers/day/diver to twice that much. As the GHL has been attained, the Southeast Section was closed for the remainder of the season.

### **Fourth Fishing Period, October 22 to October 24**

The dive fleet provided guidance to ADF&G on where they would fish. The fleet was interested in harvesting the remainder of the Westside Section GHL and then going into the Uganik Bay portion of the Westside Section. The Westside Section was opened for a 1 day period, and the Uganik Bay portion of the Westside Section was opened for 7 hours following the closure of the Westside Section. At 6:00 PM on October 22, the fleet called ADF&G and indicated that they would like more time to fish because they estimated that they had only caught approximately 8,000 pounds. The fleet was also concerned that they may have difficulty fishing the Uganik Bay portion of the Westside Section due to poor weather. ADF&G was reluctant to extend the fishing period in the Westside Section because it was unclear whether participants would harvest more sea cucumbers later in the evening prior to the official closure. Likewise, ADF&G informed the fleet that it was premature to delay the Uganik Bay opening because weather might deteriorate and the current opening may provide the only opportunity.

In the Westside Section, 9 divers took 12,918 pounds of sea cucumbers, bringing the section total to 28,793 pounds. Divers averaged 1,435 pounds per day during the opening. As the GHL had been attained (1,203 pounds remaining), the Westside Section was closed for the remainder of the season.

Divers harvested from the Uganik Bay portion of the Westside Section as originally scheduled. Only 6 divers harvested sea cucumbers from the Uganik Bay portion because 1 boat failed to fill out the special permit. Approximately 6 divers harvested 2,767 pounds of sea cucumbers from the Uganik Bay portion of the Westside Section. Divers averaged 467 pounds per day during the opening.

### **Fifth Fishing Period, October 29 to October 31**

Prior to the fifth fishing period, the sole processor purchasing sea cucumbers indicated that they would not accept deliveries past the first week of November. Weather was poor and divers contemplated postponing fishing during this period, but were concerned they would not have another opportunity. Divers continued to press ADF&G to allow inseason management. Despite the inquiries by they fleet, ADF&G announced a 2.5 day opening in the Southwest Section, followed by a 1 day opening in the Northeast Section. All other sections not previously closed were open for 3 days, except the Uganik Bay portion of the Westside Section, which was opened for 7 hours. The fleet called from the fishing grounds Friday morning via satellite phone and indicated that it was too windy to fish and asked if ADF&G could delay the opening. ADF&G did not take immediate action. On Saturday morning, the fleet called and indicated that the

weather was still poor, but had improved enough for everyone to fish. ADF&G extended the opening by 1 day by issuing a news release on Sunday, October 31. The fleet estimated that they had attained the GHL by the end of the second day and voluntarily stopped fishing. The fleet's 6 divers harvested 22,158 pounds, exceeding the GHL by 2,158 pounds. Divers averaged 985 pounds per day during the opening.

### **Sixth Fishing Period, November 6 to November 7**

After the fifth fishing period, several members of the dive fleet wanted to fish 1 more period. The processor decided that they would accept deliveries until November 9, leaving the opportunity for 1 more fishing period. The majority of the fleet indicated that they were done fishing; however, 1 vessel expressed interest in harvesting the remaining quota in Uganik Bay. After the fishery was announced, the remaining vessel decided to fish for halibut instead, therefore, there was no participation

### **Additional Fishing Effort Information**

In April 2005, 4 divers registered to fish for sea cucumbers in the Chignik District. Divers were required to report daily harvest to ADF&G. The divers fished in the Chignik District for 9 days, harvesting less than 10,000 pounds. No effort occurred in the South Mainland, North Mainland or Semidi Island Section of the Kodiak Area during the 2004/05 season.

### **Dockside Sampling**

Over the course of the fishery, dockside samplers conducted interviews with vessel operators at each delivery. Logbook data supplied by divers was much improved from previous seasons; most of the logbooks contained latitude and longitude data as opposed to only bay names or statistical areas. Average weights were taken at the point of delivery. Approximately 7 landings were sampled for average weights. The average eviscerated weight for Kodiak Area red sea cucumbers that were sampled was 0.53 pounds per animal.

### **STATUS OF KODIAK AND CHIGNIK DISTRICTS RED SEA CUCUMBER STOCKS**

There are no population estimates for red sea cucumbers in the Westward Region. Following the establishment of GHGs in 1995, catch rates from diver logbook data in the commercial fishery have remained stable. Biomass levels, especially at depths unavailable to divers, are unknown. Funding from a federal grant has been utilized for preliminary dive and video assessment of red sea cucumber populations in the Eastside Section of Kodiak. Results of this pilot study have indicated that dive assessment GHG estimates tracked fairly closely with the published GHGs (D. Urban, Alaska Department of Fish and Game, Kodiak, personal communication).

### **SOUTH PENINSULA DISTRICT**

#### **Description of the District**

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 a line extending south from Scotch Cap Light (Figure 3).

#### **Historic Background**

The waters adjacent to the south side of the Alaska Peninsula were initially explored for red sea cucumber in 1993. Very little effort has historically occurred in the South Peninsula District for red sea cucumbers. Effort occurred in the 1994 season with 3 divers. The catch during this

season remains confidential as only 1 diver made a landing. There have been no landings in the South Peninsula District since 1994.

### **2004/05 SOUTH PENINSULA DISTRICT RED SEA CUCUMBER SEASON**

No fishing occurred during the 2004/05 season in the South Peninsula District sea cucumber fishery. The season was open from October 1 through April 30 with a GHL 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 extent of the westward range of red sea cucumbers is not well documented; however, ADF&G trawl surveys have captured red sea cucumbers as far west as Pavlof Bay.

## **GREEN SEA URCHINS**

### **INTRODUCTION**

Fishers participate in the green sea urchin fishery under the terms of a miscellaneous shellfish permit as authorized in 5 AAC 38.062 PERMITS FOR OCTOPI, SQUID, HIAR CRAB, SEA URCHINS, SEA CUCUMBERS, SEA SNAILS, AND OTHER MARINE INVERTEBRATES. Commercial fishing regulations set the season at October 1 to January 31. Sea urchins may be taken only by hand picking, which may be aided by the use of diving gear, an abalone iron, or a sea urchin rake. A valid CFEC interim use permit card and registration are required. Logbooks are mandatory and must be submitted with completed fish tickets. There are currently no size limits for green sea urchins in regulation. However, buyers have only purchased green sea urchins that are approximately 2 or 2.25 inches or greater in test diameter.

### **HISTORIC BACKGROUND**

The green sea urchin was 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 in Kodiak until 1985 when several thousand pounds were harvested. In 1986, the harvest increased with more divers participating. Peak harvest occurred in 1988 at 190,509 pounds (Table 24). Kodiak green sea urchins are usually shipped live to Japan for processing.

Red sea urchins *Strongylocentrotus franciscanus* are widely harvested in Southeast Alaska and along the west coast of Canada and the lower 48 states. Red sea urchins are found in small quantities in the Kodiak Area, however their abundance is insufficient to support a commercial fishery.

In 2000, ADF&G worked to develop conservative GHLs for the green sea urchin fisheries based on historic harvest information. The sections utilized for Tanner crab and red sea cucumber management were adopted for green sea urchin management. Sections that lacked historic harvest data were assigned a 5,000 pound GHL (Table 23). Sections that had been previously explored and had some prior harvest were assigned a 10,000 pound GHL to help prevent local depletion. ADF&G will work closely with fishery participants to collect baseline biological data from the green sea urchin fishery.

## **2004/05 GREEN SEA URCHIN SEASON**

No vessels were registered for the 2004/05 green sea urchin season in the Kodiak Area.

## **STATUS OF GREEN SEA URCHIN STOCKS**

No stock assessment work is currently being done on green sea urchin populations in the Kodiak and Alaska Peninsula Areas. Given the low effort levels in the fishery, data from logbooks on CPUE varies widely and does not lend itself to inferences on stock status. Fishery information indicates the biomass is not large when compared to other areas on the Pacific coast and when compared to an annual worldwide sea urchin harvest estimated at 100 million pounds (Lourie and Sanders 2000).

# **OCTOPUS**

## **INTRODUCTION**

Harvest of the giant Pacific octopus occurs in the Kodiak, Chignik, and South Peninsula Districts of miscellaneous shellfish Registration Area J. There is no closed season for directed fisheries for octopus; however, fisheries may only occur under the authority of a commissioner's permit. To target octopus, a valid octopus permit card for the gear type to be used must be obtained from CFEC. While in possession of an octopus commissioner's permit, vessel operators may not participate in other fisheries such as the state-waters Pacific cod fishery. Vessel operators may retain octopus bycatch up to 20% of their target species weight with any valid CFEC permit card. Vessel operators registered for an octopus fishery may only retain permissible bycatch levels of other species. As part of the commissioner's permit requirements, individuals targeting octopus are required to maintain a logbook. No GHs are established for octopus fisheries.

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.

## **HISTORIC BACKGROUND**

Octopus is considered a groundfish species by National Marine Fisheries Service (NMFS) and a shellfish species under BOF regulation. Before 1985, no distinction between state and federal waters was made regarding octopus harvest. In the period from 1977 to 1984, 51,479 pounds were harvested from state and federal waters. During these years the highest recorded harvest in the Kodiak District occurred in 1980 with 19,342 pounds. Much of the octopus harvested was used as bait or kept for personal consumption and was not reported on fish tickets. Harvests were likely higher than indicated.

The octopus fishery experienced a dramatic increase in the 1990s. The decline of many crab stocks in the Gulf of Alaska resulted in reduced harvest opportunity or fishery closures for many of the crab fisheries that had been prosecuted from late fall to early spring with pot gear. To fill the void, many pot gear fishers turned to Pacific cod *Gadus macrocephalus* in those months. In turn, octopus retention increased during Pacific cod fisheries. ADF&G worked with industry to ensure that all octopus harvest, particularly harvests that were not sold but retained as bait, was documented on fish tickets. ADF&G also began requiring vessels to specify, at the time of registration for groundfish fisheries, their intent to retain octopus as bycatch. Octopus has long been sought as bait in the Pacific halibut *Hippoglossus stenolepis* longline fisheries and in the Pacific cod pot fisheries.

Periodic episodes of favorable market conditions also resulted in large amounts of octopus sold to processors.

The majority of octopus harvest in the Kodiak, Chignik, and South Peninsula Districts has occurred within state waters (Table 25 & 26). In 1991, there were 106,748 pounds of octopus harvested from state waters in the Kodiak Area. In that same year, 22,607 pounds of octopus were harvested from federal waters in the Kodiak Area. Octopus harvest decreased substantially in the mid-1990s, only to increase sharply with the advent of the state-waters Pacific cod fisheries in 1997. In 1997, a total of 329,014 pounds of octopus were harvested in state and federal waters in the Kodiak, Chignik and South Peninsula Districts (Tables 25 & 26). In the Kodiak District, harvest reached a record high in 1998 with a combined state and federal harvest of 375,379 pounds. In the Chignik and South Peninsula Districts, harvest reached a record high in 2004 with a combined harvest of 330,192 pounds.

#### **2004 KODIAK DISTRICT OCTOPUS FISHERY**

There were 2 vessels registered to target octopus in 2004, however little effort occurred. The 2004 incidental harvest of octopus in the Kodiak District totaled 44,107 pounds from state and federal waters (Table 25). In state waters 14 vessels harvested 11,816 pounds from 41 landings. A total of 32,291 pounds were harvested from federal waters by 21 vessels making 64 landings. Fish tickets with price information listed an average of \$0.35 per pound for an estimated exvessel fishery value of \$15,437 for the state and federal water harvest combined.

#### **2004 ALASKA PENINSULA AND CHIGNIK DISTRICTS OCTOPUS FISHERIES**

No vessels registered for directed fishing of octopus in the Chignik and South Peninsula Districts in 2004. The 2004 incidental harvest of octopus in the Chignik and South Peninsula Districts totaled 330,192 pounds from state and federal waters (Table 26). In state waters 68 vessels harvested 138,521 pounds from 342 landings. A total of 191,671 pounds were harvested from federal waters by 42 vessels making 154 landings. Fish tickets with price information listed an average of \$0.52 per pound for an estimated exvessel fishery value of \$171,700 for the state and federal water harvest combined.

The 2004 harvest was over 5 times greater than the average harvest between 1988 and 2003. This increase in harvest was due to processors developing a market and offering a higher price for octopus than in previous years. The harvest was all incidental to other fisheries, with the vessels retaining and selling the octopus caught rather than discarding at sea, as was the practice in previous years.

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

No stock assessment is currently conducted on octopus in the Westward Region; 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 be harvested only under the authority of a commissioner's permit. There are no established GHFs for clam fishing.

## **HISTORIC BACKGROUND**

Razor clams have been harvested in the Kodiak Management Area from the early 1920s through 1986. Though many Kodiak Island beaches were explored with some success, the principal commercial harvest occurred about 70 miles northwest of Kodiak in the Kukak Bay, Hallo Bay, Big River, and Swikshak Beach regions of the Alaska Peninsula. Digging continued on a somewhat 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 a decline in harvests. Commercial harvesting of clams for human consumption has not been re-established and the fishery has been strictly hand digging for use as bait in the Dungeness crab fishery. The certification program conducted by the ADEC ended in July 1980. Currently, there are no clam beaches in the Kodiak Area commercially certified as safe for human consumption.

Many of the principal harvest areas along the Alaska Peninsula 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 by the current policy of the U.S. Park Service that dictates a ban on camping in the monument in support of a business enterprise. 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**

The potential for a razor clam harvest in the Kodiak District has been established by historic catch records and studies conducted by ADF&G. These studies, however, were conducted in the mid-1970s and are of little benefit in judging stock status at this time. No commercial activity has occurred in this area since 1986 (Table 27).

## **OTHER MISCELLANEOUS SHELLFISH FISHERIES**

Periodic interest has arisen in harvesting other miscellaneous shellfish in the Kodiak, Chignik, and South Peninsula Areas. Request for fishing permits for snails, intertidal mollusks, crabs, and mussels have occurred. Information on any undescribed shellfish species is best obtained by contacting ADF&G directly. Regulations governing other miscellaneous shellfish can be found in chapter 38 of the shellfish regulations.

## **ACKNOWLEDGMENTS**

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## **TABLES AND FIGURES**

**Table 1.-Shellfish emergency orders issued for the Kodiak Area, 2004.**

Emergency Order	Effective Date	Explanation
<u>Tanner Crab</u>		
4-S-09-04	1/15/2004	Closed the inside waters of the Eastside Section of Kodiak to Tanner crab fishing for the remainder of the 2003/2004 season
4-S-01-04	1/16/2004	Closed Three Saints Bay in the Southeast Section of Kodiak to Tanner crab fishing for the remainder of the 2003/2004 season.
4-S-02-04	1/19/2004	Closed S. Sitkalidak Straits in the Southeast Section of Kodiak to Tanner crab fishing for the remainder of the 2003/2004 season.
4-S-03-04	1/22/2004	Closed the inside waters of the Southeast Section and Chiniak Bay in the Northeast Section to Tanner crab fishing.
4-S-06-04	2/1/2004	Closed the Northeast Section to Tanner crab fishing for the remainder of the 2003/2004 season.
<u>Scallops</u>		
4-S-10-04	7/19/2004	Closed stat area 525630 in the Northeast Section of Kodiak to scallop fishing
4-S-11-04	7/31/2004	Closed stat area 525702 in the Northeast Section of Kodiak to scallop fishing
4-S-12-04	8/10/2004	Closed the remainder of the Northeast Section of Kodiak to scallop fishing
<u>King Crab</u>		
4-S-14-04	9/25/2004	Area K and M king crab closure

**Table 1.**-(page 2 of 2)

Emergency Order	Effective Date	Explanation
<u>Sea Cucumber</u>		
4-S-15-04	10/1/2004	Opened the Kodiak District to the first 48-hour fishing period for sea cucumbers
4-S-16-04	10/8/2004	Opened the Westside Section for a two-day fishing period and the rest of the Kodiak District for a three-day fishing period for sea cucumbers
4-S-17-04	10/15/2004	Closed the Eastside Section for the remainder of the 2003/2004 season. Opened the Westside section for a 1-day fishing period. Opened the remainder of the Kodiak District for a 3-day fishing period for sea cucumbers.
4-S-18-04	10/22/2004	Closed the Southeast Section, opened the Westside and Northeast Sections for a 1-day fishing period, opened the Uganik Bay portion of the Westside Section for 7-hours, opened the Southwest Section for 1.5-days and opened sections not previously closed for a 3-day fishing period in the Kodiak District for red sea cucumbers.
4-S-20-04	10/29/2004	Closed the Westside Section for the remainder of the 2003-2004 season. Opened the Southwest Section for a 2.5-day fishing period, opened the Northeast Section for a 1-day fishing period, opened Uganik Bay for 7-hours and opened sections not previously closed for a 3-day fishing period in the Kodiak District for red sea cucumbers.
4-S-21-04	10/31/2004	Extends the opening of the Southwest Section for 24-hours. Delays the Northeast Section opening of the Kodiak District for red sea cucumbers.
4-S-22-04	11/6/2004	Closed the Southwest Section for the remainder of the 2003/2004 season. Opened the Northeast Section and the Uganik Bay portion of the Westside Section for a 2-day fishing period for red sea cucumbers.

**Table 2.**-Shellfish emergency orders issued for the Alaska Peninsula Area, 2004.

Emergency Order	Effective Date	Explanation
<u>King Crab</u>		
4-S-14-04	9/25/2004	Area K and M king crab closure

**Table 3.-Tanner crab commercial catch, effort, and value for the Kodiak District, 1967 – 2003/04.**

Year/Season	Number				Pots	CPUE	Average	Price Per
	Vessels	Landings	Crabs <sup>a</sup>	Pounds <sup>a</sup>	Lifted		Weight	Pound
1967	NA	83	NA	110,961	NA	NA	NA	\$0.07
1968	NA	817	NA	2,560,687	NA	NA	NA	\$0.10
1969	85	955	NA	6,827,312	72,748	43	NA	\$0.11
1969/70	67	833	3,237,244	8,416,782	78,266	42	2.6	\$0.11
1970/71	82	453	2,686,067	6,744,163	60,967	44	2.5	\$0.11
1971/72	46	505	3,878,618	9,475,902	65,907	59	2.4	\$0.13
1972/73	105	1,466	13,609,688	30,699,777	188,158	72	2.3	\$0.17
1973/74	123	1,741	11,857,573	29,820,899	217,523	55	2.5	\$0.20
1974/75	74	471	5,459,940	13,649,966	73,826	74	2.5	\$0.17
1975/76	104	1,168	10,748,958	27,336,909	199,304	54	2.5	\$0.20
1976/77	102	998	7,830,727	20,720,079	164,213	48	2.6	\$0.33
1977/78	148	1,483	12,401,243	33,281,472	251,621	49	2.6	\$0.43
1978/79	218	1,225	10,702,829	29,173,807	275,455	38	2.7	\$0.55
1979/80	211	1,385	6,813,128	18,623,875	282,946	24	2.7	\$0.55
1980/81	188	771	4,398,631	11,748,629	174,351	25	2.7	\$0.65
1981/82	221	950	5,413,467	13,756,159	230,403	24	2.5	\$1.65
1982/83	348	1,439	7,744,812	18,927,061	377,562	21	2.4	\$1.25
1983/84	303	1,229	5,891,968	14,478,066	303,764	19	2.5	\$1.20
1984/85	217	710	4,540,114	11,947,696	176,215	26	2.6	\$1.96
1985/86	234	603	3,454,957	8,990,612	160,220	22	2.6	\$1.97
1986/87	190	506	1,832,962	4,839,446	111,198	16	2.6	\$2.64
1987/88	178	560	1,648,064	3,959,504	103,391	16	2.4	\$2.27
1988/89	171	566	2,096,540	5,185,563	86,056	24	2.5	\$2.84
1989/90	232	547	1,437,905	3,446,937	96,956	15	2.4	\$2.64
1990/91	137	445	764,357	1,917,713	54,110	14	2.5	\$1.56
1991/92	143	434	982,391	2,400,213	47,384	21	2.4	\$2.23
1992/93	140	353	518,982	1,318,446	43,528	12	2.5	\$2.11
1993/94	130	379	511,131	1,253,462	41,587	12	2.5	\$2.25
1994/95 to 1999/00					NO COMMERCIAL FISHERY			
2000/01	144	192	193,138	510,407	7,233	27	2.6	\$2.29
2001/02	181	279	146,655	361,166	10,446	14	2.5	\$2.03
2002/03	72	276	215,594	511,324	11,108	19	2.4	\$2.32
2003/04	66	251	253,971	566,218	15,491	36	2.2	\$2.34
4 year average <sup>b</sup>	116	250	202,340	487,279	11,070	24	2.4	\$2.25

<sup>a</sup>Includes deadloss.

NA = not available

<sup>b</sup> 4 year average is last 4 years of fishery data (2000/01-2003/04)

**Table 4.**-Tanner crab guideline harvest level, effort, and harvest by section for the Kodiak District, 2002/03.

Section	GHL	Vessels	Permits	Harvest	Pots Lifted	CPUE
Northeast	170,000	44	46	162,494	5,036	15
Eastside	340,000	39	43	348,830	6,072	23
<i>Total</i>	510,000	72 <sup>a</sup>	79	511,324	11,108	19

<sup>a</sup>Total unique vessels; several vessels participated in both sections.

**Table 5.**-Tanner crab guideline harvest level, effort, and harvest by section for the Kodiak District, 2003/04.

Section	GHL	Vessels	Permits	Harvest	Pots Lifted	CPUE
Northeast	245,000	43	44	259,572	6,281	41
Eastside	450,000	20	20	219,980	6,781	32
Southeast	100,000	15	16	86,666	2,429	36
<i>Total</i>	795,000	66 <sup>a</sup>	68	566,218	15,491	36

<sup>a</sup>Total unique vessels; several vessels participated in both sections.

**Table 6.-**Kodiak, Chignik, and South Peninsula Districts Tanner crab guideline harvest levels and season dates, 2003/04.

District/Section	GHL (pounds)	Opening date/ time	Closure date/ time
<b>Kodiak</b>			
Northeast <sup>a</sup>	245,000	Jan 15/ Noon	Jan 22/ 3:00 PM
Northeast <sup>b</sup>			Feb 1/ 6:00 PM
Eastside	450,000	Jan 15/ Noon	March 31/ Noon
Southeast <sup>c</sup>	100,000	Jan 15/ Noon	Jan 16/ 4:00 PM
Southeast <sup>d</sup>			Jan 19/3:00 PM
Southeast <sup>e</sup>			Jan 22/ 3:00 PM
Southeast <sup>f</sup>			March 31/ Noon
Southwest		No Commercial Fishery	
Westside		No Commercial Fishery	
North Mainland		No Commercial Fishery	
South Mainland		No Commercial Fishery	
Semidi Islands		No Commercial Fishery	
<b>Chignik</b>		No Commercial Fishery	
<b>South Peninsula</b>		No Commercial Fishery	

<sup>a</sup>Partial Closure of the Northeast Section (Chiniak Bay)

<sup>b</sup>Remainder of Northeast Section closed

<sup>c</sup>Partial closure of the Southeast Section (Three Saints Bay)

<sup>d</sup>Partial closure of the Southeast Section (Sitkalidak Strait)

<sup>e</sup>Partial closure of the Southeast Section (Inside waters)

<sup>f</sup>Remainder of the Southeast Section closed

**Table 7.-Kodiak District Tanner crab harvest by vessel size, 2003/2004.**

Vessel Length	Vessels per size class		Harvest per size class		Average total pounds per vessel by size class
	Number	Percent	Pounds	Percent	
<39' <sup>a</sup>	10	15.2%	63,919	11.3%	6,392
40-49'	27	40.9%	214,927	38.0%	7,960
50-59'	22	33.3%	175,791	31.0%	7,991
60-69'	3	4.5%	43,588	7.7%	14,529
70-89' <sup>a</sup>	4	6.1%	67,993	12.0%	16,998
>90'	0	0.0%	0	0.0%	
<b>Total</b>	<b>66</b>	<b>100.0%</b>	<b>566,218</b>	<b>100.0%</b>	<b>8,579</b>

<sup>a</sup>Two size classes combined to protect confidentiality.

**Table 8.-Tanner crab commercial catch, effort, and value for the Chignik District, 1968 – 2003/04.**

Year/Season	Number				Pots	CPUE	Average	Price Per
	Vessels	Landings	Crabs	Pounds	Lifted		Weight	Pound
1968	NA	NA	NA	21,100	NA	NA	NA	NA
1969	NA	NA	NA	38,100	NA	NA	NA	NA
1969/70	NA	NA	NA	2,800	NA	NA	NA	NA
1970/71	NA	NA	NA	152,300	NA	NA	NA	NA
1971/72	CONFIDENTIAL HARVEST							
1972/73	15	56	297,363	747,788	8,080	51	2.5	\$0.16
1973/74	25	115	1,585,560	4,054,873	28,083	57	2.6	\$0.20
1974/75	25	91	1,438,508	3,649,444	22,675	63	2.5	\$0.14
1975/76	35	288	2,724,509	11,201,900	52,381	52	2.5	\$0.19
1976/77	21	141	2,098,226	5,672,919	40,604	52	2.7	\$0.33
1977/78	32	140	1,725,042	4,693,830	38,414	45	2.8	\$0.42
1978/79	39	126	926,253	2,536,105	28,378	33	2.7	\$0.55
1979/80	42	155	2,340,004	3,517,920	54,627	25	2.6	\$0.54
1980/81	24	112	1,534,847	3,653,723	44,022	35	2.4	\$0.64
1981/82	45	174	1,343,500	3,240,476	47,830	28	2.4	\$1.21
1982/83	48	136	1,432,029	3,497,370	60,210	24	2.4	\$1.12
1983/84	17	41	269,724	659,043	14,665	18	2.4	\$1.09
1984/85	15	27	162,448	375,476	15,708	10	2.3	\$1.42
1985/86	6	12	85,697	188,162	7,435	12	2.2	\$1.97
1986/87	10	20	89,329	195,060	7,052	13	2.2	\$2.28
1987/88	6	11	87,148	183,111	6,544	13	2.1	\$2.33
1988/89	6	34	142,470	323,120	9,845	15	2.3	\$3.05
1989/90 to 2003/04	NO COMMERCIAL FISHERY							
5 year average <sup>a</sup>	9	21	113,418	252,986	9,317	13	2.2	\$2.21

NA = not available

<sup>a</sup> 5 year average is the last 5 years of fishery data (1984/85-1988/89)

**Table 9.-Tanner crab commercial catch, effort, and value for the South Peninsula District, 1967 – 2003/04.**

Year/Season	Number				Pots Lifted	CPUE	Average Weight	Price Per Pound
	Vessels	Landings	Crabs	Pounds				
1967	NA	NA	NA	3,100	NA	NA	NA	NA
1968	NA	155	36,835	110,610	NA	NA	3	NA
1969	NA	173	221,946	606,178	NA	NA	2.7	NA
1969/70	NA	NA	NA	2,093,600	NA	NA	NA	NA
1970/71	17	242	813,610	2,140,585	NA	NA	2.6	\$0.10
1971/72	NA	NA	NA	3618900	NA	NA	NA	NA
1972/73	36	390	2,213,006	5,615,563	53,573	41	2.5	NA
1973/74	44	386	3,504,668	8,300,578	58,444	60	2.4	NA
1974/75	44	131	2,053,530	5,195,800	38,153	54	2.5	\$0.14
1975/76	36	288	2,724,509	6,926,161	52,381	52	2.5	\$0.20
1976/77	28	289	2,524,565	6,773,838	63,143	40	2.7	\$0.32
1977/78	36	374	2,847,948	7,446,270	70,587	40	2.6	\$0.40
1978/79	48	332	3,267,122	8,684,408	82,374	40	2.7	\$0.51
1979/80	61	363	2,581,544	6,961,251	96,989	27	2.7	\$0.54
1980/81	43	268	1,274,539	3,294,106	59,560	21	2.6	\$0.58
1981/82	72	365	1,815,060	4,589,042	81,008	22	2.5	\$1.05
1982/83	82	230	1,144,096	2,863,798	70,524	16	2.5	\$1.20
1983/84	61	207	775,472	1,789,883	50,726	15	2.3	\$1.04
1984/85	52	184	1,097,182	2,549,686	47,465	23	2.3	\$1.42
1985/86	74	187	1,589,759	3,781,950	65,078	24	2.4	\$1.72
1986/87	54	106	950,300	2,400,784	37,511	25	2.5	\$2.03
1987/88	73	148	1,359,371	3,328,809	52,516	26	2.4	\$2.20
1988/89	65	87	433,112	1,055,082	27,958	15	2.4	\$2.70
1989/90 to 1999/00				NO COMMERCIAL FISHERY				
2000/01	55	67	107,653	258,631	4,426	24	2.4	\$1.24
2001/02				NO COMMERCIAL FISHERY				
2002/03				NO COMMERCIAL FISHERY				
2003/04				NO COMMERCIAL FISHERY				
5 year average <sup>a</sup>	64	119	888,039	2,165,051	37,498	23	2.4	\$1.98

NA = not available

<sup>a</sup> 5 year average is last 5 years of fishery data (1985/86-1988/89 and 2000/01)

**Table 10.-Dungeness crab commercial catch, effort, and value for the Kodiak District, 1962 - 2003/04.**

Year/Season	Number				Pots Lifted	Average Lbs Per Landing	CPUE	Average Price Per Pound	Exvessel Value
	Vessels	Landings	Crab	Pounds <sup>a</sup>					
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	-	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					C o n f i d e n t i a l				
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

-Continued-

Table 10.-(page 2 of 2)

Year	Number				Pots Lifted	Average Lbs		CPUE	Average	Exvessel Value
	Vessels	Landings	Crab	Pounds		Per	Landing		Price/Pound	
1988/89	50	363	1,064,387	2,125,114	203,217	5,854	5	\$1.06	\$2,253,000	
1989/90	47	359	1,428,973	3,077,937	185,242	8,574	8	\$1.10	\$3,385,730	
1990/91	62	519	1,301,465	2,937,433	296,168	5,660	4	\$1.54	\$4,435,000	
1991/92	62	732	695,470	1,414,499	279,872	1,932	1	\$1.37	\$1,938,000	
1992/93	46	501	805,215	1,656,793	218,602	3,306	3	\$0.86	\$1,425,000	
1993/94	42	263	647,736	1,369,889	180,534	5,209	5	\$0.92	\$1,260,000	
1994/95	31	162	426,848	948,461	151,888	5,855	5	\$1.20	\$1,138,000	
1995/96	24	106	257,677	527,434	107,506	4,976	4	\$1.72	\$907,000	
1996/97	21	113	334,237	668,772	88,682	4,223	4	\$1.01	\$675,460	
1997/98	21	123	257,697	529,550	95,066	4,305	3	\$2.04	\$1,080,282	
1998/99	12	60	185,249	371,241	63,926	6,187	3	\$1.45	\$538,299	
1999/00	13	72	269,277	551,183	65,721	7,655	4	\$1.57	\$849,555	
2000/01	12	69	114,038	238,955	57,037	3,463	2	\$1.65	\$394,276	
2001/02 <sup>b</sup>	21	57	101,371	208,265	41,760	3,653	2	\$1.95	\$392,080	
2002/03	18	74	181,698	355,943	71,096	4,810	3	\$1.46	\$520,493	
2003/04	17	89	228,309	467,623	48,715	5,254	5	\$1.50	\$695,000	
2004/05	11	59	168,981	352,216	42,136	5,936	4	\$1.48	\$518,000	
5 year average	16	70	158,879	324,600	52,149	4,623	3	\$1.61	\$503,970	

<sup>a</sup>Includes deadloss.

<sup>b</sup>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.).

**Table 11.-Kodiak Dungeness crab fishery, vessel size information, 2003/04.**

Vessel Keel Length (feet)	Number of Vessels
<20-29	1
30-39	1
40-49	4
50-59	2
60-69	2
70-79	1
80-89	0
≥ 90	0
<b>TOTAL VESSELS:</b>	<b>11</b>

**Table 12.-**Harvest, vessels, and landings by statistical area from the Kodiak District Dungeness crab fisheries, 2002/03 - 2004/05.

Statistical Area	2002/03			2003/04			2004/05		
	Vessels	Landings	Pounds <sup>a</sup>	Vessels	Landings	Pounds <sup>a</sup>	Vessels	Landings	Pounds <sup>a</sup>
525701	8	30	82,850	11	46	127,049	4	27	70,529
525703	6	14	17,350	3	22	48,026	3	14	23,979
525733	4	6	5,773	7	32	59,952	4	7	6,641
535705	5	8	11,963	Confidential			3	15	27,425
545601	5	21	164,712	3	20	138,021	4	17	159,253
545602	3	4	10,596	0	0	0	Confidential		
545632	Confidential			Confidential			3	10	13,285
Other	18	42	62,699 <sup>b</sup>	11	48	94,577 <sup>c</sup>	5	18	35,002 <sup>d</sup>
Total	355,943			467,623			352,216		

<sup>a</sup>Includes deadloss

<sup>b</sup>Total of 16 statistical areas.

<sup>c</sup>Total of 8 statistical areas.

<sup>d</sup>Total of 7 statistical areas.

**Table 13.-Dungeness crab commercial catch, effort, and value for the Alaska Peninsula and Chignik Districts, 1968 - 2003/04.**

Year	Number				Pots	CPUE	Average	Price per
	Vessels	Landings	Crab <sup>a</sup>	Pounds <sup>a</sup>	Lifted		Weight	Pound
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	C o n f i d e n t i a l							
1974	N o C o m m e r c i a l F i s h i n g E f f o r t							
1975	N o C o m m e r c i a l F i s h i n g E f f o r t							
1976	N o C o m m e r c i a l F i s h i n g E f f o r t							
1977	N o C o m m e r c i a l F i s h i n g E f f o r t							
1978	N o C o m m e r c i a l F i s h i n g E f f o r t							
1979	C o n f i d e n t i a l							
1980	N o C o m m e r c i a l F i s h i n g E f f o r t							
1981/82	C o n f i d e n t i a l							
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	239,202	488,107	52,117	5	2.0	\$1.26
1986/87	6	28	87,925	180,261	30,280	3	2.0	\$1.05
1987/88	C o n f i d e n t i a l							
1988/89	C o n f i d e n t i a l							
1989/90	4	10	31,074	65,806	5,225	6	2.1	\$1.53
1990/91	7	18	39,069	80,248	12,813	3	2.1	\$1.24
1991/92	C o n f i d e n t i a l							
1992/93	3	15	127,979	273,811	15,675	8	2.1	\$0.79
1993/94	4	24	134,429	277,639	27,950	5	2.1	\$1.01
1994/95	C o n f i d e n t i a l							
1995/96	4	9	52,694	112,438	16,557	3	2.1	\$1.01
1996/97	8	18	121,085	240,427	43,103	3	2.0	\$2.06
1997/98	3	8	60,049	116,757	19,800	3	2.0	\$1.50
1998/99-2004/05 <sup>b</sup>	8	132	409,202	839,210	61,442	7	2.0	\$1.42

<sup>a</sup>Includes deadloss.

<sup>b</sup>Harvest combined to maintain confidentiality.

NA = not available

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

Note: In 2001 the Alaska Peninsula District was divided at the latitude of Kilokak Rocks (156° 19'W. long.) with waters to the east becoming the Chignik District.

**Table 14.-**Red king crab commercial catch, effort, and value for the Kodiak Area, 1960/61 – 2004/05.

Fishing Year <sup>a</sup>	Vessels	Landings	Number of Crab	Number of Pounds	Pots Lifted	Average		
						CPUE	Weight Per Crab	Price Per Pound
1960/61	143	NA <sup>b</sup>	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 <sup>c</sup>	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 <sup>d</sup>	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

No commercial fishery has occurred since the 1982/83 season.

AVERAGE <sup>e</sup>	176	1,364	3,220,765	26,987,806	158,402	20		
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<sup>a</sup>Fishing year defined as May 1 - April 30.

<sup>b</sup>Not available.

<sup>c</sup>July 1 - April 30 season established.

<sup>d</sup>August 15 - January 15 season established.

<sup>e</sup>Average includes only years with open fishing season.

**Table 15.-Kodiak red king crab harvest composition and seasons, 1960/61 – 2004/05.**

Season	Open	Closed	Catch Million Pounds	Percent Recruits <sup>a</sup>	Percent Post -Recruits	Size Limit ( Inches )
1960/61	1-Jul	30-Jun	18.9	8	92	6.5
1961/62	1-Jul	30-Jun	29.0	36	64	6.5
1962/63	1-Jul	30-Jun	37.6	26	74	6.5
1963/64	1-Jul	30-Jun	35.0	33	67	7.0
1964/65	1-Jul	30-Jun	41.6	48	52	7.0
1965/66	1-Jul	30-Apr	94.4	35	65	7.0
1966/67	1-Jul	30-Apr	73.8	28	72	7.0
1967/68	1-Jul	30-Apr	43.4	27	73	7.0
1968/69	15-Jun	31-Mar	18.2	61	39	7.0
1969/70	15-Aug	15-Jan	12.2	59	41	7.0
1970/71	15-Aug	15-Jan	11.7	38	62	7.0
1971/72	15-Aug	29-Oct	10.9	75	25	7.0
1972/73	15-Aug	13-Oct	15.5	47	53	7.0
1973/74	15-Aug	25-Oct	14.4	49	51	7.0
1974/75	15-Aug	21-Sep	20.9	52	48	7.0
	15-Oct	15-Jan	2.2	3	97	8.0
1975/76	15-Aug	20-Oct	21.6	48	52	7.0
	20-Oct	1-Dec	2.5	3	97	8.0
1976/77	1-Sep	16-Oct	14.6	33	67	7.0
	1-Dec	15-Jan	3.1	1	100	8.0
1977/78	15-Sep	30-Nov	11.7	37	63	7.0
	1-Dec	15-Jan	1.8	1	99	8.0
1978/79	10-Sep	30-Nov	10.3	44	56	7.0
	1-Dec	15-Jan	1.7	15	85	7.5
1979/80	10-Sep	30-Nov	13.4	70	30	7.0
	1-Dec	15-Jan	1.2	30	70	7.5
1980/81	15-Sep	30-Nov	18.4	69	31	7.0
	1-Dec	15-Jan	2.1	22	78	7.5
1981/82	15-Sep	15-Dec	20.3	61	39	7.0
	15-Dec	15-Jan	3.9	7	93	7.5
1982/83	1-Sep	10-Dec	7.5	46	54	7.0
	10-Dec	19-Dec	1.2	19	81	7.5

No commercial fishery has occurred since the 1982/83 season.

<sup>a</sup>Recruitment after 1963 based on 7" size limit.

**Table 16.-Golden king crab commercial catch, effort, and value for the Kodiak Area, 1983-2004.**

Year	Vessels	Landings	No. of Crabs <sup>a</sup>	No. of Pounds <sup>a</sup>	Pots Lifted	Average		Price Per Pound	Exvessel Value (Millions)
						CPUE	Weight of Crab		
1983	12	36	16,349	111,398	8,490	2.0	6.8	\$3.00	\$0.3
1984	6	8	3,513	22,066	1,950	2.0	6.3	\$2.50	\$0.1
1985	4	19	10,005	63,641	2,693	4.0	6.4	\$1.95	\$0.1
1986	4	31	21,862	146,478	5,463	4.0	6.7	\$3.00	\$0.4
1987	5	38	9,484	67,191	3,187	3.0	7.1	\$3.44	\$0.2
1988					Confidential				
1989					Confidential				
1990	6	6	1,214	7,314	1,090	1.0	6.0	\$3.00	\$0.2
1991	0	0	0	0	0	NA	NA	NA	NA
1992					Confidential				
1993					Confidential				
1994	0	0	0	0	0	NA	NA	NA	NA
1995					Confidential				
1996	0	0	0	0	0	NA	NA	NA	NA
1997	0	0	0	0	0	NA	NA	NA	NA
1998	0	0	0	0	0	NA	NA	NA	NA
1999	0	0	0	0	0	NA	NA	NA	NA
2000					Confidential				
2001					Confidential				
2002					Confidential				
2003					Confidential				
2004					Confidential				

NA= Not Available

<sup>a</sup>Includes deadloss.

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

**Table 17.-**Red king crab commercial catch, effort, and value for the Alaska Peninsula Area, 1947 – 2004/05.

Year			Number		Pots		Average	Price Per
	Vessels	Landings	Crab	Pounds	Lifted	CPUE	Weight	Pound
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 <sup>a</sup>	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 <sup>a</sup>	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
1983-2004	NO FISHERY							

NA=Not Available.

<sup>a</sup>Combined 6.5 inch and 7.5 inch seasons.

**Table 18.**-Shrimp trawl fishery catch, effort, and value for the Kodiak District, 1958 – 2003/04.

Year/Season	Vessels	Landings	Harvest in Pounds	Price Per Pound
1958	NA	NA	31,886	\$0.04
1959	NA	NA	2,861,900	\$0.04
1960	11	94	3,197,985	\$0.04
1961	12	203	11,083,500	\$0.04
1962	11	204	12,654,027	\$0.04
1963	NA	NA	10,118,472	\$0.04
1964	6	NA	4,339,114	\$0.04
1965	11	320	13,823,061	\$0.04
1966	17	551	24,097,141	\$0.05
1967	23	NA	38,267,856	\$0.05
1968	16	NA	34,468,713	\$0.04
1969	26	935	41,353,461	\$0.06
1970	18	1,024	62,181,204	\$0.04
1971	49	1,746	82,153,724	\$0.04
1972	63	1,398	58,352,319	\$0.04
1973	50	1,283	70,511,477	\$0.06
1973/74	63	1,029	56,203,992	\$0.08
1974/75	75	1,100	58,235,982	\$0.08
1975/76	58	884	49,086,591	\$0.08
1976/77	62	762	46,712,083	\$0.10
1977/78	58	653	26,409,366	\$0.13
1978/79	50	328	20,506,021	\$0.17
1979/80	37	242	12,863,536	\$0.23
1980/81	67	462	27,101,218	\$0.29
1981/82	55	298	19,112,367	\$0.27
1982/83	40	224	10,391,207	\$0.27
1983/84	14	63	2,779,030	\$0.35
1984/85	13	59	2,942,922	\$0.33
1985/86			Confidential	
1986/87			Confidential	
1987/88			Confidential	
1988/89	0	0	0	0
1989/90	0	0	0	0

-Continued-

**Table 18.**-(page 2 of 2)

Year	Vessels	Landings	Harvest in Pounds	Price Per Pound
1990/91	0	0	0	0
1991/92	0	0	0	0
1992/93	0	0	0	0
1993/94	3	3	1,704	NA
1994/95	0	0	0	0
1995/96	0	0	0	0
1996/97			Confidential	
1997/98			Confidential	
1998/99	5	8	12,724	NA
1999/00	3	4	4,325	NA
2000/01			Confidential	
2001/02			Confidential	
2002/03			Confidential	
2003/2004			Confidential	
Average <sup>a</sup>	36	630	30,728,707	\$0.11

<sup>a</sup>Average calculated from years 1960-1984/85.

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

NA= Not Available

**Table 19.-**Shrimp minimum acceptable biomass indices (MABI) and population estimates in metric tons from surveyed districts and sections, 1995-2004.

District	Section	MABI <sup>a</sup>	Survey Year					
			2004	2003	2002	2001	1998	1995
Kodiak	Inner Marmot Bay	1,652	498	423	604	1,089	247	567
	Marmot Island	11,615	809	1407	1,315	1,703	230	-
	Chiniak Bay	658	14	84	52	311	44	76
	Ugak Bay	1,815	-	2	-	46	-	-
	Kiliuda Bay	2,405	-	146	198	51	74	59
	Two Headed Island	3,312	-	4	-	66	65	59
	Alitak Bay	1,942	-	130	-	282	107	8
	Uyak Bay	1,447	-	439	-	306	163	174
	Uganik Bay	1,175	-	403	-	704	129	446
	Kukak Bay	NA	-	68	-	187	44	10
	Wide Bay <sup>b</sup>	476	365	384	880	967	-	36
	Puale Bay <sup>b</sup>	540	-	40	-	47	-	-
	Shelikof Strait <sup>c</sup>	NA	1,362	8,527	-	1,062	-	-
Alitak Flats	577	-	30	-	-	-	-	
Chignik	Kujulik Bay	1,715	-	-	11	-	-	-
	Chignik Bay	2,064	580	-	506	-	-	467
	Chiginagak Bay	314	44	-	-	-	-	-
	Nakalilok Bay	373	40	-	-	-	-	-
	Kuiukta Bay	862	226	-	167	-	-	164
	Mitrofanina Island	2,341	3	-	97	-	-	-
	Ivanof Bay	2,586	-	-	8	-	-	-
South Peninsula	Stepovak Bay	10,526	101	-	370	-	-	-
	Unga Strait	3,412	272	-	115	-	-	-
	Beaver Bay	1,978	1	-	10	-	-	-
	Pavlof Bay	8,221	64	8	38	30	59	15
	Belkofski Bay	NA	-	-	1	-	-	-

<sup>a</sup>Minimum acceptable biomass index (metric tons)

<sup>b</sup>Wide and Puale Bays are part of the Mainland Section; MABIs are established for each

<sup>c</sup>General Section, Shelikof Strait area is inconsistent between surveys.

NA = no MABI established for survey area.

- = Not surveyed in that year

**Table 20.-**Shrimp pot fishery catch and effort for the Kodiak District, 1969-2004.

Year	Vessels	Landings	Pounds <sup>a</sup>
1969		Confidential	
1970	NA	20	12,302
1971	0	0	0
1972		Confidential	
1973		Confidential	
1974	6	73	10,336
1975	7	77	12,782
1976		Confidential	
1977	3	26	2,565
1978		Confidential	
1979		Confidential	
1980	4	25	4,700
1981	4	6	2,511
1982	6	18	9,754
1983	12	31	18,686
1984	6	21	4,361
1985		Confidential	
1986		Confidential	
1987	0	0	0
1988		Confidential	
1989		Confidential	
1990		Confidential	
1991	0	0	0
1992	0	0	0
1993	0	0	0
1994		Confidential	
1995	0	0	0
1996	0	0	0
1997		Confidential	
1998		Confidential	
1999		0	
2000	0	0	0
2001		Confidential	
2002	0	0	0
2003	0	0	0
2004	0	0	0
<b>Total<sup>b</sup></b>			<b>77,997</b>

<sup>a</sup>Pounds are weight of shrimp tails.

<sup>b</sup>Does not include confidential pounds.

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

NA = Not Available

**Table 21.-**Trawl shrimp fishery catch, effort, and value for the South Peninsula and Chignik Districts, 1968 – 2003/04.

Year	SOUTH PENINSULA				CHIGNIK			
	Number			Price per Pound	Number			Price per Pound
	Vessels	Landings	Pounds		Vessels	Landings	Pounds	
1968			Confidential				Confidential	
1969			Confidential				Confidential	
1970	4	173	4,398,800	\$0.04	NA	NA	890,705	NA
1971			Confidential				Confidential	
1972/73	NA	NA	14,740,801	\$0.07	NA	NA	4,829,117	NA
1973/74	12	347	19,987,246	\$0.07	33	277	51,673,788	\$0.08
1974/75	22	387	26,145,720	\$0.08	37	323	23,392,352	\$0.08
1975/76	24	326	20,044,112	\$0.09	50	334	24,435,480	\$0.08
1976/77	19	424	37,148,932	\$0.09	48	303	27,232,630	\$0.10
1977/78	48	409	45,003,794	\$0.13	50	271	26,512,791	\$0.13
1978/79	23	108	9,418,276	\$0.16	40	201	23,257,869	\$0.17
1979/80	10	41	3,134,367	\$0.21	35	195	23,722,330	\$0.23
1980/81 <sup>a</sup>			0		54	148	12,843,270	\$0.29
1981/82			0		3	4	70,948	\$0.27

No commercial fishing activity has occurred in these districts after 1981/82.

<sup>a</sup> South Peninsula District closed to trawl gear after the 1979/80 fishery.

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

NA = Not Available

**Table 22.**-Red Sea cucumber commercial catch, effort, and value for the Kodiak and Chignik Districts, 1991-2004

Year	Number of		Pounds Harvested	Average Price Per Pound
	Dive Permits	Landings		
1991			Confidential	
1992			Confidential	
1993	50	487	564,516	\$0.93
1994	86	269	413,576	\$1.20
1995	21	60	145,092	\$1.25
1996	31	93	162,451	\$1.25
1997	26	65	132,337	\$1.16
1998	16	55	142,313	\$1.20
1999	19	36	116,134	\$1.20
2000	20	56	116,152	\$1.50
2001	18	67	152,613	\$1.25
2002	24	102	177,597	\$1.25
2003			Confidential	
2004			Confidential	

Confidential = Less than three permits fished or less than three processors purchased product.

**Table 23.-**Red sea cucumber and green sea urchin guideline harvest levels, 2004/05.

Area	Sea Cucumber GHL (pounds) <sup>a</sup>	Sea Urchin GHL (pounds)
Kodiak District		
Northeast Section	5,000	10,000
Eastside Section	40,000	10,000
Southeast Section	30,000	10,000
Southwest Section	20,000	10,000
Westside Section		10,000
Uganik Bay	10,000	
Remainder of Westside Section	30,000	
North Mainland Section	5,000	5,000
South Mainland Section	5,000	5,000
Semidi Island Section	5,000	5,000
<b>Total Kodiak</b>	<b>150,000</b>	<b>65,000</b>
Chignik District	25,000	5,000
Alaska Peninsula	5,000	5,000
<b>Total</b>	<b>180,000</b>	<b>75,000</b>

<sup>a</sup> Pounds of eviscerated product.

**Table 24.**-Green sea urchin commercial catch, effort, and value for the Kodiak District, 1980 - 2003/04.

Year	Number		Pounds Harvested (Live Weight)	Average Price Per Pound
	Permits	Landings		
1980		Confidential		
1985-1986 <sup>a</sup>	NA	26	45,560	\$0.35
1987	12	78	104,139	\$0.69
1988	28	260	190,509	\$0.80
1989	29	81	44,862	\$0.82
1990	25	83	84,004	\$0.84
1991	6	24	29,947	\$0.92
1992-1994 <sup>a</sup>	22	95	73,399	\$1.15
1995	8	50	38,437	\$1.34
1996	7	31	36,147	\$1.10
1997-2000 <sup>a</sup>	11	21	22,850	\$1.00
2001/02			Confidential	
2002/03	0	0	0	0
2003/04	0	0	0	0
2004/05	0	0	0	0

<sup>a</sup>Years combined because less than three processors or divers participated.

**Table 25.-**Octopus commercial catch, effort, and value for the Kodiak District, 1985-2004.

Year	State Waters			Federal Waters			Combined			Ave. Price per Pound	Fishery Value
	Vessels	Landings	Pounds <sup>a</sup>	Vessels	Landings	Pounds <sup>a</sup>	Vessels <sup>b</sup>	Landings	Pounds <sup>a</sup>		
1985		Confidential			Confidential				Confidential		
1986		Confidential			Confidential		4	8	643	\$0.87	\$559
1987		Confidential			Confidential		8	15	14,151	\$1.07	\$15,142
1988		Confidential			Confidential				Confidential		
1989		Confidential			Confidential				Confidential		
1990	25	95	56,052	15	51	20,127	31	140	76,179	\$1.13	\$76,180
1991	56	260	106,748	29	85	22,607	70	342	129,355	\$1.07	\$138,410
1992	64	252	103,230	34	153	44,551	75	394	147,781	\$0.94	\$139,000
1993	16	51	95,889	24	42	8,453	33	89	104,342	\$0.71	\$73,379
1994	5	7	4,504	4	9	613	8	15	5,117	NA	NA
1995	38	293	66,855	21	90	3,673	46	327	70,528	\$0.49	\$31,489
1996	35	194	67,898	27	143	20,670	44	257	88,568	\$0.45	\$36,943
1997	63	526	230,606	58	279	46,296	87	658	276,902	\$0.46	\$125,702
1998	54	407	258,047	57	291	117,332	76	670	375,379	\$0.43	\$144,908
1999	50	307	198,116	32	149	54,889	67	440	253,005	\$0.33	\$73,718
2000	49	292	98,833	46	239	61,551	71	482	160,384	\$0.39	\$51,113
2001	28	206	99,665	31	80	12,712	45	252	112,377	\$0.38	\$39,951
2002	31	213	206,748	29	97	23,078	46	278	229,826	\$0.48	\$100,072
2003	40	119	55,628	22	50	15,527	54	165	71,155	\$0.35	\$23,198
2004	14	41	11,816	21	64	32,291	31	101	44,107	\$0.35	\$15,437

<sup>a</sup> includes discards.

<sup>b</sup> Some vessels made landings from both state and federal waters.

NA=not available

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

**Table 26.-**Octopus commercial catch, effort, and value for the Chignik and South Peninsula Districts, 1980-2004.

Year	State waters			Federal waters			Combined			Ave. Price per Pound	Fishery Value
	Vessels	Landings	Pounds <sup>a</sup>	Vessels	Landings	Pounds <sup>a</sup>	Vessels <sup>b</sup>	Landings	Pounds <sup>a</sup>		
1980-1985			Confidential			Confidential			Confidential		
1986-1987			No fishing			No fishing			No fishing		
1988	22	58	9,946	16	132	34,622	31	190	44,568	\$0.92	\$41,003
1989	12	41	5,309	15	82	9,581	23	123	14,890	\$1.00	\$14,890
1990	7	45	6,746	14	33	2,393	19	78	9,139	\$1.00	\$9,139
1991	18	72	15,103	14	36	4,392	29	108	19,495	\$1.00	\$19,495
1992	38	183	38,651	39	100	6,579	72	283	45,230	\$1.00	\$45,230
1993	9	23	9,017	28	59	3,007	35	82	12,024	\$1.00	\$12,024
1994	16	36	15,621	8	14	1,171	23	50	16,792	\$0.59	\$9,907
1995	15	49	5,939	15	18	2,140	24	67	8,079	\$0.45	\$3,636
1996	20	52	11,258	18	22	4,667	26	74	15,925	\$0.49	\$7,803
1997	27	143	48,286	15	20	3,826	34	163	52,112	\$0.49	\$25,535
1998	13	15	4,554	13	22	4,638	15	37	9,192	\$0.53	\$4,872
1999	9	10	2,051	10	19	1,710	18	29	3,761	\$0.50	\$1,881
2000	18	17	1,507	19	19	5,235	30	36	6,742	NA	NA
2001	3	5	345	7	17	2,221	7	22	2,566	NA	NA
2002	6	15	3,132	19	50	13,454	20	65	16,586	NA	NA
2003	25	54	18,333	26	85	46,090	39	119	64,423	\$0.61	\$39,298
2004	68	342	138,521	42	154	191,671	86	495	330,192	\$0.52	\$171,699

<sup>a</sup> Includes discards.

<sup>b</sup> Some vessels made landings in both state and federal waters.

NA = Not available.

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

**Table 27.-Razor clam commercial catch, effort, and value for the Kodiak District, 1960-2004.**

Year	Number		Pounds		Ave. Price Per Pound	Est. Fishery Value
	Registered Diggers <sup>a</sup>	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 <sup>b</sup>	\$1.00	\$8,186
1982	NA	11	1,055	11,608 <sup>c</sup>	\$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 <sup>d</sup>	\$1.00	\$16,945
1986	NA	4	998	3,993	\$1.00	\$3,993

No commercial harvest has occurred from 1986 - 2004.

<sup>a</sup> Represents registered diggers not actual diggers. No data available after 1977 due to statewide issuance of Interim Use Permits.

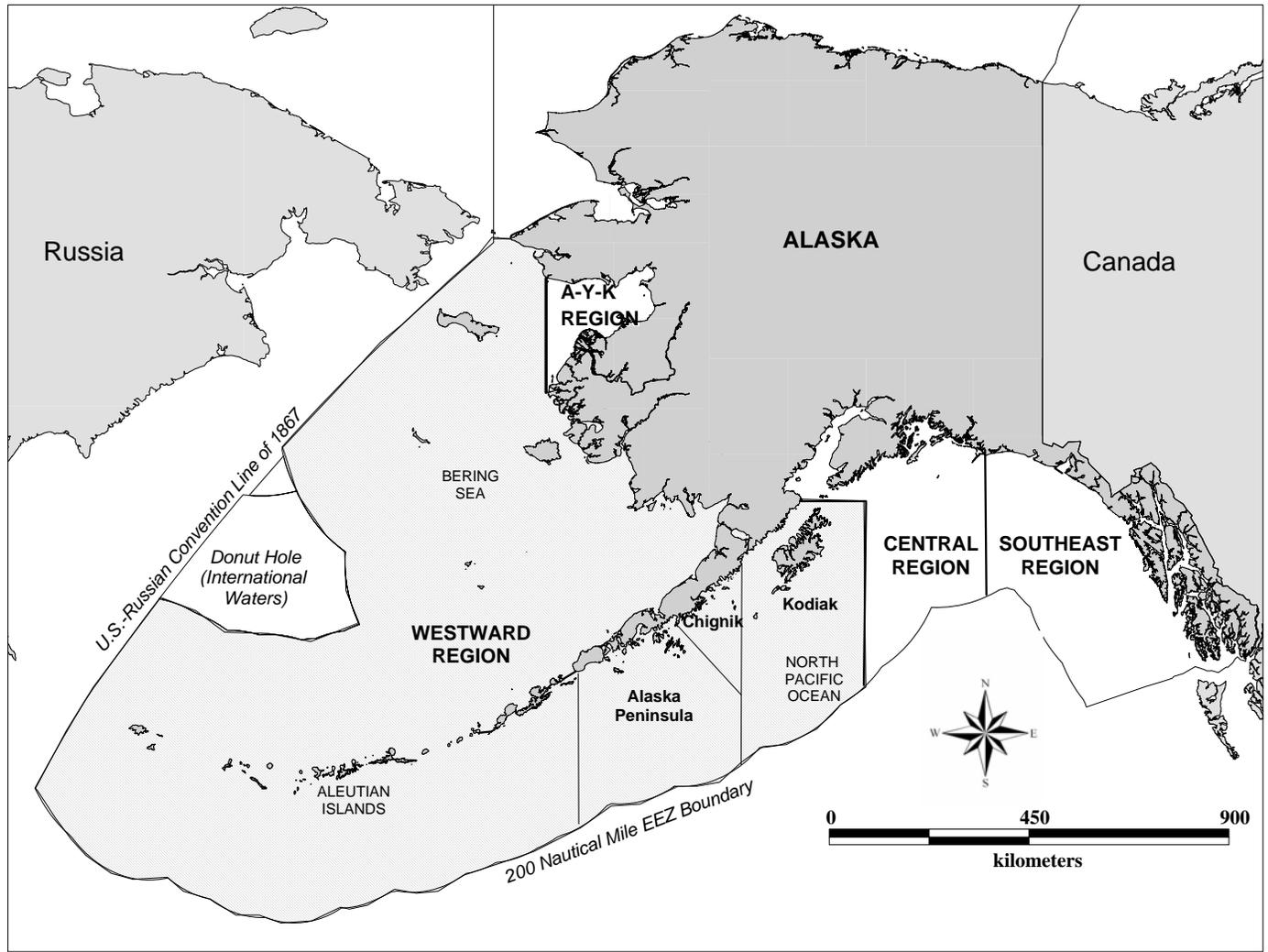
<sup>b</sup> Additional 1,985 pounds of hardshell clams harvested.

<sup>c</sup> Additional 1,506 pounds of hardshell clams harvested.

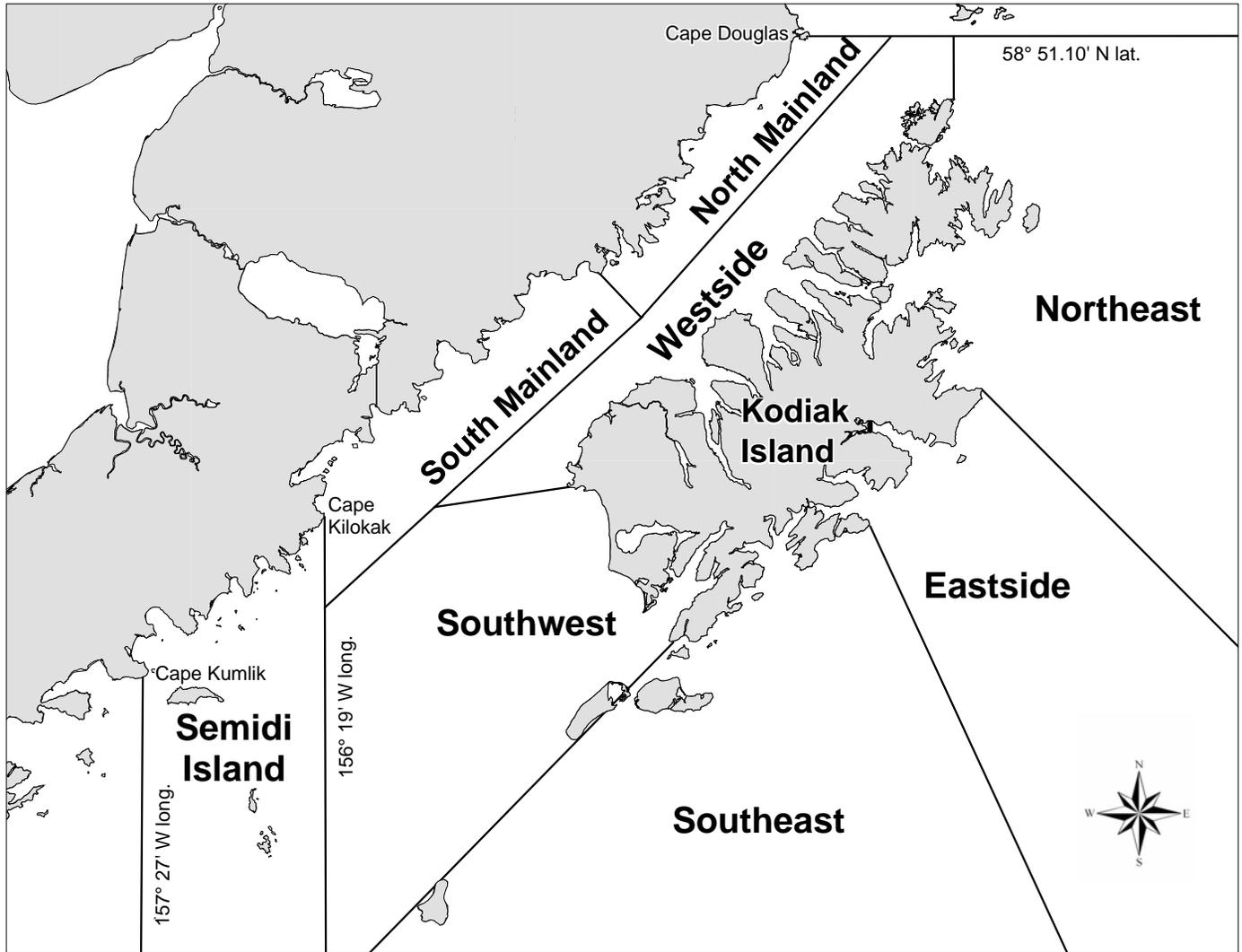
<sup>d</sup> Additional 1,496 pounds of hardshell clams harvested.

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

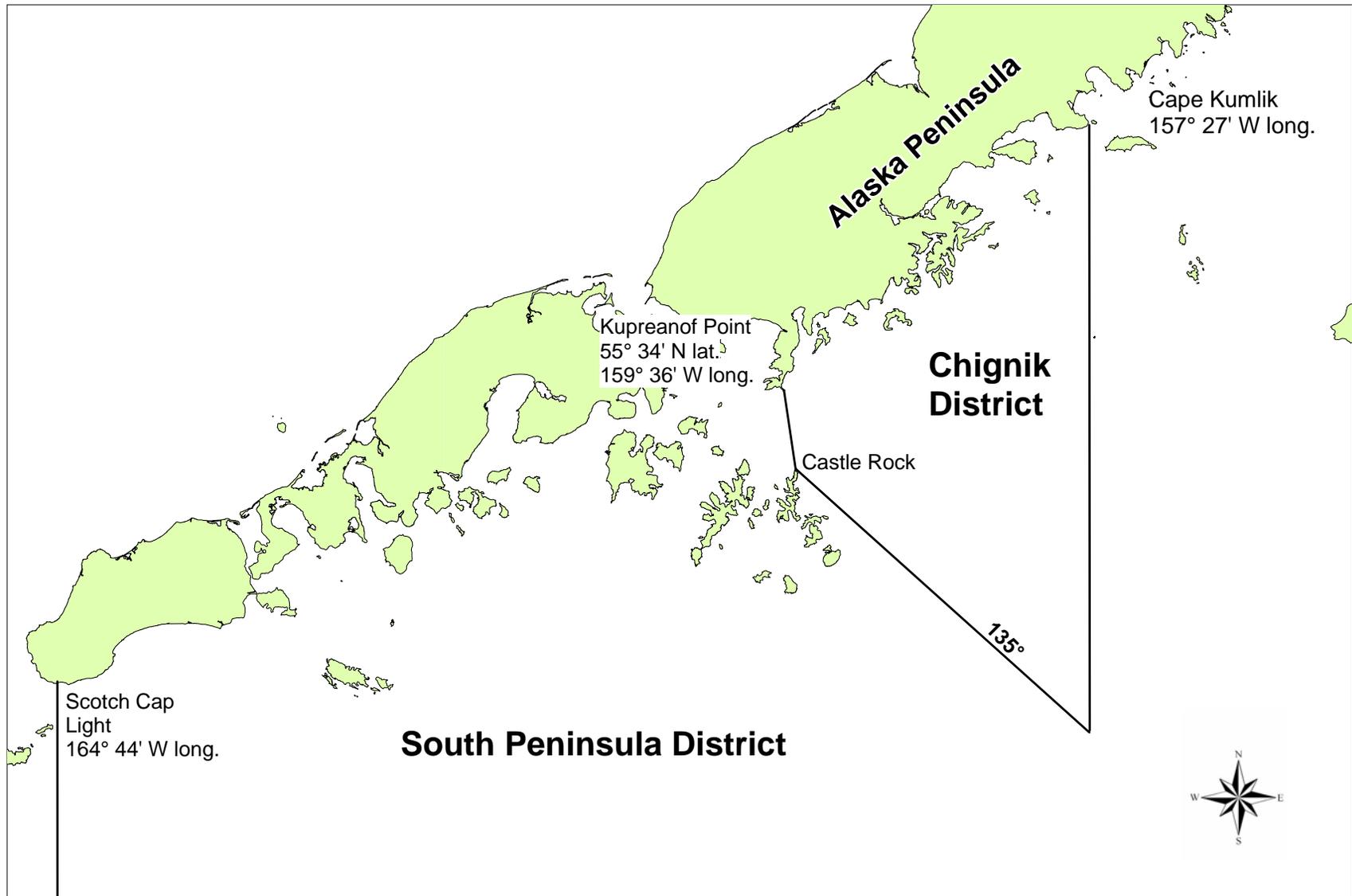
NA = Not Available



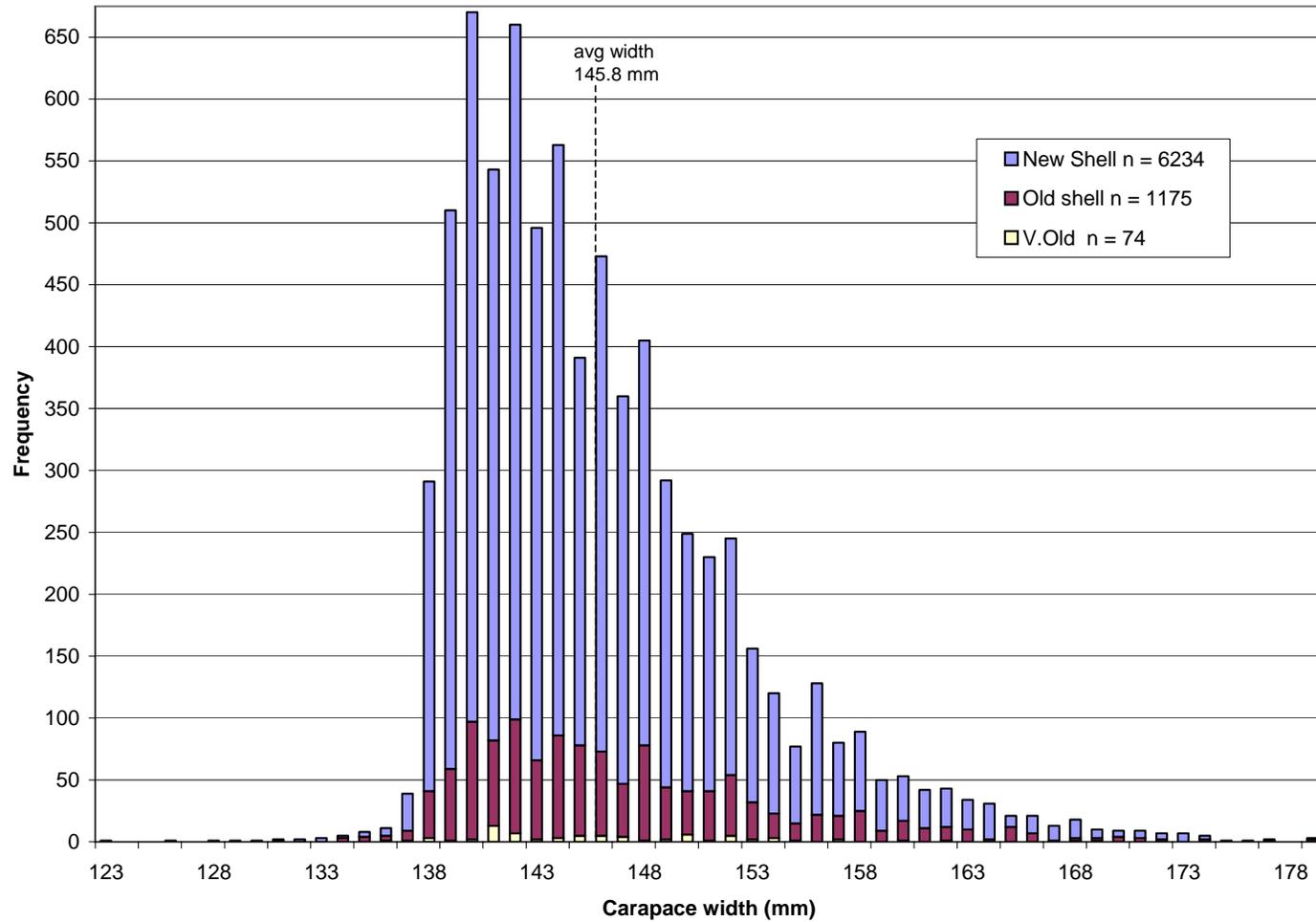
**Figure 1.**-Alaska Department of Fish and Game shellfish management regions, 2004.



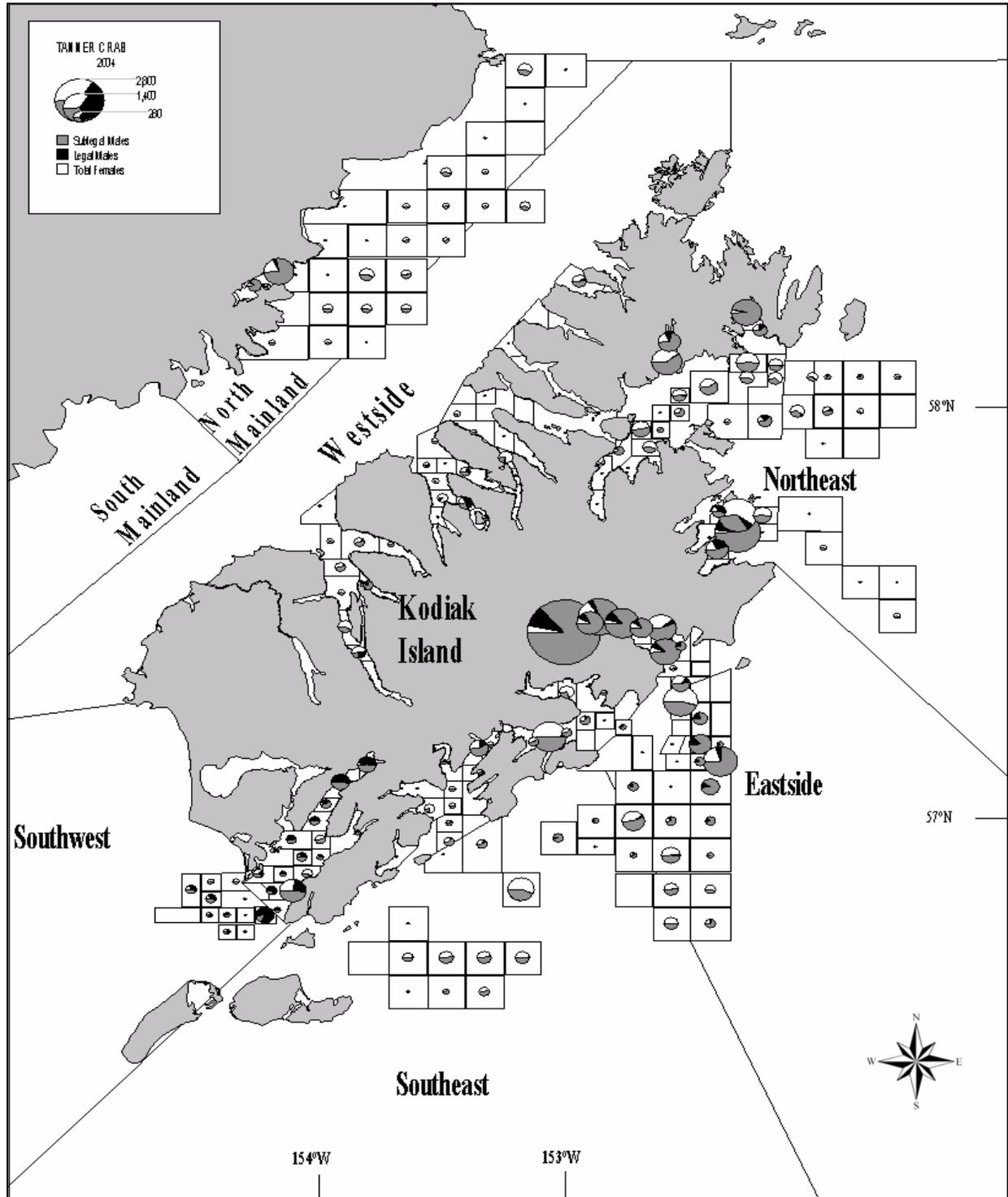
**Figure 2.-**Kodiak District and sections for Tanner crabs and sea cucumber fishery management, 2004.



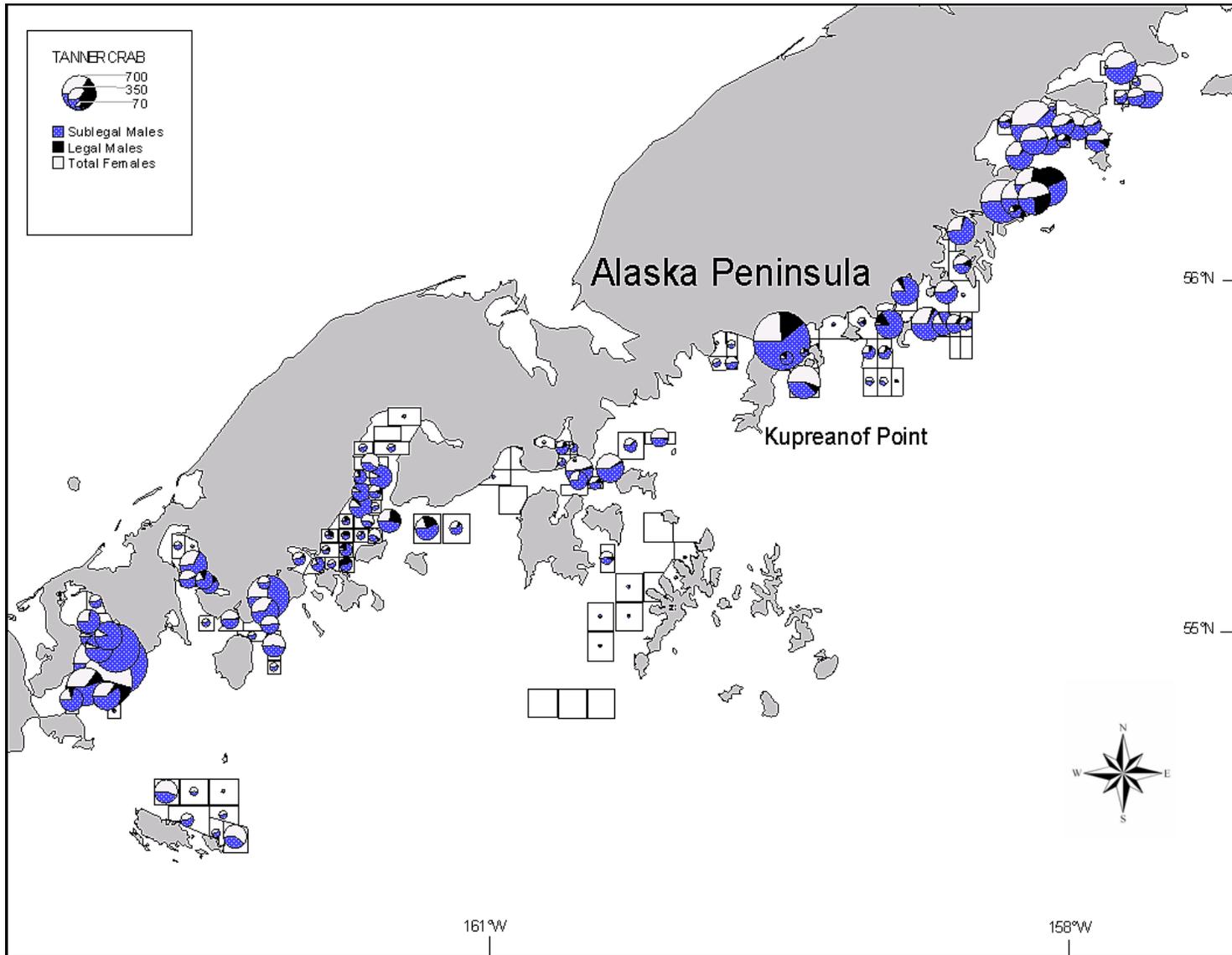
**Figure 3.-** Chignik and South Peninsula Districts for Tanner crab and sea cucumber fishery management, 2004



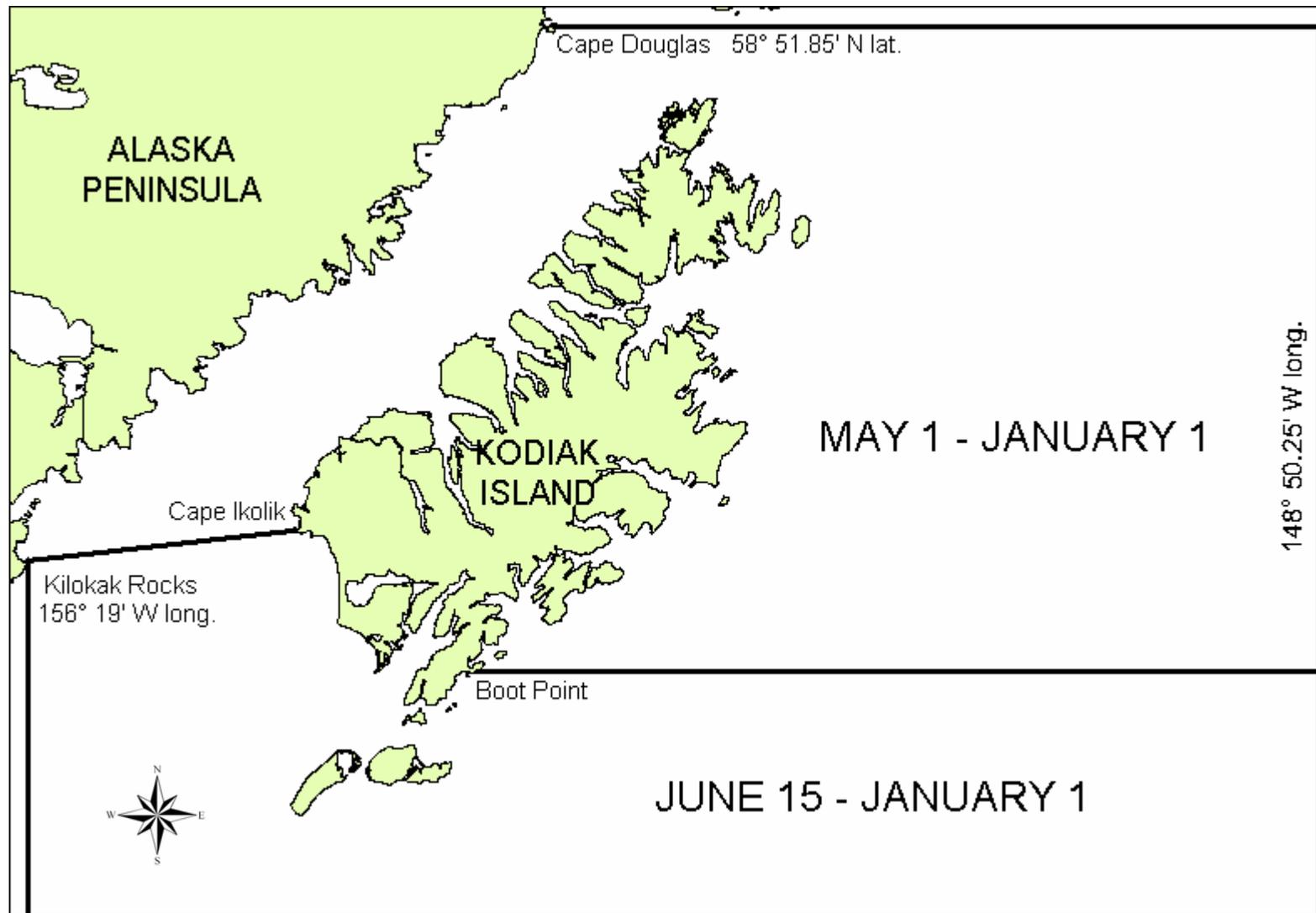
**Figure 4.**-Carapace width and shell condition from the Kodiak District Tanner crab fishery, 2004. Arrow indicates average carapace (145.8 mm).



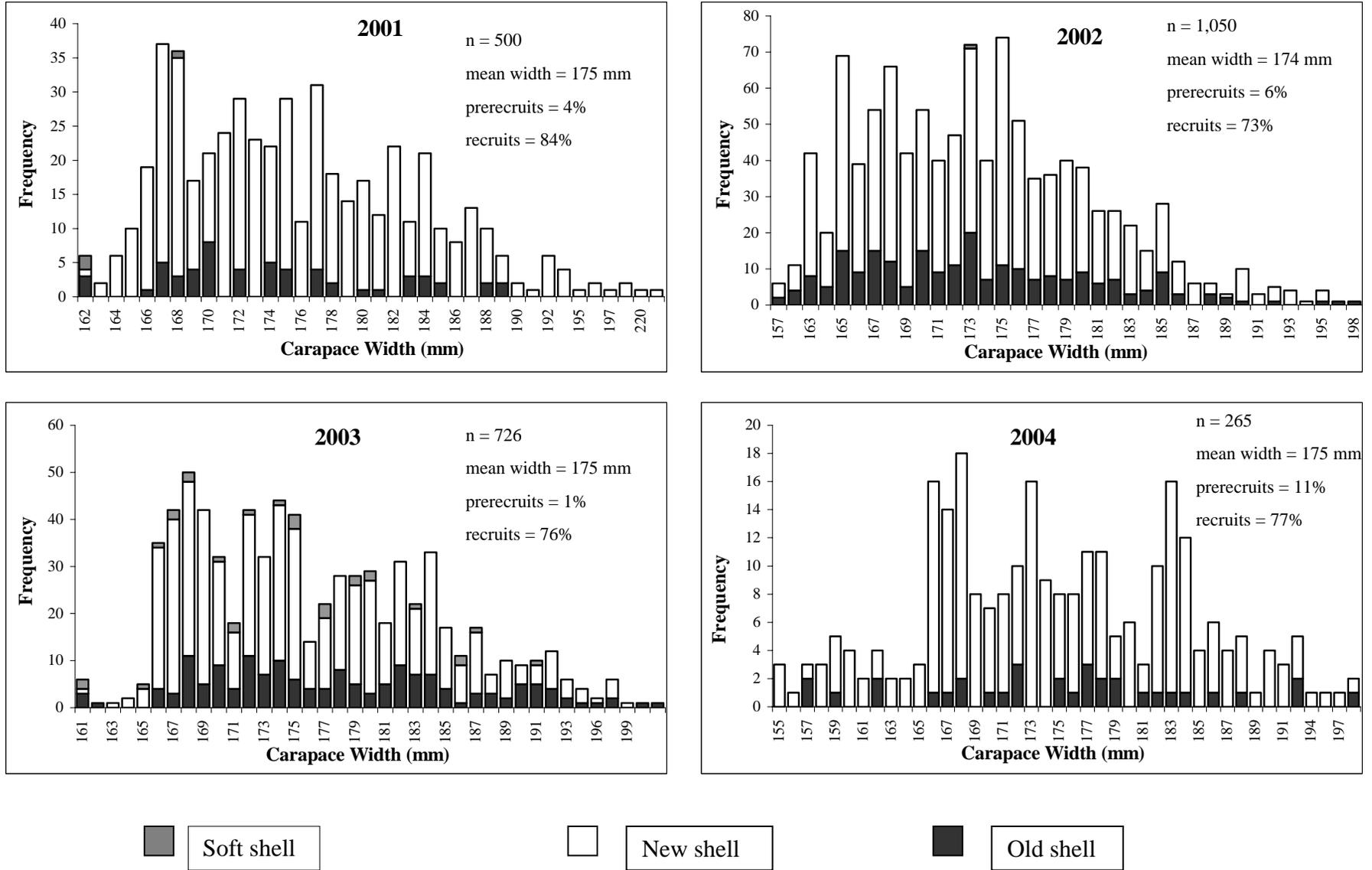
**Figure 5.-**Number of Tanner crabs per kilometer towed in the 2004 Kodiak District trawl survey.



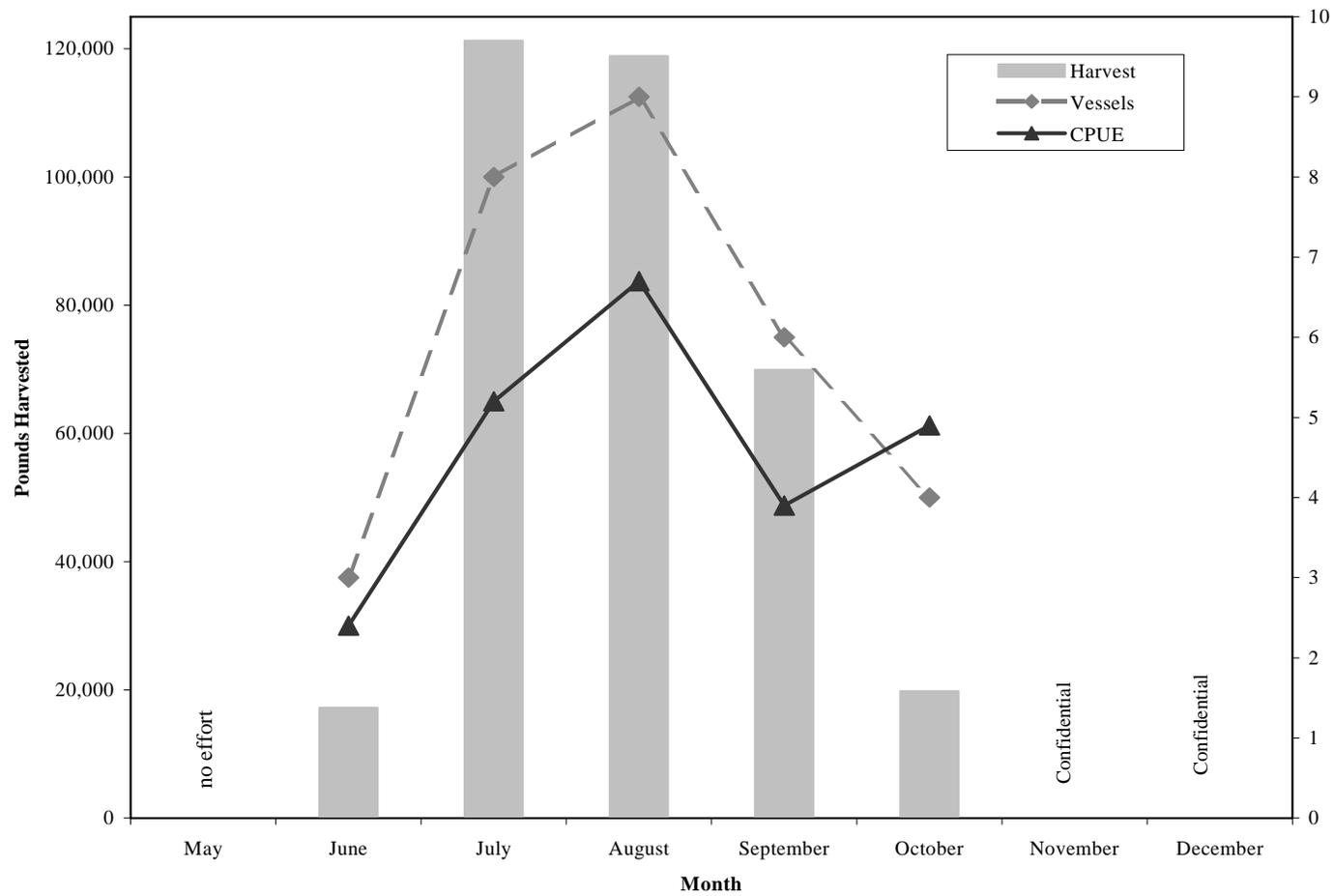
**Figure 6.-**Number of Tanner crabs per kilometer towed in the 2004 Chignik and South Peninsula Districts trawl survey.



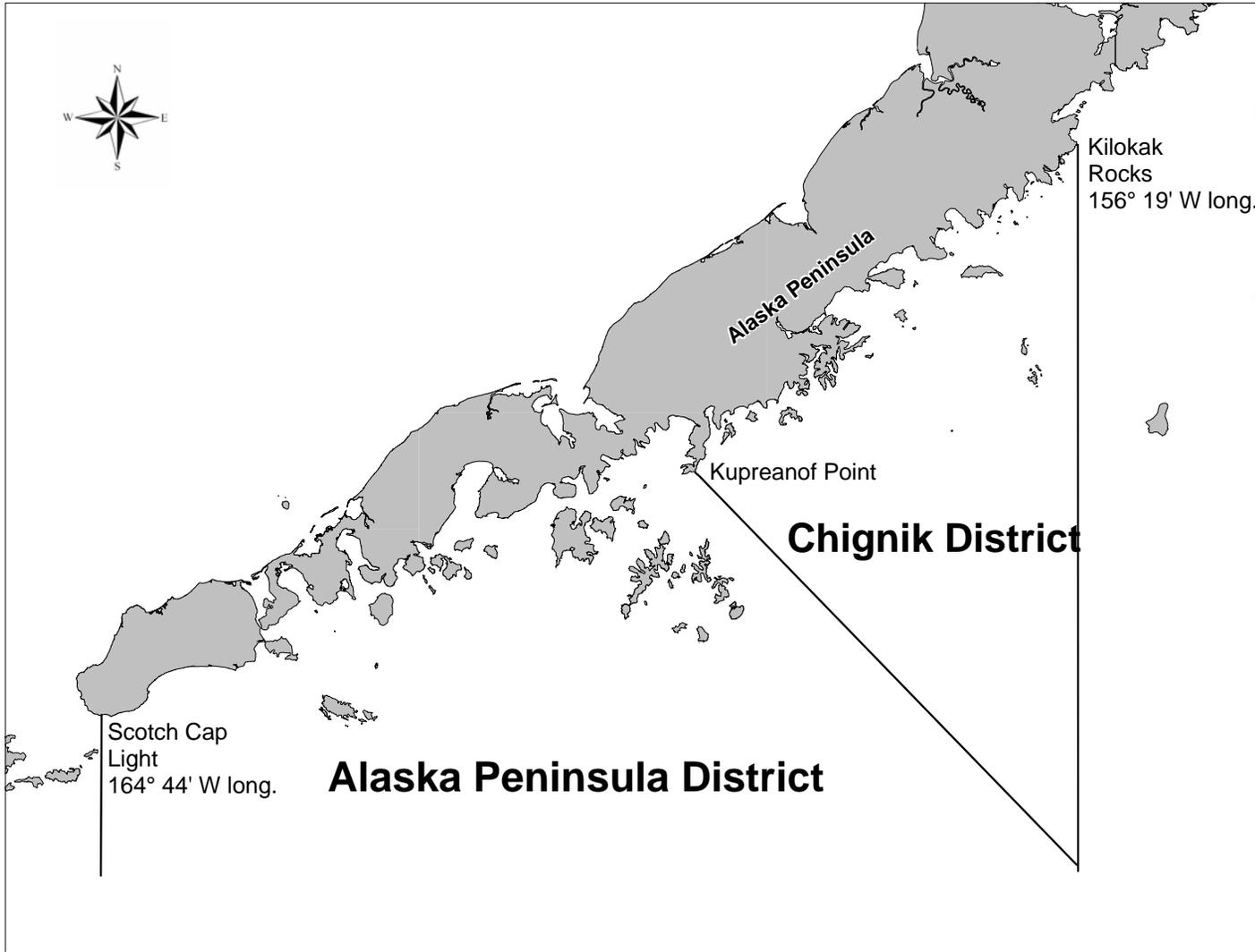
**Figure 7.-**Kodiak District for the Dungeness crab fishery and fishing seasons, 2004.



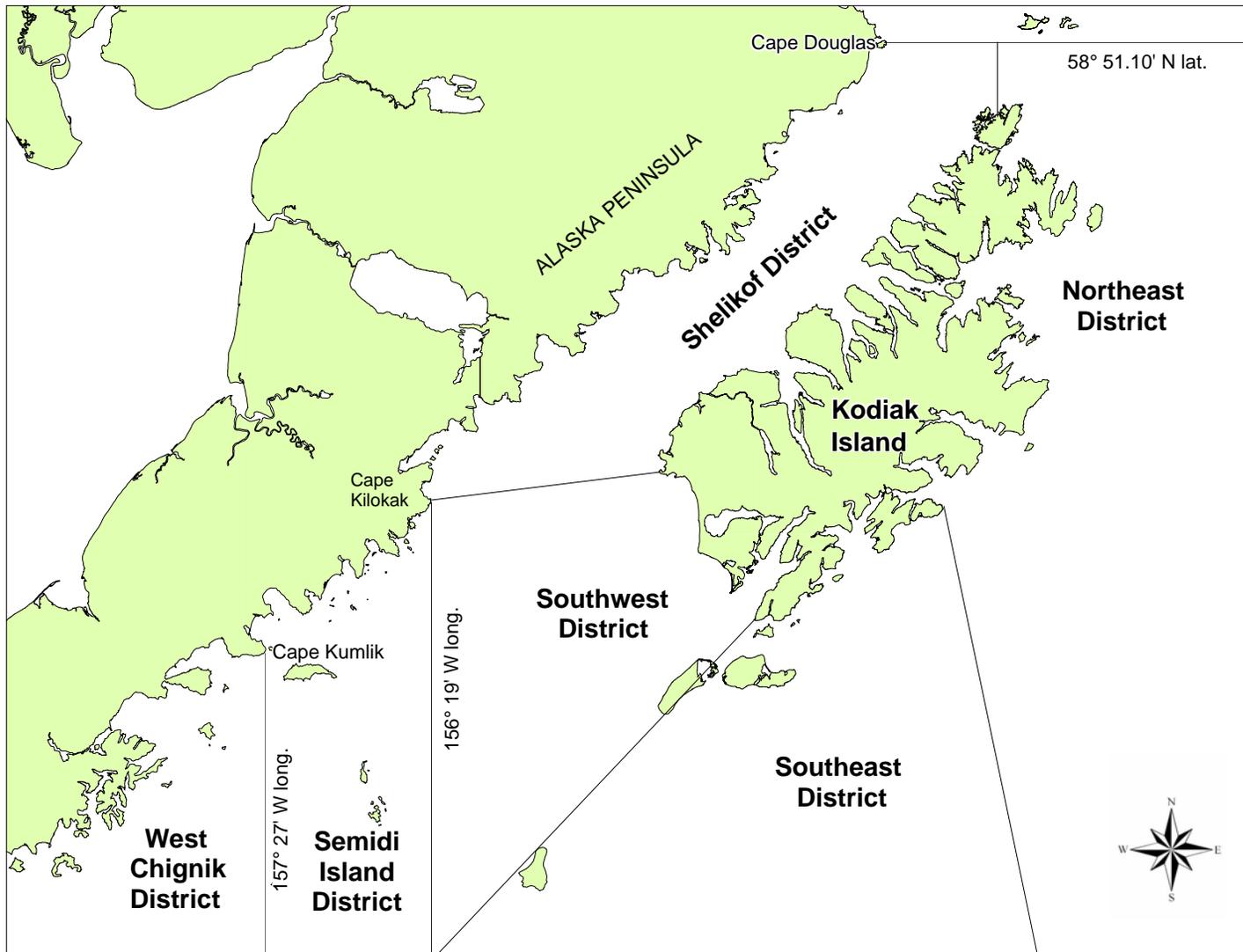
**Figure 8.-**Kodiak District Dungeness crab carapace width frequencies and shell condition from dockside samples, 2001-2004.



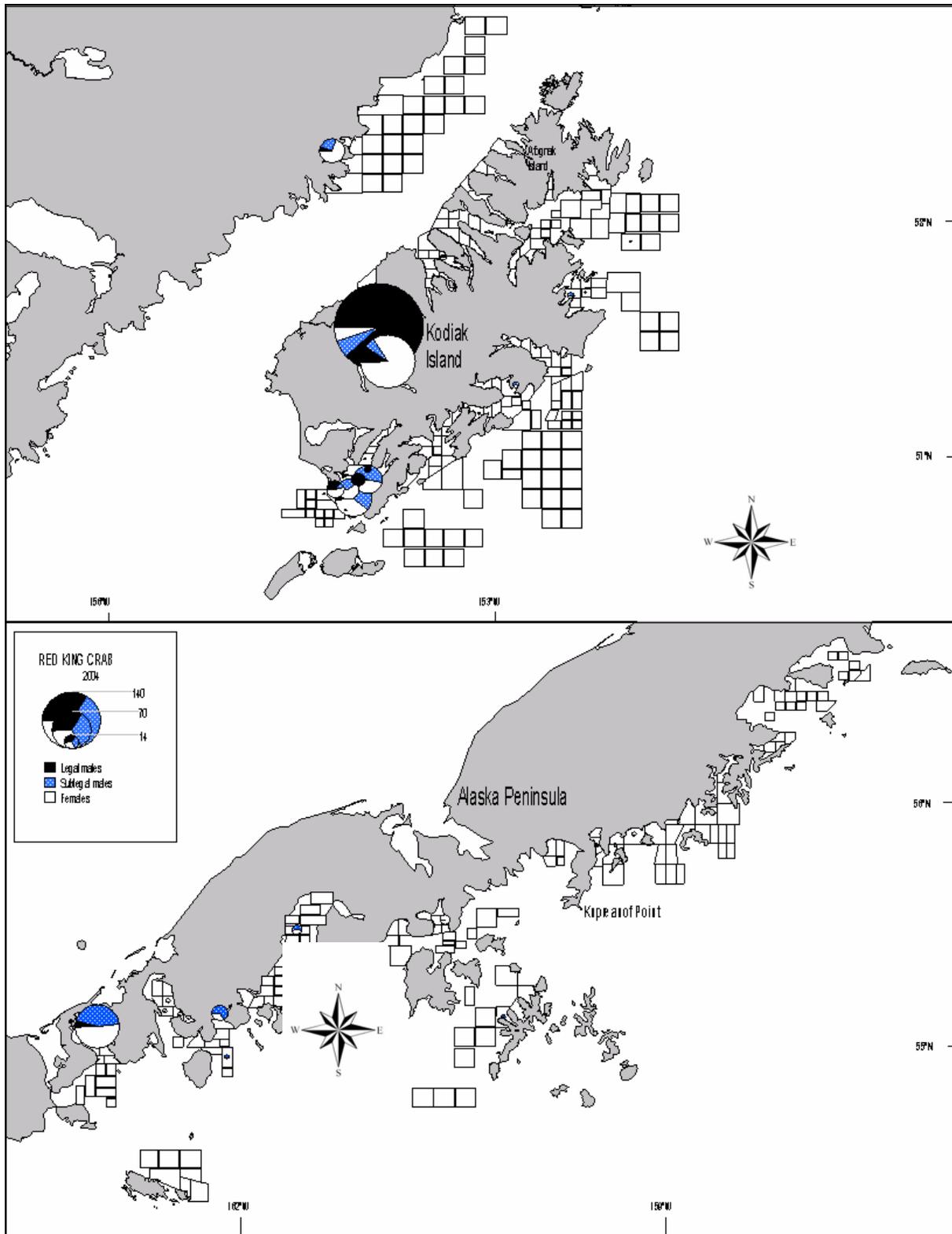
**Figure 9.-Kodiak District Dungeness crab harvest, CPUE, and vessels participating by month for the 2004 fishery.**



**Figure 10.**-Chignik and Alaska Peninsula Districts for Dungeness crab fishery management, 2004.



**Figure 11.**-Kodiak Area districts for king crab fishery management, 2004.



**Figure 12.**-Number of red king crabs per kilometer towed from the 2004 Kodiak and Alaska Peninsula Area trawl survey.

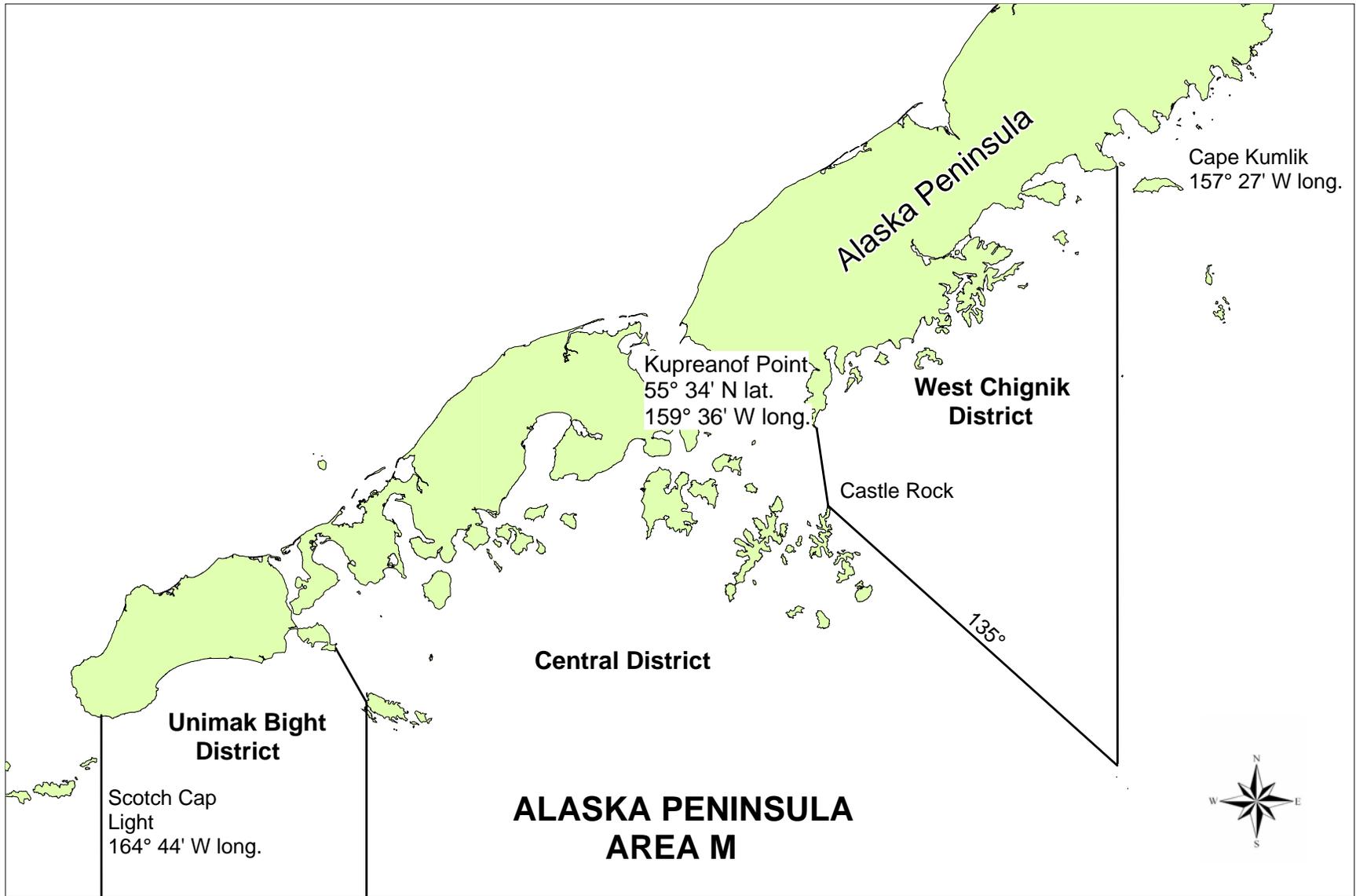
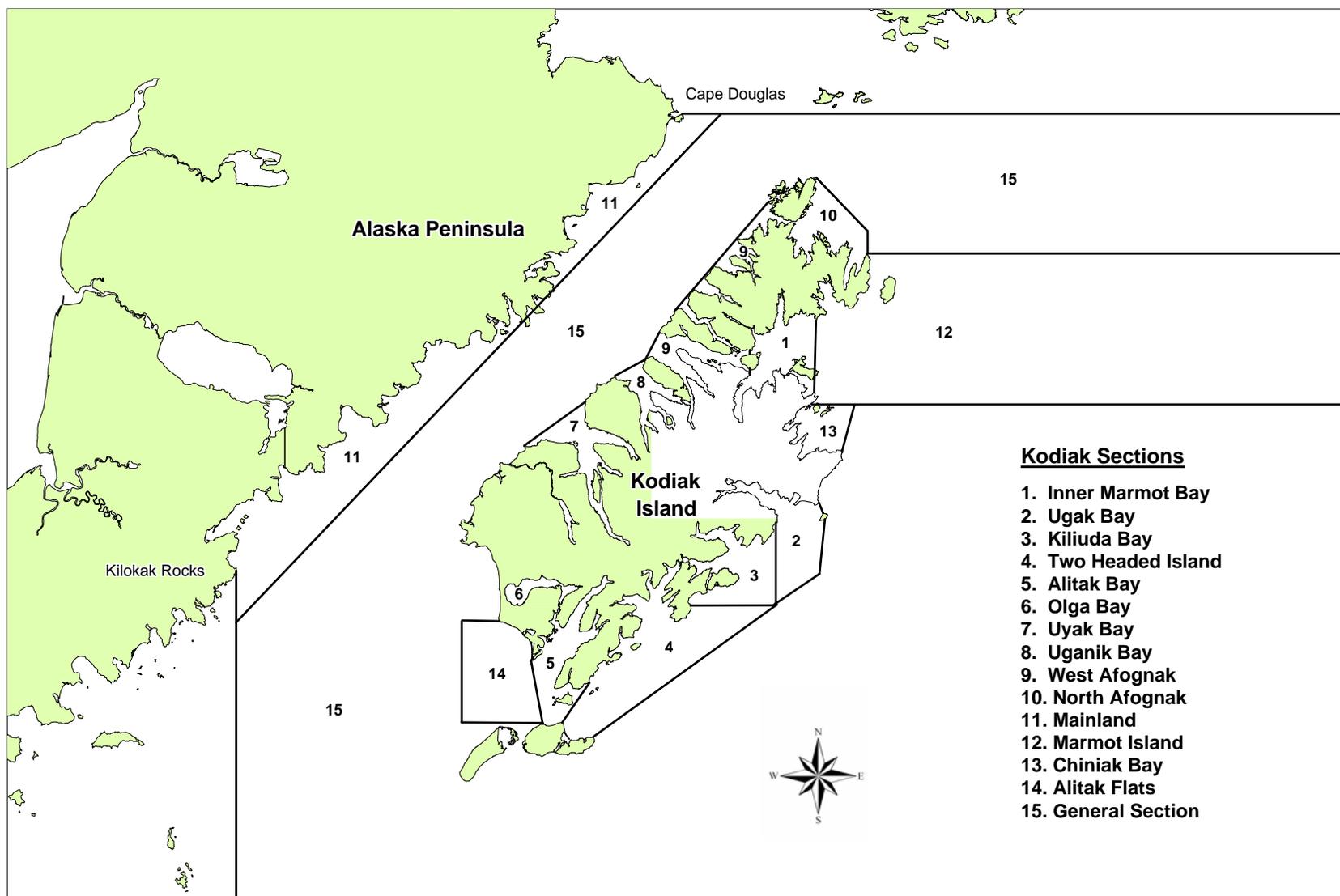
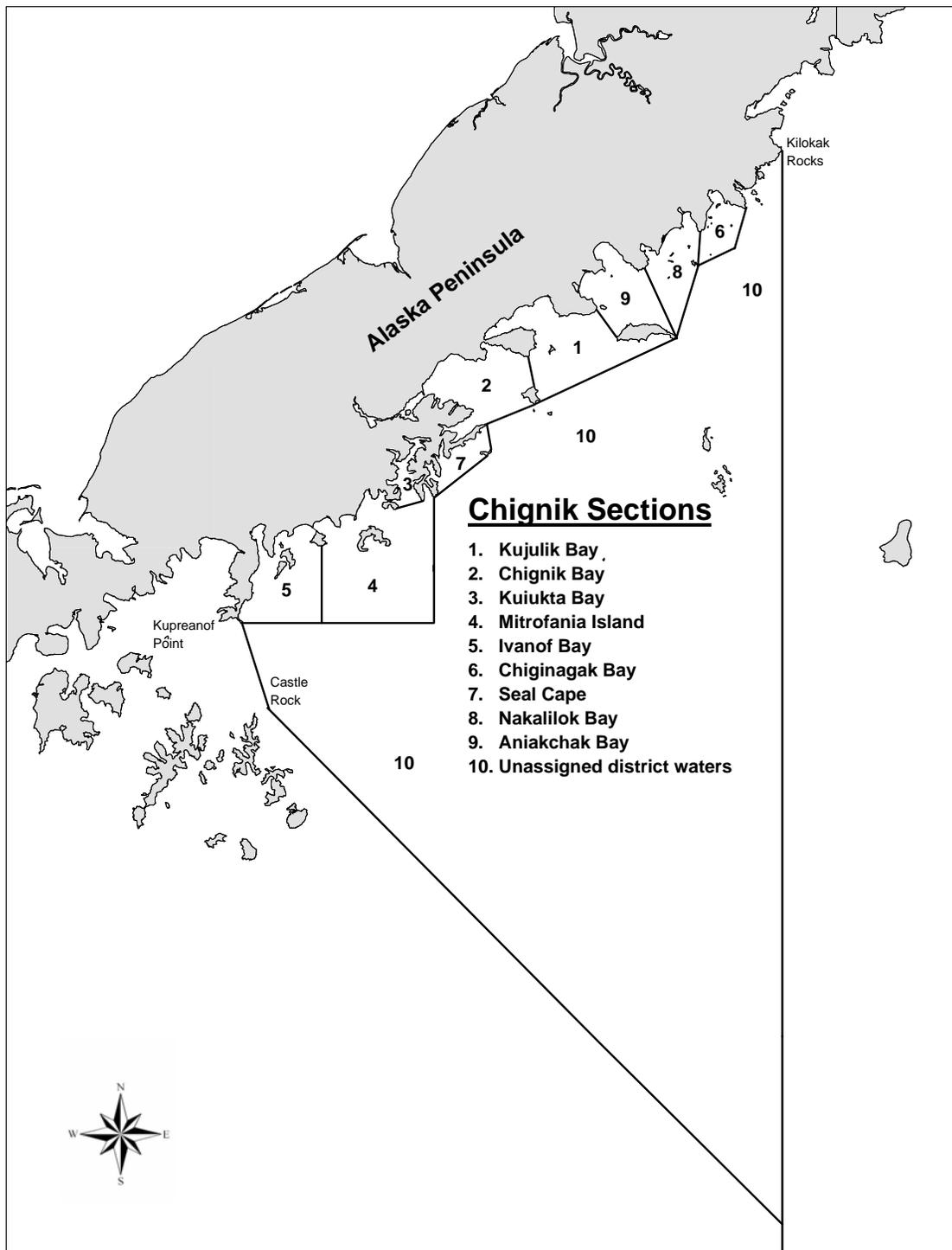


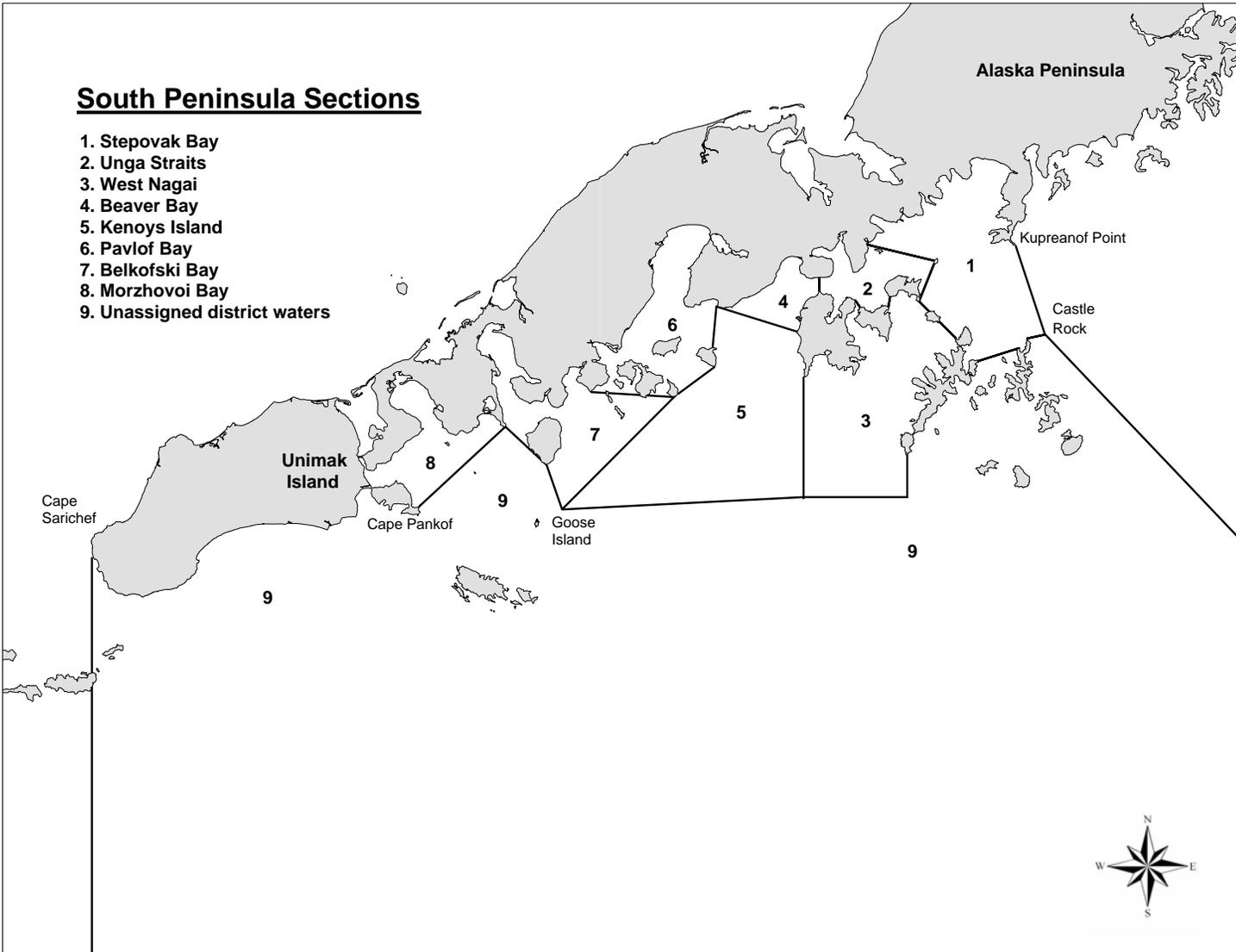
Figure 13.-Alaska Peninsula Area and districts for king crab fishery management, 2004.



**Figure 14.**-Kodiak District and sections for shrimp fishery management, 2004.



**Figure 15.**-Chignik District and sections for shrimp fishery management, 2004.



**Figure 16.**-South Peninsula District and sections for shrimp fishery management, 2004.