

**Annual Management Report for the 2016/2017
Southeast Alaska/Yakutat Red and Blue King Crab
Fisheries**

by

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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

FISHERY MANAGEMENT REPORT NO. 17-56

**ANNUAL MANAGEMENT REPORT FOR THE 2016/2017 SOUTHEAST
ALASKA/YAKUTAT RED AND BLUE KING CRAB FISHERIES**

by

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ABSTRACT

This report reviews the commercial and personal use fisheries for red and blue king crab in Region I, which includes Registration Area A (Southeast Alaska) and Registration Area D (Yakutat).

The commercial red and blue king crab harvest in Southeast Alaska totaled 176,545 lb valued at \$1.88 million during the 2011/2012 season, which was the last season the fishery was open. The average dock price per pound for red and blue king crab during that season was \$10.66.

The red king crab fishery in Southeast Alaska is fully developed. Red king crab stocks in Southeast Alaska are assessed in an annual red king crab pot survey. The Alaska Department of Fish and Game has conducted a survey of red king crab abundance in Southeast Alaska since 1979. There have never been stock assessment surveys for Yakutat red king crab stocks and harvests in this area have been sporadic and relatively low.

The Southeast Alaska commercial red king crab fishery and the personal use red king crab fishery in Section 11-A are managed based on abundance identified in the annual survey. The personal use red king crab fishery outside of Section 11-A is managed by bag and possession limits and area-specific closures defined through emergency orders. Dockside sampling and skipper interviews also are routinely conducted in Southeast Alaska commercial red and blue king crab fisheries.

Key words: Red king crab, *Paralithodes camtschaticus*, Southeast Alaska, Yakutat, Fisheries management, Blue king crab, Harvest statistics

CHAPTER 1: SOUTHEAST ALASKA RED AND BLUE KING CRAB FISHERY

INTRODUCTION

This chapter presents an overview of the commercial red and blue king crab fishery in Registration Area A (Southeast Alaska) with emphasis on the last three fishing seasons, 2014/15, 2015/16, and 2016/17. Information is presented on historical harvest and effort, regulation development, research results, and stock assessment.

Red king crab (*Paralithodes camtschaticus*) are taken primarily in the protected bays, inlets, and adjacent shorelines in Southeast Alaska north of Petersburg; few red king crab are caught from the southern portion of Southeast Alaska. Red king crab generally inhabit depths of less than 200 fathoms. Historically, important red king crab fishing grounds have included Gambier Bay, Pybus Bay, Seymour Canal, the Juneau area, Lynn Canal, Holkham Bay, Excursion Inlet, and Peril Strait (Figure 1.1). Blue king crab (*P. platypus*) may be taken only during the open fisheries for red and golden king crab (*Lithodes aequispinus*) and Tanner crab (*Chionoecetes bairdi*). Small quantities of blue king crab are harvested incidentally during those fisheries.

Commercial vessels participating in the red king crab fishery are primarily salmon tenders, salmon purse seine vessels, and larger drift gillnet boats. Fishing gear has evolved to include both side-loading king crab pots (7 ft x 7 ft x 30-in) and top-loading pyramid or conical-style pots with 5 ft to 8 ft bases.

Management of the commercial red king crab fishery is based on a conservative management plan and policies that have been reviewed and approved by the Alaska Board of Fisheries (board). The management plan consists of the following:

1. seasons that avoid fishing during the sensitive life history stages of molting, mating, and growth;
2. restriction to male crab only with a minimum legal carapace width (CW) of 7 inches;
3. limits of 20 to 50 pots per vessel, depending on stock size; and
4. guideline harvest levels (GHLs) based on appropriate harvest rates and stock assessment survey results.

FISHERY DEVELOPMENT AND HISTORY

COMMERCIAL FISHERY HISTORY

Commercial king crab fishing in Southeast Alaska waters was initially documented in 1960 when a small harvest occurred in the Petersburg/Wrangell Management Area. From 1962 through 1968, harvests ranged widely from about 100,000 lb to more than 2 million lb in 1968, with 7 to 9 permit holders participating until 1968 when effort increased to 19 permit holders (Table 1.1). In 1969, effort increased to 39 permit holders but the resulting harvest declined to 1,899,930 lb. These high harvests were due to liberal gear and season regulations; a smaller

minimum legal size (6.5 inches); harvests that included a combination of red, golden, and blue king crab; and the lack of constraining GHGs. Most of the historical harvest in Southeast comes from the northern districts (Table 1.2).

In 1970, the Alaska Department of Fish and Game (department) began collecting information on the species composition of the commercial king crab harvest in Southeast Alaska through the dockside sampling and skipper interview programs. From 1970/71 through the 1975/76 seasons, harvests averaged 539,742 lb of red king crab and effort averaged 24 permit holders (Table 1.1). The first emergency order closure occurred in January 1971, when the harvest for the 1970/71 fishing season totaled only 389,373 lb after 4.5 months of fishing by 20 permit holders. The minimum legal size was subsequently increased to 7 inches CW during the 1971 board meeting.

Accurate species composition information was required on fish tickets beginning in January 1976. From the 1976/77 through the 1984/85 fishing seasons, the number of permit holders increased from 34 to more than 90, and harvests averaged 407,384 lb of red king crab. The average exvessel value of the red king crab harvest during this period was approximately \$1.0 million (adjusted to the 1990 consumer price index). The peak harvest of 658,087 lb was taken by 39 permit holders during the 1979/80 season. Fishing effort peaked during the 1983/84 season when 97 permit holders caught 280,681 lb of red king crab (Table 1.1). During the 1984/85 season, 95 permit holders caught 270,495 lb during a 7-day fishery in October. The commercial fishery was then closed for eight consecutive fishing seasons (1985/86 through 1992/93) when department survey results indicated low stock abundance. The fishery was reopened for the 1993/94 season after department survey data indicated that red king crab stocks had rebuilt to levels sufficient to support a commercial harvest above the minimum threshold of 300,000 lb. The fishery continued during the next four seasons, with an average harvest of about 300,000 lb by about 79 permit holders. Declines in the abundance of legal crab in Pybus Bay, Gambier Bay, and Peril Strait resulted in an allowable harvest below the minimum regulatory threshold level of 300,000 lb for the 1998/99 and 2000/01 fishing seasons; therefore, the fishery was closed. Beginning with the 2002/03 season, the minimum threshold was reduced to 200,000 lb. During the 2004/05 through 2016/17 seasons the fishery was closed in all but three seasons due to estimates of allowable harvest below the minimum threshold. The harvest over the last three open seasons (2003/04, 2005/06, and 2011/12) has averaged 193,368 lb.

EXPERIMENTAL FISHING

In 1976 the department received funds to survey portions of Southeast Alaska that were not normally fished by the commercial fleet. The objective of these surveys was to find additional stocks to help support the commercial fishery. Three commercial fishermen were contracted to fish for 10 days each in Districts 3 and 4 during February and March. February and March were selected because of the propensity for crab stocks to congregate in bay areas during hatching, molting, and mating in the late winter and spring months. Although some small isolated stocks of red king crab were identified, the numbers of legal crab available were insufficient to support a commercial fishery. Catch rates were less than 0.01 legal crab per pot.

In 1988, the board adopted regulations allowing for experimental fishing in nontraditional areas by commercial king crab permit holders. These regulations included mandatory logbook completion. This experimental fishing effort was an attempt to find new and significant stocks to reach the threshold and reopen the commercial fishery. During the 1988/89 and 1989/90 seasons, the department issued experimental permits to 19 permit holders who fished at various times

from July–January. Of the 19 permits issued, 7 resulted in landings totaling 2,061 lb. Thirty-six subdistricts were fished, with harvests reported from ten subdistricts. After two seasons of exploratory fishing, interest in these fisheries was low, catches were poor, and no major unexploited populations of either species had been found. Due to poor fishing performance and violations of regulations, the board repealed regulations allowing for experimental king crab fishing in Southeast Alaska in 1990.

REGULATION DEVELOPMENT

FISHING SEASONS

From 1961 to 1968, there was no closed season for the commercial king crab fishery. Prior to the 1969/70 fishing season, a closed season was established from March 16 to August 14. A fishing season of September 1 through January 31 was established in 1971 to provide closures during the molting and mating season, during a portion of the aggregation period prior to the molting and mating season, and during the major growth period when meat recovery rates are low. The current regulatory season extends from November 1 to January 24.

From 1979 to 1999, the open fishing period was set preseason based on estimates of population size and predicted fishing effort necessary to achieve the GHL. Section 11-A has been managed for a separate GHL beginning with the 1996/97 season. Inseason harvest tracking to achieve the GHL with closure by emergency order has been conducted since 2001/02 when the fishery length was 12 days. In 2002/03 and 2003/04, the fishery was closed after 8 and 4 fishing days, respectively, and the fishery was not opened during the 2004/05 season. The 2005/06 season was open for four days in the surveyed areas and for 13 days in Section 11-A and the non-surveyed areas. The fishery was closed to commercial fishing from the 2006/07 season through the 2010/11 seasons. In 2011/12, the season was opened on November 1 and the GHL was split between four management areas: Section 11-A, Excursion/St. James Bay, Pybus/Gambier, and non-surveyed areas. Section 11-A was closed after 24 hours, Pybus/Gambier was closed after three days of fishing, and Excursion/St. James Bay and the non-surveyed areas were closed after 13 days of fishing. In 2012 weather delay criteria were added to regulation to delay the fishery start date in cases of adverse weather conditions. The fishery was closed from the 2012/13 through 2016/17 seasons.

SEX AND SIZE LIMITS

From its inception, the king crab fishery has been restricted to harvesting only male crab in order to protect the reproductively important female crab. From 1961 to 1968, a minimum legal size of 6.5 inches CW was in place. The minimum legal CW was increased to 7 inches in 1969 following apparent stock declines. This size limit was based on growth and size-at-maturity information collected from Gulf of Alaska red king crab stocks and the size/frequency distribution of Southeast Alaska stocks. The larger minimum size limit was implemented to increase reproductive potential by providing additional protection to mature male crab for approximately two seasons prior to recruitment to the fishery.

A regulation was adopted in 1990 allowing the harvest of any king crab infected with the parasitic barnacle *Briarosaccus callosus* regardless of the sex or size of the crab. Crab infected with this parasite are incapable of reproduction and experience reduced growth. Removal of infected crab may improve stock reproduction and growth by decreasing the incidence of infection and reducing the population size of the parasite.

In 2005, an 8-inch red king crab season in regulation was repealed. The department stated that this regulation had never been used and there was no intention of opening a fishery on 8-inch red king crab. In 2015 the minimum legal size of blue king crab was increased from 6.5 inches CW to 7 inches CW due to low harvests and the long reproductive cycles of blue king crab.

QUOTAS AND GUIDELINE HARVEST RANGES

A quota of 1.5 million lb was provided for king crab (all species combined) in 1970. Separate red and golden king crab fisheries were recognized with the adoption of distinct seasons and quotas in 1971. From 1971 through the 1978/79 season, the red king crab quotas, guideline harvest ranges (GHR), or GHLs were based upon historic harvest and limited size-distribution information obtained from the dockside sampling program. The first red king crab quota was set in 1971 at 400,000 lb per season. This was increased to 600,000 lb in 1974 and then reduced back to 400,000 lb in 1977.

Quotas were replaced by GHRs after 1977. The first GHR of 200,000–400,000 lb was established in 1978. The GHR was increased to 300,000–600,000 lb in 1979 based on industry recommendations. Since the 1980/81 season, allowable harvests, expressed as either GHLs or GHRs, have been based on results from the red king crab index of abundance survey. The available harvest surplus is currently computed using a harvest rate approach. Beginning in 1988, a threshold of 300,000 lb of surplus legal-sized crab had to be available before the commercial fishery would be opened. In 2002, this threshold was reduced to 200,000 lb by the board in response to an industry proposal. Part of this threshold reduction included a three-year sunset clause. The sunset clause was removed in 2005, and the current 200,000 lb threshold has been in place since that time.

FISHING GEAR

There were no restrictions on the amount or type of gear that could be fished by a vessel participating in the king crab fishery from 1961 to 1967. A limit of 40 pots per vessel was established for Southeast Alaska waters in 1968. The maximum number of pots per vessel was increased to 60 in 1974 and to 100 in 1978. This limit continued through the 1987/88 season. In 1988, the board required a 40-pot limit per vessel for GHLs between 300,000 and 400,000 lb and a 100-pot limit for GHLs above 400,000 lb. Based on information provided by the department, the board reduced the 40-pot limit to 20 pots in 1993. Current regulations provide for 20 to 50 pots per vessel based on a “sliding scale” system that is dependent on the allowable surplus harvest or GHL.

To reduce the capture of undersized crab, all pots must have either 9.5-in stretch mesh along one panel or four 6.25-in escape rings. In order to reduce “ghost fishing” by lost pots, regulations require degradable twine or a timed galvanic release device that will allow caught crab to escape after a short period of time. Tunnel height on standard side-loading pots must be a minimum of 8 inches in the vertical dimension. There are restrictions on pot storage before and after fishing seasons, and each stored pot or stack of pots must be buoyed and marked. Ring nets were eliminated as legal gear for king crab in 1990. Marking requirements for pot buoys include sequentially numbered tags, which are purchased from the department. In 2005, escape ring placement was amended to clarify how escape rings were to be optimally located to allow escape of undersized and female crab. Also in 2005, the gear storage regulations were changed from a limit of three days to a limit of five days after closure of a portion of Southeast Alaska.

MANAGEMENT PLAN

In 1993, the board adopted a comprehensive management plan for red king crab in Southeast Alaska. This management plan was designed to be consistent with the board's policy on "King and Tanner Crab Resource Management." Major elements of the plan include the following:

1. provisions to maintain an adequate abundance of various size classes of males and females necessary to provide for sustained harvests and stock conservation;
2. application of a harvest rate based on both legal males and mature males;
3. a GHL based on stock conditions for each fishing district;
4. a minimum harvest threshold of legal males;
5. conduct of an orderly fishery; and
6. conservative management when information is lacking.

Additional elements used to manage the fishery are included in regulations concerning lawful gear, closed waters, and allocation between commercial and personal use fishermen in Section 11-A. A mandatory call-in program was implemented for all seasons after success with a voluntary call-in program in 2001/02 season.

LIMITED ENTRY

A limited entry program was established for the king and Tanner crab pot fisheries in Southeast Alaska by the Commercial Fisheries Entry Commission (CFEC) in January 1984. Currently, there are 59 active permanent and interim permits eligible to participate in the red king crab fishery. Some of these permits may not be eligible to fish after the adjudication process is completed.

MANAGEMENT CONCERNS

PERSONAL USE HARVEST

Accurate harvest data from all users is important to the management of the fishery. Estimates of personal use red and blue king crab harvest have come from three sources in Southeast Alaska: the statewide harvest survey, dockside creel census (in some years, but that program is no longer in place), and personal use permits. Personal use permits are required by regulation only in Section 11-A (Juneau area) and, although they provide the best available data, it is thought that underreporting does occur and harvests may be underestimated. Outside of Section 11-A, the maximum bag and possession limit of three to six crab per person per day may lead to significant removals in some areas. There are no formal estimates of harvest for areas outside of Section 11-A. A regionwide system needs to be established to provide reliable estimates of personal use harvest from all areas in order to effectively manage the stock. Implementing such a system has not been possible due to staffing levels and inadequate funding.

STOCK ASSESSMENT

Management of the commercial red king crab fishery in Southeast Alaska is abundance-based and requires annual assessments of stock size. Stock assessment requires three types of data: commercial harvest from the fish ticket database, personal use harvest, and catch per unit effort (CPUE) and length/weight relationships from the stock assessment survey. These data, along

with estimates of growth and natural mortality, are used as input to a 3-stage catch-survey model (CSA model). The model provides annual estimates of legal and mature male crab population biomass for each major survey area. The biomass estimates obtained from catch-survey modeling are multiplied by acceptable exploitation rates determined by stock health in order to determine the harvestable surplus for each survey area. The biomass estimate for survey areas is subsequently expanded to a regional estimate using the mean proportion of harvest occurring in surveyed areas.

FISH TICKETS

Alaskan seafood processors are required to submit detailed fish tickets recording harvest, effort, and location of harvest to the department. A fish ticket is submitted for each landing. Waters of Southeast Alaska are divided into 16 districts, some of which are further subdivided into sections, and all are divided into statistical areas of varying size and shape. Fish ticket data, archived in a statewide database, details red king crab harvest by statistical area since 1960.

LOGBOOKS

Logbooks are mandatory for vessels participating in the commercial fishery and provide information on red king crab catch and effort by statistical area and date. In recent seasons, mandatory daily reporting of logbook data has been used to manage for fishery area GHLS inseason.

PERSONAL USE HARVEST DETERMINATION

Personal use red king crab harvest has been estimated in three ways: through a personal use permit program in the Juneau area, through a sport fishing statewide harvest survey (SWHS) elsewhere, and through a sport fishery creel census.

A personal use permit is required for fishermen in Section 11-A and requires the holder to record the number of red king crab caught by date (Hebert et al. 2002; Hebert et al. 2005; Hebert et al. 2008; Suchanek 1995; ADF&G staff 1999). Currently, the only source of information for outside of Section 11-A is the SWHS. This survey is sent annually to a randomly selected sample of 14,000 residents and nonresidents who purchase fishing licenses. The SWHS is designed to estimate sport harvest and specifically asks respondents not to include personal use harvest. Since there are no sport fisheries for king crab in Southeast Alaska, all reported king crab harvest is assumed to be personal use. A comparison of the SWHS with the Section 11-A personal use permit data suggests that it underestimates the annual personal use harvest (Table 3.6). The SWHS does not differentiate between the three species of king crab. For these reasons it is of limited value in providing reliable estimates of personal use red king crab harvest in Southeast Alaska.

Sport fishery creel survey data has come from dockside interviews of recreational fishermen as they land their catch to determine their effort and catch targeting red king crab. The creel survey was expanded to provide an annual estimate of catch by community of landing (Hubartt et al. 1993–1999). Personal use red king crab harvest data was associated with the survey area closest to the community. Sitka harvests were assigned to Peril Strait, Petersburg and Wrangell harvests to Gambier Bay, and Gustavus harvests to Excursion Inlet, and the Section 11-A personal use permit harvest data is associated with the Juneau area. All other harvests (Ketchikan, Prince of Wales Island, Haines, and Skagway), were assigned to unsurveyed areas.

Estimates of red king crab personal use harvest in Southeast Alaska are far less precise and accurate than estimates of commercial harvest because permits are not required outside of Section 11-A. A comparison of 1999 to 2003 creel census data, SWHS, and personal use permit harvest estimates found that, on average, the former two methods produced estimates respectively 52% and 66% of the personal use permit harvest estimate and should not be relied upon to provide harvest estimates of personal use fisheries (Hebert et al. 2005). This result suggests that existing estimates of personal use red king crab harvest in Southeast Alaska may be low outside the Juneau area (Section 11-A).

SURVEYS

The department has conducted a survey of red king crab abundance in Southeast Alaska since 1979. The survey provides indices of crab abundance by sex and recruit class in terms of crab per pot per day. The survey is conducted in areas where the majority of red king crab harvest occurs (Figure 1.1). Significant improvements, resulting in successive decreases in the coefficient of variation (CV) of CPUE data, have been achieved over the 30-year survey time series. These include a move from fixed to random pot locations and development of strata in 1986; a gradual shift from square to cone pots over the period 1995–1999; restratification of the survey to redefine strata boundaries based upon the CPUE of legal, sublegal, and female red king crab in 2005 (Clark 2008); and most recently, an increase in the number of pots set in each surveyed area to improve the precision of survey area estimates. A detailed timeline and methods of survey development has been detailed elsewhere (Clark 2008; Clark et al. 2003).

Because of industry concerns about the red king crab stock assessment program, an external review was conducted in 2005. The general tone of the review was positive, and no biases or inherent flaws in the methods were identified (Quinn et al. 2006), but several suggestions for improvements were made and are being gradually implemented. Nonetheless, because of continued industry concerns, a project to independently estimate red king crab population size using mark-recapture methods was initiated cooperatively with the industry in fall 2010 and is currently ongoing.

BIOMASS ESTIMATION

The biomass of legal (≥ 178 mm CW) and mature (> 129 mm CL) male red king crab at the time of the survey is estimated using a 3-stage catch survey model (Collie and DeLong 1998). Inputs to this model are commercial harvest, and survey CPUE for prerecruit, recruit, and postrecruit crab. An instantaneous rate of natural mortality of $M = 0.32$, which translated to an annual natural mortality rate of 27%, and growth of 16 mm per molt for adult male crab are assumed. These methods, and the rationale for the assumptions regarding natural mortality and growth, are described in more detail by Clark et al. (2003).

STOCK HEALTH DETERMINATION AND EXPLOITATION RATE

For each survey area, stock health is determined annually by a two-stage analysis of seven survey parameters (Table 1.3). The seven survey parameters are the CPUEs of large mature females, small immature females, juvenile males, prerecruit males, recruit males, and postrecruit males, and the percentage of large mature females having less than 25% clutch fullness. These survey parameters are first compared to an established baseline value, the mean from 1993 to 2007, and then short-term trends are determined. Short-term trends are based on individual regression analyses over the most recent four years, including the current year. The results of

each of these survey parameter analyses produce a stock health score for each survey area. These stock health scores are used as a guide to set appropriate exploitation rates to the mature biomass estimates for each survey area. Stock health scores are categorized as poor, below average, moderate, above average, or healthy for each area. Although exploitation rates are set for the mature male biomass, a maximum exploitation rate on legal biomass is also in effect. Exploitation rates for Southeast Alaska red king crab are not established in regulation.

HARVESTABLE SURPLUS

For each survey area, the total harvestable surplus of legal male red king crab is determined as the product of the estimated biomass of mature male red king crab and the exploitation rate, unless this amount exceeds the maximum of 50% of the legal male biomass, in which case the total harvestable surplus becomes 50% of the legal male biomass. Mature, rather than legal, biomass is used to allow legal exploitation rates to vary with recruitment strength.

Total harvestable surplus is decremented by the most accurate estimate of personal use harvest for the current season to determine the remainder available for commercial harvest, or the commercial harvestable surplus.

To obtain a regional GHL estimate, the commercial harvestable surplus from the seven survey areas for which CSA estimates are produced annually is expanded by the proportion of commercial harvest from survey areas and by the historical proportion that is blue king crab (Table 1.4). For the three most recent seasons where commercial harvest occurred—2003/04, 2005/06, and 2011/12—respectively 72.7%, 46.5%, and 51.7% of the harvest came from survey areas. The historical mean proportion of the harvest from survey areas is 65.2%, for 1978–2004 seasons, and of blue king crab is 1.1%.

REGIONAL OVERVIEW

The trend in all districts has been a decline in abundance of legal males from peaks in the late 1970s and early 1980s to a low extending from 1985 to 1990. Abundance then increased in the early 1990s to levels that were considered adequate to support a sustainable fishery from 1993/94 through 1997/98. The 2011/12 through 2013/14 seasons exhibited a consistent decline in overall biomass, reaching historically low levels of mature and legal biomass. The 2014/15 through 2016/17 seasons showed increases in mature and legal biomass in most surveyed areas (Figure 1.2).

SAMPLING

Commercial red king crab fishery landings are sampled dockside in Juneau, Petersburg, Sitka, and Wrangell, and onboard tenders at sea if possible. Carapace length is measured and shell condition determined for 50-crab samples as crab are delivered to processors. Crab average weight is also determined for each delivery sampled, and skippers are interviewed to determine fishing location and effort. Recruit composition of the harvest can be determined from carapace length and shell condition frequency (Tables 1.5 and 1.6).

RECENT SEASONS

2014/2015 SEASON SUMMARY

The GHL for the 2014/15 season was calculated at zero pounds of red and blue king crab. This GHL did not exceed the 200,000 lb threshold in regulation; therefore the commercial red and blue king crab fishery in Southeast Alaska did not open for the 2014/15 season.

2015/2016 SEASON SUMMARY

The GHL for the 2015/16 season was calculated at zero pounds of red and blue king crab. This GHL did not exceed the 200,000 lb threshold in regulation; therefore, the commercial red and blue king crab fishery in Southeast Alaska did not open for the 2015/16 season.

2016/2017 SEASON SUMMARY

The GHL for the 2016/17 season was calculated at zero pounds of red and blue king crab. This GHL did not exceed the 200,000 lb threshold in regulation; therefore, the commercial red and blue king crab fishery in Southeast Alaska did not open for the 2016/17 season.

2017/2018 SEASON OUTLOOK

Areas surveyed included Pybus Bay, Gambier Bay, Seymour Canal, Peril Strait, the Juneau area, Lynn Sisters, and Excursion Inlet. The estimate of available harvest was determined through the CSA analysis for all surveyed bays. The CSA incorporates department stock assessment survey data from 2017 and prior years, commercial harvest in 2011 and prior years, and port sampling data obtained during landings of commercial harvest. Biomass estimates produced for each survey area were adjusted based on mark-recapture assessments done in the surveyed areas, with the exception of the Juneau area. Six of the seven areas surveyed had increases in both legal and mature biomass, with the exception of Peril Strait which decreased or stayed the same. Regionally, biomass estimates increased 33% for mature male crab and 27% for legal male crab from the 2016 estimates.

Information used to assess non-surveyed areas for the 2017 commercial fishery recommendation include the current CSA and historic harvest data, by statistical area, from fish tickets. The percentage of historical harvest that occurred within the surveyed areas from the 1974/75 to 1984/85 seasons was used to expand the harvestable surplus from the surveyed area to non-surveyed areas. Since 2015, when Port Frederick was removed from the survey, a historical harvest of 53.1% from surveyed areas has been used; the remaining 46.9% of harvest is targeted from the non-surveyed areas. This surveyed/non-surveyed area ratio was used to calculate legal and mature biomass estimates for the non-surveyed areas, and a 10% harvest rate was applied. Harvest rates appropriate to stock health were also applied to each surveyed area (with the exception of Peril Strait and Lynn Sisters, which will be closed due to stock health concerns) and the non-surveyed areas. This provided a GHL of 201,200 lb, which exceeds the 200,000 lb threshold in regulation; therefore, the commercial fishery will open for the 2017/18 season.

CHAPTER 1—TABLES AND FIGURES

Table 1.1—Red king crab harvest, number of landings, and number of permits in Registration Area A (Southeast Alaska) by year or season, 1960 to present. The data from 1960 to 1969 include all three species of king crab (red, blue, and golden) from all of Southeast Alaska including Yakutat. Yakutat king crab is included in the 1969/70 season.

Year/Season ^a	Total Harvest	Number of landings ^b	Number of permits ^c
1960	3,424	—	—
1961	*	*	*
1962	1,289,550	—	8
1963	1,112,200	—	8
1964	820,530	—	9
1965	579,300	—	7
1966	105,899	—	8
1967	599,078	—	7
1968	2,199,722	—	19
1969	1,899,930	122	39
1969/1970	1,438,226	401	33
1970/1971	389,373	150	20
1971/1972	670,645	183	19
1972/1973	528,025	198	19
1973/1974	758,103	234	29
1974/1975	535,534	201	46
1975/1976	356,771	170	32
1976/1977	328,145	174	35
1977/1978	234,494	138	34
1978/1979	443,639	165	34
1979/1980	658,087	229	39
1980/1981	532,674	193	35
1981/1982	524,109	171	46
1982/1983	412,605	115	58
1983/1984	280,681	119	97
1984/1985	270,495	121	95
1985/1986–1992/1993		Fishery Closed	
1993/1994	202,384	180	83
1994/1995	256,267	246	84
1995/1996	357,815	203	73
1996/1997	428,549	218	79
1997/1998	308,322	187	76
1998/1999		Fishery Closed	
1999/2000	289,548	215	77
2000/2001		Fishery Closed	
2001/2002	296,967	177	77
2002/2003	233,630	154	75
2003/2004	193,759	93	67
2004/2005		Fishery Closed	
2005/2006	209,799	113	58
2006/2007–2010/2011		Fishery Closed	
2011/2012	176,545	105	54
2012/2013–2016/2017		Fishery Closed	

* Fewer than 3 permits were fished; information is confidential.

^a Data for years 1960 through the 1969/1970 season are taken directly from the last board report.

^b Total landings are the number of unique fish tickets reporting king crab landings in any combination in a season.

^c Total permits are the number of unique CFEC numbers that made landings in a season.

Table 1.2—Red king crab harvest in thousands of pounds by district and season in Registration Area A (Southeast Alaska), 1970/71 to present.

Season	Districts															Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1970/1971	0	0	0	0	0	*	0	*	45.8	116.4	119.6	*	*	*	53.8	389.4
1971/1972	0	0	0	0	0	0	0	*	*	197.6	259.4	*	95.8	*	*	670.6
1972/1973	*	0	0	0	0	*	0	16.8	*	223.8	103.6	*	40.0	*		528.0
1973/1974	0	0	0	0	*	*	*	*	21.2	365.1	120.7	*	98.7	87.1	*	758.1
1974/1975	*	0	0	0	0	*	*	8.3	27.9	124.5	74.1	60.2	101.2	128.8	8.8	535.5
1975/1976	0	0	0	0	*	*	0	15.5	*	30.4	35.1	53.4	95.8	116.1	*	356.8
1976/1977	0	0	*	0	*	*	0	16.7	17.5	49.3	82.0	*	*	63.8	24.7	328.1
1977/1978	*	0	0	0	*	*	0	*	0	43.1	64.5	*	*	18.5	*	234.5
1978/1979	0	0	0	0	0	0	0	*	0	118.5	122.9	14.1	112.5	40.2	28.9	443.6
1979/1980	*	0	0	0	*	*	*	*	*	168.4	220.2	39.5	79.4	89.1	11.8	658.1
1980/1981	*	0	0	0	0	*	*	27.4	*	163.7	179.2	*	73.4	*	39.9	532.7
1981/1982	0	0	0	0	*	*	*	*	*	114.4	135.4	32.7	116.7	32.8	52.8	524.1
1982/1983	0	0	0	0	7.3	0	*	*	*	77.4	53.8	98.0	70.8	79.5	20.5	412.6
1983/1984	*	0	*	0	*	*	*	0	*	79.5	35.2	30.2	46.7	50.8	1.9	280.7
1984/1985	*	0	*	0	0	0	0	0	*	58.7	89.0	14.2	51.9	48.9	6.2	270.5
1985 - 1992	Fishery Closed															
1993/1994	0	0	0	0	0	*	0	*	2.4	29.6	76.9	38.9	22.7	10.3	20.9	202.4
1994/1995	0	0	0	0	*	0	0	*	*	69.5	113.5	24.8	21.8	13.4	6.6	256.3
1995/1996	0	0	0	0	0	0	0	*	*	169.7	142.2	*	13.1	18.8	6.3	357.8
1996/1997	0	0	0	0	0	0	0	*	1.5	176.7	206.2	2.2	18.3	18.0	*	428.5
1997/1998	0	0	0	0	0	0	0	*	1.4	76.7	184.2	*	*	25.3	8.0	308.3
1998/1999	Fishery Closed															
1999/2000	0	0	0	0	0	0	0	*	*	43.5	191.9	11.7	*	32.9	9.3	289.5
2000/2001	Fishery Closed															
2001/2002	0	0	0	0	0	0	0	*	*	83.0	147.9	5.9	*	41.6	15.5	297.0
2002/2003	0	0	0	0	0	0	0	*	*	69.2	96.1	10.0	*	41.6	11.4	233.6
2003/2004	0	0	0	0	0	0	0	*	*	64.0	98.2	4.1	*	19.8	7.5	193.8

-continued-

Table 1.2.–Page 2 of 2.

Season	Districts															Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
2004/2005								Fishery Closed								
2005/2006	0	0	0	0	0	0	0	*	1.3	67.8	109.9	5.7	*	4.9	16.7	209.8
2006 - 2010								Fishery Closed								
2011/2012	0	0	0	0	0	0	*	12.3	10.3	107.8	20.7	3.3	*	11.4	10.7	176.6
2012 - 2017								Fishery Closed								

* Fewer than 3 permits were fished; information is confidential.

Table 1.3–Red king crab stock health by survey area, 2014/15-2016/17 seasons. Long-term (l-t) scores are based on comparisons to the l-t average, defined from 1993 to 2007. Short-term (s-t) trends are based on individual regression analyses over the past 4 years including the current year. Total score is the sum of scores (+1, 0, -1 for l-t; +.25, 0, -.25 for s-t) for each response variable. For 2008, stock status is defined by the total score: <-1.5 = Poor, -1.5 to 1.5 = Moderate, and >1.5 = Healthy; for 2009 and 2010: <-4.25 = Poor, -4.25 to -1.75 = Below Average, -1.5 to 1.5 = Moderate, 1.75 to 4.25 = Above Average, and >4.25 = Healthy. Stock health for Holkham Bay is defined by the total score: <-1.75 = Poor, -1.75 to -0.75 = Below Average, -0.5 to 0.5 = Moderate, 0.75 to 1.75 = Above Average, and >1.75 = Healthy due to less available data. Holkham Bay and Port Frederick were removed from the survey areas in 2015 due to budget constraints.

Survey area	Season	CPUE												Total score	Stock health
		Large females		Small females		Juvenile males		Prerecruit males		Recruit males		Postrecruit males			
		l-t	s-t	l-t	s-t	l-t	s-t	l-t	s-t	l-t	s-t	l-t	s-t		
Pybus Bay	14/15	-1	-0.25	-1	0	-1	0	-1	0.25	-1	0.25	-1	-0.25	-5.00	Poor
	15/16	0	0.25	0	0	0	0	-1	0.25	-1	0.25	-1	0	-1.25	Moderate.
	16/17	-1	0	0	0.25	0	0	-1	0	-1	0	-1	0	-4.00	Below Ave.
Gambier Bay	14/15	-1	-0.25	-1	0	-1	0	-1	0	-1	0	-1	-0.25	-6.50	Poor
	15/16	-1	0	-1	0	-1	0	-1	0.25	0	0.25	-1	0	-3.50	Below Ave.
	16/17	-1	0.25	0	0	0	0	-1	0.25	-1	0	0	0.25	-2.00	Below Ave.
Seymour Canal	14/15	-1	0	-1	0	-1	0	0	0	-1	0	-1	0	-4.00	Below Ave.
	15/16	-1	0	-1	0	-1	0	-1	0	-1	0	-1	0	-5.00	Poor
	16/17	-1	0	-1	0	-1	0	0	0	-1	0	-1	0	-4.00	Below Ave.
Peril Strait	14/15	-1	-0.25	-1	0	-1	0	-1	0	0	0	-1	0	-4.25	Below Ave.
	15/16	-1	0	-1	0	-1	0	-1	0	-1	0	-1	0	-5.00	Poor
	16/17	-1	0.25	-1	0.25	-1	0	-1	0	-1	0	-1	0	-5.50	Poor
Juneau Area	14/15	-1	-0.25	-1	0	-1	0	-1	0.25	-1	0	0	0	-4.25	Below Ave.
	15/16	-1	0	-1	0	-1	0	-1	0.25	-1	0.25	0	0	-3.50	Below Ave.
	16/17	-1	0	0	0	-1	0	0	0.25	0	0.25	-1	0	-1.50	Moderate
Lynn Sisters	14/15	-1	0	-1	0	-1	0	-1	0	-1	0	-1	-0.25	-5.25	Poor
	15/16	-1	0	0	0	-1	0	-1	0	-1	0	-1	0	-4.00	Below Ave.
	16/17	-1	0	-1	0	-1	0	-1	0	-1	0	-1	0	-5.00	Poor
Excursion Inlet	14/15	-1	0	0	0.25	0	0.25	0	0	0	0.25	-1	0	-0.25	Moderate
	15/16	-1	0	-1	0	-1	0	-1	0	-1	0	-1	0	-4.75	Poor
	16/17	-1	0	-1	0	-1	0	-1	0	0	0	0	0	-4.00	Below Ave.
Port Frederick	14/15	-1	0	-1	0	-1	0	-1	0	-1	-0.25	-1	-0.25	-6.50	Poor
	15/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16/17	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Holkham Bay	14/15	-	-	-	-	-	-	-	-	-1	0	-1	0.00	--	-
	15/16	-	-	-	-	-	-	-	-	-	-	-	-	--	-
	16/17	-	-	-	-	-	-	-	-	-	-	-	-	--	-

Note: The department also monitors clutch fullness for mature females and considers that biological metric during the stock evaluation process.

Table 1.4—Biomass estimates and recommended exploitation rates and guideline harvest levels (GHLs) for 8 surveyed areas, 2014/15 through 2016/17 seasons. See the stock health determination matrix in Table 2.2 for a more detailed look at the data behind stock health determination. Recommended exploitation rates are 0% of estimated mature male biomass for Poor stock status, 5% for Below Average, 10% for Moderate, 15% for Above Average, and 20% for Healthy stock health. An expansion factor of 62.8% (65.2% in 2014) and an assumed blue king crab catch of 1% of total were used to determine the total regional crab biomass. This expansion factor was based on the percentage of commercial catch harvested in surveyed areas from 1978 to 2004. Port Frederick was removed from the survey areas in 2015 due to budget constraints.

Parameter	Season	Survey area									Blue king crab	Total
		Pybus Bay	Gambier Bay	Seymour Canal	Peril Strait	Juneau Area	Lynn Sisters	Excursion Inlet	Port Frederick	Other Areas		
Mature biomass	14/15	28,923	12,959	24,494	16,071	252,309	10,524	33,464	13,037	209,478	4,160	605,418
	15/16	40,552	29,013	31,477	10,185	297,526	9,399	20,147	-	260,138	4,654	703,093
	16/17	37,201	29,839	39,126	15,372	354,469	7,010	35,373	-	307,071	5,504	830,965
Legal biomass	14/15	17,635	9,414	6,698	9,949	188,000	8,501	12,976	11,734	141,642	2,813	409,362
	15/16	31,087	17,591	29,062	8,632	221,606	5,470	13,671	-	194,150	3,473	524,743
	16/17	34,200	24,059	28,849	7,853	253,308	5,108	17,184	-	219,504	3,935	594,000
Mature ER	14/15	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	-	-	-
	15/16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-
	16/17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-
Legal ER	14/15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-
	15/16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-
	16/17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-
Total GHL	14/15	0	0	0	0	0	0	0	0	-	-	-
	15/16	0	0	0	0	0	0	0	0	-	-	-
	16/17	0	0	0	0	0	0	0	0	-	-	-
Personal use catch	14/15	0	0	0	0	0	0	0	0	-	-	-
	15/16	0	0	0	0	0	0	0	0	-	-	-
	16/17	0	0	0	0	0	0	0	0	-	-	-
Commercial GHL	14/15	0	0	0	0	0	0	0	0	0	0	0
	15/16	0	0	0	0	0	0	0	0	0	0	0
	16/17	0	0	0	0	0	0	0	0	0	0	0

Table 1.5–Summary of commercial red king crab length frequency and shell condition data collected during dockside sampling in Registration Area A (Southeast Alaska), 1970/71 to present.

Season	Number of sampled		Carapace length (mm)			Recruitment				Skip molts ^f	
	Boats	Crab	Average	Range	Recruits ^a	%PR+1 ^b	%PR+2 ^c	%PR+3 ^d	%PR+4 ^e		
1970/1971	29	2,264	161	138–201	40.2	39.6	18.3	1.9	0	28.5	
1971/1972	10	742	160.2	134–203	47.7	33	14.9	4.1	0.3	24.4	
1972/1973	30	3,032	158.7	133–205	53.5	32.5	11.5	2.4	0.1	20.5	
1973/1974	15	1,438	161.6	140–208	27.6	52.5	17.6	2.1	0.2	39.7	
1974/1975	20	2,181	166.3	137–200	27.6	47.4	21.3	3.8	0	18.6	
1975/1976	21	1,969	160.3	135–207	49	29.6	16.6	4.7	0.2	22.2	
1976/1977	18	1,460	160.6	115–204	50.1	33	11.9	4.5	0.6	21.4	
1977/1978	32	3,161	156.7	136–203	29.7	40.2	20.4	9.5	0.2	67.9	
1978/1979	18	1,712	155.4	137–202	61.5	28.7	8.5	1.1	0.1	22.9	
1979/1980	30	3,082	156.1	137–193	55.5	31	11.6	1.9	0	29.1	
1980/1981	49	4,103	156.3	134–196	53	34.7	10.8	1.4	0	29.5	
1981/1982	37	3,425	158.8	123–199	47.1	35	15.4	2.5	0	30.6	
1982/1983	30	2,821	159.4	137–200	46	33.6	15.5	4.9	0	30.5	
1983/1984	42	3,521	158.4	137–196	51.9	33.9	11.7	2.6	0	24.9	
1984/1985	36	3,641	159.6	139–196	48.3	37.9	12.3	1.5	0	22.6	
1985–1992					Fishery Closed						
1993/1994	116	8,601	162.9	103–209	30.5	46.5	19.4	3.6	0	30.3	
1994/1995	124	7,974	162.8	90–209	34.5	33.1	23.4	9	0.1	36.9	
1995/1996	73	5,882	159.4	96–204	56.2	30.1	9.5	4.2	0.1	17.8	
1996/1997	132	7,744	161.5	113–212	38.6	44	12.9	4.4	0.2	28.8	
1997/1998	111	5,919	164.4	122–207	28.2	44	23.4	4.5	0	33.6	
1998/1999					Fishery Closed						
1999/2000	136	6,320	161.1	135–199	44.5	29.7	17.9	7.9	0.1	34.1	
2000/2001					Fishery Closed						
2001/2002	105	5,162	160.1	135–195	40.4	43	15.2	1.4	0	31.4	
2002/2003	66	3,217	161.4	138–194	41.4	37.7	18.4	2.5	0	28.5	
2003/2004	53	2,619	159.9	138–195	49.4	34.6	13.7	2.3	0	23.6	
2004/2005					Fishery Closed						

-continued-

Table 1.5–Page 2 of 2.

Season	Number of sampled		Carapace length (mm)			Recruitment				Skip molts ^f
	Boats	Crab	Average	Range	Recruits ^a	%PR+1 ^b	%PR+2 ^c	%PR+3 ^d	%PR+4 ^e	
2005/06	58	2,873	163.7	139–206	29.6	41.2	24.9	4	0.2	38
2006 - 2010	Fishery Closed									
2011/12	66	3,194	166.1	141-201	18.77	81.23				
2012 -2017	Fishery Closed									

Note: Recruitment is expressed as a percentage of the given size classes.

^a Recruits = all new- and soft-shell crab ≥ 145 mm and ≤ 161 mm carapace length.

^b PR + 1 = all new- and soft-shell crab ≥ 162 mm and ≤ 178 mm, and old-shell crab ≥ 145 mm and ≤ 161 mm carapace length.

^c PR + 2 = all new- and soft-shell crab ≥ 179 mm and ≤ 195 mm, old-shell crab ≥ 162 mm and ≤ 178 mm, and very old ≥ 145 mm and ≤ 161 mm carapace length.

^d PR + 3 = all new- and soft-shell crab ≥ 196 mm and all old ≥ 179 mm and ≤ 195 mm, and very old ≥ 162 mm and ≤ 178 mm carapace length.

^e PR + 4 = all old and very old with carapace length ≥ 196 mm.

^f Skip molts = all old and very old crab.

Table 1.6–Summary of commercial red king crab CPUE and average weight data collected during dockside sampling and interviews in Registration Area A (Southeast Alaska), 1970/71 to present.

Season	Number			Average catch/pot	Range of catch/pot	Weight (lb)		Estimated no. crab caught	% catch sampled
	Boats interviewed	Pots	Crab			Average	Range		
1970/1971	1	–	–	–	–	8.6	–	45,276	5
1971/1972	–	–	–	–	–	–	–	–	–
1972/1973	–	–	–	–	–	–	–	–	–
1973/1974	–	–	–	–	–	–	–	–	–
1974/1975	–	–	–	–	–	–	–	–	–
1975/1976	2	–	–	–	–	8.4	7.5–9.2	42,523	4.6
1976/1977	5	–	–	–	–	8	7.3–10.1	40,865	3.6
1977/1978	15	–	–	–	–	7.5	6.9–9.8	31,391	10.1
1978/1979	8	–	–	–	–	7.2	6.3–8.7	61,788	2.8
1979/1980	4	–	–	–	–	7.4	6.6–7.9	88,931	3.5
1980/1981	41	5,345	29,897	5.6	1.0–14.5	7.2	6.4–8.2	74,292	5.5
1981/1982	19	600	900	1.5	–	7.2	6.5–8.7	72,692	4.7
1982/1983	23	1,542	6,449	4.2	1.3–7.6	7.7	6.6–8.5	52,388	5.4
1983/1984	29	3,693	4,165	1.1	0.2–4.3	7	5.5–8.5	40,034	8.8
1984/1985	27	1,334	3,893	2.9	1.6–6.3	7.4	6.7–8.5	35,826	10.2
1985–1992					Fishery Closed				
1993/1994	114	10,158	17,749	1.8	0.0–6.2	8.1	5.8–9.6	25,110	34.3
1994/1995	120	9,087	15,063	1.7	0.0–7.8	8	6.2–10.3	31,914	25
1995/1996	73	5,350	16,676	3.1	0.5–9.6	7.5	5.5–8.7	47,900	12.3
1996/1997	129	11,958	36,449	3.1	0.4–11.5	7.8	6.3–9.6	54,662	14.2
1997/1998	111	8,236	24,079	2.9	0.3–12.0	8.3	5.7–9.8	37,103	16
1998/1999					Fishery Closed				
1999/2000	136	12,003	26,733	2.2	0.2–18.4	7.6	5.5–10.0	38,098	16.6
2000/2001					Fishery Closed				
2001/2002	105	8,445	27,709	3.3	0.4–10.0	7.7	6.1–8.6	38,819	13.3
2002/2003	66	4,213	14,489	3.4	0.5–10.8	7.9	6.6–9.2	29,686	10.8
2003/2004	53	3,350	16,666	5	1.4–14.5	7.7	6.3–8.9	25,262	10.4
2004/2005					Fishery Closed				
2005/2006	58	5,261	20,054	3.8	0.9–10.4	8	7.0–9.8	26,192	11
2006 - 2010					Fishery Closed				

-continued-

Table 1.6–Page 2 of 2.

Season	Number			Average catch/pot	Range of catch/pot	Weight (lb)		Estimated no. crab caught	% catch sampled
	Boats Interviewed	Pots	Crab			Average	Range		
2011/2012	66	6,110	15,978	2.62	0.1–19.1	8.45	7.24–10.12	20,838	15.3
2012–2017	Fishery Closed								

– = data not available.

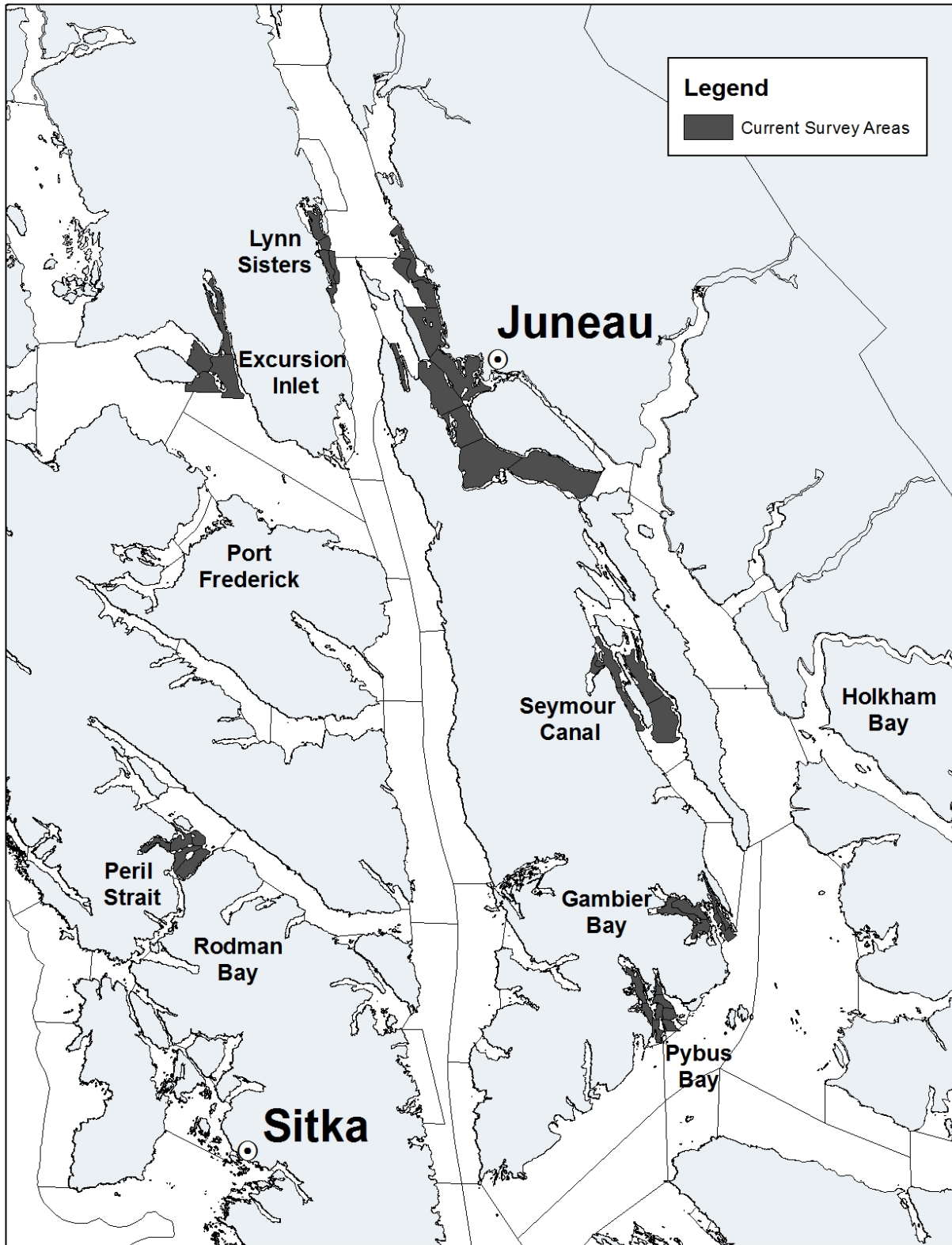


Figure 1.1–Map showing 2017 red king crab survey areas in Southeast Alaska. In 2015 Port Frederick and Holkham Bay were removed as survey areas.

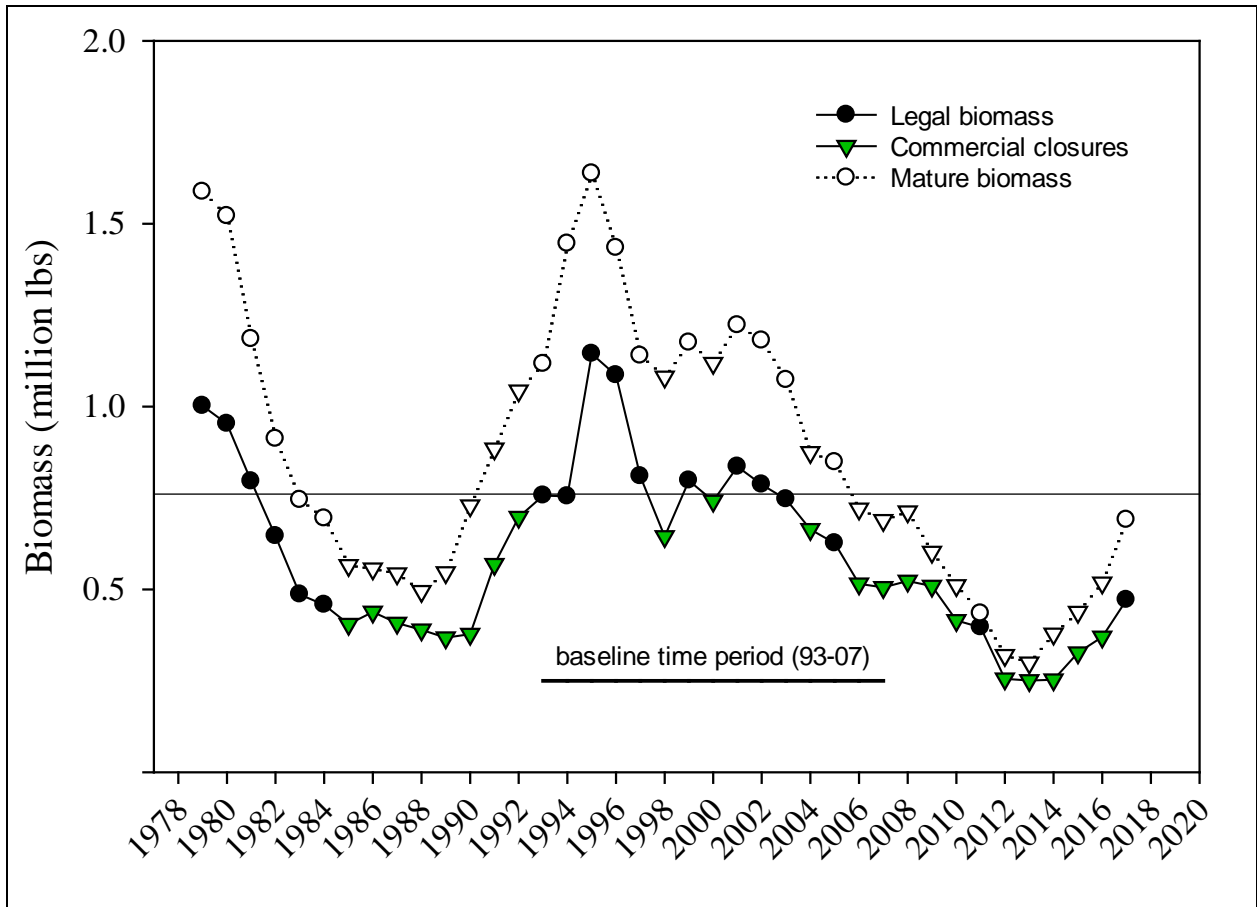


Figure 1.2—Total biomass estimates of mature and legal red king crab for surveyed areas in Southeast Alaska. Estimates based on Catch-Survey Analysis (CSA) methodologies. This does not include Holkham Bay or non-surveyed areas. Reference line represents long-term (1993–2007) average legal biomass estimate. Triangles represent years in which there was a commercial harvest closure.

CHAPTER 2: YAKUTAT RED AND BLUE KING CRAB FISHERY

INTRODUCTION

This chapter describes the commercial red and blue king crab fisheries in the Yakutat area (Registration Area D). Red king crab *P. camtschaticus* and blue king crab *P. platypus* are harvested in small numbers during a season from October 24 through December 31. Harvest is limited by low abundance of both species in the Yakutat area.

Yakutat is a nonexclusive area, and the king crab fishery is not under limited entry. Depending on the circumstances in other crab fisheries in the state, the fishery attracts skiffs as well as an occasional Bering Sea-class crabber. However, most of the participating vessels are small vessels locally based in Yakutat. Fishing effort is limited by severe winter weather in Yakutat Bay and its associated fjords.

The current red and blue king crab management approach is to avoid fishing during sensitive life history stages, to harvest only male crab, and to require a minimum legal CW of 7 inches for red and blue king crab.

FISHERY DEVELOPMENT AND HISTORY

Harvest and effort in this fishery has been relatively low and intermittent. Since 1972, there have been reported harvests during 21 seasons, with a maximum of 4 participating vessels, and resulting harvests have averaged 3,000 lb (Table 2.1). The highest seasonal harvest on record totaled less than 20,000 lb during the 1980/81 season. Both red and blue king crab have been landed. The harvest peak in the 1980s was of primarily red king crab, although more recent seasons' harvests, peaking in the early 1990s, have consisted of a larger proportion of blue king crab.

REGULATION DEVELOPMENT

FISHING SEASONS

Starting in 1962, a season lasting throughout the entire calendar year was established by regulation. In 1969 the season was shortened to August 15–March 15. In 1970 the season length was tied into a maximum harvest of 1.5 million lb combined from Registration Areas A and D. In 1971 the season was from September 1 to January 31 or until 400,000 lb of red king crab were taken in Registration Areas A and D combined. The season remained the same but the harvest ceiling was raised to 600,000 lb in 1974. The season was shortened in 1981 to October 1–January 31 and in 1983 to November 15–January 24. In 1984 the season was changed to October 10–January 24 and again in 1985 to November 15–January 24. Finally, the existing fishing season of October 24–December 31 was established in August of 1999, and the 1999/00 season opened on October 24, 1999.

SEX AND SIZE LIMITS

This fishery has been restricted to harvesting only male crab in order to protect the reproductively important female crab. The minimum legal size was 6.5 inches in CW from 1960 to 1971 and was changed to 7 inches beginning in 1972. The limit was lowered back to 6.5 inches in 1979 for blue king crab in response to information from other locations in the state. In 2015 the minimum legal size of blue king crab was increased from 6.5 inches CW to 7 inches CW due to low harvests and the long reproductive cycles of blue king crab.

QUOTAS AND GUIDELINE HARVEST RANGES

In 1970, a quota of 1.5 million lb was provided for king crab, all species (red, blue, and golden) combined, for Southeast Alaska and Yakutat. The first red and blue king crab quota was set in 1971 at 400,000 lb per season for Southeast Alaska and Yakutat combined. This was increased to 600,000 lb in 1974 and then incorporated into a GHR of 300,000 to 600,000 lb in 1979. In 1982, a GHL of 40,000 lb was established specifically for Yakutat. Harvest has never approached this level. In 2005, a GHR of 0 to 20,000 lb was adopted in regulation.

FISHING GEAR

Starting in 1962, only pots could be used in the Yakutat king crab fishery. In 1969, pot storage requirements were developed. Buoys were required to display the license number of the vessel operating the gear. In 1971, a limit of 40 pots per vessel was established for Yakutat waters. The maximum number of pots per vessel that could be set in Yakutat Bay was increased to 60 in 1974 and to 100 in 1976. Rigid tunnels were required with a minimum size of 5 inches in one dimension and a total perimeter greater than 30 inches. In 1978 an escape panel, sewn with no greater than 120-count cotton or linen thread, was required to minimize ghost fishing of lost gear. Buoy stickers for pots fished in Yakutat Bay were implemented in 1979 and pot storage was permitted in waters less than 25 fathoms deep, with doors open and bait removed.

In-water gear storage was not allowed from May 1 to August 31 in 1981 and 1982. Side-loading pots were prohibited in Yakutat waters beginning on January 1, 1983. Pot storage requirements were changed so that all gear needed to be removed from the water within 7 days of the closure of the 1983/84 season. Starting in 1985, pot gear could not be used for 14 days prior to the season opening date by crabbers intending to fish for red and blue king crab. Pots could be stored all year in waters of Russell Fjord. In 1988, escape panels were required to be fastened with no greater than 30-count cotton thread.

In 2015 the board passed multiple proposals pertaining to Yakutat king crab. After December 31, 2017, king crab may not be taken with pots that have tunnel eye openings located on the vertical plane of the pot (i.e., square pots). In the waters of Russell Fjord and Yakutat Bay a pot reduction proposal was passed changing the pot limit from 100 pots to 40 pots. Logbooks and reporting requirements were also implemented for king crab fishing in all of Registration Area D.

RECENT COMMERCIAL SEASONS

Stock assessment surveys are not conducted in the Yakutat area. The average harvest in the 1990s was approximately 3,000 lb. There are some seasons when no harvests were reported (Table 2.1). The last season with reported harvest was 2000/01, when 391 lb were harvested by 3 permit holders. One vessel registered for the 2013/14 season, but no fishing occurred.

2017/2018 SEASON OUTLOOK

Fishing opportunities are provided by regulation. Past fishing efforts and harvests have been limited, resulting in harvests far below the upper range of the GHR. Despite the fact that the season has remained open, there has been no effort or harvest since the 2000/01 season. A GHL of 5,000 lb was established for the 2017/18 season.

CHAPTER 2—TABLE

Table 2.1–Red and blue king crab harvest (combined), number of permits and number of landings by season in Registration Area D, 1972/73 to present.

Season	Harvest (lb)	Permits	Landings
1972/1973	*	1	*
1973/1974		No Harvest	
1974/1975	*	1	*
1975/1976		No Harvest	
1976/1977		No Harvest	
1977/1978	*	2	*
1978/1979	*	1	*
1979/1980	13,915	4	17
1980/1981	18,652	3	5
1981/1982	*	2	*
1982/1983	4,118	4	14
1983/1984	1,248	4	4
1984/1985		No Harvest	
1985/1986	*	2	*
1986–1990		No Harvest	
1990/1991	*	2	*
1991/1992	1,216	3	*
1992/1993	*	2	*
1993/1994	7,378	3	8
1994/1995	2,174	3	7
1995/1996	4,276	3	18
1996/1997	4,467	3	17
1997/1998	4,208	3	13
1998/1999	2,053	4	10
1999/2000	*	1	*
2000/2001	391	3	4
2001- 2017		No Harvest	

* Fewer than 3 permits were fished; information is confidential.

CHAPTER 3: SOUTHEAST ALASKA PERSONAL USE RED AND BLUE KING CRAB FISHERY

INTRODUCTION

This chapter discusses the Southeast Alaska personal use king crab fishery, with special attention focused on the Section 11-A (Juneau area, Figure 3.1) personal use fishery. Harvest and management actions in the commercial fishery are also discussed as they relate to the personal use fishery. This report provides background information on general regulation development, recent allocation guidelines, management tools available, recent management actions, and catch and effort statistics.

The personal use king crab fishery developed from the subsistence fishery. Current management of the Southeast Alaska stocks is accomplished using a mixture of commercial and personal use regulations (Table 3.1). The Section 11-A fishery is conducted according to a management and allocation plan adopted by the board during the 1995/96 meeting cycle and modified in subsequent board sessions. Commercial fish ticket data are available to determine commercial harvests. Personal use permits in Section 11-A, sport fishing creel census data, sport fishing statewide harvest survey data, and phone survey results have provided estimates of the noncommercial harvest of the king crab resource.

Initially, noncommercial king crab fishing by Alaska residents occurred under subsistence regulations. Regulation changes affecting the noncommercial fishery occurred in various portions of the commercial, subsistence, and personal use regulations. The changes involve urban and rural preference in subsistence regulations, development of the personal use regulations, closed waters in the commercial regulations, and development of the management and allocation plan in the commercial regulations. Prior to 1988, the definitions of *urban* versus *rural* occurred in the subsistence regulations. In Southeast Alaska the cities of Juneau, Sitka, and Ketchikan were classified as urban areas, with all other locations classified as rural areas. The board subsequently provided for a personal use fishery in the urban areas to replace the lost subsistence opportunities.

The board has not recognized customary and traditional subsistence use of king crab resources in Southeast Alaska. Currently all noncommercial utilization occurs under personal use regulations. Given the limited king crab resources available, there has been no allocation for sport users and there is no sport fishery for king crab. The board did adopt a customary and traditional use finding for shellfish, including king crab, in the waters of Yakutat Bay.

In Section 11-A, the personal use and commercial fisheries are allocated 60% and 40% respectively of any harvestable surplus in the area. Personal use harvests in Section 11-A peaked in 2003/04 with a harvest of 11,963 crab; harvests of over 10,000 crab occurred in 1993/94, 2003/04, 2004/05, and 2005/06 (Table 3.2); the long-term average is 6,436 crab.

FISHERY DEVELOPMENT AND HISTORY

SECTION 11-A

Management and Harvest Trends

Personal use king crab harvests in Section 11-A have been estimated by several methods over time. From 1988 to 2007, ADF&G Division of Sport Fish creel survey programs were conducted in the Juneau area, and the annual statewide harvest survey (SWHS) has been conducted since 1977. Since 1996/97, Section 11-A harvests have also been monitored by a personal use permit program and periodic phone surveys. These data indicate that the personal use harvest in Section 11-A area increased significantly from the late 1980s to 10,799 crab in the 1993/94 season (Table 3.2). Restrictions in the number of crab per person and pots per boat and resumption of commercial fishing in the area resulted in a decrease in personal use harvest to 5,540 crab by the 1995/96 season. An allocation plan was implemented in 1996/97. Increases in personal use harvests to 11,963 crab in the 2003/04 season were due to an increase in the abundance of legal red king crab in the Juneau area, commercial fishery closures, and reallocation to personal use fishermen when the commercial GHF was below the threshold for a commercial fishery. The reallocation provision was repealed by the board in 2009. Documented personal use harvests of king crab in other areas of the region peaked at 5,295 crab in the 1998/99 season (Table 3.2).

The regionwide commercial fishery reopened in the 1993/94 season and was closed for the 1998/99, 2000/01, 2004/05, 2006/07 through 2010/11, and 2012/13 through 2016/17 seasons. Since the allocation plan was adopted in 1996/97, there has been a varying degree of participation in the Section 11-A commercial fishery. From 1996/97 through the 1999/00 season, an average of 13 permits participated in the Section 11-A commercial fishery. There was an increase in commercial effort in Section 11-A in the 2001/02 through 2005/06 seasons, with an average of 29 permits fishing in the Juneau area. In the 2011/12 season, 7 permits participated in Section 11-A. Since the 40% allocation to the commercial fishery was adopted, the commercial harvest has averaged 39% of the total harvest in Section 11-A for years when the commercial fishery was opened.

Personal Use Permits and Bag Limits

A detailed history of regulatory changes and management actions for red and blue king crab fisheries in Section 11-A is provided in Table 3.3. Permit procedures and bag and possession limits have been revised each season in an effort to more precisely achieve allocation and management objectives specified in the Section 11-A red and blue king crab management and allocation plan (5 AAC 34.111). Many of the management actions taken for the personal use fisheries were to comply with the board's direction to have the summer and winter personal use seasons last as long as possible.

In the 1995/96 season, a bag and possession limit of three crab per individual was implemented with no seasonal limit. In the 1996/97 season, separate summer and winter individual permits were issued for the personal use king crab fishery. In the 1997/98 season, household permits replaced individual permits to simplify the permitting and reporting process. The bag and possession limit was decreased to two crab per person in order to keep the fishery open for the entire season. A combined summer/winter limit of 20 crab per household permit, or 10 crab per household when the household was a single person, was put in effect for the 1998/99 fishery. The purpose of the seasonal bag limit was to ensure that anyone wanting to fish in the winter

season could do so without fear that the season would close early. This same type of permit has been used since the 1999/00 season.

Following board action, harvest reallocation from commercial to personal use resulted in a 2000/01 summer bag limit of three crab per person and a limit of 40 crab per household permit, or 20 crab per household when the household was a single person. Winter limits decreased to two crab per person and a limit of 20 crab per household permit, or 10 crab per household when the household was a single person. In the 2001/02 season, limits were reduced to two crab per person and a limit of 20 crab per household permit, or 10 crab per household when the household was a single person for both summer and winter season.

For the 2003/04 season, the restriction on households of one person was removed and the summer permit limits were two crab per person and a limit of 20 crab per household, and the winter limit was one crab per person and a limit of 20 crab per household. No adjustments to bag and seasonal limits were made in the 2004/05 season. The summer fishery opened with a bag limit of two crab per person and a seasonal limit of 20 crab per household. It was determined in early September that the available harvest for the commercial fishery did not meet the 200,000 lb regionwide threshold level and the fishery would not open (5 AAC 34.113). The allowable commercial harvest for Section 11-A was then reallocated to the personal use fishery. This allowed the summer personal use fishery to stay open for the entire season, closing on September 30, 2004. The winter fishery reopened on October 1, 2004, with a bag limit of one crab per permit and a seasonal limit of 20 crab per household.

The 2005/06 season had similar permit limits, and although a commercial fishery was opened in the waters of Southeast Alaska, portions of the Section 11-A area remained closed to commercial fishing. In the 2006/07 season, the summer fishery continued with the bag limit of two crab per person and the seasonal limit of 20 crab per household, and the season closed September 17. There were no commercial openings for red and blue king crab in Southeast Alaska in the 2006/07 season, and the commercial allocation was reallocated to the personal use fishery. When the winter season opened, the permit limits were reduced to one crab per person with a season limit of six crab per household. In the 2007/08 season, the bag limit of two crab per person remained for the summer season, but the seasonal limit was reduced to 10 crab per household, and the season closed on July 14, when analysis of the annual survey data indicated that no harvestable surplus was available. The winter fishery did not open, and the fishery remained closed for the 2008/09 and 2009/10 seasons.

In early 2009, the board repealed the provision requiring the reallocation of the commercial fishery allocation to the personal use fishery. Since that time, the commercial allocation has not been harvested when the threshold for a commercial fishery is not met. Section 11-A management actions for the three most recent seasons are detailed in the Recent Seasons section below.

After a two-season closure, 1,834 permits were issued in the 2010/11 season, with a bag and seasonal permit limit of two crabs per household for the five day summer season. The winter fishery was managed inseason with a bag limit of one crab and a seasonal limit of two crab per household permit. In the 2011/12 season, 2,053 permits were issued with a bag and seasonal permit limit of two crabs per household permit for the five day summer season. The winter fishery was managed inseason with a bag and seasonal limit of two crab per household permit.

After a five-season closure, 1,349 were issued for the 2017/18 summer season with a bag and seasonal permit limit of two crabs per household for the five day summer season. The winter fishery was managed inseason with a bag limit of two crab and a seasonal limit of six crab per household permit.

The total number of Section 11-A personal use permits issued each season (Table 3.4) increased from 1,418 in the 1997/98 season to 3,313 in the 2003/04 season, and then declined to 1,250 in the 2007/08 season as abundance and permit limits declined. After a two-season closure, 1,834 permits were issued in the 2010/11 season, increasing to 2,053 permits in 2011/12. The number of permits returned ranged from 66.1 % of the issued permits in the 1997/98 season to 95.6% in the 2011/12 season. Total personal use harvest is estimated by expanding the reported catch rates on returned permits across half of the non-returned permits (assuming that the other half was permits with no harvest). The total estimated personal use harvests range from a low of 1,477 crab taken in 2010/11 to 11,963 crab taken in 2003/04 (Table 3.4). The majority of crab are harvested by pot gear in the summer season, with 5% to 19% of the winter harvest being taken by divers, and up to 31% taken with ring nets.

GHL, Harvest, and Gear

For the Juneau area, the total allowable harvest has ranged from 0 crab in closed seasons to nearly 18,000 crab in 2001/02 (Table 3.5). The ability to accurately attain the allocated harvest varies and generally requires intensive management oversight. Personal use harvests have ranged from 82% to 175% of the specified allocation.

Management Considerations

Management of both the personal use and commercial fisheries in Section 11-A requires significant staff effort and resources to achieve target harvest levels, especially when king crab allocations are small. The development of computer-generated permits and e-mail surveys in the Section 11-A fishery has reduced staff workload for this fishery in the last three open seasons.

Personal use effort is variable and depends on weather and catch rates. Because permits are required to be returned at the end of the season with catch and effort information completed, these data are not available to assist with inseason management. In order to obtain inseason catch estimates to determine if the harvest is approaching the allocation, the department has used two survey methods in recent seasons: random phone surveys and e-mail surveys.

In the commercial fishery, 31 commercial boats harvested an estimated 6,089 crab in 17 days in 1994/95. Effort decreased to six boats harvesting 673 crab in four days the following year. This increased to 16 boats harvesting 11,173 crab in nine days in 1999/00. This season was characterized by a number of boats retaining their crab onboard until a closure was announced, and unobserved increases in effort and harvest rates in the last days of the fishery. This resulted in harvests totaling over two times the target GHL for Section 11-A. In the 2003/04 commercial fishery, a total of 30 boats aggressively fished for the GHL of 6,462 crab. Management actions including multiple aerial surveys and daily call-in of logbook data resulted in accurate projection of a closure date and a commercial harvest that was only 536 crab over the GHL in a four-day fishery. During the 2005/06 season, 24 permits fished for 13 days and harvested 7,079 crab, 99% of the total allocation. During the 2011/12 season, 7 permits fished for 24 hours and landed 960 crab, 112% of the commercial allocation.

OTHER AREAS

Management and Harvest Trends

Personal use king crab harvests in waters outside of Section 11-A are poorly documented and almost certainly underestimated. Currently, the only source of information is the SWHS. This survey is sent annually to a randomly selected sample of 14,000 residents and nonresidents who purchase fishing licenses. The SWHS is designed to estimate sport harvest and specifically asks respondents not to include personal use harvest. Since there are no sport fisheries for king crab in Southeast Alaska, all reported king crab harvest is assumed to be personal use. A comparison of the SWHS with the Section 11-A personal use permit data suggests that it underestimates the annual personal use harvest (Table 3.6). The SWHS does not differentiate between the three species of king crab. For these reasons it is of limited value in providing reliable estimates of personal use red king crab harvest in Southeast Alaska.

Over the years, various personal use closures have been implemented in areas where the red king crab survey indicates that stock status is poor. These are always associated with simultaneous commercial closures of the area (Table 3.1). The first such personal use closures were of Pybus Bay and Peril Strait areas in October of 1998. Pybus Bay reopened in October of 1999, but Peril Strait remained closed. Subsequently in September 2000, both Pybus Bay and Seymour Canal areas closed, and Peril Strait remained closed. In 2001 Pybus Bay, Seymour Canal, and Deadman Reach-Ushk Bay reopened on September 6, 2001, while Rodman Bay remained closed. In 2002, Rodman Bay remained closed. In September 2003, Peril Strait and Port Frederick were closed to personal use fishing. In September 2004, Seymour Canal also closed to personal use king crab fishing and Peril Strait and Port Frederick remained closed. Port Frederick and Seymour Canal have remained closed due to poor stock status ever since. Peril Strait reopened for the winter seasons in 2005/06 and 2006/07.

The red and blue king crab personal use fishery outside of Section 11-A was closed in October 2007 due to poor stock health in five of the eight surveyed areas, a steady decline in estimated mature male biomass, and the lowest estimated mature biomass level in the last 14 years. The 2008 red and blue king crab personal use fishery remained closed outside of Section 11-A based on 2008 red king crab stock assessment survey results. That survey indicated poor stock health in all eight survey areas outside of Section 11-A, a continued decline in mature male biomass regionwide, an estimated mature biomass at the second lowest level in the past 15 years, and continued low abundance of female and juvenile male red king crab in nearly all surveyed areas. That survey also indicated a slight increase in mature male abundance, fueled largely by carryover of legal males to postrecruit status.

The board modified Southeastern Alaska Area personal use red and blue king crab fishery regulations in January 2009. The changes included a provision providing the department authority to establish reduced bag and possession limits to allow additional red king crab fishing opportunity during periods of decreased abundance. Using this authority, the department reopened the red and blue king crab personal use fishery in some areas outside of Section 11-A with a reduced bag limit on July 29, 2009, the day the regulation changes from the 2009 board meeting became effective. At the time of this opening the department had not finalized results of the 2009 red king crab stock assessment survey outside of Section 11-A, so the decision to reopen the red and blue king crab personal use fishery was based on 2008 red king crab stock assessment survey results.

In September 2009, the department completed analysis of the 2009 red and blue king crab stock assessment survey outside of Section 11-A. Five of the eight survey areas outside of Section 11-A exhibited poor stock health. The stock assessment survey indicated a lack of recruitment to the mature male segment of the population; however, an increase in postrecruit crab abundance was observed in several of the surveyed areas. Three survey areas previously closed (St. James Bay, Gambier Bay, and Peril Strait) showed signs of improvement in stock health and were reopened by emergency order in October 2009 with a reduced bag limit of two red and blue king crab in combination.

The red and blue king crab personal use fishery opened outside of Section 11-A by regulation on July 1, 2010, in St. James Bay, Gambier Bay, and Peril Strait with a reduced bag and possession limit of two red and blue king crab in combination for non-surveyed areas and surveyed areas, based on 2009 survey results. The department completed analysis of 2010 red king crab stock assessment survey data in late summer of 2010 and, based on results of that survey, categorized stock health as poor in five of the eight surveyed areas outside of Section 11-A. Stock status in Peril Strait, previously categorized as below average, was downgraded to poor in 2010, and that area was closed for personal use red and blue king crab fishing on October 1, 2010. Stock status in Excursion Inlet no longer exhibited poor stock health, and Excursion Inlet was reopened to personal use red and blue king crab fishing on November 1, 2010. The red and blue king crab personal use fishery outside of Section 11-A was closed by regulation on March 31, 2011.

The red and blue king crab personal use fishery opened by regulation on July 1, 2011, in the same areas with a reduced bag and possession limit of two red and blue king crab in combination for non-surveyed and surveyed areas, based on 2010 survey results. In Section 11-A, CPUE data from the red king crab stock assessment survey in the Juneau area allowed for a personal use harvest similar to the prior year. The Section 11-A personal use red and blue king crab fishery was opened for five days in July with a bag and possession limit of two king crab per person, a seasonal limit of two king crab per household, and a pot limit of one pot per vessel (as described in greater detail in previous sections). The department completed analysis of the 2011 red king crab stock assessment survey and red king crab mark/recapture project in late summer 2011. The 2011 red king crab stock assessment survey indicated that the regionwide harvestable biomass of mature red and blue king crab exceeded 200,000 lb; stock health in Seymour Canal remained poor; stock health in Peril Strait and Port Frederick were well below average; and stock status in all other survey areas and non-survey areas was adequate to sustain personal use harvest in 2011. According to 5 AAC 77.664(a) (1), the bag and possession limit outside of Sections 11-A, 12-B, 15-B, and 15-C is six king crab per person when the harvestable biomass of mature red and blue king crab exceeds 200,000 lb. According to 5 AAC 77.664(b), the bag and possession limit in Sections 12-B, 15-B, and 15-C is three king crab per person when the harvestable biomass of mature red and blue king crab exceeds 200,000 lb. Given a harvestable biomass of mature red and blue king crab exceeding 200,000 lb, the department issued an emergency order to set these new bag and possession limits for open areas outside of Section 11-A, and also opened Holkham Bay and Pybus Bay to personal use red and blue king crab fishing, effective November 1, 2011. The red and blue king crab personal use fishery outside of Section 11-A was closed by regulation on March 31, 2012.

The red and blue king crab personal use fishery opened by regulation on July 1, 2012, with bag and possession limits outside of Sections 11-A, 12-B, 15-B, and 15-C at six king crab per person. Bag and possession limits in Sections 12-B, 15-B, and 15-C were set at three king crab per

person, and closures of personal use red and blue king crab fishing in Seymour Canal, Peril Strait, and Port Frederick were maintained based on 2011 survey results. Data from the red king crab stock assessment survey in the Juneau area showed a reduction in postrecruit CPUE in the Juneau area, along with all other size/sex classes well below their long-term averages. The exploitable biomass in the Juneau area was at a level that did not allow for any kind of personal use harvest, and the fishery was closed by emergency order. The department completed analysis of the 2012 red king crab stock assessment survey and red king crab mark-recapture project in late summer 2012. The 2012 red king crab stock assessment survey indicated that the regionwide harvestable biomass of mature red and blue king crab was well below 200,000 lb. Stock health in Seymour Canal remained poor, and the area was kept closed to personal use fishing. Stocks in Peril Strait and Port Frederick declined to poor in 2012, and both areas were kept closed. Stock health in Lynn Sisters and Excursion Inlet declined to poor, and those areas were closed October 1, 2012. Stocks in the other survey areas (Pybus Bay and Gambier Bay) and in the non-survey areas (including Holkham Bay) appeared capable of withstanding some level of harvest, but with the stock health in survey areas combined generally considered to have recently declined to well below average at best, stocks in non-surveyed areas were considered likely to be exhibiting the same trends in stock health. For these stock health concerns with Pybus Bay, Gambier Bay, and the non-surveyed areas, the bag and possession limits were reduced substantially to one red or blue king crab per day to allow a personal use harvest opportunity at a low level of intensity. The red and blue king crab personal use fishery outside of Section 11-A was closed by regulation on March 31, 2013.

The red and blue king crab personal use fishery opened by regulation on July 1, 2013, in Pybus Bay, Gambier Bay, and non-surveyed areas with bag and possession limits of one red or blue king crab per day. Data from the 2013 red king crab stock assessment survey in the Juneau area were very similar to the previous survey showing a reduction in postrecruit CPUE, joining all other size/sex classes well below their long-term averages. The exploitable biomass in the Juneau area was at a level that did not allow for any kind of personal use harvest, and the fishery was closed by emergency order. The department completed analysis of the 2013 red king crab stock assessment survey and red king crab mark-recapture project in late summer 2013. The 2013 red king crab stock assessment survey indicated that the regionwide harvestable biomass of mature red and blue king crab was well below 200,000 lb. Stock health in Seymour Canal remained poor and the area was kept closed to personal use fishing. Stock health in Peril Strait, Port Frederick, and Lynn Sisters remained poor in 2013, and these areas were kept closed. Stock health in Excursion Inlet improved slightly, but all indications were that stock health was well below average, so it was kept closed. Gambier Bay stock health declined to poor and was closed to fishing. Pybus Bay stock health declined from the previous season, and the mature male biomass estimate declined markedly, so Pybus Bay was closed to fishing. Although the department was still unable to produce a mature male biomass estimate for Holkham Bay, all indications were that stock health was poor, and the area was closed to fishing. Non-surveyed areas had an estimated harvestable surplus and were kept open with a minimal bag and possession limit.

In some areas, personal use harvests may exceed commercial harvests and are partially responsible for declines in abundance. A better understanding of the effects of personal use fisheries on areas outside of the Juneau area is pivotal for more responsive management of these stocks.

REGULATION DEVELOPMENT

The regulatory structure and allocation guidelines used in the management of the commercial and personal use fisheries in Southeast Alaska have significantly increased in complexity through the years. This has occurred concurrently with increasingly detailed management of these fisheries by time and area (Table 3.1). Prior to 1970, there were no time or area closures, and regulations were limited to size, sex, and gear restrictions. From 1970 through the 1984/85 seasons, the number of days opened to commercial harvests was successively reduced, and some of the waters near Juneau were closed to the commercial fishery. Personal use harvests were limited to six crab per person per day in 1971, and personal use gear was to be clearly marked.

The commercial fishery was closed from the 1985/86 through 1992/93 seasons due to low regionwide stock abundance. A moratorium was imposed on new permits beginning in 1985/86, and commercial regulations were altered to reflect a more conservative approach to management of the commercial fishery. Restrictive conservation measures were discussed but not implemented in the subsistence or personal use fisheries. However, personal use gear was limited to five pots per person or 10 pots per vessel in 1985/86. When survey data indicated that stocks were once again strong enough to support commercial fishing, the allocation controversy intensified. In 1993, additional portions of Section 11-A were closed to commercial fishing by emergency order by direction of Commissioner Rosier. In 1995, the portions of Section 11-A initially closed by emergency order were added into the commercial fishing regulations. However, the controversy over stock strength and allocation of Juneau area king crab stocks persisted, even as stocks increased to high levels. Prior to the 1995/96 season, bag limits were reduced from six to three crab per person in Sections 15-C and 12-B, which are located in the southern part of Lynn Canal just outside of the 11-A permit area. This reduction in bag limits was expanded to include Berners Bay, Section 15-B, in 2005/06. At the 2009 board meeting, bag and possession limits outside of Section 11-A were amended to provide the department management flexibility, allowing for reduced bag limits for red king crab fishing opportunity during periods of decreased abundance.

The board initiated a management and allocation plan for red king crab in Section 11-A, beginning with the 1996/97 season. Commercial Fishing Regulation 5 AAC 34.111 allocated 45% of the available harvest to the commercial fishery with a season from November 1 until closure by emergency order, 46% to the summer personal use fishery from July 1 to September 30, and 9% to the winter personal use fishery from October 1 to March 31. One of the reasons the board separated personal use allocation into summer and winter seasons was to provide crab for dive fishermen who traditionally harvest during the winter when crab migrate into shallow waters. This allocation plan was revised in March 1999 to an allotment of 40%, 50%, and 10% of the available harvest to the commercial, summer personal use, and winter personal use fisheries respectively. The entire commercial fishery share was to be reallocated to the personal use fishery if the regionwide commercial fishery was not opened. The reallocation provision was repealed at the 2009 board meeting, allowing for the 40% allocated to commercial users to remain unharvested if the regionwide commercial threshold was not met. At the 2012 board meeting, proposals were adopted to limit the number of ring nets allowed on a single vessel and to clarify language on live holding facilities.

STOCK ASSESSMENT

The estimates of abundance and determination of stock health derived from the annual stock assessment surveys described in Chapter 1 of this report are used to establish an annual GHL for Section 11-A. The GHL is allocated between user groups and summer and winter personal use seasons based on the Section 11-A *Red and Blue King Crab Management and Allocation Plan* (5 AAC 34.111) promulgated by the board.

Because red and blue king crab personal use fisheries outside Section 11-A in Southeast Alaska are managed by size, sex, season, and a bag limit, and there are no allocations specified in regulation, GHLS are not established. However, stock assessment information is used to guide decisions on closing areas to personal use fishing and to establish personal use bag and possession limits.

Recent trends in red king crab legal and mature stock abundance are described below.

RECENT SEASONS

2014/2015

The red and blue king crab personal use fishery opened by regulation on July 1, 2014, in the same areas that were open when the fishery closed on March 31, 2014, with a reduced bag and possession limit of one red and blue king crab in combination for non-surveyed and surveyed areas, based on 2013 survey results. Analysis of the 2014 Section 11-A red king crab stock assessment survey data indicated all size/sex classes of crab were significantly below their long-term averages, with the exception of postrecruit males. Based on this the 11-A personal use fishery was closed by emergency order. The department completed analysis of the 2014 red king crab stock assessment survey and red king crab mark/recapture project in late summer 2014. The 2014 red king crab stock assessment survey indicated that the region wide harvestable biomass of mature red and blue king crab was well below 200,000 lb; stock health in Port Frederick, Lynn Sisters, Holkham Bay, and Gambier Bay remained poor and these three areas were kept closed; Pybus Bay stock health declined from the previous season to poor and remained closed to fishing; stock health in Peril Strait, Excursion Inlet, and Seymour Canal improved due to increases in mature male abundance, but CPUEs of legal crabs (recruit and postrecruit) were below their long-term averages and these three areas remained closed; non-survey areas were adequate to sustain personal use harvest in 2014. According to 5 AAC 77.664(a)(1), the bag and possession limit outside of Sections 11-A, 12-B, 15-B, and 15-C was set at one king crab per person. All areas open to personal use red and blue king crab fishing in Sections 12-B, 15-B, and 15-C continued to have a bag and possession limit of one red or blue king crab, according to 5 AAC 77.664(b). The red and blue king crab personal use fishery outside of Section 11-A was closed by regulation on March 31, 2015.

2015/2016

The red and blue king crab personal use fishery opened by regulation on July 1, 2015, with bag and possession limits outside of Sections 11-A, 12-B, 15-B, and 15-C at one king crab per person. Bag and possession limits in Sections 12-B, 15-B, and 15-C were set at one king crab per person, and closures of personal use red and blue king crab fishing in Seymour Canal, Peril Strait, Gambier Bay, Pybus Bay, Excursion Inlet and Lynn Sisters were maintained based on 2014 survey results. Analysis of the 2015 Section 11-A red king crab stock assessment survey

data indicated all size/sex classes of crab were significantly below their long-term averages, with the exception of postrecruit males. Based on this the 11-A personal use fishery was closed by emergency order. The department completed analysis of the 2015 red king crab stock assessment survey and red king crab mark-recapture project in late summer 2015. The 2015 red king crab stock assessment survey indicated that the regionwide harvestable biomass of mature red and blue king crab was well below 200,000 lb. Stock health in Seymour Canal, Peril Strait, and Excursion Inlet remained poor and these areas were kept closed. Stocks health in Pybus Bay and Gambier Bay improved, but all male crab CPUEs were below long-term averages in both areas and these two areas remained closed to fishing. Stock health in Lynn Sisters improved, but the CSA was at a twenty-three year low so this area remained closed to fishing. Port Frederick and Holkham Bay were dropped as survey areas in 2015 for budgetary reasons and for the purposes of the personal use fishery both areas were managed as non-surveyed areas. Stocks in the non-survey areas appeared capable of withstanding some level of harvest, but with the stock health in survey areas combined generally considered to have recently declined to well below average at best, stocks in non-surveyed areas were considered likely to be exhibiting the same trends in stock health. For these stock health concerns the non-surveyed areas the bag and possession limits remained at one red or blue king crab per day to allow a personal use harvest opportunity at a low level of intensity. The red and blue king crab personal use fishery outside of Section 11-A was closed by regulation on March 31, 2016.

2016/2017

The red and blue king crab personal use fishery opened by regulation on July 1, 2016, the non-surveyed areas with bag and possession limits of one red or blue king crab per day, and closures of personal use red and blue king crab fishing in Seymour Canal, Peril Strait, Gambier bay, Pybus Bay, Excursion Inlet and Lynn Sisters were maintained based on 2015 survey results. Analysis of the 2016 Section 11-A red king crab stock assessment survey data indicated all size/sex classes of crab are significantly below their long-term averages, with the exception of recruit males which is at the long-term average. There was evidence of a significant short-term (4-year) improvement in pre-recruit and recruit males, but all other short term trends were flat showing no increase but also no decrease in the last four years. In order to allow the population to continue to increase the 11-A personal use fishery was closed by emergency order. The department completed analysis of the 2016 red king crab stock assessment survey and red king crab mark-recapture project in late summer 2016. The 2016 red king crab stock assessment survey indicated that the regionwide harvestable biomass of mature red and blue king crab was well below 200,000 lb. Stock health in Lynn Sisters and Pybus Bay declined and remained closed to fishing. Stock health in Peril Strait, Excursion Inlet, and Gambier Bay remained unchanged. All three areas saw no significant improvements in legal biomass and remained closed to fishing. Stock health in Seymour Canal improved slightly, but stock health remained a concern and the area remained closed to fishing. Non-surveyed areas had an estimated harvestable surplus and were kept open with a minimal bag and possession limit.

2017/2018 OUTLOOK

The red and blue king crab personal use fishery opened by regulation on July 1, 2017, in non-surveyed areas with bag and possession limits of one red or blue king crab per day Analysis of the 2017 Section 11-A red king crab stock assessment survey data indicated the stock status for the Juneau area had improved to “above average”. Recruit and postrecruit male CPUE were

significantly above their long-term averages, while most other size/sex classes of crab are at their long-term averages; only pre-recruit male crab were significantly below the long-term average. Based on this, a 10% harvest rate was determined allowable, providing a total GHL of 6,000 crabs. The allocation of this harvest was 3,000 crabs for the summer personal use season, 600 crabs for the winter personal use season, and 2,400 crabs for the late fall commercial fishery (5 AAC 34.111(b)). The bag and seasonal limit was set at two crabs per household permit, with gear limited to one pot or two ring nets per vessel (5 AAC 77.664(c)). In the five-day summer season, 1,349 permits were issued with a reported harvest of 1,650 crabs. The unharvested 2017 summer allocation was combined with the 2017/18 winter allocation to target 2,000 crabs in the winter season. A bag limit of two crab and a season limit of six crab per household permit will be managed for inseason.

The department completed analysis of the 2017 red king crab stock assessment survey and red king crab mark-recapture project in late summer 2017. The 2017 red king crab stock assessment survey indicated that the regionwide harvestable biomass of mature red and blue king crab was above 200,000 lb. Regionally, the mature biomass estimate did increase from last season. The amount of legal crab increased 27% since 2016 and there has been a 33% increase regionwide in mature male biomass. Stock health in Peril Strait remained poor in 2017 and Lynn Sisters improved slightly to moderate, these areas will be kept closed. Stock health in Pybus Bay, Gambier Bay, Seymour Canal, and Excursion Inlet has improved or remained the same at moderate and will reopen. All areas open to personal use red and blue king crab fishing outside of Sections 12-B, 15-B, and 15-C will have a bag and possession limit of six red or blue king crab, as prescribed in regulation when the regionwide harvestable biomass of mature red and blue king crab is above 200,000 lb (5 AAC 77.664(a) (1)). All areas open to personal use red and blue king crab fishing in Sections 12-B, 15-B, and 15-C will have a bag and possession limit of three red or blue king crab, as prescribed in regulation when the regionwide harvestable biomass of mature red and blue king crab is above 200,000 lb (5 AAC 77.664(b)).

CHAPTER 3—TABLES AND FIGURES

Table 3.1—Abbreviated history of regulatory changes and management actions concerning time and area closures in the commercial and personal use red and blue king crab fisheries in Section 11-A and other Southeast Alaska areas.

Season	Personal Use in 11-A	Personal Use in Other Southeast Areas	Commercial fishery in 11-A	Commercial fishery in other Southeast Areas
Before 1970	No closed times and areas		No closed times and areas	
1970–1979/1980	Seasonal closure first established in 1974/75. Seasons ranged from July 1–January 31 to July 1–March 31 (1979/1980). Possession limit of 6 crab per person (1979/1980) for all SE Alaska.		Seasons ranged from August 1–June 30 (1969 season) to September 1–December 18 (1979/1980 season). Some areas were closed early. Gastineau Channel closed in 1978/79.	
1980/1981–1984/1985	Season established as July 1–March 31. Possession limit of 6 crab per person.		Seasons gradually reduced from 114 days (September 1 to December 24, 1980) to 7 days (October 10 to October 17, 1984). Auke Bay and Gastineau Channel remain closed.	
1985/1986–1992/1993	Season remained July 1–March 31. Possession limit remained 6 crab per person. Gear limited to 5 pots per person and 10 pots per vessel (1985/1986).		No traditional commercial fishery.	
1993/1994	Waters deeper than 100 feet closed from Oct. 4–March 31.	No change from 1992/1993	Opened Nov. 1–Nov. 9, 1993. Juneau area ^a closed to all commercial fishing.	Opened Nov. 1–Nov. 9 and Nov. 27–Dec. 3, 1993. Pybus Bay and Port Frederick closed
1994/1995	Personal use closure in Juneau area ^a from Oct. 25 to end of season.	No change from 1993/1994	Opened Nov. 1–Nov. 18, 1994. Juneau area ^a closed.	Opened Nov. 1–Nov. 18, 1994. No area closures
1995/1996	Possession limited to 3 crab per person and 4 pots per person and vessel.	Possession limited to 3 crab per person and 4 pots per person and vessel in areas 12-B and 15-C.	Opened Nov. 1–Nov. 5, 1995. Juneau area ^a closed.	Opened Nov. 1–Nov. 17, 1995. No area closures.

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Table 3.1–Page 2 of 8.

Season	Personal Use in 11-A	Personal Use in Other Southeast Areas	Commercial fishery in 11-A	Commercial fishery in other Southeast Areas
1996/1997	Allocation guidelines established. Personal use permit required. Winter fishery closed March 7, 1997.	No change from 1995/1996	Allocation guidelines established. Commercial fishery opened Nov. 1–Nov. 11, 1996. Juneau area ^a closed.	Opened Nov. 1–Nov. 20, 1996. No area closures.
1997/1998	Possession limited to 2 crab per person. Summer fishery closed August 16 and winter fishery closed December 29. Household permit required.	No change from 1996/1997	Opened Nov. 1–Nov. 12, 1997. Juneau area ^a closed.	Opened Nov. 1–Nov. 15, 1997. Fishing in Pybus Bay and Gambier Bay limited to 4 days and 8 days respectively.
1998/1999	2 crab per person limit. Seasonal limit of 10/20 crab per individual/household.	Pybus Bay and Peril Strait areas closed October 1 1998.	No commercial fishery.	No commercial fishery
1999/2000	2 crab per person limit. Seasonal limit of 10/20 crab per individual/household. Winter fishery closed February 29, 2000.	Pybus Bay reopened October 19, 1999. Peril Strait areas remained closed.	Opened Nov. 1–Nov. 10, 1999. Juneau area ^a closed.	Opened Nov. 1–Nov. 13, 1999. Fishing in Pybus Bay and Gambier Bay limited to 4 days. Peril Strait Area closed.
2000/2001	Harvest reallocation from commercial to personal use resulted in final summer limits of 3 crab per person and 20/40 crab per individual/household on August 4. Limits decreased to 2 crab per person and 10/20 crab per individual/household for winter fishery.	Pybus Bay and Seymour Canal closed September 22, 2000. Peril Strait area remained closed.	No commercial fishery.	No commercial fishery.

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Table 3.1–Page 3 of 8.

Season	Personal Use in 11-A	Personal Use in Other Southeast Areas	Commercial fishery in 11-A	Commercial fishery in other Southeast Areas
2001/2002	2 crab per person limit. Seasonal limit of 10/20 crab per individual/household. Winter fishery closed March 31, 2002.	Pybus Bay, Seymour Canal, and Deadman Reach–Ushk Bay reopened September 6, 2001. Rodman Bay remained closed.	Opened Nov. 1–Nov 6, 2001. Juneau area ^a closed.	Opened Nov. 1–Nov. 12, 2001, with Seymour and Peril Strait excluding Rodman Bay closing Nov. 7. Rodman Bay closed entire season.
2002/2003	Summer fishery 2 crab per person limit, Seasonal limit of 20 crab per household. Closed August 30, 2002. Winter fishery 1 crab per permit limit, seasonal limit of 20 crab per household. Closed March 2, 2003.	Rodman Bay remained closed.	Opened Nov. 1–Nov. 4, 2002. Juneau area ^a closed.	Opened Nov. 1–Nov. 8, 2002, with Seymour Canal and Peril Strait closing Nov. 7. Rodman Bay closed entire season.
2003/2004	Summer fishery 2 crab per person limit, seasonal limit of 20 crab per household. Closed September 7, 2003. Winter fishery 1 crab per permit limit, season limit of 20 crab per household. Closed March 11, 2004.	Rodman closure expanded to all of Peril Strait and Port Frederick closed on September 14, 2003.	Opened Nov. 1–Nov. 4, 2003. Juneau area ^a closed.	Opened Nov. 1–Nov 5, 2003. Peril Strait and Port Frederick closed for entire season. Seymour Canal closed Nov. 4; all other areas closed Nov. 5, 2003.
2004/2005	Summer fishery 2 crab per person limit, seasonal limit of 20 crab per household. Harvest reallocation of the commercial quota to personal use results in no early closure. Winter fishery, 1 crab per permit, 20 crab per household. Closed March 31, 2005.	Peril Strait and Port Frederick remained closed. Seymour Canal closed Sept. 12, 2004	No commercial fishery.	No commercial fishery.

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Table 3.1–Page 4 of 8.

Season	Personal Use in 11-A	Personal Use in Other Southeast Areas	Commercial fishery in 11-A	Commercial fishery in other Southeast Areas
2005/2006	Summer fishery 2 crab per person limit, seasonal limit of 20 crab per household. Winter fishery, 1 crab per permit, 20 crab per household. Closed March 31, 2006.	Peril Strait, Port Frederick, and Seymour Canal remained closed. Peril Strait re-opened Nov. 1, 2005–March 31, 2006. Bag limits reduced from 6 to 3 crab in Berners Bay, Aug. 14, 2005.	Opened Nov. 1–Nov 13, 2005. Juneau area ^a closed.	Opened Nov. 1–Nov. 4, 2005. Port Frederick and Seymour Canal closed for the entire season.
2006/2007	Summer fishery 2 crab per person limit, seasonal limit of 20 crab per household. Closed Sept. 17, 2006. Winter fishery, 1 crab per permit, 6 crab per household. Closed March 31, 2007.	Peril Strait, Port Frederick, and Seymour Canal remained closed. Peril Strait re-opened Nov. 1, 2006–March 31, 2007.	No commercial fishery	No commercial fishery
2007/2008	Summer fishery 2 crab per person limit, seasonal limit of 10 crab per household. Closed July 14, 2007. No winter fishery.	Peril Strait, Port Frederick, and Seymour Canal remained closed. All other areas closed until further notice Oct. 1, 2007.	No commercial fishery	No commercial fishery
2008/2009	Fishery closed until further notice.	Fishery closed until further notice.	No commercial fishery	No commercial fishery
2009/2010	Fishery closed until further notice.	Port Frederick, Seymour Canal, Holkham Bay, Excursion Inlet, and Pybus Bay remained closed. Opened Oct. 7, 2009–March 31 2010. Bag limit 3 crab per person.	No commercial fishery	No commercial fishery

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Table 3.1–Page 5 of 8.

Season	Personal Use in 11-A	Personal Use in Other Southeast Areas	Commercial fishery in 11-A	Commercial fishery in other Southeast Areas
2010/2011	<p>Summer fishery: 2 crab per person limit, seasonal limit of 2 crab per household. One pot per vessel. Closed July 5, 2010.</p> <p>Winter fishery: Opened Jan. 1, 2011–Feb. 6, 2011. 1 crab per permit per day, seasonal limit 2 crab per household. One pot per vessel.</p>	<p>Port Frederick, Seymour Canal, Holkham Bay, Excursion Inlet, and Pybus Bay remained closed. Opened July 1, 2010–March 31, 2011. Peril Strait closed on Oct. 1, 2010. Excursion Inlet reopened Nov. 1, 2010. Bag limit 2 crab per person.</p>	No commercial fishery	No commercial fishery
2011/2012	<p>Personal use summer fishery reopened on July 15, 2011, for five days, seasonal limit of two crab and bag and possession limit of two crab.</p> <p>Winter fishery opened February 1, 2012, with a seasonal limit of two crab and a bag and possession limit of two crab.</p>	<p>Personal use fishery opened on July 1, 2011, in Gambier, Excursion Inlet, Lynn Sisters, and all unsurveyed areas with a bag and possession limit of two crab. Personal use fishery in Pybus Bay and Holkham bay reopened on November 1, 2011. On November 1, all areas open to personal use RKC fishing, outside of Sections 11-A, 12-B, 15-B, and 15-C bag and possession limit of six king crab in combination. Sections 12-B, 15-B, and 15-C bag and possession limit of three king crab in combination.</p>	<p>Opened Nov. 1–Nov 2, 2011. Juneau area^a closed.</p>	<p>Opened Nov. 1–Nov. 4, 2011, in the Pybus/Gambier/Round Rock Area. Opened November 1–November 13 in the Excursion/St. James Bay and non-surveyed areas.</p>

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Table 3.1–Page 6 of 8.

Season	Personal Use in 11-A	Personal Use in Other Southeast Areas	Commercial fishery in 11-A	Commercial fishery in other Southeast Areas
2012/2013	Personal use fishery did not reopen on July 1, 2012, due to poor stock status identified in the 2012 survey.	<p>Personal use fishery opened on July 1, 2012 in Gambier, Excursion Inlet, Lynn Sisters, Pybus Bay, Holkham Bay, and all unsurveyed areas. All areas open to personal use RKC fishing, outside of Sections 11-A, 12-B, 15-B, and 15-C bag and possession limit of six king crab in combination.</p> <p>Sections 12-B, 15-B, and 15-C bag and possession limit of three king crab in combination.</p> <p>Effective October 1, 2012, all areas open to personal use RKC fishing, outside of Sections 11-A, 12-B, 15-B, and 15-C opened with a reduced bag and possession limit of one red and blue king crab in combination.</p> <p>Effective October 1, 2012, Sections 12-B, 15-B, and 15-C opened with a bag and possession limit of one red and blue king crab in combination.</p> <p>Effective October 1, 2012, Lynn Sisters and Excursion Inlet closed to personal use fishing.</p>	No commercial fishery	No commercial fishery

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Table 3.1–Page 7 of 8.

Season	Personal Use in 11-A	Personal Use in Other Southeast Areas	Commercial fishery in 11-A	Commercial fishery in other Southeast Areas
2013/2014	Personal use fishery did not reopen on July 1, 2013, due to poor stock status identified in the 2013 survey.	Port Frederick, Seymour Canal, Lynn Sisters, Excursion Inlet, and Peril Strait, remained closed. Opened July 1, 2013–March 31, 2014. Gambier Bay, Pybus Bay, and Holkham Bay closed on Sept. 30, 2013. Bag limit 1 crab per person.	No commercial fishery.	No commercial fishery
2014/2015	Personal use fishery did not reopen on July 1, 2014, due to poor stock status identified in the 2014 survey.	Port Frederick, Seymour Canal, Lynn Sisters, Excursion Inlet, Gambier Bay, Pybus Bay, Holkham Bay and Peril Strait, remained closed. Opened on July 1, 2014–March 31, 2015 in all non-surveyed areas with a bag and possession limit of one red or blue king crab.	No commercial fishery.	No commercial fishery

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Table 3.1–Page 8 of 8.

Season	Personal Use in 11-A	Personal Use in Other Southeast Areas	Commercial fishery in 11-A	Commercial fishery in other Southeast Areas
2015/2016	Personal use fishery did not reopen on July 1, 2015, due to poor stock status identified in the 2015 survey.	Seymour Canal, Lynn Sisters, Excursion Inlet, Gambier Bay, Pybus Bay, and Peril Strait, remained closed. Opened on July 1, 2015–March 31, 2016 in all non-surveyed areas with a bag and possession limit of one red or blue king crab. In addition, since Port Frederick and Holkham bay were dropped as surveyed areas from the 2015 stock assessment, they were each opened to personal use fishing effective October 1, 2015.	No commercial fishery.	No commercial fishery
2016/2017	Personal use fishery did not reopen on July 1, 2016, due to poor stock status identified in the 2016 survey.	Seymour Canal, Lynn Sisters, Excursion Inlet, Gambier Bay, Pybus Bay, and Peril Strait, remained closed. Opened on July 1, 2016–March 31, 2017 in all non-surveyed areas with a bag and possession limit of one red or blue king crab.	No commercial fishery.	No commercial fishery

^a Juneau Area defined as Gastineau Channel, Barlow Cove, and waters enclosed by a line from Outer Point on Douglas Island across Stephens Passage to the mouth of Bear Creek on Admiralty Island extending north to Symonds Point and across Saginaw Channel to the Southeast tip of Shelter Island and extending north to south tip of Halibut Cove, across Favorite Channel to south entrance of Amalga Harbor (see Figure 3.1).

Table 3.2—Estimated number of red and blue king crab harvested in the personal use and commercial fisheries and number of commercial permits fished in Section 11-A and elsewhere in Southeast Alaska, Registration Area A, 1988/89 through 2016/17 seasons.

Season	Personal use harvest in Section 11-A	Personal use harvest in other Southeast areas	Commercial fishery harvest in Section 11-A	Number of commercial permits fished in Section 11-A	Commercial fishery harvest in other Southeast areas	Total number of commercial permits fished in Southeast Alaska
1988/89	665	1,130	0	0	0	0
1989/90	2,228	1,130	0	0	0	0
1990/91	2,361	1,130	0	0	0	0
1991/92	2,972	1,130	0	0	0	0
1992/93	6,835	1,625	0	0	0	0
1993/94	10,799	2,806	4,153	19	23,314	83
1994/95	7,139	2,855	6,089	31	29,558	84
1995/96	5,540	3,253	673	6	50,988	73
1996/97	6,989	2,209	2,842	11	55,302	79
1997/98	6,390	3,208	2,830	12	36,764	76
1998/99	6,967	5,295	0	0	0	0
1999/00	8,994	862	11,173	16	27,061	77
2000/01	9,455	737	0	0	0	0
2001/02	9,611	2,970	8,525	29	31,022	76
2002/03	9,076	521	5,165	31	24,905	75
2003/04	11,963	1,140	6,987	30	18,424	67
2004/05	10,178	476	0	0	0	0
2005/06	10,406	829	7,079	24	19,296	58
2006/07	7,518	1,051	0	0	0	0
2007/08	2,541	349	0	0	0	0
2008/09	0	18	0	0	0	0
2009/10	0	672	0	0	0	0
2010/11	1,477	786	0	0	0	0
2011/12	1,673	433	960	7	16,098	54
2012/13	0	217	0	0	0	0
2013/14	0	–	0	0	0	0
2014/15	0	–	0	0	0	0
2015/16	0	–	0	0	0	0
2016/17	0	–	0	0	0	0

Table 3.3—Openings, closures, and fishery regulations by season for the red and blue king crab personal use fishery in Section 11-A from 1996/1997 through 2016/2017 seasons.

Season	Type of Permit	Bag Limit	Season Limit	Closure Date
1996/97 Summer	Individual	3 Crab/Person	No Limit	August 30, 1996
1996/97 Winter	Individual	3 Crab/Person	No Limit	March 7, 1997
1997/98 Summer	Seasonal Household	2 Crab/Person	No Limit	August 16, 1997
1997/98 Winter	Seasonal Household	2 Crab/Person	No Limit	December 29, 1997
1998/99 Summer	Seasonal Household	2 Crab/Person	10/20 Crab per Individual/ Household for Summer and Winter Season	September 30, 1998 ^a
1998/99 Winter	Seasonal Household	2 Crab/Person		March 31, 1999 ^b
1999/00 Summer	Seasonal Household	2 Crab/Person	10/20 Crab per Individual/ Household for Summer and Winter Season	September 30, 1999 ^a
1999/00 Winter	Seasonal Household	2 Crab/Person		February 29, 2000
2000/01 Summer (July 1–July 19)	Summer Household	1 Crab/Person	5/10 Crab per Individual/Household in Summer	
2000/01 Summer (July 20–Aug. 3)	Summer Household	2 Crab/Person	10/20 Crab per Individual/Household in Summer	
2000/01 Summer (Aug. 4–Sept. 30)	Summer Household	3 Crab/Person	20/40 Crab per Individual/Household in Summer	September 30, 2000 ^a
2000/01 Winter	Winter Household	2 Crab/Person	10/20 Crab per Individual/Household in Winter	March 31, 2001 ^b
2001/02 Summer	Summer Household	2 Crab/Person	10/ 20 Crab per Individual/Household in Summer	September 30, 2001 ^a
2001/02 Winter	Winter Household	2 Crab/Person	10/20 Crab per Individual/Household in Winter	
2002/03 Summer	Summer Household	2 Crab/Person	20 Crab per Household	August 30, 2002
2002/03 Winter	Winter Household	1 Crab/Permit	20 Crab per Household	March 2, 2003
2003/04 Summer	Summer Household	2 Crab/Person	20 Crab per Household	September 4, 2003
2003/04 Winter	Winter Household	1 Crab/Permit	20 Crab per Household	March 11, 2004
2004/05 Summer	Summer Household	2 Crab/Person	20 Crab per Household	September 30, 2004 ^a
2004/05 Winter	Winter Household	1 Crab/Permit	20 Crab per Household	March 31, 2005 ^b
2005/06 Summer	Summer Household	2 Crab/Person	20 Crab per Household	September 30, 2005 ^a
2005/06 Winter	Winter Household	1 Crab/Permit	20 Crab per Household	March 31, 2006 ^b
2006/07 Summer	Summer Household	2 Crab/Person	20 Crab per Household	September 17, 2006
2006/07 Winter	Winter Household	1 Crab/Permit	6 Crab per Household	March 31, 2007 ^b
2007/08 Summer	Summer Household	2 Crab/Permit	10 Crab per Household	July 14, 2007

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Season	Type of Permit	Bag Limit	Season Limit	Closure Date
2007/08 Winter			Season Closed	
2008/09 Summer/Winter			Season Closed	
2009/10 Summer/Winter			Season Closed	
2010/11 Summer	Summer Household	2 Crab/Permit	2 Crab per Household	July 5, 2010
2010/11 Winter	Winter Household	1 Crab/Permit	2 Crab per Household	February 6, 2011
2011/12 Summer	Summer Household	2 Crab/Permit	2 Crab per Household	July 20, 2011
2011/12 Winter	Winter Household	1 Crab/Permit	2 Crab per Household	February 12, 2012
2012/13 Summer/Winter			Season Closed	
2013/14 Summer/winter			Season Closed	
2015/16 Summer/winter			Season Closed	
2016/17 Summer/winter			Season closed	

^a September 30 is the regulatory closing date for the summer red king crab personal use fishery.

^b March 31 is the regulatory closing date for the winter red king crab personal use fishery.

Table 3.4—Number of permits issued and returned, total reported harvest of returned permits, and percentage of harvest by type of gear in the Section 11-A red and blue king crab personal use fishery by season, 1996/97 through 2016/17.

Season	Permits issued	Permits returned	% returned	Reported harvest	Estimated harvest	% by gear		
						Pot	Dive	Ring Net
1996/97 Summer	1,474	1,215	82.40%	5,193	5,693	99.4%	0.3%	0.3%
1996/97 Winter	643	385	59.9%	1,036	1,296	78.7%	18.5%	2.8%
1996/97 Total	2,117	1,600	75.6%	6,229	6,989			
1997/98 Summer	1,266	840	66.4%	4,632	5,567	99.5%	0.3%	0.2%
1997/98 Winter	152	98	64.5%	677	823	93.4%	5.1%	1.5%
1997/98 Total	1,418	938	66.1%	5,309	6,390			
1998/99 Summer	1,404	1,181	84.1%	4,964	5,392	99.7%	0.2%	0.1%
1998/99 Winter	245	213	86.9%	1,472	1,575	75.9%	14.2%	9.9%
1998/99 Total	1,649	1,394	84.5%	6,436	6,967			
1999/00 Summer	1,660	1,367	82.3%	6,212	6,813	99.7%	0.0%	0.3%
1999/00 Winter	249	196	78.7%	1,949	2,181	80.8%	9.6%	9.6%
1999/00 Total	1,909	1,563	81.9%	8,161	8,994			
2000/01 Summer	1,751	1,595	91.1%	6,424	6,724	99.6%	0.2%	0.2%
2000/01 Winter	277	246	88.8%	2,578	2,731	72.1%	10.7%	17.2%
2000/01 Total	2,028	1,841	90.8%	9,002	9,455			
2001/02 Summer	1,793	1,688	94.1%	6,988	7,199	99.7%	0.2%	0.1%
2001/02 Winter	285	261	91.6%	2,310	2,412	74.1%	13.4%	12.5%
2001/02 Total	2,078	1,949	93.8%	9,298	9,611			
2002/03 Summer	2,166	1,990	91.9%	7,025	7,322	99.8%	0.1%	0.1%
2002/03 Winter	872	690	79.1%	1,571	1,754	71.7%	15.1%	13.2%
2002/03 Total	3,038	2,680	88.2%	8,596	9,076			
2003/04 Summer	2,231	2,073	92.9%	10,248	10,624	99.3%	0.2%	0.5%
2003/04 Winter	1,082	977	90.3%	1,274	1,339	77.2%	13.2%	9.6%
2003/04 Total	3,313	3,050	92.1%	11,522	11,963			
2004/05 Summer	2,303	2,096	91.0%	8,292	8,682	99.6%	0.2%	0.2%
2004/05 Winter	921	833	90.4%	1,425	1,496	63.0%	16.6%	20.4%
2004/05 Total	3,224	2,929	90.8%	9,717	10,178			
2005/06 Summer	2,152	1,694	78.7%	8,202	9,179	99.6%	0.0%	0.4%
2005/06 Winter	860	713	82.9%	1,122	1,227	72.9%	9.0%	18.1%
2005/06 Total	3,012	2,407	79.9%	9,324	10,406			
2006/07 Summer	2,046	1,397	68.3%	5,857	6,961	99.9%	0%	0.1%
2006/07 Winter	679	458	67.5%	466	557	68.2%	13.7%	18.1%
2006/07 Total	2,725	1,855	68.1%	6,323	7,518			
2007/08 Summer	1,250	909	72.7%	2,194	2,541	99.7%	0.3%	0%
2007/08 Winter	0	0		0	0	0	0	0
2007/08 Total	1,250	909	72.7%	2,194	2,541			
2008/09 Total				Season closed				
2009/10 Total				Season closed				
2010/11 Summer	1,329	1,048	78.8%	981	1,104	98.7%	0	1.3%
2010/11 Winter	505	358	70.9%	309	373	46.9%	18.1%	29.1%
2010/11 Total	1,834	1,406	76.7%	1,290	1,477			

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Table 3.4–Page 2 of 2.

Season	Permits issued	Permits returned	% returned	Reported harvest	Estimated harvest	% by gear		
						Pot	Dive	Ring Net
2011/12 Summer	1,459	1,386	95.0%	1,163	1,192	97.9%	0.0%	2.1%
2011/12 Winter	594	577	97.1%	474	481	55.4%	13.3%	31.3%
2011/12 Total	2,053	1,963	95.6%	1,637	1,673			
2012/13– 2016/17				Season Closed				

^a Allocation guidelines established by Board of Fisheries in October 1995 as 45% commercial, 46% summer personal use, and 9% winter personal use.

^b Allocation guidelines revised by Board of Fisheries in March 1999 as 40% commercial, 50% summer personal use, and 10% winter personal use. If there is no commercial fishery, total allowable harvest is reallocated to personal use fisheries as 80% summer and 20% winter personal use.

^c Allocation guidelines revised by Board of Fisheries in February 2009 as 40% commercial, 50% summer personal use, and 10% winter personal use. If there is no commercial fishery, total allowable harvest is **not** reallocated to personal use fisheries.

Table 3.5–Total allowable harvest, allocations, and estimated harvest of red and blue king crab in terms of number of crab for the personal use and commercial fisheries of Section 11-A, Southeast Alaska, Registration Area A, 1996/97 through 2016/17.

Season	Commercial fishery		Summer personal use fishery		Winter personal use fishery		Total allowable harvest	
	Allocation	Estimated harvest	Allocation	Estimated harvest	Allocation	Estimated harvest	Goal	Estimated harvest
1996/1997 ^a	3,825	2,842	3,900	5,693	765	1,296	8,490	9,831
1997/1998 ^a	3,750	2,830	3,800	5,567	750	823	8,300	9,220
1998/99 ^a	6,533	0	6,678	5,392	1,307	1,575	14,518	6,967
1999/00	4,964	11,173	6,200	6,813	1,241	2,181	12,405	20,167
2000/01	4,140	0	5,176	–	1,035	–	–	0
2000/01 Reallocation ^b	0	0	8,626	6,724	1,725	2,731	10,351	9,455
2001/02	7,189	8,525	8,986	7,199	1,797	2,412	17,972	18,136
2002/03	4,503	5,165	5,600	7,322	1,100	1,754	11,203	14,241
2003/04	6,462	6,987	8,078	10,624	1,616	1,339	16,156	18,950
2004/05	3,868	0	4,836	–	967	–	–	0
2004/05 Reallocation ^b	0	0	7,737	8,682	1,934	1,496	9,671	10,178
2005/06	7,161	7,079	8,952	9,179	1,790	1,227	17,903	17,485
2006/07	1,720	0	2,149	–	430	–	–	0
2006/07 Reallocation ^b	0	0	3,439	6,961	860	557	4,299	7,518
2007/08 ^c	0	0	0	2,541	0	0	0	2,541
2008/09	0	0	0	0	0	0	0	0
2009/10	0	0	0	0	0	0	0	0
2010/11	1,094	0	1,494	1,104	298	373	1,792	1,477
2011/12	853	960	1,023	1,013	256	266	2,132	2,239
2012/13	0	0	0	0	0	0	0	0
2013/14	0	0	0	0	0	0	0	0
2014/15	0	0	0	0	0	0	0	0
2015/16	0	0	0	0	0	0	0	0
2016/17	0	0	0	0	0	0	0	0

^a Allocation guidelines established by Board of Fisheries in October 1995 as 45% commercial, 46% summer personal use, and 9% winter personal use.

^b Allocation guidelines revised by Board of Fisheries in March 1999 as 40% commercial, 50% summer personal use, and 10% winter personal use. If there is no commercial fishery, total allowable harvest is reallocated to personal use fisheries as 80% summer and 20% winter personal use.

^c The fishery was opened during the 2007/08 season prior to the stock health rating being assessed and was closed when it was determined that 11-A was “poor,” resulting in the 0% harvest rate.

Table 3.6–Summary of Southeast Alaska personal use king crab harvest in numbers by area during 1993 through 2017. Information is based on ADF&G Sport Fish Division Statewide Harvest Survey (SWHS) estimates, and those results are compared with creel census and personal use permit estimates for Section 11-A of the Juneau SWHS area E only.

Year	Data source			
	Statewide harvest survey		Creel census	Personal use permit
	Other areas	Juneau area	Section 11-A	Section 11-A
1993	2,806	9,130	–	–
1994	2,855	7,236	–	–
1995	3,253	5,167	–	–
1996	2,209	2,669	–	6,989
1997	3,208	2,808	–	6,390
1998	5,295	1,601	–	6,967
1999	862	6,187	6,442	8,994
2000	737	4,371	5,974	9,455
2001	2,970	5,564	5,605	9,611
2002	521	2,677	5,216	9,076
2003	1,140	6,562	9,587	11,963
2004	476	3,761	6,093	10,178
2005	829	5,634	6,880	10,406
2006	1,051	3,432	5,759	7,518
2007	349	4,083	2,093	2,541
2008	18	18	–	0
2009	672	178	–	0
2010	786	941	–	1,477
2011	433	1,710	–	2,239
2012	217	474	–	0
2013	–	–	–	0
2014	–	–	–	0
2015	–	–	–	0
2016	–	–	–	0
Average	1,534	3,710	5,365	6,106

– No data or fishery was closed.

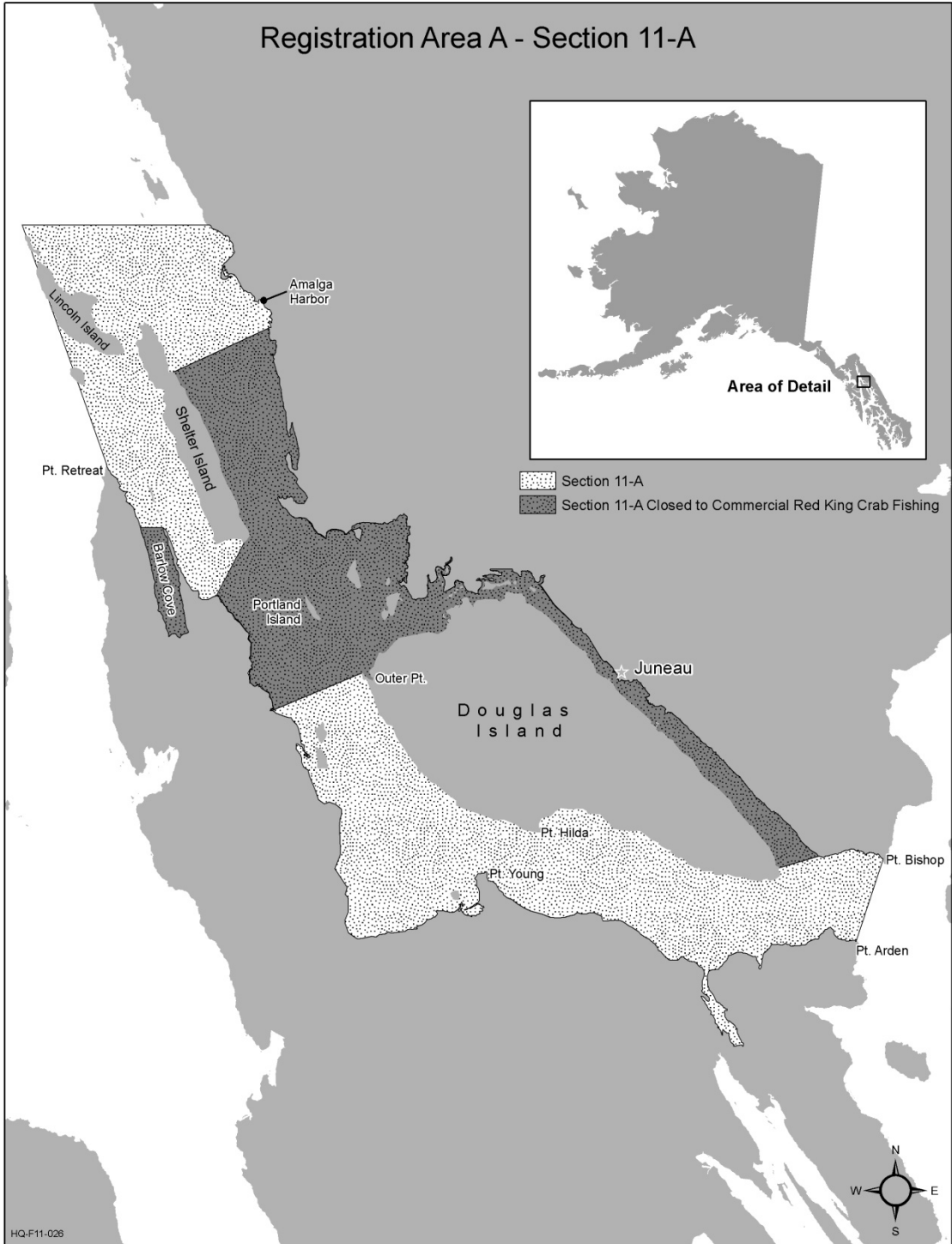


Figure 3.1—Waters of Section 11-A, including waters closed to red king crab commercial fishing.

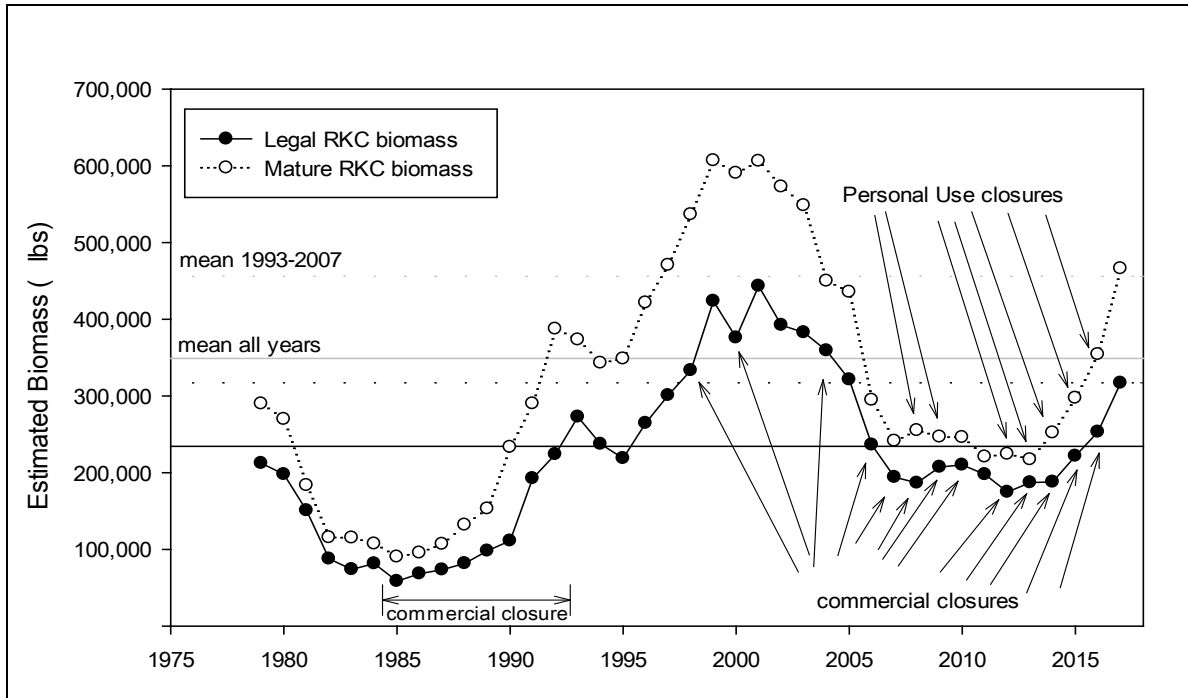


Figure 3.2—Juneau Area biomass estimates for legal and mature red king crab from 3-stage catch-survey analysis. Black and grey reference lines represent mean estimates (1979–2007) for legal and mature crab, respectively. Dashed lines represent mean estimates during baseline years (1993–2007). Commercial and personal use closures are labeled as such.

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