

# **Operational Plan: Cook Inlet and North Gulf Coast Tanner Crab Harvest Monitoring, 2017–2019**

by

**Carol Kerkvliet**

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December 2018

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



## Symbols and Abbreviations

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

***REGIONAL OPERATIONAL PLAN SF.2A.2018.22***

**OPERATIONAL PLAN: COOK INLET AND NORTH GULF COAST  
TANNER CRAB HARVEST MONITORING, 2017–2019**

by  
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December 2018

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## **SIGNATURE/TITLE PAGE**

Project Title: Cook Inlet and North Gulf Coast Tanner Crab Harvest Monitoring, 2017–2019

Project leader(s): Carol Kerkvliet, Fishery Biologist III

Division, Region and Area Sport Fish, Region II, Homer

Project Nomenclature:

Period Covered 2017–2019

Field Dates: 1 September–30 June

Plan Type: Category II

### **Approval**

Title	Name	Signature	Date
Project leader	Carol Kerkvliet		
Biometrician	Pat Hansen		
Analyst Programmer	Kirk Brogdon		
Research Coordinator	Tim McKinley		

# TABLE OF CONTENTS

	<b>Page</b>
LIST OF TABLES.....	ii
LIST OF APPENDICES .....	ii
ABSTRACT .....	1
INTRODUCTION .....	1
Purpose .....	1
Background.....	1
OBJECTIVES.....	2
Primary Objective.....	2
METHODS .....	2
Study Design and Data Collection.....	2
Effort and Harvest (Primary Objective).....	2
Sample Size and Precision .....	4
Data Reduction .....	4
Harvest Report Data Entry.....	4
Harvest Reporting Reminders.....	4
Data Checking .....	4
Data Analysis.....	5
SCHEDULE AND DELIVERABLES .....	8
RESPONSIBILITIES .....	8
BUDGET SUMMARY .....	9
REFERENCES CITED .....	9
APPENDIX A: TANNER CRAB PERMIT .....	11
APPENDIX B: REPORTING REMINDERS .....	17

## LIST OF TABLES

<b>Table</b>	<b>Page</b>
1 Number of noncommercial permits issued and returned by season from 2008 to 2012.....	1

## LIST OF APPENDICES

<b>Appendix</b>	<b>Page</b>
A1 Cook Inlet and North Gulf Coast sport Tanner crab permit, 2018–2019 season.....	12
A2 Cook Inlet and North Gulf Coast subsistence Tanner crab permit, 2018–2019 season.....	14
B1 Mid-March reporting reminder.....	18
B2 First e-mail and letter reporting reminders following the March deadline.....	19
B3 Second e-mail and letter reporting reminders following the March deadline.....	20

# ABSTRACT

The noncommercial Tanner crab fishery in Cook Inlet and the North Gulf Coast is monitored with a permit that requires users to report the date, location, and harvest. The objective of this project is to estimate harvest and effort of the noncommercial Tanner crab fishery.

Key words: assessment, management, permit, noncommercial, sport, subsistence, Tanner crab, *Chionoecetes bairdi*, Cook Inlet, North Gulf Coast, Kachemak Bay, Southern District

## INTRODUCTION

### PURPOSE

The purpose of this project is to estimate harvest and effort in the Cook Inlet and North Gulf Coast noncommercial Tanner crab fishery. The Alaska Department of Fish and Game (ADF&G) has the responsibility to sustainably manage the Tanner crab resource. The mandatory permit and reporting requirement for the Tanner crab noncommercial fishery will allow fisheries managers to estimate total harvest. Through multiyear data collection project, trends in effort, harvest, and harvest-per-unit effort (HPUE) can be calculated and monitored.

### BACKGROUND

Between 1996 and 2012, the Cook Inlet and North Gulf Coast noncommercial (sport, personal use, and subsistence) Tanner crab fishery was periodically opened and a household permit was required to participate. During this time, the Division of Commercial Fisheries (CF) was responsible for administering the permit program and for data analysis. Permit holders were required to record date of harvest, number of people who fished, area, number of legal male Tanner crab released, number of sublegal male Tanner crab released, and number of female Tanner crab released. After permits were turned in, CF staff entered data into a local database. Permit holders that did not report, were mailed at most 2 reminder letters by U.S. Postal Service. Annual reporting rates between 2008 and 2012 ranged from 87% to 92% (Table 1).

Table 1.—Number of noncommercial permits issued and returned by season from 2008 to 2012.

Season	Total issued	Total returned	On time	Number reported			Number nonresponse	Percent response
				After first mailing	After second mailing	After final cutoff		
2008–2009	1,611	1,394	893	450	NA	51	217	87%
2009–2010	1,457	1,337	816	394	99	28	120	92%
2010–2011	1,592	1,436	843	469	124		156	90%
2011–2012	1,023	894	570	219	105		129	87%
Average	1,421	1,265	781	383	109	40	156	89%

In 2017, the Alaska Board of Fisheries (BOF) adopted several regulations regarding the Cook Inlet Tanner crab noncommercial fishery. First, the BOF repealed the personal use fishery to reduce regulation redundancy; this action redefined the noncommercial Tanner crab fishery to include sport and subsistence fisheries. As a result, permit and data analysis responsibilities were shifted to the Division of Sport Fish (SF) because most of the harvest was expected to be in the sport fishery and SF had already developed an online reporting framework.

Before 2017, Tanner crab noncommercial fishery openings were based on abundance of legal-sized Tanner crab estimated from large mesh trawl surveys. In the harvest strategy regulations, there were several regulatory thresholds that needed to be achieved for the fishery to open. Abundance estimates of legal-sized male Tanner crab between 2011 and 2013 did not reach regulatory thresholds and resulted in noncommercial fisheries being closed east of Point Pogibshi to the Anchor Point line. The Kamishak District was closed in 2012 because regulatory thresholds in this area were not reached; there were no legal male crab caught in the ADF&G trawl survey. In 2014, funding for trawl surveys was discontinued and no legal male Tanner crab estimates could be generated.

In 2017, the BOF adopted a proposal by ADF&G for a limited noncommercial Tanner crab fishery in the absence of a trawl survey. In addition, the legal size was reduced in regulation from 5.5 inches (140 mm) to 4.5 inches (114 mm) based on a biometric analysis that showed a high proportion of Cook Inlet Tanner crab were in a terminal molt condition with only a small proportion of males reaching legal size. New regulations allowed a Tanner crab noncommercial fishery to be opened from October 1 and allowed 1 pot per vessel with a bag and possession limit of 3 legal male Tanner crabs.

Participants in the sport fishery for Tanner crab are required to have a valid sport fishing license and can fish in all waters of Cook Inlet and the North Gulf Coast. Participants in the Tanner crab subsistence fishery are not required to have a sport fishing license, but must be an Alaskan resident and fishing is limited to designated subsistence areas. Individuals of both user groups are required to obtain a permit online at the Alaska Department of Fish and Game (ADF&G) website.

## **OBJECTIVES**

### **PRIMARY OBJECTIVE**

The primary objective of this project is to estimate harvest and effort (pot-days) of Tanner crab for the 2017–2018 and 2018–2019 seasons such that the annual noncommercial Cook Inlet and North Gulf Coast estimates of harvest will be within 5% of the true values 95% of the time.

## **METHODS**

### **STUDY DESIGN AND DATA COLLECTION**

#### **Effort and Harvest (Primary Objective)**

Each participant in the noncommercial Cook Inlet and North Gulf Coast fisheries is required to get a permit online through the ADF&G store (<https://www.adfg.alaska.gov/Store/>) (Appendices A1 and A2) and then print a hard copy of the permit. Permits are sequentially numbered and 2 pages in length. The first page contains identifying information (permittee's name, address, residency, sport fishing license and driver's license number, and e-mail address) and harvest information (date pot was pulled, area, and number of legal crab harvested). The second page provides a map of the area and pot regulations. This permit is required to be in the possession of each person operating a crab pot. Permit holders are required to record the date they pulled a pot, area, and the number of crab they harvested on the permit prior to leaving the fishing site or concealing the crab from view. Online reporting at <https://www.adfg.alaska.gov/sf/PU/> is required by March 31 for the given season even if the permit holder did not set a crab pot. Each



permit obtained goes directly into a database. Reported harvest, area, and date the pot was pulled also goes directly into the database. After reporting, permit holders are e-mailed verification of receipt.

During the 2017–2018 season, approximately 2 weeks before the March 31 reporting deadline, permit holders received a reminder of the deadline, the reporting requirement, and a link to the reporting site (Appendix B1). Prior to subsequent reminders, a list of nonrespondents was generated. Outstanding nonrespondents received an e-mail reminder followed by a letter sent by mail on the following dates: first e-mail reminder on April 18 and first letter on April 25 (Appendix B2). If a permit holder did not respond to the first reminder, a second e-mail reminder was sent on June 5 and second letter was sent on June 15 (Appendix B3).

For the 2018–2019 season, permit holders will receive a reminder in mid-March of the March 31 deadline. Nonrespondents will receive their first e-mail reminder in mid-April and then a letter reminder a week later. In mid-May, outstanding nonrespondents will receive their second e-mail reminder and a follow-up reminder by letter in late-May. Online reporting will also be made available in area offices to facilitate compliance.

Reminder e-mails and letters will ensure that all individuals with permits are treated equally and given the same opportunity to comply with reporting requirements prior to the next season. Each reminder e-mail and letter will include the permit holder's name and a copy of their permit. Reminders will be issued to permit holders who do not respond to previous e-mail or letter reminders. Reminder letters will be sorted into 2 categories: "deliverables" and "undeliverables." "Undeliverables" are permits the U.S. Postal Service was unable to deliver. Undeliverable reminders will be marked so they will not be included in the second mailing. Records from deliverable permits will be entered into a database along with information on which mailing received a response. Only letter reminders will be categorized because it has been found that many e-mails are never opened.

All effort and harvest information reported by permit holders who return their harvest reports before the second reminder letter will be treated as a census of "compliant" permit holders. Information obtained from permit holders who return their permits after the second reminder letter will be treated as a sample of "noncompliant" individuals. Estimates of effort and harvest by noncompliant individuals will be obtained by first calculating the mean effort (individual pot-days fished) and harvest for all individuals that return completed permits after the second reminder mailing. Mean estimates will be expanded to include all nonrespondents. Total estimates of effort and harvest will be obtained by summing the estimates for the noncompliant and compliant individuals.

During the 2017–2018 season, 1,791 sport and 151 subsistence permits were issued. Thirty-six individuals received both sport and subsistence permits. Return rate was 90% through June 30 for both permit types. For the 2018–2019 season, reporting rates are expected to improve because individuals will be more familiar with online reporting expectations. In addition, individuals who did not report their 2017–2018 permit will be unable to receive the 2018–2019 permit.

## **Sample Size and Precision**

If return rates are similar to those observed with the Prince William Sound shrimp permit (average 90% over the last 5 years), then the precision levels should exceed the objective criteria ( $\pm 5\%$  of the true value 95% of the time).

## **DATA REDUCTION**

### **Harvest Report Data Entry**

Permit holders are required to use the ADF&G online harvest reporting system which allows the user to enter each fishing day through an easy to use web interface. The permit holder has the option of entering this information periodically throughout the fishing season or waiting until all fishing has been completed for the season to enter everything.

### **Harvest Reporting Reminders**

Once the Tanner crab fishing season has closed and the harvest reporting deadline has passed, permit holders that have not reported online will be sent an e-mail. Approximately 1 week later, the list will be updated and those that did not respond will be sent a reminder letter through the U.S. Postal Service.

The second and final reminders by e-mail and letter will be sent to an updated list of nonrespondents.

### **Data Checking**

During each season, effort and harvest reporting data are collected in a Microsoft<sup>1</sup> SQL Server database. Once the Tanner crab fishing season has ended and all unprompted harvest reports have been entered, then various data checks are run to look for obvious duplicate permits. Two or more permits issued to the same individual will have one flagged as the active “Master” and the other will be referenced as the duplicate. The general process flow for determining which permit is picked as the master follows below:

- 1) If neither permit has been reported, then the most recent permit issued is the Master.
- 2) If 1 permit has been reported but the other(s) have not then it becomes the Master and the nonreported permit(s) are flagged as duplicate.
- 3) If both permits have been reported, then the harvest data from each is examined to see if they match or not. Usually, a mismatch happens when individuals report harvest on one form and report that they did not fish on the other. In that case, the permit with harvest is the Master and the “did not fish” permit is flagged as the duplicate. If the harvest data do not match, then neither permit is selected as a duplicate because both have been reported with a unique harvest.
- 4) If an individual obtained both a sport and subsistence permit, then individuals who enter a sport fishing license or who are youth anglers, will have all their harvest reported under the sport permit, and the subsistence permit will be flagged as a duplicate. If an Alaskan resident does not have a sport license, they will have all their harvest reported under the subsistence permit and the sport permit will be flagged as a duplicate.

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<sup>1</sup> Product names used in this publication are included for completeness but do not constitute product endorsement.

Once all duplicate permits have been identified to the best of our ability, and the reminder process has been completed, the program coordinator will determine a cutoff date for data entry. After this date, no more reports will be entered into the system and a finalized extract will be presented to the assigned biometrician in SAS format for final analysis and estimates processing.

The data from both permits types will be combined and be presented in 2 tables:

- 1) CINGCPMC – Contains the permit holder name, address, and other personal information as well as the final status of the permit itself (i.e., whether and how they responded).
- 2) CINGCHVC – Contains any harvest or harvest effort information associated with any permits that responded with harvest or harvest effort from table CINGCPMC.

A variety of data queries are performed to verify data integrity before the files are passed to the Biometrician:

- 1) All records in table CINGCHVC must have a matching permit number in table CINGCPMC for the respective year.
- 2) All records in table CINGCPMC must have a valid status value assigned (H, N, U, Z):
  - (H) – Harvest (or harvest effort) received. At least one harvest record must exist in table PMCHVC.
  - (N) – Did not fish. Participant responded and indicated that they did not participate in the fishery. No record should exist in table CINGCHVC.
  - (U) – Unknown. Participant responded with a blank harvest report. No record should exist in table CINGCHVC.
  - (Z) – Did not respond. Participant never responded even after the reminder process was executed. No record should exist in table CINGCHVC.
- 3) No records in CINGCPMC should be flagged as “Void” or “Duplicate” in table PWSPM (raw data table).
- 4) Mailing value in table CINGCPMC should reflect what the participant responded to and should be based on the last reminder sent (if any). For example, if 2 paper reminders are sent to the participant and then they respond the mailing, the value in CINGCPMC will be 2. Any participant that responds unprompted is assigned a mailing value of 0.
- 5) All harvest dates in table CINGCHVC should be for year of permit only or 1990, which is used to reflect that the date was missing on the harvest report.

## DATA ANALYSIS

### Effort and Harvest (Primary Objective)

The number of permits issued ( $N$ ) can be divided into 2 groups:

$$N = N_c + N_d \quad (1)$$

where:

$N_c$  = the number of individuals (permits) that responded before the second reminder letter (compliant), and

$N_d$  = the number of individuals (permits) that responded after the second reminder or did not respond (noncompliant)

Each of those 2 groups can be further divided into 2 additional groups:

$$N = N_{cf} + N_{cz} + \hat{N}_{df} + \hat{N}_{dz} \quad (2)$$

where:

$N_{cf}$  = the number of compliant individuals who reported fishing,

$N_{cz}$  = the number of compliant individuals who reported they did not fish,

$\hat{N}_{df}$  = the estimated number of noncompliant permits that fished, and

$\hat{N}_{dz}$  = the estimated number of noncompliant individuals who did not fish

where

$$\hat{N}_{df} = N_d \hat{w}_{df} \quad (3)$$

where

$\hat{w}_{df}$  = the estimated proportion of noncompliant permits that fished

$$\hat{w}_{df} = \frac{n_{df}}{n_d} \quad (4)$$

and where

$n_{df}$  = the number of noncompliant individuals responding to the second reminder that reported fishing,

$n_d$  = the number of noncompliant individuals responding to the second reminder,

Harvest or effort is estimated by the following procedure (with subscripts denoting parameter of estimation deleted for simplicity):

$$\hat{H} = H_{cf} + \hat{H}_{df} \quad (5)$$

where:

$\hat{H}$  = estimated total harvest or effort,

$H_{cf}$  = harvest or effort reported by compliant individuals, and

$\hat{H}_{df}$  = estimated harvest or effort for noncompliant individuals,

where:

$$\hat{H} = H_{cf} + \hat{H}_{df} = H_{cf} + \hat{N}_{df} \bar{h}_{df} \quad (6)$$

and where

$\bar{h}_{df}$  = the estimated mean harvest or participation per individual for noncompliant individuals that fished

or

$$\bar{h}_{df} = \frac{\sum_{j=1}^{n_{df}} h_{dfj}}{n_{df}} \quad (7)$$

where

$h_{dfj}$  = reported harvest by noncompliant individual  $j$

Variance of  $\hat{H}$  was calculated as follows (Goodman 1960):

$$\text{var}(\hat{H}) = \text{var}(H_{cf}) + \text{var}(\hat{H}_{df}) = 0 + \text{var}(\hat{H}_{df}) = \text{var}(\hat{H}_{df}) \quad (8)$$

and from Equation 6

$$\text{var}(\hat{H}_{df}) = \text{var}(\hat{N}_{df} \bar{h}_{df}) = \hat{N}_{df}^2 \text{var}(\bar{h}_{df}) + \bar{h}_{df}^2 \text{var}(\hat{N}_{df}) - \text{var}(\bar{h}_{df}) \text{var}(\hat{N}_{df}) \quad (9)$$

where from Equation 3

$$\text{var}(\hat{N}_{df}) = \text{var}(N_d \hat{w}_{df}) = N_d^2 \text{var}(\hat{w}_{df}) \quad (10)$$

and from Equation 4

$$\text{var}(\hat{w}_{df}) = \left[ \frac{N_d - n_d}{N_d - 1} \right] \left[ \frac{\hat{w}_{df} (1 - \hat{w}_{df})}{n_d - 1} \right] \quad (11)$$

and from Equation 7

$$\text{var}(\bar{h}_{df}) = \left[ \frac{N_{df} - n_{df}}{N_{df} - 1} \right] \frac{s_{df}^2}{n_{df}} \quad (12)$$

for which  $s_{df}^2$  is the sample variance for the mean reported harvest by responding noncompliant individuals:

$$s_{df}^2 = \frac{\sum_{j=1}^{n_{df}} (h_{dfj} - \bar{h}_{df})^2}{n_{df} - 1} \quad (13)$$

Standard errors will be calculated from the square root of the variance estimates.

## SCHEDULE AND DELIVERABLES

The following milestones must be met to keep the harvest monitoring on schedule:

Dates	Activity
Early September	Permit for each year updated and given to the Analyst Programmer for review.
Mid-September	Permits for each year will be available online.
Mid-March	E-mail reminder of the March 31 reporting deadline.
Early April	Nonrespondents will be identified and the first reminder email will be sent.
Mid-April	Nonrespondents will be identified and the first reminder letter will be mailed.
Early May	Nonrespondents will be identified and the second reminder email will be sent.
Mid-May	Nonrespondents will be identified and the second reminder letter will be mailed.
Late July	Final checked data set, along with metadata and log of the edits will be given to project leader by late July of each year.
Early August	Data analysis will be completed and final complete dataset along with metadata will be sent to regional SF and CF staff.

Results from this project will be written as an ADF&G Fishery Data Series (FDS) report coinciding with the Statewide Miscellaneous Shellfish and Provisions Board of Fisheries cycle (2020, 2023, etc.).

## RESPONSIBILITIES

### **Carol Kerkvliet, Principal Investigator**

Duties: As project leader, provides overall project supervision, prepares operational plan, and authors the FDS report.

### **Pat Hansen, Biometrician**

Duties: Technically reviews study design, sampling methods, and data analysis of operational plan, and reviews report.

### **Kirk Brogdon, Programmer**

Duties: Maintains data entry and data checking program and reminder mailings.

### **Mark Wayne, Office Assistant II**

Duties: Mailings.

## BUDGET SUMMARY

This study involves collecting data on subsistence and sport Tanner crab fisheries in Cook Inlet and North Gulf Coast.

Budget manager: Carol Kerkvliet, Fishery Biologist

Line item	Category	Budget (\$K)
100	Personal Services	0.0
200	Travel	0.0
300	Contractual	0.5
400	Commodities	0.0
500	Equipment	0.0
Total		0.5

### Project Personnel

Personnel	Job class	Months
Carol Kerkvliet	Fisheries Biologist III	0.0
Patricia Hansen	Biometrician	0.0
Kirk Brogdon	Analyst/Programmer	0.0
Mark Wayne	Office Assistant II	0.0
Total		0.0

## REFERENCES CITED


Goodman, L. A. 1960. On the exact variance of products. Journal of the American Statistical Association 55:708-713.






## **APPENDIX A: TANNER CRAB PERMIT**

Appendix A1.–Cook Inlet and North Gulf Coast sport Tanner crab permit, 2018–2019 season.



**Alaska Department of Fish & Game**  
**2018-2019 Cook Inlet and North Gulf Coast**  
**Sport Tanner Crab Permit**



Last Name

Mailing Address

City  State  Zip Code

E-Mail Address

First Name

Phone Number

Initial

Residency

Sport Fishing License #

Driver's License #  -  State

**This permit is valid October 1, 2018 through February 28, 2019.**

- 1) This permit **must be in your possession** while taking or transporting Tanner crab in the Cook Inlet – North Gulf Coast Areas.
- 2) Information must be recorded in **ink** in the spaces below **prior to leaving the fishing site or concealing the crab from view.**
- 3) You must report online by March 31, 2019 - even if you did not set a crab pot.
- 4) Each person fishing cannot harvest more than their **individual bag limit of legal male crab** (bag limits may change by Emergency Order).
- 5) Once a bag limit is removed from a pot that pot may not be returned to the water containing any live crab.
- 6) **Failure to report is a violation and in addition to being cited, you may be ineligible to receive a permit the next year.**


Permit Holder Signature

Was this permit used to set crab pots in 2018-2019? ☐ YES ☐ NO

Date

Number of lost crab pots:

**You Must Report Online**  
 Scan the QR code or visit us at:  
[www.adfg.alaska.gov/sf/PU/](http://www.adfg.alaska.gov/sf/PU/)

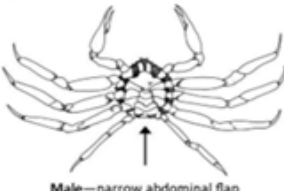


**Tanner Crab Harvest Log**  
 Tanner crab bag and possession limit:  
 3 legal male crab (4 1/2 inches or greater in carapace width)  
Pot limit: 1 per person, maximum 1 per vessel

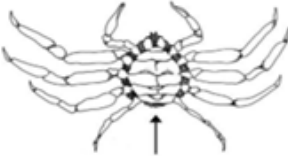
Date Pot Pulled (MM/DD)	Area Code (See Area Map)	Legal Crab Harvested	Date Pot Pulled (MM/DD)	Area Code (See Area Map)	Legal Crab Harvested
1. <input type="text"/>	<input type="text"/>	<input type="text"/>	13. <input type="text"/>	<input type="text"/>	<input type="text"/>
2. <input type="text"/>	<input type="text"/>	<input type="text"/>	14. <input type="text"/>	<input type="text"/>	<input type="text"/>
3. <input type="text"/>	<input type="text"/>	<input type="text"/>	15. <input type="text"/>	<input type="text"/>	<input type="text"/>
4. <input type="text"/>	<input type="text"/>	<input type="text"/>	16. <input type="text"/>	<input type="text"/>	<input type="text"/>
5. <input type="text"/>	<input type="text"/>	<input type="text"/>	17. <input type="text"/>	<input type="text"/>	<input type="text"/>
6. <input type="text"/>	<input type="text"/>	<input type="text"/>	18. <input type="text"/>	<input type="text"/>	<input type="text"/>
7. <input type="text"/>	<input type="text"/>	<input type="text"/>	19. <input type="text"/>	<input type="text"/>	<input type="text"/>
8. <input type="text"/>	<input type="text"/>	<input type="text"/>	20. <input type="text"/>	<input type="text"/>	<input type="text"/>
9. <input type="text"/>	<input type="text"/>	<input type="text"/>	21. <input type="text"/>	<input type="text"/>	<input type="text"/>
10. <input type="text"/>	<input type="text"/>	<input type="text"/>	22. <input type="text"/>	<input type="text"/>	<input type="text"/>
11. <input type="text"/>	<input type="text"/>	<input type="text"/>	23. <input type="text"/>	<input type="text"/>	<input type="text"/>
12. <input type="text"/>	<input type="text"/>	<input type="text"/>	24. <input type="text"/>	<input type="text"/>	<input type="text"/>

Report **each** day you set a pot, **even if you did not catch anything.**


**Tanner crab**



Male—narrow abdominal flap



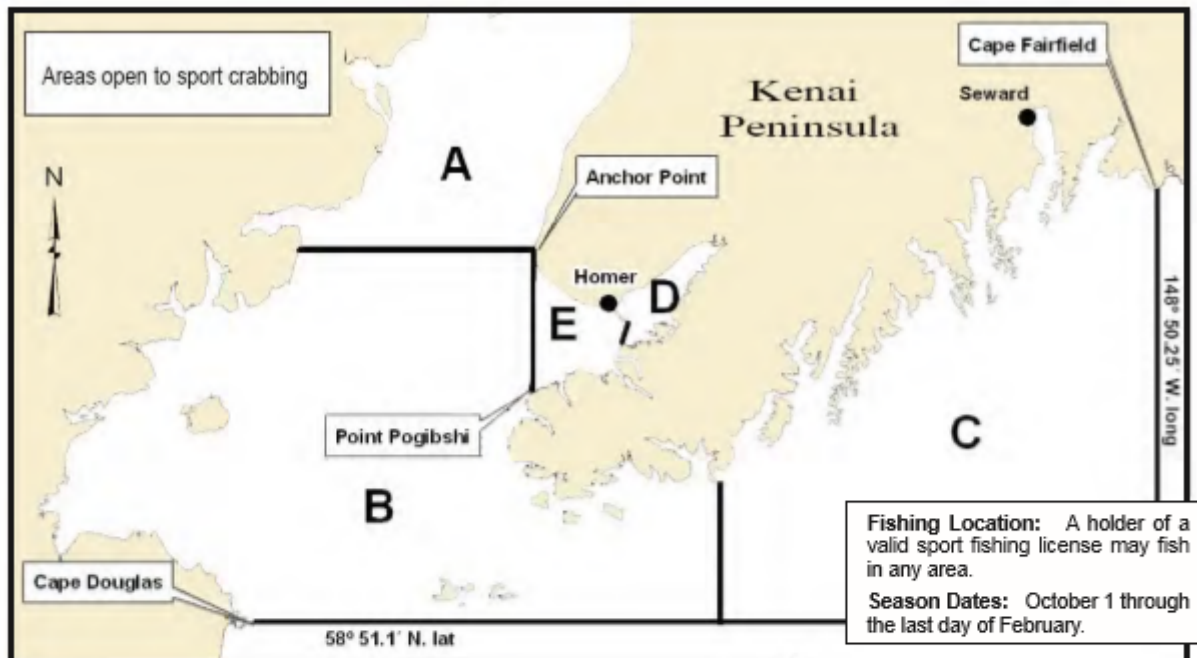
Female—wide abdominal flap covers most of underside (females usually smaller than 4 1/2")  
**NO HARVEST ALLOWED**



Minimum size  
**4 1/2"**

Width measurement is the straight-line distance across the carapace, including spines.

-continued-



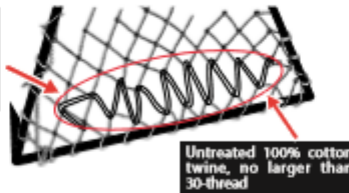
**Escape Rings:** Each pot used to take Tanner crab must have a minimum of two escape rings on opposite sides of the pot measuring no less than 4 3/4 inches in diameter.

**Escape Mechanism:** A biodegradable escape mechanism as defined in 5 AAC 39.145 is required for crab and shrimp pots. Required escape mechanisms vary by pot construction and are divided into two categories: non-rigid mesh pots and rigid mesh pots.

**Non-rigid mesh pots:** Pot sidewalls, which may include the tunnel sidewalls, must contain an opening that is laced, sewn, or secured together by a single length of untreated, 100% cotton twine, no larger than 30-thread count. The cotton twine may be knotted at each end only. The opening must be within six inches of the bottom of the pot and must be parallel with it. The cotton twine may not be tied or looped around the web bars. The opening must be a minimum of 18 inches long.

**Rigid mesh pots:** Must have at least one rectangular opening in a sidewall of the pot, which may include a side of the tunnel. The lower long edge of the opening must be parallel to and within six inches of the bottom of the pot. The opening may be covered with a single panel secured to the pot with no more than four single loops of untreated, 100% cotton twine, no larger than 30-thread; each single loop of cotton twine may not be laced along the opening. The panel must be attached to the pot in a manner that when the cotton twine degrades, the panel will drop away from the pot exposing the opening completely. The panel must be equal to or exceeding 12 inches x 8 inches.

Opening at least 18 inches long, no more than 6 inches from bottom of pot and parallel to it



**Buoy Markings:**

Shellfish pot and ring buoys must be marked with:

- Angler's first initial and last name; Home address; and
- The Division of Motor Vehicles registration number (AK number) of the vessel used to operate the pot or the vessel name.


**Crab Area Codes:**

- A** Cook Inlet (North of Anchor Point)
- B** Lower Cook Inlet
- C** North Gulf Coast
- D** Kachemak Bay East of Homer Spit and Anisom Point
- E** Kachemak Bay West of Homer Spit and Anisom Point


**Questions?** Consult the Southcentral Alaska Sport Fishing Regulations book, or call 907-235-8191.

**Permits are due no later than March 31, 2019**

**Report Online:**  
[www.adfg.alaska.gov/sf/PU/](http://www.adfg.alaska.gov/sf/PU/)



**Alaska Department of Fish & Game**  
**2018-2019 Cook Inlet and North Gulf Coast**  
**Subsistence Tanner Crab Permit**



**Last Name**

**First Name**

**Initial**

**Residency**

**Mailing Address**

**City**

**State**

**Zip Code**

**Phone Number**

**Driver's License #**

**State**

**E-Mail Address**

**This permit is valid October 1, 2018 through February 28, 2019.**

1) This permit must be in your possession while taking or transporting Tanner crab in the Cook Inlet – North Gulf Coast Areas.  
 2) Information must be recorded in ink in the spaces below prior to leaving the fishing site or concealing the crab from view.  
 3) You must report online by March 31, 2019 - even if you did not set a crab pot.  
 4) Each person fishing cannot harvest more than their **individual bag limit of legal male crab** (bag limits may change by Emergency Order).  
 5) Once a bag limit is removed from a pot that pot may not be returned to the water containing any live crab.  
 6) Failure to report is a violation and in addition to being cited, you may be ineligible to receive a permit the next year.


**Permit Holder Signature**

**Date**

**You Must Report Online**  
 Scan the QR code or visit us at:  
[www.adfg.alaska.gov/sf/PU/](http://www.adfg.alaska.gov/sf/PU/)

► Was this permit used to set crab pots in 2018-2019? ☐ YES ☐ NO

**Number of lost crab pots:**

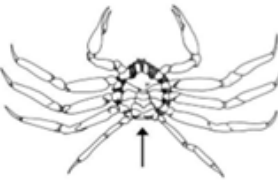


**Tanner Crab Harvest Log**  
 Tanner crab bag and possession limit:  
 3 legal male crab (4 1/2 inches or greater in carapace width)  
Pot limit: 1 per person, maximum 1 per vessel

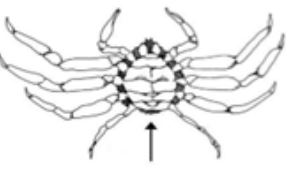
Date Pot Pulled (MM/DD)	Area Code (See Area Map)	Legal Crab Harvested	Date Pot Pulled (MM/DD)	Area Code (See Area Map)	Legal Crab Harvested
1.			13.		
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3.			15.		
4.			16.		
5.			17.		
6.			18.		
7.			19.		
8.			20.		
9.			21.		
10.			22.		
11.			23.		
12.			24.		

Report each day you set a pot, even if you did not catch anything.


**Tanner crab**



Male—narrow abdominal flap



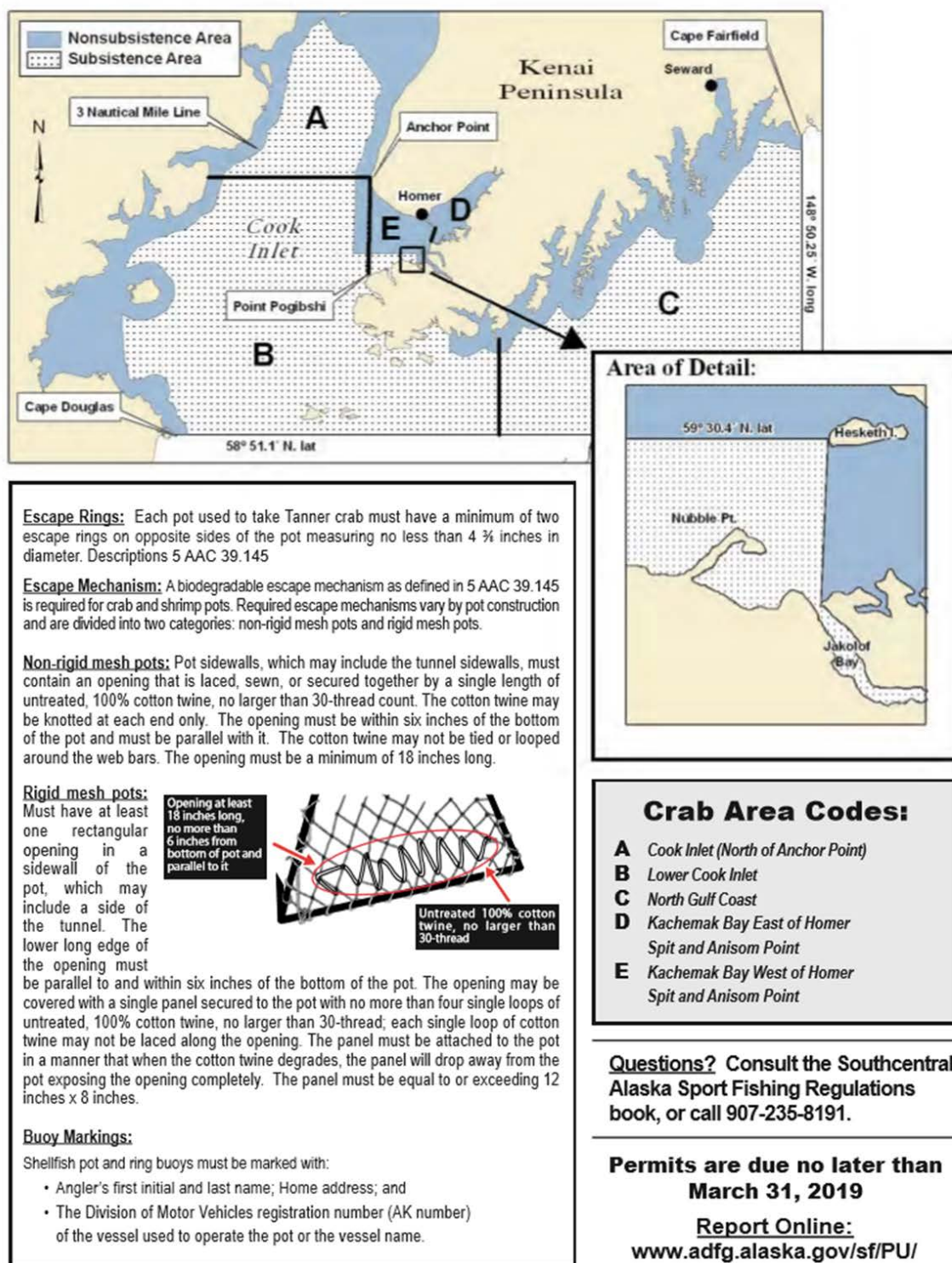
Female—wide abdominal flap covers most of underside (females usually smaller than 4½")  
**NO HARVEST ALLOWED**



Minimum size  
**4 ½"**

Width measurement is the straight-line distance across the carapace, including spines.

-continued-





## **APPENDIX B: REPORTING REMINDERS**



**Report Reminder!**

**Cook Inlet and North Gulf Coast Tanner Crab Permits**

Our records indicate you received a Cook Inlet and North Gulf Coast Tanner crab permit to participate in the sport or subsistence fisheries which closed February 28, 2018. This is a reminder that online reporting is due by March 31, 2018. Reporting is required even if you didn't harvest any Tanner crab and also required if you did not go fishing.

The online harvest reporting can be completed at <https://www.adfg.alaska.gov/sf/PU/> .

Those of you who have submitted reports, thank you! The data will enable ADF&G to assess participation and harvest in these unique fisheries.

For additional information, please contact Carol Kerkvliet or Jan Rumble at the ADF&G Homer office at (907) 235-8191.





THE STATE  
of ALASKA  
GOVERNOR BILL WALKER

## Department of Fish and Game

DIVISION OF SPORT FISH  
DIVISION OF COMMERCIAL FISH

3298 Douglas Place  
Homer, AK 99603  
Main: 907-235-8191  
Fax: 907-235-2448

April 25, 2018

<<FirstName>> <<LastName>>  
<<Address>>

Dear <<FirstName>> <<LastName>>

Our records indicate that you have not reported fishing information on your 2017-2018 Cook Inlet and North Gulf Coast Sport and/or Subsistence Tanner Crab Permit due on March 31, 2018. You are required to report this information even if you did not fish, or even if you went fishing but did not catch anything. Please take a few minutes to report your harvest. Failure to report online will make you ineligible to receive this permit next season.

To report online <https://www.adfg.alaska.gov/sf/PU/>, you will need your permit number (<<PermitNo>>). For questions please contact us at 907-235-8191. Your harvest information is vital to the continued management and conservation of Tanner crab.

**Remember that you must report online even if you did not fish. Failure to report on your permit is a violation of 5 ACC 77.015(c) and 5AAC 02.015 both requiring shellfish harvest to be recorded and reported back to ADF&G.**

Thank you,

Alaska Department of Fish & Game

Division of Sport and Commercial Fish



THE STATE  
of **ALASKA**  
GOVERNOR BILL WALKER

## Department of Fish and Game

DIVISION OF SPORT FISH  
DIVISION OF COMMERCIAL FISH

3298 Douglas Place  
Homer, AK 99603  
Main: 907-235-8191  
Fax: 907-235-2448

June 15, 2018

<<FirstName>> <<LastName>>  
<<Address>>

Dear <<FirstName>> <<LastName>>

You have received several reminders because our records indicate that you have not reported fishing information from your **2017-2018 Cook Inlet and North Gulf Coast Sport and/or Subsistence Tanner Crab Permit** due on March 31, 2018. You are required to report this information even if you did not fish, or even if you went fishing but did not catch anything. Please take a few minutes to report your harvest. Failure to report online will make you ineligible to receive this permit next season.

You are reminded that if you received both a Sport and a Subsistence Tanner Crab Permit, you need to report on each permit. If you did not report on either the Sport or Subsistence permit, you will receive a reminder for the non-reported permit.

To report online <https://www.adfg.alaska.gov/sf/PU/>, you will need your permit number (~~«permitNo»~~). For questions please contact us at 907-235-8191. Your harvest information is vital to the continued management and conservation of Tanner crab.

Remember that you must report online even if you did not fish. Failure to report on your permit is a violation of 5 ACC 77.015(c) and 5AAC 02.015, which are regulations both requiring shellfish harvest to be recorded and reported back to ADF&G.