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Southeast Alaska Shellfish Port Sampling, 2022–2025

by

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Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

Symbols and Abbreviations

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

Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

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

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat or long
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations

alternate hypothesis	H_A
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	E
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	″
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

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SOUTHEAST ALASKA SHELLFISH PORT SAMPLING, 2022–2025

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Signature Page

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Research Coordinator	Andrew Olson		06/09/2022

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PURPOSE

In Southeast Alaska (SEAK), Alaska Department of Fish and Game (ADF&G) Port Sampling staff collect biological data and catch per unit effort information from shellfish fishery permit holders at seafood processing facilities and docks typically during the offloading process. The data collected by the port sampling program is used by fishery managers and research staff to monitor recruitment trends, population health and overall stock status. The port sampling program in Southeast Alaska is responsible for sampling five different shellfish types: Dungeness crab (*Metacarcinus magister*), Tanner crab (*Chionoecetes bairdi*), three king crab species (Lithodidae family), geoduck (*Panopea generosa*), and shrimp (Pandalidae family*)*, each with their own objectives and sampling procedures.

The purpose of this document is to illustrate a well-established sampling protocol for all shellfish species currently conducted by ADF&G port sampling program staff in SEAK. For more detailed information about sampling methods and procedures for all shellfish species refer to the ADF&G Shellfish Port Sampling Manuals for Southeast Alaska (A. Reynolds Manney, J. Rice, A. Buettner, H. Wood, V.DeAngelis, 2015-2022, unpublished data). Each manual contains detailed sampling instructions and criteria for each species along with fishery information and species life history. All ADF&G commercial port samplers are provided a suite of appropriate manuals upon employment, and copies are available for reference.

Keywords: Port sampling, Southeast Alaska, Shellfish, Dungeness, *Metacarcinus magister*, Tanner, *Chionoecetes bairdi*, king crab, Lithodidae family, geoduck, *Panopea generosa*, shrimp, Pandalidae family operations plan

OBJECTIVES

1. Collect size and shell age composition, average weight, leg loss and harvest information (permit holder interviews) from commercial fishery landings of Dungeness crab, Tanner crab and golden, red, and blue king crab.
2. Report any parasites or diseases found during sampling: *Briarosaccus* spp. in king crab or black mat syndrome (*Trichomaris invadens*) found on Tanner crab.
3. Collect individual weight and catch rate information from the geoduck fishery.
4. Collect permit holder interviews, carapace size, and morphometric information for shrimp harvested in the pot and beam trawl fisheries.

METHODS

DUNGENESS CRAB

ADF&G port sampling staff have been collecting biological data from commercial Dungeness crab landings in Southeast Alaska since 1976 (Koeneman 1988). Typically, landings occur in the ports of Petersburg, Wrangell, Sitka, Juneau, Ketchikan, and Haines. Objectives of the port sampling program are to obtain the size, shell age composition, average weight, and a permit holder interview to help determine catch per unit effort (CPUE) in each fishery area (Table 1, Appendices A and B). The information collected by port sampling staff provides an understanding of Dungeness crab growth and is used to assess the relative strengths of various parts of the fishery, such as the recruit or year class composition of the harvest (Stratman et al. 2017).

There is no stock assessment survey for Dungeness crab in Southeast Alaska. Management staff use information collected from fish tickets and port sampling to produce a full season harvest estimate to determine season length as required by regulation in the Dungeness crab management plan. When port samplers interview Dungeness crab permit holders they ask specific questions designed to help management make inseason decisions about the fishery. One important question asked by samplers is the percentage of soft-shelled legal males observed. Regulation mandates that ADF&G reduce the length of summer and fall seasons if the full season harvest estimate falls below thresholds in the Dungeness crab management plan. However, the Dungeness crab management plan gives ADF&G the authority to open the fall fishing season for the full duration if the department determines the full season harvest estimate produced is below 2.25 million pounds due to legal sized, soft-shell crab not retained early in the summer Dungeness crab fishing season.

The SEAK Dungeness fishery is managed by size (6.5 inches or greater in carapace width), sex (male), and season (Table 1). Discreet fishing area sampling objectives are biometrically reviewed and provided to ADF&G commercial port sampling staff on an annual basis. When sampling a Dungeness crab delivery, the objective is to sample either 50 or 75 crab, depending on the statistical area fished (Appendix J). Each crab sampled is measured and the shell and leg condition is determined.

Table 1.–Commercial Dungeness fishery areas, districts, and dates.

Area Description	Districts Included	Fishery Dates
Behm/Portland Canal	101, 102-80	October 1st–February 28th
East Prince of Wales	102 (Any subdistrict other than 80)	
W. Prince of Wales	103, 105-41 thru 50	June 15th–August 15th and October 1st–November 30th
West POW Outside	104	
Port Camden/W. Kuiu	105-10 thru 32, 109-40 thru 63	
Ernest Sound/ Clarence Strait	106-10 thru 35, 107-10 thru 40	
Duncan Canal	106-41 thru 44, 108-30	
Stikine Flats	107-45, 108-10, 20, 40 thru 80	
Thomas/Farragut Bays	110-11 thru 14	
E. Admiralty	109-30, 110-15 thru 34, 111-11 thru 44, 90	
Peril Strait	109-10 thru 20, 112-11,18 thru 22, 67 thru 90, 113-51 thru 59, 63 thru 65	
Lynn Canal	111-50 & 55, 112-15, 115	
Tenakee Inlet	112-12,13, 17, 41 thru 50	
Icy St./ Glacier Bay	112-14,16, 61 thru 65, 113-95 thru 97, 114	
Outside Coast Baranof/Chichagof	113-11 thru 45, 61, 62, 66 and 113-71 thru 94	

TANNER CRAB

Tanner crab *(Chionoecetes bairdi)* are typically delivered to the Southeast Alaska ports of Petersburg, Juneau, and Sitka with occasional landings in other locations. Sampling objectives for the port sampling program are designed to obtain size and shell age composition, average weight, and catch rates of Tanner crab in the commercial fishery.

Port samplers measure a pre-determined number of crab in each delivery, determine shell condition, check for pre-harvest damage to the carapace and legs, note presence of black mat syndrome, obtain an average weight, and conduct a permit holder interview (Appendices A and C).

Average weight data is useful to validate the harvest of crab reported on permit holders' logbooks and fish tickets. Information regarding limb loss, disease or parasites, and carapace injuries is used for gauging overall population health. Similar to the other crab species, fishery manager's use shell condition and carapace width to estimate the proportion of crab within the various recruit classes and to estimate stock conditions qualitatively (Wood et al. 2014).

The Tanner crab sampling objective from any statistical area is 75 crab per delivery. The highest sampling priorities are deliveries from statistical areas examined during the fall stock assessment survey. A sampling memo is provided to port sampling staff with objectives for each fishery area (Table 2, Appendix K) at the beginning of each season. The memo is used by samplers to guide their sampling efforts.

There are two common diseases found in Tanner crab in SEAK; bitter crab syndrome (BCS) and black mat. Bitter crab syndrome is caused by a microscopic, parasitic dinoflagellate and is identified by the milky hemolymph present when a leg is broken and by the red spotty meat under the shell. Although it isn't harmful if ingested, crab with this infection have a bitter, aspirin-like aftertaste (Jadamec et al. 1999). Identifying crab infected with bitter crab syndrome is visually subjective and infected crabs do not always have perceptible signs of BCS; identifying this disease is not currently part of the ADF&G port sampling protocol. Black mat is an encrusting fungus occurring on the carapace, appendages, and eyestalks of Tanner crab and is recognizable by the black, tar-like mass on the infected crab (Jadamec et al. 1999). Identifying the presence of black mat is relatively simple and is part of the ADF&G port sampling program.

Table 2.–Commercial Tanner crab fishery areas, districts, and dates.

Area Descriptions	Districts Included	Fishery Dates
Lynn Canal/Upper Stephens Passage	All of District 15, Subdistricts 111-30 thru 111-55	Male Tanner crab may be taken only from 12:00 noon on the date with the smallest Juneau tidal range between February10 and February 17, as announced by emergency order, through May 1.
Fredrick Sound/Lower Stephens Passage	All of District 8 & District 10, Subdistricts 111-00 thru 111-29	
Icy Strait	All of District 14	
Other Areas	Districts 1 thru 7, 9, 12, 13	

KING CRAB

Samples from the commercial harvest of king crab provide shellfish management and research staff with information about the health of king crab stocks in Southeast Alaska. This information aids in-season management as well as helping to determine long-term trends in the fishery.

There are three species of king crab that are commercially harvested in Southeast Alaska: golden, red, and blue. Each species has slightly different sampling objectives (Table 3). A memo is distributed before each season with fishery areas, sampling objectives for those areas, and sampling priorities for golden and red king crab. There is no directed fishery or formal sampling objectives for blue king crab; any harvest is considered incidental during other king crab or Tanner crab fisheries. A sampling method does exist if blue king crab are encountered during a sampling event.

The parasitic barnacle, *Briarosaccus callosus,* can be found in all three species of king crab. Permit holders are encouraged to bring to port any parasitized crab they encounter, including females and undersized males, or to remove the parasite and dispose of it on dry land. One of the responsibilities of a port sampler, when sampling king crab, is to ask permit holders if they harvested any crab with the parasite and to note any found in their sample.

Table 3.–Sampling duties by king crab species.

	Carapace Length	Carapace Width (biological)	Average Weight	Individual Weight	Shell/Leg Condition	Permit Holder Interview
Golden King Crab	X	–	X	X	X	X
Red King Crab	X	–	X	–	X	X
Blue King Crab	X	X	X	X	X	X

Golden King Crab

Most commercial golden king crab (*Lithodes aequispinus*) deliveries occur in Petersburg, Wrangell, and Juneau with occasional landings in Sitka and other ports. The port sampling data collection for golden king crab consists of sampling 50 crab per delivery for individual and average weights, carapace lengths, shell and leg condition and a confidential permit holder interview (Table 4, Appendix A and D). The confidential interview questions allow for the collection of information regarding area fished and CPUE. A memo is distributed before the season starts outlining sampling goals for each fishery area (Table 4, Appendix L). Unlike red king crab, there is no annual stock assessment survey for golden king crab. Therefore, port sampling data play a crucial part in helping to establish yearly guideline harvest levels (GHLs) as well as aiding in the in-season management of the fishery.

Table 4.–Golden king crab fishery areas, districts, and dates.

Area Description	**Districts Included**	**Fishery Dates**
Icy Strait	114	12:00 noon on the date with the smallest Juneau tidal range between February 10 and February 17 until each fishery area is closed by emergency order.
Northern	111-40 thru 55, 112, 113-51 thru 65, 115	
North Stephens Passage	111-20 thru 35 and 111-90	
East Central	105-31 and 32, 106-41 thru 44, 108-41, 50, 60, 109-30 thru 50, 110, 111-11 thru 17	
Mid Chatham Strait	109-20, 51, 52	
Lower Chatham Strait	109-10, 11, 13, 61, 62, 63 and 113-11	
Southern	101, 102, 106-10 thru 35 and 107-10	

Red King Crab

The SEAK commercial red king crab (*Paralithodes camtschaticus*) fishery has not been consistently opened in the past two decades. The commercial fishery was open for the 2017/2018 season, but the five prior seasons were closed. Sampling priorities and fishing areas are based on the current crab stock status and will be determined prior to any future fishery openings (Appendix M). Dockside sampling of red king crab harvested in the Southeast Alaska commercial fishery is similar to golden king crab, except individual weights are not collected. Sampling includes, obtaining average weights, carapace lengths, shell, and leg conditions for 50 crab as well as conducting a confidential interview with the permit holder to obtain location and CPUE information (Table 3, Appendix A and E). The data collected by port samplers is used to describe trends in the recruit composition by fishery area, compare recruit composition between surveyed and harvested catch, and to compare recruit composition of harvested catch between surveyed areas and non-surveyed areas (Messmer et al. 2017). Information on limb loss and parasite presence is also collected and is useful for gauging overall population health. Average weights help fishery managers more accurately manage guideline harvest levels in each of the different fishery areas as well as edit fish tickets and logbooks.

Blue King Crab

There is no directed fishery for blue king crab (*Paralithodes platypus*) in Southeast Alaska. They may only be retained as incidental harvest in the golden king crab, red king crab, and Tanner crab fisheries (Stratman et al. 2011). Having no direct harvest of blue king crab limits the amount of dockside data available, including how length corresponds to width. Port samplers are asked to examine any blue king crab they encounter for biological width as well as the standard-length measurement, and parasites (Table 3).

GEODUCK CLAMS

The geoduck fishery was established in Alaska in 1978. Prior to the 1991/1992 season there was little interest or harvest (Rumble and Siddon 2011). The objective of the port sampling project is to sample commercial landings of geoducks in Ketchikan and Craig to gather information about changes in geoduck populations over time. The seasonal sampling goal is to collect weights from 25 individual clams per individual diver and 100 weights per open fishery area (Appendix F). The weight data collected by port samplers is used to estimate the season's harvested biomass. Weights are also used to help determine if there have been shifts in size due to environmental factors or size selective harvesting. Geoduck fishing beds are on a rotation and are not open each year (Table 5, Appendix N). Each season a different set of geoduck beds are available for harvest and are outlined in a preseason geoduck news release.

Table 5.–Geoduck survey and harvest rotation schedule.

Fishery Name	Bed Code	Rotation
Biorka Channel/ Legma Island	113-31-003	1-year
Blank Inlet CONTROL	101-27-CON	CONTROL
Blanquizal Island	103-70-005	2-year even
Bucareli Bay	103-50-003	2-year odd
Cat and Dog Islands	101-23,41-005	2-year even
Cone Island North	103-50-005, 104-40-005	2-year even
Cone Island South / Paloma Pass	103-50-006, 104-35-006	2-year even
Davidson Inlet	103-90-004	4-year even
East San Fernando Island	103-60-001	2-year even
Elovoi / Golf / Gornoi Islands area	113-31-005	1-year
Foggy Bay	101-23-001	2-year even
Kaigani Strait	103-30-001	2-year odd
Kelp Island	101-21-001	2-year odd
Little Steamboat Bay	103-70-002	2-year odd
Lower Cordova Bay	103-11,21, 102-10	2-year even
Maurelle Islands	103-70,80 104-40,50-009	2-year odd
Middle Gravina	101-29-002	4-year odd
Nakat Inlet	101-11-001	2-year odd
Nehenta Bay	101-29-001	4-year odd
North Kirk Point / Bullhead Cove	101-23-003	2-year odd
Northwest Dall Island	104-20,30-003	2-year even
Palisades Islands	103-70-006	2-year even
Percy Islands	101-25-002	2-year odd
Port Alice / Cone Bay	103-90-002	2-year even
Port Mayoral CONTROL	103-50-CON	CONTROL
Port Real Marina	103-50-007	RECOVERY
Port Santa Cruz	104-30-002	2-year even
Portillo Channel	103-50-008	2-year odd
Slate Island	101-23-004	4-year even
South Point Vallenar	101-29-003	RECOVERY
Southern Gravina	101-29-005	2-year odd
St. Nicholas Channel / North Lulu Island	103-70-007	2-year even
Steamboat Bay	103-70-003	2-year odd
Symonds Bay	113-31-002	RECOVERY
Taigud / Kolosh Islands	113-31,41-004	1-year
Tlevak Strait	103-40, 50-009	2-year odd
Turn Point	103-90-003	RECOVERY
Ulitka Bay	103-70-001	2-year even
Vallenar Bay	101-29-004	4-year odd
Vegas / Hotspur Islands	101-25-003	2-year odd
Warren Island and Kosciusko Island	103-90-005, 105-41,43,50-005	2-year even

SHRIMP

In Southeast Alaska there are two distinct fisheries for shrimp: pot and beam trawl. Both fisheries are routinely sampled for biological data by port sampling staff. Samplers work closely with shrimp research staff to collect samples from areas where data is most needed each season.

The overall objective is to collect fishing location, effort, size-at-sex (SAS) and size frequency information from designated areas each year (Table 6 and 7, Appendix O). The shrimp samples collected are used to show trends in the age class composition and size-at-sex of the commercially harvested species. These trends are directly related to the reproductive potential of a population and are therefore crucial data to collect.

Pot Shrimp

In the Southeast Alaska pot shrimp fishery, the target species is spot shrimp (*Pandalus platyceros)*. Dockside sampling the pot shrimp fishery started in 1997. At that time, samplers collected 50 shrimp for later SAS sampling in the lab and 50 shrimp for carapace length and the presence/absence of eggs at the time of delivery. Recently, the shrimp buying market has changed and processors are no longer buying head-on pot shrimp at the dock. Permit holders have switched over to a catcher-processor system, where they process the shrimp before returning to the dock, making sampling dockside impossible. Samplers now ask fishermen to collect about 50 unsorted shrimp from 1 pot and deliver the sample to a port sampler at the dock. Even with the switch in the way samples are collected the overall goal of pot shrimp port sampling has stayed the same; to provide managers SAS and length frequency information from the various subdistricts (Table 6) during the fishery.

Port samplers interview the permit holder for fishing information including effort, location, and type of pot used (Appendix H). This information is sent to the Petersburg ADF&G lab with the frozen, unsorted shrimp samples where carapace size, egg presence/absence and SAS data are collected (Appendix G). Management biologists also collect shrimp samples on the grounds while out observing the fishery. They collect samples from areas not covered by port samplers or stock assessment surveys.

Table 6.–Pot shrimp management units, analysis areas, and districts. Starting in May 2023 all areas are open May 15 thru July 31, then reopen October 1 thru February 28 by regulation or closed by News Release if the GHL is reached first.

Management Unit	Analysis Area	Subdistricts
District 1	Back Behm Canal	101-75,77,80
	East Behm	101-51,53,55,60,71,73
	West Behm Canal	101-85,90,95
	Boca de Quadra	101-30
	Inner Ketchikan Inlets	101-27,40,43,44,45,46,48
	Portland Canal	101-10,11,13,15
	Revilla Channel/Gravina	101-21,23,22,25,29,41
District 2	Lower Clarence	102-10,15,20,30
	Lyman Cleveland shoreline	102-70, 80
	Middle Clarence	102-40,50,60
Section 3-A	Hetta Inlet	103-25
	Lower Cordova Bay	103-11,15
	Mid Cordova Bay	103-21,23
	Upper Cordova Bay	103-30,40
Sections 3-B/C	Craig	103-50,60,70,80
	Sea Otter Sound	103-90
District 4	D 4	104,10,20,30,35,40,50
District 5	Affleck/Port Beauclerc	105-10,20
	Cape Pole to Point Baker	105-41,42,43,50
	Rocky Pass	105-31,32
District 6	Sumner Strait	106-41,42,43,44
	SW Etolin	106-20,22,25
	Upper Clarence	106-10,30
District 7	Bradfield	107-40,45
	Lower Ernest Sound	107-10
	Upper Ernest Sound	107-20
	Zimovia Strait	107-30,35
District 8	Eastern Sumner	108-30,40
	Frederick Sound	108-41,50,60
	Stikine Strait/Chichagof Pass	108-10,20
District 9	Eliza Harbor	109-30
	Keku Strait/Port Camden	109-40,41,42,43
	SE Baranof	109-10,11,20
	Western Kuiu (Saginaw to Table)	109-44–63
District 10	Farragut Bay	110-11,12,13,14,15,16,17
	Hobart/Windham	110-31,32,33
	Port Houghton	110-34
	SE Admiralty (Pybus to Pt Hugh)	110-21-24
District 11	Auke Bay	111-50,55
	Seymour Canal	111-11,12,13,14
	Glacier-fed Bays	111-21,33,34,35
Tenakee	East Tenakee	112-41,42
	West Tenakee	112-43,44,45,46,47,48
Remainder of District 12	Freshwater Bay	112-50
	Kelp Bay	112-11,112-21,22
	Pt. Couverden	112-61

-continued-

Table 6.–Page 2 of 2.

Management Unit	Analysis Area	Subdistricts
Section 13-A/B	Crawfish	113-31,32,33
	Larch/ Branch Bays	113-11,12,13
	Necker	113-34
	Whale Bay	113-22,21
Section 13-C	Hoonah Sound	113-55,56,57,58
	Peril Strait	113-51,52,53,54,59
District 14	Eastern Icy Strait	114-25,27,80
	Port Frederick	114-31,32,33,34
District 15	Chilkat Inlet	115-32
	Chilkoot Inlet	115-34
	Lutak Inlet	115-33
	Taiya Inlet	115-35
District 16	Lituya Bay	116-13
	Rest of 16	116-11,12,14

Beam Trawl Shrimp

The beam trawl fishery in Southeast Alaska primarily targets northern pink shrimp (*Pandalus borealis*) and sidestripe shrimp (*Pandalus dispar*). Other species of shrimp are caught and landed during the fishery, including coonstripe *(Pandalus hypsinotus)* and spot shrimp, but are not considered the target species. There is no stock assessment survey for the beam trawl fishery. The data collected by the dockside sampling program is the only biological information obtained and therefore is the only information available for management and research decisions (Smith and Grey 2017).

Although this fishery is relatively small, and deliveries only occur in Petersburg, the sampling methods can be complex. There are different methods for sample collection, depending on how the shrimp are sold (dockside, to a processor, size or species sorted, etc.). If the shrimp delivered are unsorted the sampler takes two separate samples of 25 individual shrimp at different times in the offload (50 shrimp total). If the delivery is sorted by species the sampler takes two samples of 25 individual shrimp of each species (100 shrimp). If the catch is sorted by size the sampler collects one sample of 25 shrimp of each size class (small and large, 50 shrimp total). The sampler measures the carapace length of each shrimp in these samples and notes presence or absence of eggs (Appendix G). In addition to these samples, 25 individual shrimp of each target species are collected for SAS. The SAS sample is as random as possible, collecting from all size classes. These methods attempt to make samples as random and representative of the catch as possible.

Before the season starts a memo is distributed outlining sampling goals for each area. Goals are by area and season (Table 7). Along with the shrimp sample collection the sampler conducts a confidential interview with the permit holder. Fishing location and effort are determined as well as target species, net mesh size, net width, and net height (Appendix I). This information provides comprehensive data sets for management and research staff.

Table 7.–Beam trawl shrimp fishery type, area, districts, and dates.

Type	Area Description	Districts Included	Fishery Dates
Traditional	Duncan Canal	106-42, 43, 44	May 1st–June 30th, July 1st–August 31st, September 1st–February 28th
	Blake Channel	107-10, 20,30, 35, 40	
	Eastern Channel	107-45	
	Thomas and Farragut Bays	110-11 thru 16	
	Stikine Flats	108-10, 20, 30, 40, 41, 45, 50, 60, 70, 80	May 1st–June 30th, July 1st–August 31st, September 1st–October 31st and November 1st–February 28th
Non-traditional	District 103	103 (all subdistricts)	May 1st–February 28th
	District 105	105 (all subdistricts)	
	South Zarembo	106-10, 20, 21, 22, 25, 30	
	Sumner Straits	106-41	
	District 107	107-10, 20, 30, 35 & 40	
	District 109	109 (all subdistricts)	
	Upper Frederick Sound	110-17, 21 thru 24, 31 thru 34	
	Section 11-A	111-40 thru 44, 50, 55	
	Section 11-B	111-31thru 35, 90	
	Section 11-C	111-20, 21	
	Section 11-D	111-11 thru 17	
Emergency order	Miscellaneous Southeast	2, 4, 12, 13, 14, 15, 16	No Historical fishery in these areas.
Emergency order (Sidestripe Fishery)	Miscellaneous Southeast	1, 8, 11-B	

RESPONSIBILITIES

Table 8.–Port sampling responsibilities, locations, and job titles.

Name	Title	Job Class	Location
Anne Reynolds Manney	Project Leader and Regional Port Sampling Supervisor	Fish and Game Coordinator	Ketchikan
Heidi Ingram	Port Sampling Supervisor	Fishery Biologist 2	Juneau
Jeff Rice	Port Sampling Supervisor	Fishery Biologist 2	Petersburg and Wrangell
Jill Walker	Port Sampling Supervisor	Fishery Biologist 2	Ketchikan and Craig
Willa Johnson	Port Sampling Supervisor	Fishery Biologist 2	Sitka
Tory DeAngelis	Shellfish Port Sampling Lead/Regional Trainer	Fisheries & Wildlife Tech IV	Petersburg

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APPENDICES

Appendix A.–Dockside interview form used for all crab species.

Crab Dockside Interview

Year	Project	Trip No.	Fish ticket No.	Sample Date

ADF&G Number	Vessel Name	Trip Start Date	Trip End Date

First Name	Last Name	Sampler Type

Stat Area	No. Pot Lifts	No. Crab

---------- Weight Sample ----------

Pounds counted	Crab counted	Average Weight
÷	=	

Port	Total Pot Lifts	Total Crab

Comments:

Gear type (for Tanner only)

Pots	Rings

Is this a tender sample?

What percentage of your catch were soft-shelled legal males?
(Be sure to ask this during the summer Dungeness season)

Any other observations or comments:
(Including percentage of sublegal males or females in the catch, percentage of females with eggs, or soak time)

Sampler Types:
Recorder Unaccompanied
Measurer

Appendix B.–Dungeness crab size and shell condition form.

910 - Dungeness Crab Size and Shell Condition

Number	Sex	Width (in mm)	Shell	Leg	Comments	Number	Sex	Width (in mm)	Shell	Leg	Comments
1						39					
2						40					
3						41					
4						42					
5						43					
6						44					
7						45					
8						46					
9						47					
10						48					
11						49					
12						50					
13						51					
14						52					
15						53					
16						54					
17						55					
18						56					
19						57					
20						58					
21						59					
22						60					
23						61					
24						62					
25						63					
26						64					
27						65					
28						66					
29						67					
30						68					
31						69					
32						70					
33						71					
34						72					
35						73					
36						74					
37						75					
38											

SEX
01 Male
02 Female

SHELL CONDITION
1 Soft
2 Light
3 New
4 Old
5 Very old

LEG CONDITION
1 Normal
2 One leg or claw missing or regenerated
3 Two or more legs/claws missing or regenerated
4 Abnormal carapace
5 Combination of conditions

Updated 2/2012

Appendix C.–Tanner crab size and shell condition form.

931 - Tanner Crab Size and Shell Condition

Number	Sex	Width (in mm)	Shell	Leg	Black Mat	Comments	Number	Sex	Width (in mm)	Shell	Leg	Black Mat	Comments
1							39						
2							40						
3							41						
4							42						
5							43						
6							44						
7							45						
8							46						
9							47						
10							48						
11							49						
12							50						
13							51						
14							52						
15							53						
16							54						
17							55						
18							56						
19							57						
20							58						
21							59						
22							60						
23							61						
24							62						
25							63						
26							64						
27							65						
28							66						
29							67						
30							68						
31							69						
32							70						
33							71						
34							72						
35							73						
36							74						
37							75						
38													

SEX
01 Male
02 Female

SHELL CONDITION
1 Soft
2 Light
3 New
4 Old
5 Very old

LEG CONDITION
1 Normal
2 One leg or claw missing or regenerated
3 Two or more legs/claws missing or regenerated
4 Abnormal carapace
5 Combination of conditions

BLACK MAT
00 None observed
01 Observed

Updated 4/2012

Appendix D.–Golden king crab size and shell condition form.

923 – Golden King Crab Size and Shell Condition

Number	Sex	Length (in mm)	Shell	Leg	Weight (grams)	Parasite	Comments	Number	Sex	Length (in mm)	Shell	Leg	Weight (grams)	Parasite	Comments
1								39							
2								40							
3								41							
4								42							
5								43							
6								44							
7								45							
8								46							
9								47							
10								48							
11								49							
12								50							
13								51							
14								52							
15								53							
16								54							
17								55							
18								56							
19								57							
20								58							
21								59							
22								60							
23															
24															
25															
26															
27															
28															
29															
30															
31															
32															
33															
34															
35															
36															
37															
38															

Sex

01 Male
02 Female

Shell Condition

1 Soft
2 Light
3 New
4 Old
5 Very Old

Leg Condition

1 Normal
2 One leg or claw missing or regenerated
3 Two or more legs/claws missing or regenerated
4 Abnormal carapace
5 Combination of conditions

Parasite

1 None present
2 Biarosaccus single scar
3 Briarosaccus double scar
4 Briarosaccus single externa
5 Briarosaccus double externa
7 Microsporidian (Cottage Cheese)

Updated

11/2011

Appendix E.–Red king crab size and shell condition form.

921 – Red King Crab Size and Shell Condition

Number	Sex	Length (in mm)	Shell	Leg	Parasite	Comments	Number	Sex	Length (in mm)	Shell	Leg	Parasite	Comments
1							39						
2							40						
3							41						
4							42						
5							43						
6							44						
7							45						
8							46						
9							47						
10							48						
11							49						
12							50						
13							51						
14							52						
15							53						
16							54						
17							55						
18							56						
19							57						
20							58						
21							59						
22							60						
23													
24													
25													
26													
27													
28													
29													
30													
31													
32													
33													
34													
35													
36													
37													
38													

Sex

01 Male
02 Female

Shell Condition

1 Soft
2 Light
3 New
4 Old
5 Very Old

Leg Condition

1 Normal
2 One leg or claw missing or regenerated
3 Two or more legs/claws missing or regenerated
4 Abnormal carapace
5 Combination of conditions

Parasite

1 None present
2 Biarosaccus single scar
3 Briarosaccus double scar
4 Briarosaccus single externa
5 Briarosaccus double externa
7 Microsporidian (Cottage Cheese)

Appendix F.–Geoduck harvest data and individual weight form.

Geoduck Size Form										
Year	Project				Trip Number	Fish Ticket Number			Sample Date	
	Commercial Geoduck Trip									
Date of Landing	Port			Sampler						
				First Name		Last Name			Type	
Permit Holder									Measurer	
									Recorder	
Stat. Area/Bed Code				Bed Name			Comments:			

Specimen Number	Shell Weight (grams)				Comments/Observations
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					

Appendix G.–Pot and beam trawl shrimp specimen form.

SHRIMP SPECIMEN DATA

Page _____ of _____

Year _____ Project _____ Trip _____ Analyzed By: _____

Sample Type (circle one): size · sex · atypical Date _____ / _____ / _____ (Month / Day / Year)

SPECIMEN #	SPECIES CODE	CARAPACE LENGTH (mm)	EGG CONDITION	PARASITES? (00 - unk, 01 - yes, 02 - no)	SOFT-SHELL? (00 - unk, 01 - yes, 02 - no)	WHOLE WEIGHT (g)	TAIL WEIGHT (g)	STERNAL SPINES	1ST PLEOPOD	2ND PLEOPOD	SEX	COMMENTS
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												

Sampling form continues until specimen number 50 is reached

SPECIES	SEX	EGG CONDITION	STERNAL SPINES	PLEOPOD CODE (965)		PLEOPOD CODE (961, 962, 963, 964)
961 = Pink Shrimp	0 = Not observed	0 = Unknown	0 = Not observed	0 = Not observed	5 = E	0 = Not observed
962 = Sidestripe Shrimp	1 = Male	1 = Eggs present	1 = Prominent	1 = A	6 = F	1 = Observed
963 = Humpy Shrimp	2 = Female	2 = Eggs not present	2 = Reduced	2 = B	7 = G	
964 = Coonstripe Shrimp	3 = Transitional	3 = Brood dress with clean setae	3 = Remnant	3 = C	8 = H	
965 = Spot Shrimp	99 = Indiscernible	4 = Brood dress with matted setae	4 = None	4 = D		

Date Sample Processed:_____ Time began:_____ Time ended:_____

Filename: Shrimp Specimen Data Form 7-01.doc
Revised 7/01

Appendix H.–Pot shrimp interview form.

POT SHRIMP INTERVIEW

Year	Project	Trip No.	Fish Ticket No.	Sample Date

ADF&G Number	Vessel Name	Trip Start Date	Trip End Date

Sampler First Name	Sampler Last Name	Sampler Type	Sample Site Type
		Measurer	☐ Dockside ☐ Floating Processor ☐ On Grounds Sample
		Recorder	

Pot Size Class (small or large)	Pot Type (Cone - Pyramid - Square - Rectangle)	Pot Dimension (39dx18h - 48dx18h - 48dx20h - atypical)	Mesh Size	Port

Sort Condition (choose one)

☐ Unknown ☐ Unsorted ☐ Collected by fisher ☐ Sorted by species ☐ Sorted by size ☐ Sorted by both species and size

Comments

Species Code	Statistical Area	Pounds of Shrimp	Number Pot Lifts

Pounds Delivered	Total Pot Lifts

Sampling Began: _____ Sampling Ended: _____

Appendix I.–Beam trawl shrimp interview form.

TRAWL SHRIMP INTERVIEW

Year	Project	Trip No.	Fish Ticket Number(s)	
ADF&G Number	**Vessel Name**	**Port of Landing**	**Interview Date**	

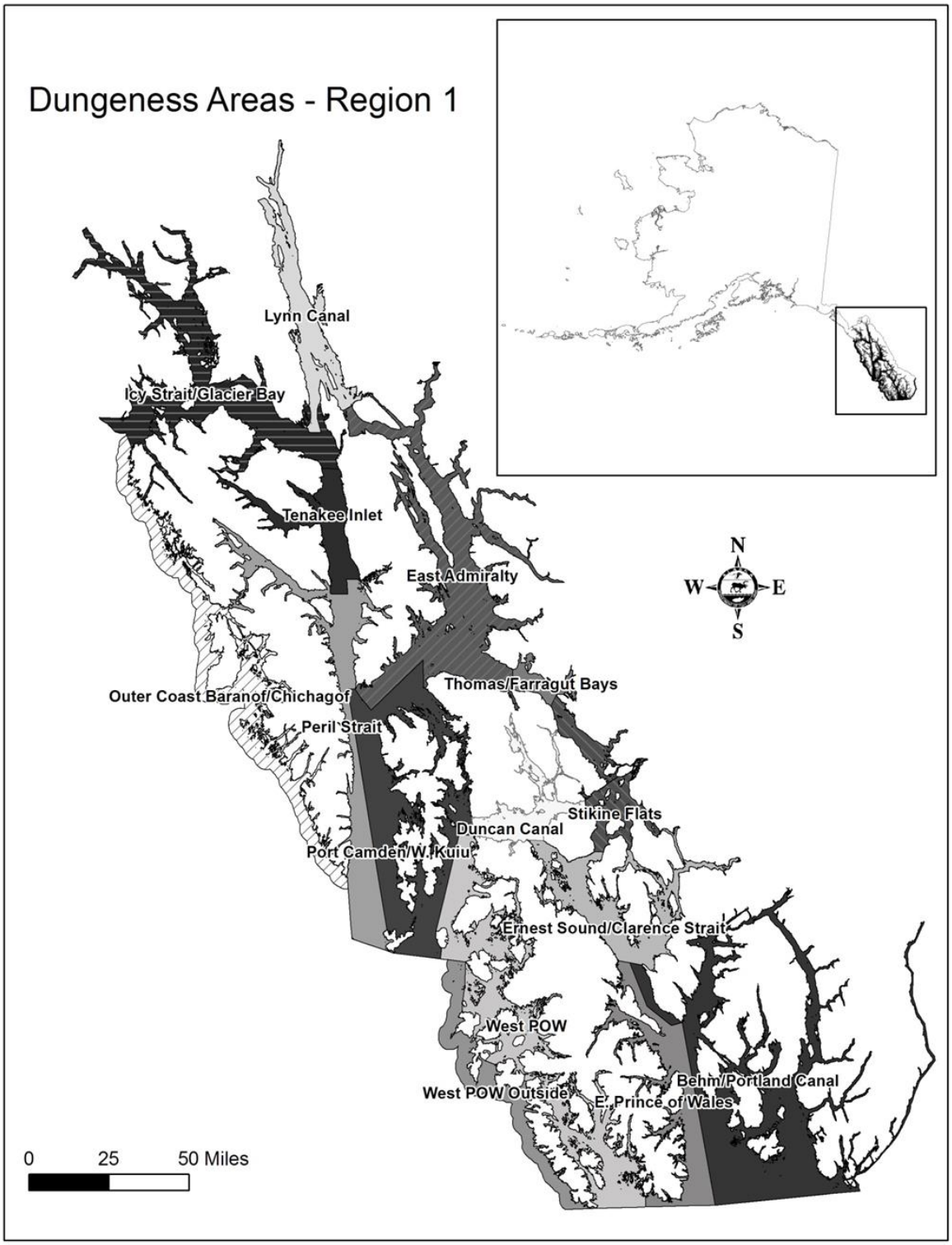
Sampler First Name	Sampler Last Name	Sampler Type (Interviewer, sexer, measurer, recorder)	Bycatch Species Code	Bycatch Species	Numbers	Lbs

Mesh Size (inches)	Net Width (feet)	Net Height (feet)	Target Species	Sort Condition (choose one)	
				☐ Unknown	☐ Sorted by species
Comments on Trip				☐ Unsorted	☐ Sorted by size
				☐ Collected by fisher	☐ Sorted by both species & size

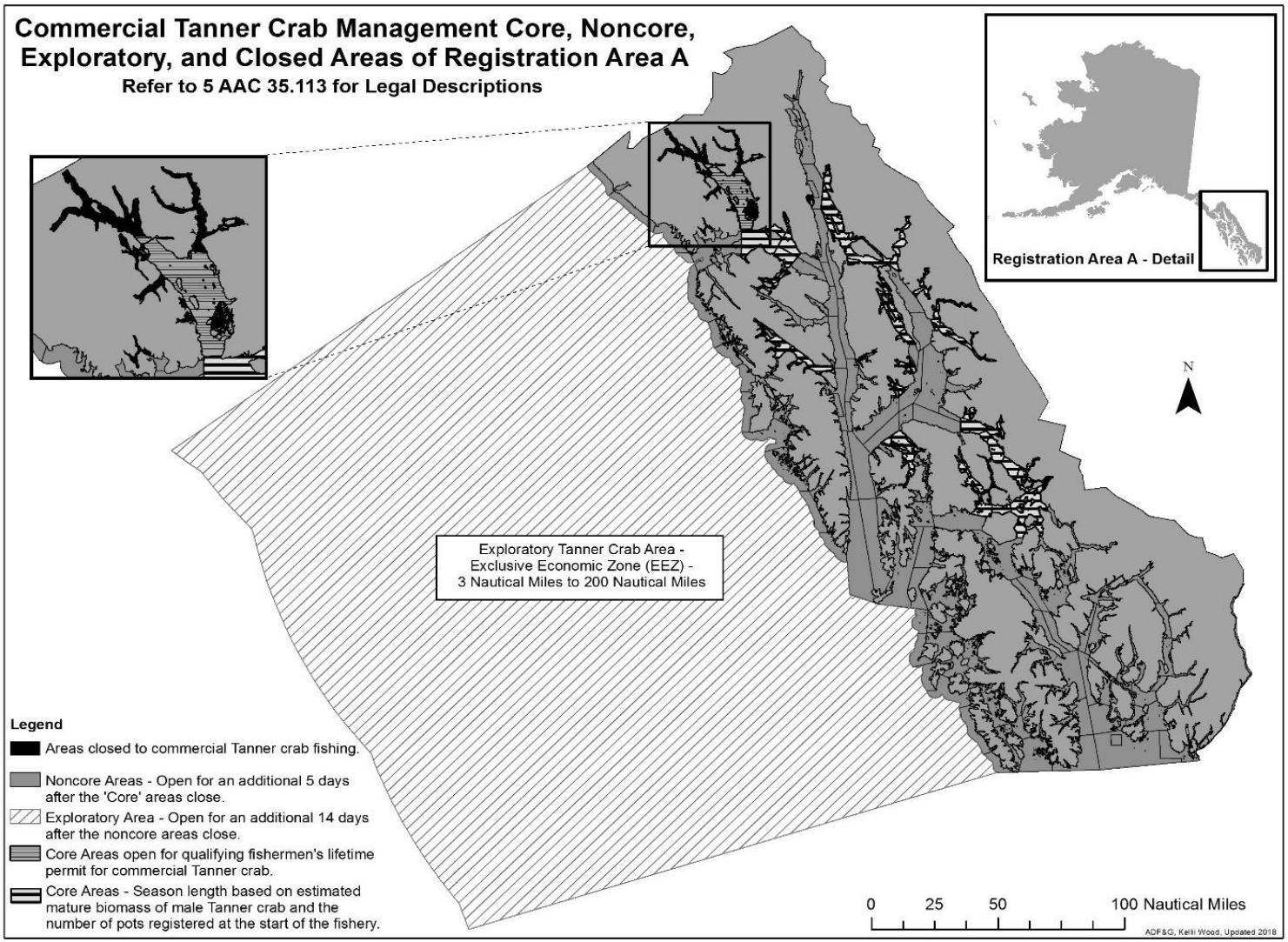
Effort Date	Stat Area	No. of Tows	Minimum Depth	Maximum Depth	Area Description	Comment

	Sample 1				Sample 2				Sample 3			
Species	Weight of sample	Number in sample	Number measured	Grams measured	Weight of sample	Number in sample	Number measured	Grams measured	Weight of sample	Number in sample	Number measured	Grams measured
960												
961												
962												
963												
964												
965												
Comment on sample												

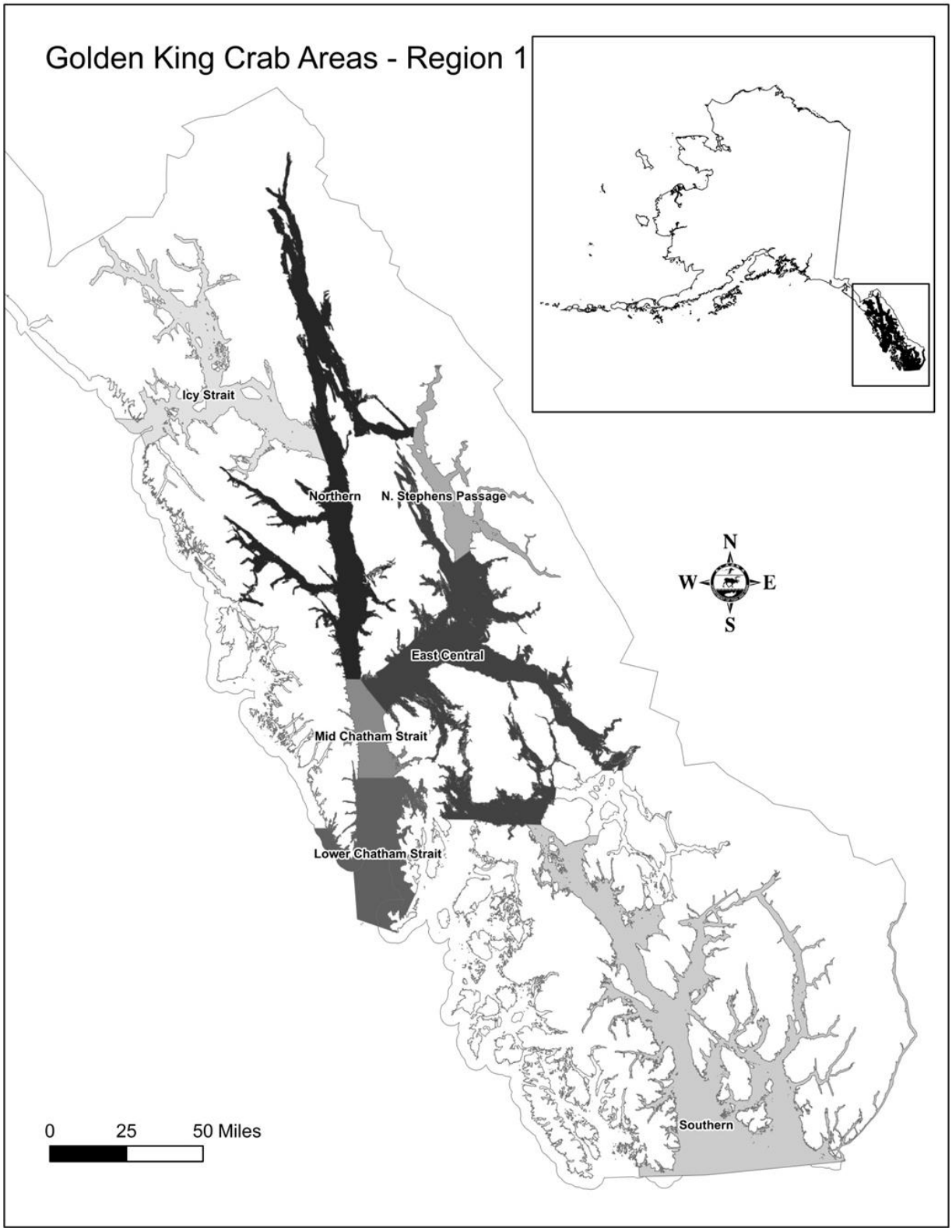
Appendix J.–Map of Dungeness crab fishing areas.



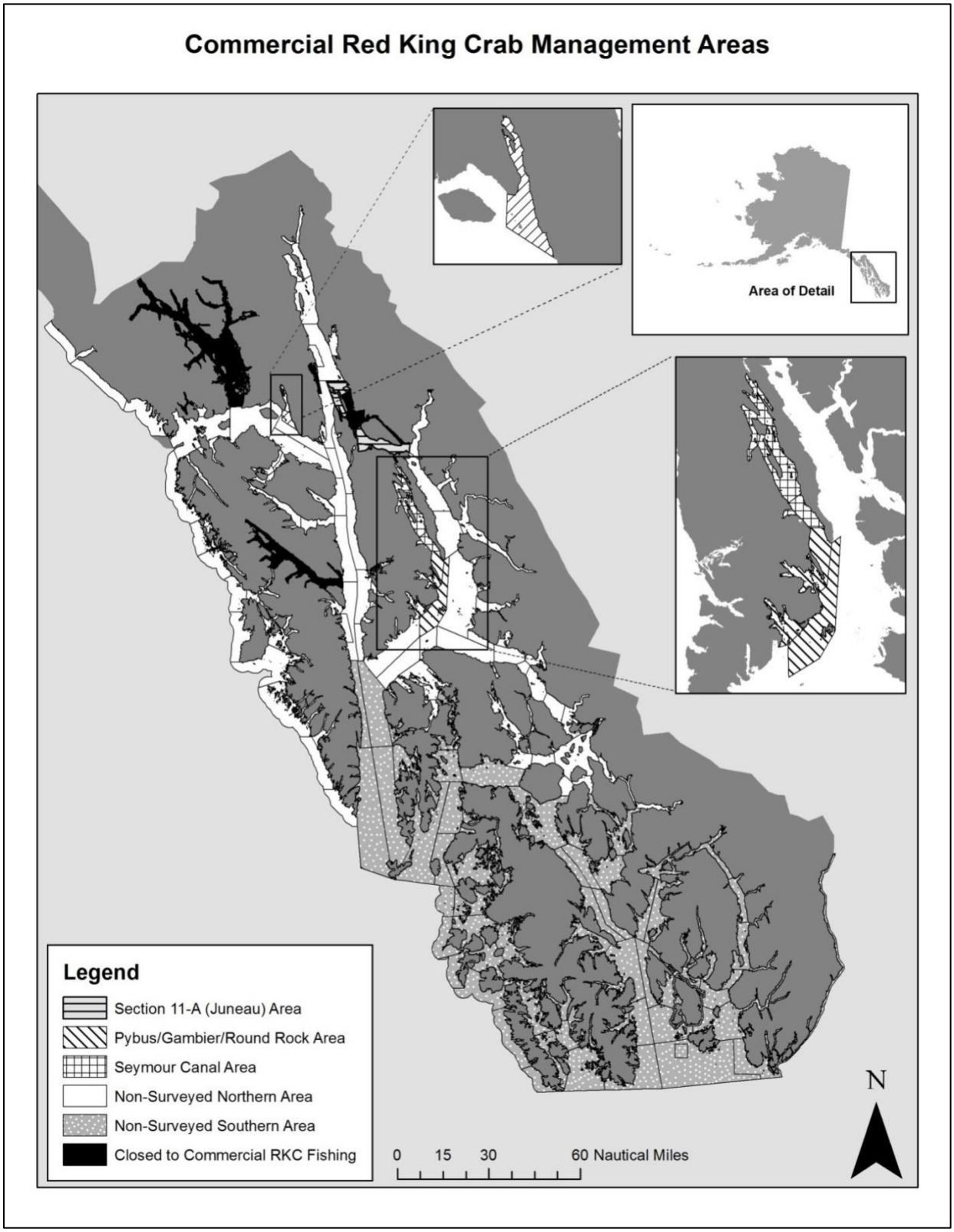
Appendix K.–Map of Tanner crab fishing areas.



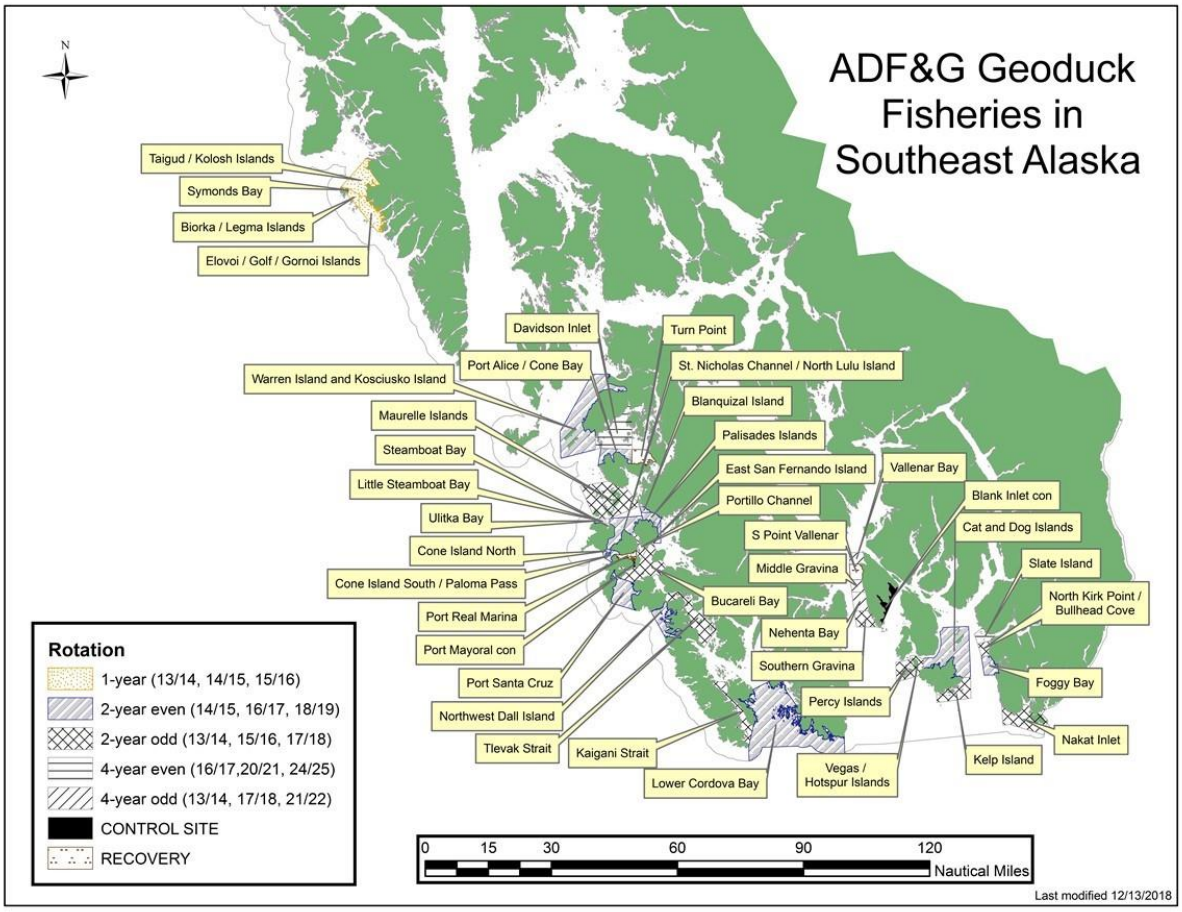
Appendix L.–Map of golden king crab fishing areas.



Appendix M.–Map of red king crab fishing areas for 2017/2018 season, the last year there was a fishery.



Appendix N.–Map of the Geoduck beds and rotations in Southeast Alaska.



Appendix O.–Pot and beam trawl shrimp fishery map. This map is also used for general shellfish fisheries if there is no fishery specific map available.