

# C5 GOA Tanner crab protection measures

Anita Kroska  
Taylor Holman



1976  
—  
2026

JUNE 2026



# Presentation outline

- Background, alternatives, and history of action (Sec. 1 and 2)
- Methods for custom closure apportionment (Sec. 3.1.1)
- Alternative 2
  - Description of Fisheries (Sec. 3)
  - Economic and Social Impacts (RIR, Sec. 4)
    - Impacts to groundfish pot & trawl fisheries (4.3.1)
    - Potential impacts to non-regulated entities (4.3.2)
  - Environmental Assessment (EA, Sec. 5)
    - Tanner crab life history, management, spatial & temporal distribution, SDMs, sources of mortality, PSC, displacement (Sec. 5.3)
    - Groundfish, Chinook and halibut PSC (Sec. 5.2, 5.4, and 5.5)
    - Habitat (Sec. 5.6)
- Management Considerations (Sec. 6)
- Alternative 3 (Sec. 7)
- MSA and FMP Considerations (Sec. 8)
- Next Steps



# History of Action (1.2)

Jun.  
2023

Council initiated a discussion paper to inform potential GOA Tanner crab protections, in response to public testimony on the topic

Feb.  
2024

Council reviewed discussion paper on GOA Tanner crab protections

Council requested an expanded discussion paper, including specific information requests on Tanner crab abundance & distribution, existing closure areas, and groundfish harvests & PSC

Apr.  
2025

Council adopted a purpose and need statement, and developed alternatives to initiate analysis.

**Alternative 2: Implement Closure**

**Alternative 3: Evaluate Existing Closures**

Jun.  
2026

At this meeting, the Council will review the initial draft of RIR/EA, and consider next steps



## Background, Purpose and Need (1.1)

- Crab is a prohibited species in GOA groundfish fisheries, and there is no PSC limit
- Time and area closures were developed to minimize impacts of groundfish fisheries on GOA red king crab and Tanner crab
- Most existing crab protection closures around Kodiak Island are from the 1980s
- New information is available and new State harvest strategies
- Importance of crab and groundfish fisheries to Kodiak
- Tanner crab populations persist in known locations

Therefore, the Council is considering management actions that **conserve and protect Tanner crab while minimizing negative impacts on Central GOA groundfish fisheries, including:**

- **Establishing a new groundfish fishing area closure on east side of Kodiak Island** in areas known to have high densities and abundance of Tanner crab
- **Considering a process to evaluate the effectiveness of the existing GOA crab protection areas** around Kodiak Island, and determine whether modifications are needed.



# Overview of Alternatives (Sec. 2)

## **Alternative 1: Status quo**

## **Alternative 2: Closure area**

Objectives: Minimize groundfish fishery interactions off east side of Kodiak Island

1. where high densities of Tanner crab are known to occur
2. during life stages Tanner crab are vulnerable to fishery interactions

Council intends to establish criteria & a timeline to review closure area effectiveness.





## **Alternative 3: Evaluate Existing Closure Areas**

Options for modification or removal will be considered after evaluation.



# Alternative 1, Status quo

## Existing crab protection closures (Table 2-1)

-  **Type I:** year-round
-  **Type II:** Feb 15 - June 15
-  **Type III:** open unless otherwise closed
-  **Marmot Bay Tanner Crab Protection Area** (year-round)

## Other groundfish closures (see Sections 2.1.1 and 2.2.1)

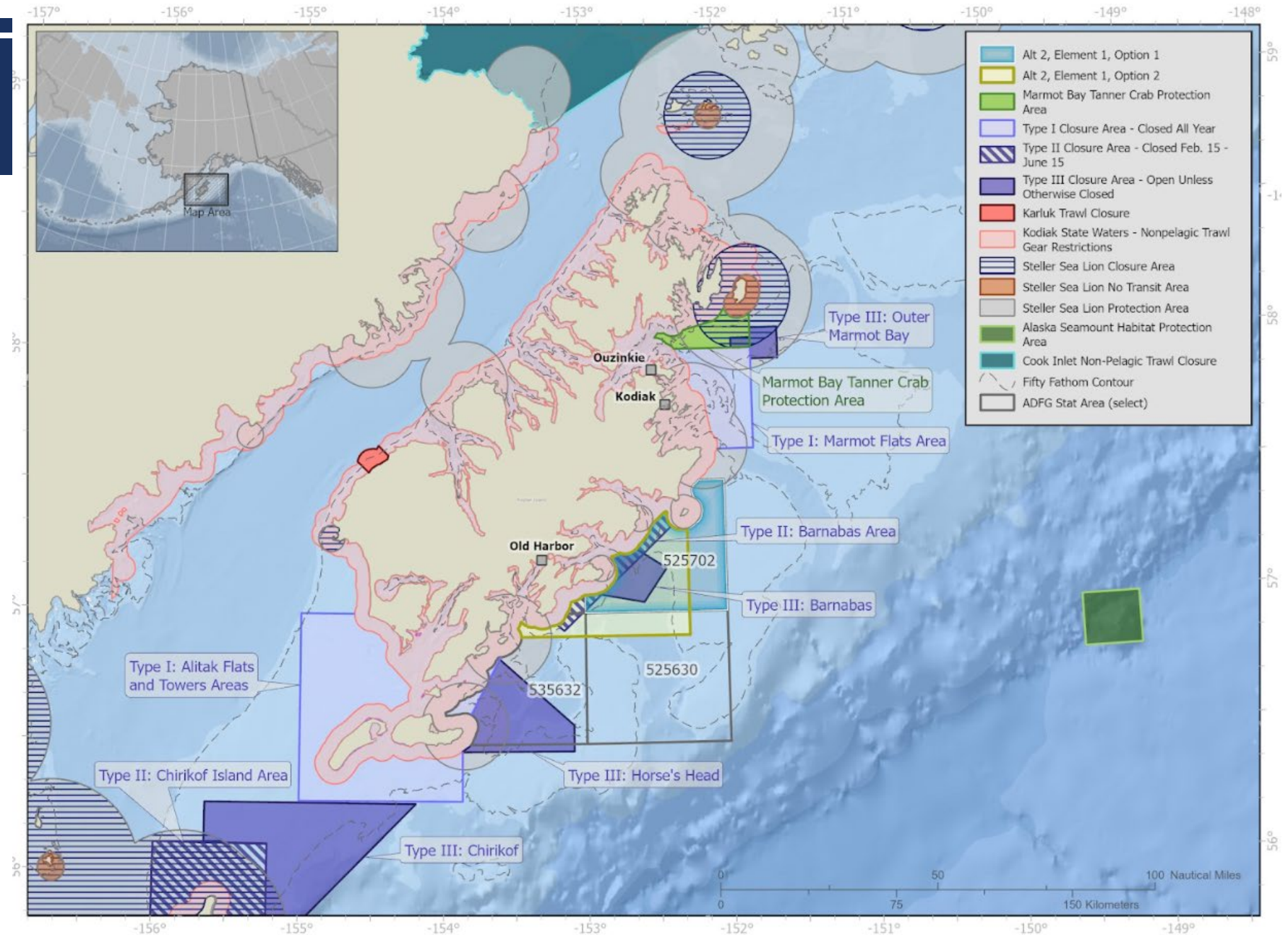




Figure 2-1, pg. 30

# Alternative 2: Closure Area, Elements 1-3

## Element 1: Closure Area

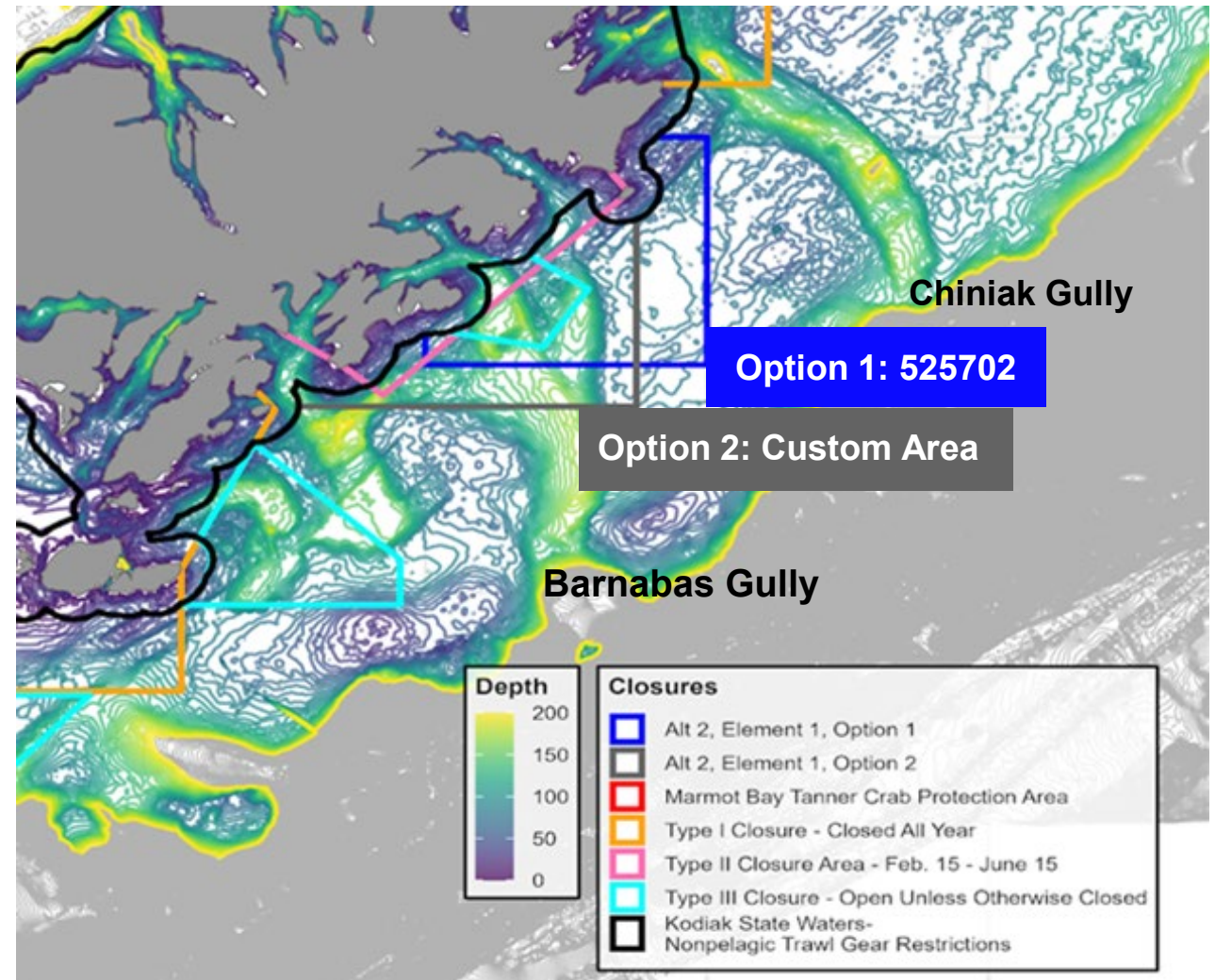
-  Option 1: ADF&G Statistical Area 525702
-  Option 2: Custom Area  
(overlaps portion of 525702, 525630, 535632, & 525704)

## Element 2: Closure Duration

- Option 1: Year-round
- Option 2: Seasonal
  - 2a: February 15 to June 15
  - 2b: April 1 to June 15

## Element 3: Gear Type

- Option 1: Groundfish pot & trawl (nonpelagic and pelagic) gear
- Option 2: Nonpelagic trawl gear

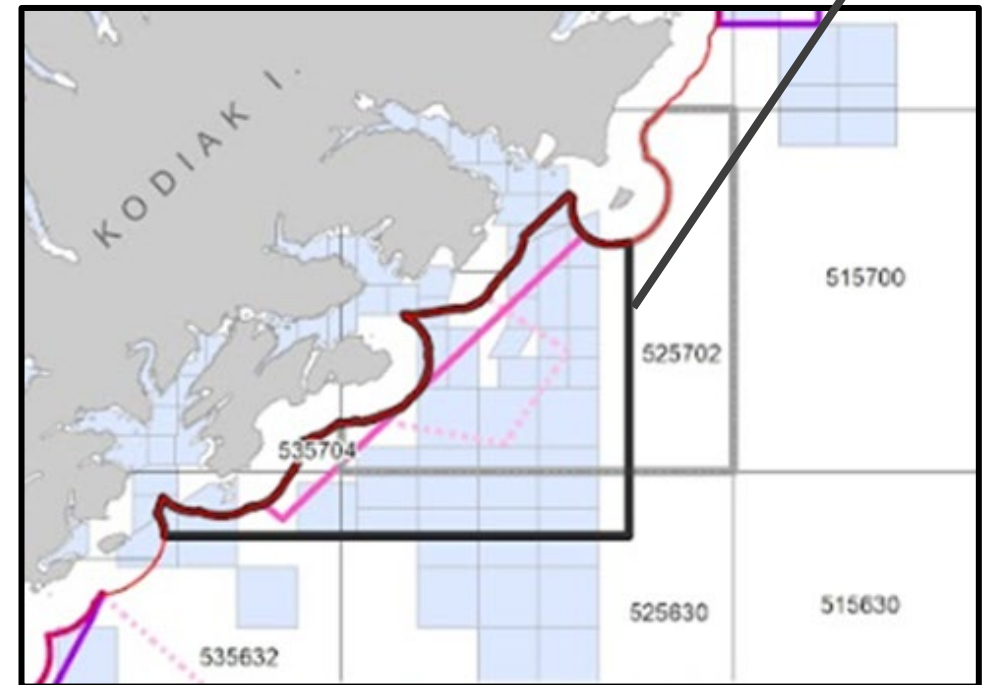


Modified from Figure 5-19, pg. 183

# Method for Custom Closure Catch, Value, and PSC Apportionment (3.1.1)

- Data reported by ADF&G statistical area or other regulatory boundary
  - Actuals not available for custom closure - overlaps 4 stat areas
- Catch-In-Areas 2.0 database - potential for higher spatial resolution, but not yet available
- Custom closure catch, value, & PSC estimates based on observer vessel track data: higher spatial resolution than stat areas
  - human observer data, no Trawl EM incorporated at this time
    - 1) *Vessel tracks determined to be inside/outside/partially within custom closure*
    - 2) *Catch within custom closure boundary summed across all years, and divided by total observed catch in each overlapping statistical area, to estimate % of observed catch occurring within boundaries*
    - 3) *Percentages applied to all catch (observed + unobserved), by gear type & statistical area*

Element 1, Option 2: Custom Closure Area



Modified from Figure 1-2, pg. 22



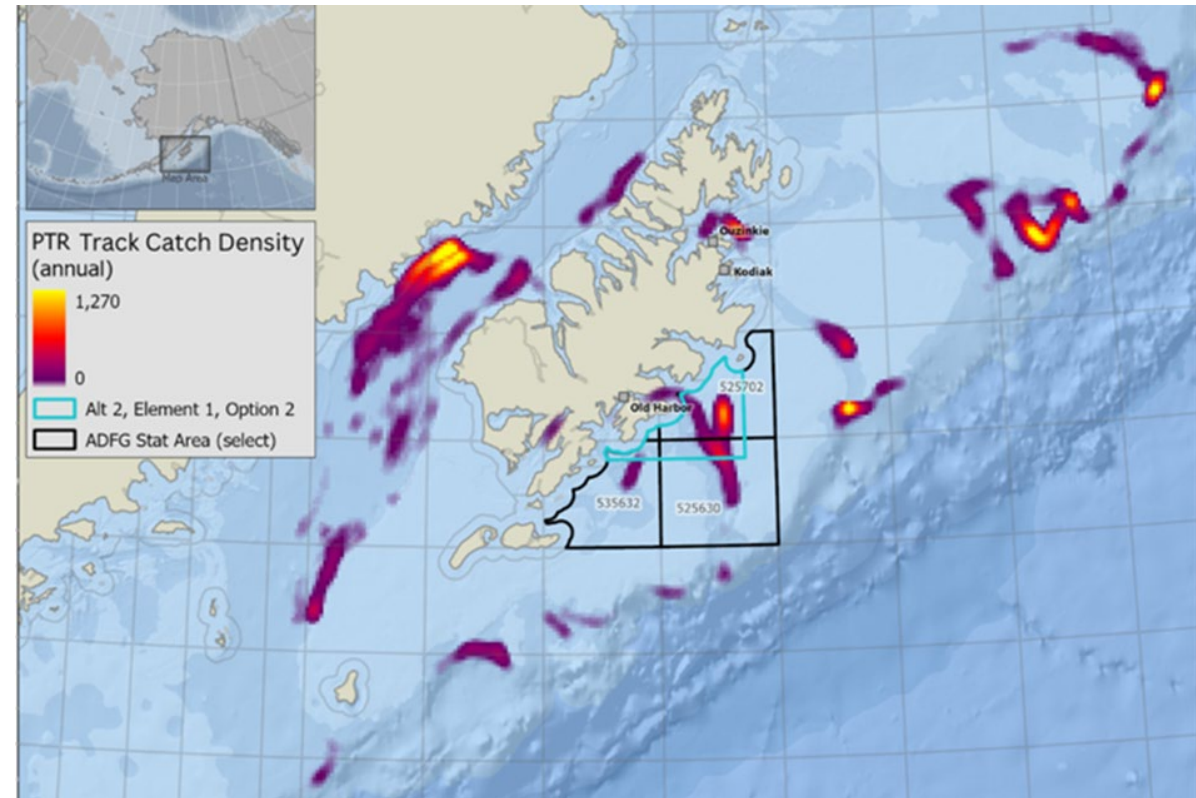
\*See Table 3-2, pg. 40 for percentages by gear type

\*See Table 2-2, pg. 33 for stat areas and % overlap

\*Note: the approximation method used in Alt. 3 (Sec. 7) is different

# Method for Track Catch Density Maps (3.1.3.3 and 3.1.4.3)

- Observer vessel track data aggregated across 2012-2025 to offset variable observer coverage rates
- Vessel tracks weighted by catch weight
- NPT and PTR by closure duration option (3 panels each); no map for groundfish pot fishing due to low observer coverage
- Maps provide inferences for *spatial fishing patterns* and *relative density* by gear but not by fishery. They do not depict bottom contact.



Modified from Figure 3-1, pg. 51





# Description of Fisheries

## **3.1: Affected Groundfish Fisheries**

3.2: Kodiak Tanner Crab Fisheries

3.3: Products & Markets

## **3.4: Participation by Community**

3.5: Kodiak Processing Sector

# Target Fisheries Occurring in Proposed Closure Areas (3.1)

Seasonality of Target Fisheries, sorted by volume harvested from proposed closure areas (Table 3-1, pg. 37)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pollock (NPT & PTR)		X	X	X	X				X	X		
Arrowtooth Flounder (NPT)	X	X		X	X	X		X	X	X	X	
Shallow Water Flatfish (NPT)				X	X	X	X	X	X	X	X	
Pacific Cod (NPT & POT)	X	X							X	X	X	
Sablefish (POT)				X	X	X	X	X	X	X	X	
Rockfish (NPT & PTR)				X	X	X	X	X	X	X	X	
Flathead Sole (NPT)												X
Rex Sole (NPT)					X							

Element 2, Option 2a:  
Feb. 15 to Jun. 15

Element 2,  
Option 2b:  
Apr. 1 to Jun. 15



# Groundfish Pot Fishery Activity in Proposed Area Closures, by Closure Duration (3.1.2)

	% of CGOA groundfish pot fishing activity occurring within proposed area closures (2012-2025)			
	% of Catch, by closure duration	% of Ex-Vessel Value, by closure duration	% of Wholesale Value, by closure duration	% of Vessels active in 525702 within closure duration
<b>Year-round, Option 1</b>	~3%	~2%	~2%	5% of CVs (4 vessels)
<b>Seasonal, Option 2a: 2/15 to 6/15</b>	<1%	<1%	<1%	<1% of CVs (0-1 vessels)
<b>Seasonal, Option 2b: 4/1 to 6/15</b>	<1%	<1%	<1%	<1% of CVs (0-1 vessels)

- Pacific cod comprises majority of groundfish pot activity in areas considered for closure (<10 mt of sablefish annually, on average)
- Areas of low proportional importance to groundfish pot fisheries
  - Importance diminished over time; higher prior to Pacific cod stock collapse in 2018
- Nearly no seasonal activity; Pcod pot season has very little overlap with seasonal time closure option windows



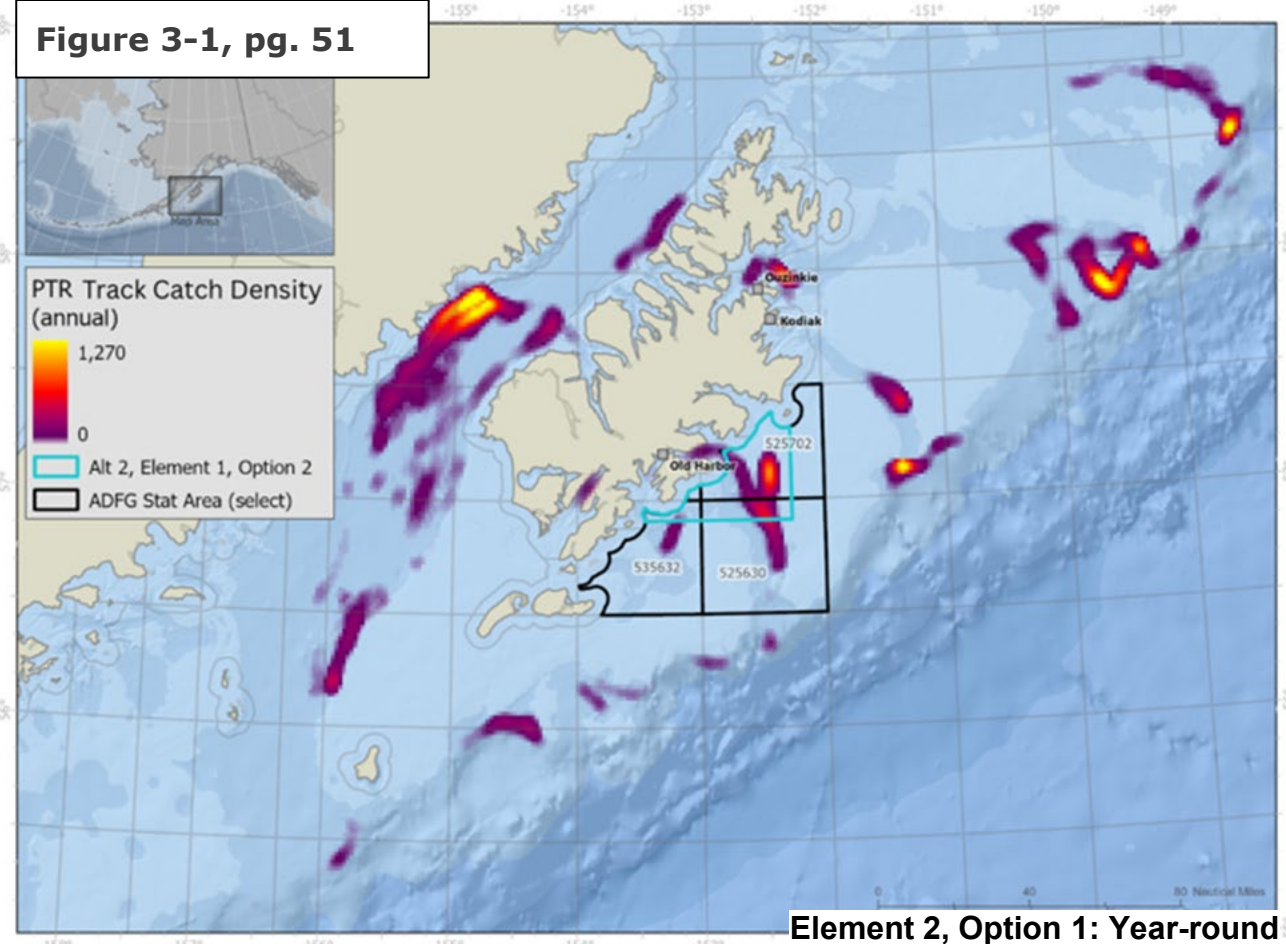
# Pelagic Trawl Fishery Activity, by Closure Duration (3.1.3)

**% of CGOA PTR fishing activity occurring within proposed area closures (2012-2025)**

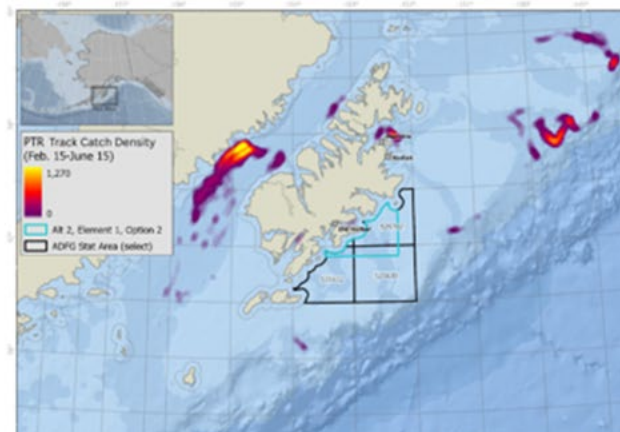
	% of Catch, by closure duration	% of Ex-Vessel Value, by closure duration	% of Wholesale Value, by closure duration	% of Vessels active in 525702 within closure duration
<b>Year-round, Option 1</b>	~10%	~10%	~10%	53% (26 vessels)
<b>Seasonal, Option 2a: 2/15 to 6/15</b>	<1%	<1%	<1%	4% (1-2 vessels)
<b>Seasonal, Option 2b: 4/1 to 6/15</b>	<1%	<1%	<1%	2% (0-1 vessels)

Data from Tables 3-7 & 3-8 (pg. 47 and 48)  
 Percentages shown are averages of 525702 & Custom Closure Area

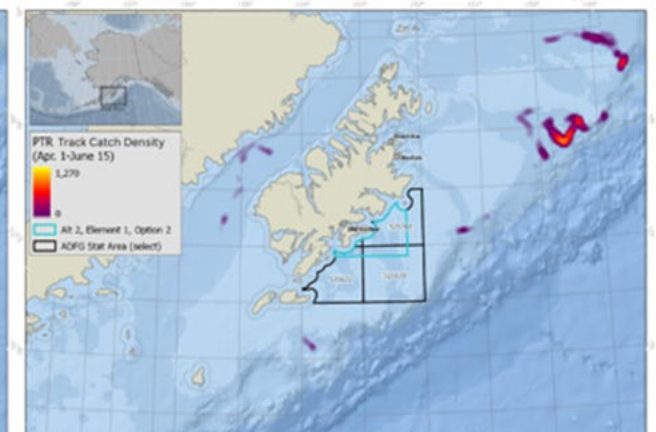
Figure 3-1, pg. 51



Element 2, Option 1: Year-round



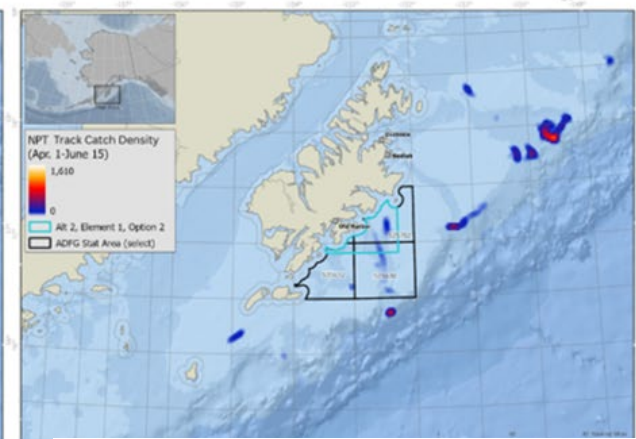
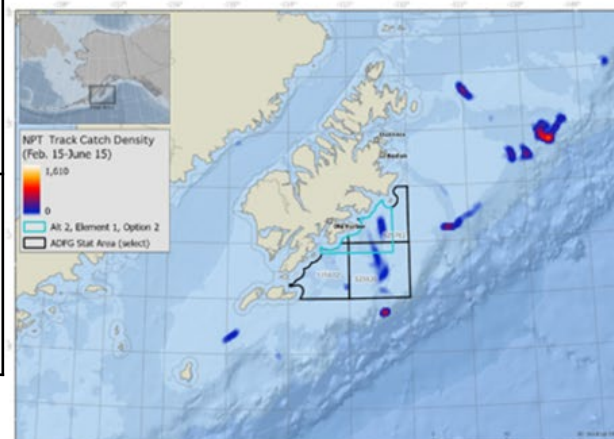
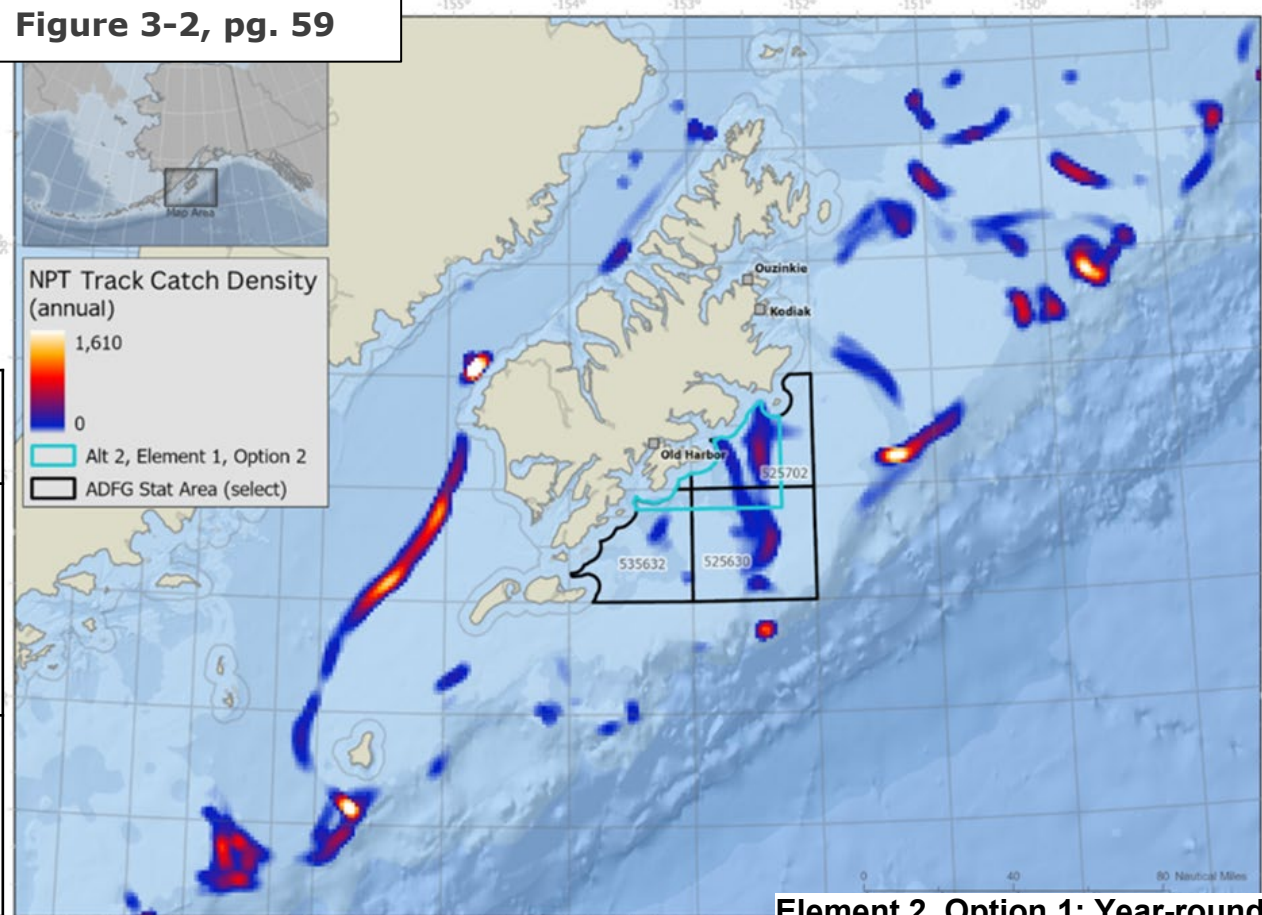
Element 2, Option 2a: Feb. 15 to Jun. 15



Element 2, Option 2b: Apr. 1 to Jun. 15

# Nonpelagic Trawl Fishery Activity, by Closure Duration (3.1.4)

Figure 3-2, pg. 59



Element 2, Option 1: Year-round

Element 2, Option 2a: Feb. 15 to Jun. 15

Element 2, Option 2b: Apr. 1 to Jun. 15

## % of CGOA NPT fishing activity occurring within proposed area closures (2012-2025)

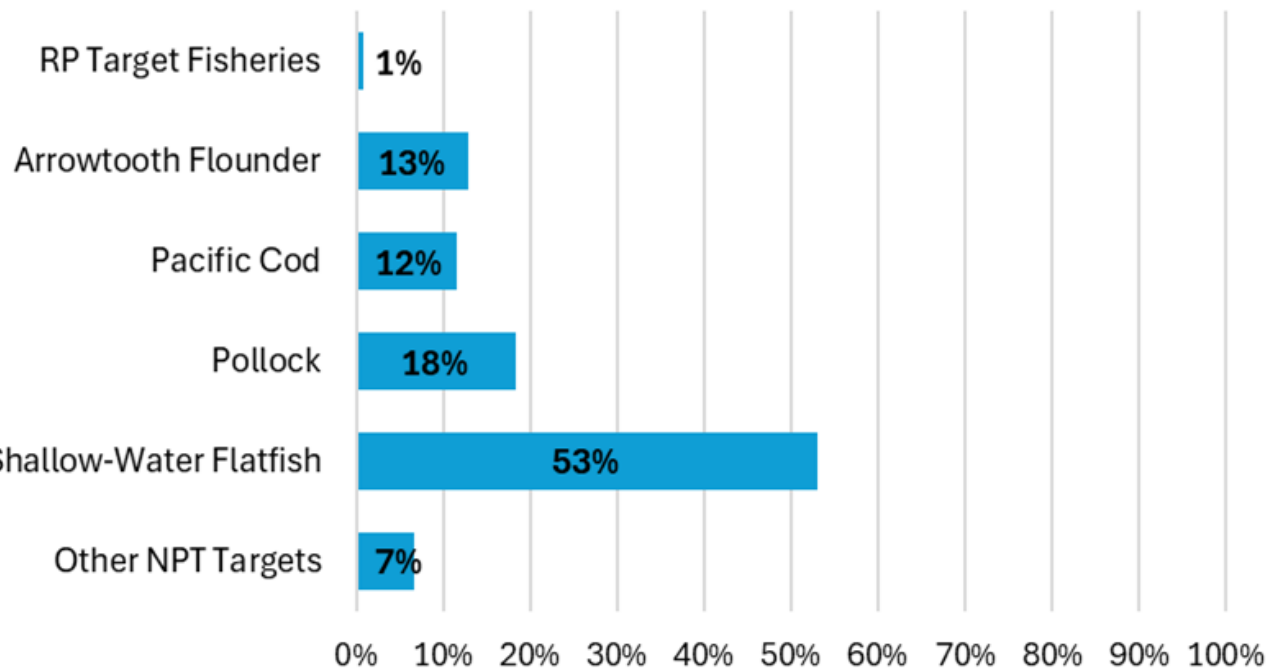
	% of Catch by closure duration	% of Ex-Vessel Value by closure duration	% of Wholesale Value by closure duration	% of Vessels active in 525702 within closure duration
<b>Year-round, Option 1</b>	~11%	~10%	~9%	51% of CVs, (21 vessels) 20% of CPs (1-2 vessels)
<b>Seasonal, Option 2a: 2/15 to 6/15</b>	~10%	~9%	~8%	41% of CVs (15 vessels) 24% of CPs (1 vessel)
<b>Seasonal, Option 2b: 4/1 to 6/15</b>	~9%	~7%	~7%	36% of CVs (11 vessels) 22% of CPs (0-1 vessel)

Data from Tables 3-11 & 3-12 (pg. 54 and 55)

Percentages shown are averages of 525702 & Custom Closure Area

# NPT Activity in Proposed Area Closures; by Target Fishery (Section 3.1.4.2)

% of CGOA catch volume occurring within proposed area closures, by target fishery (2012-2025)



Data from Tables 3-14 & 3-15 (pg. 57 & 58)

% of CGOA NPT catch and value attributable to each target fishery (2012-2025)

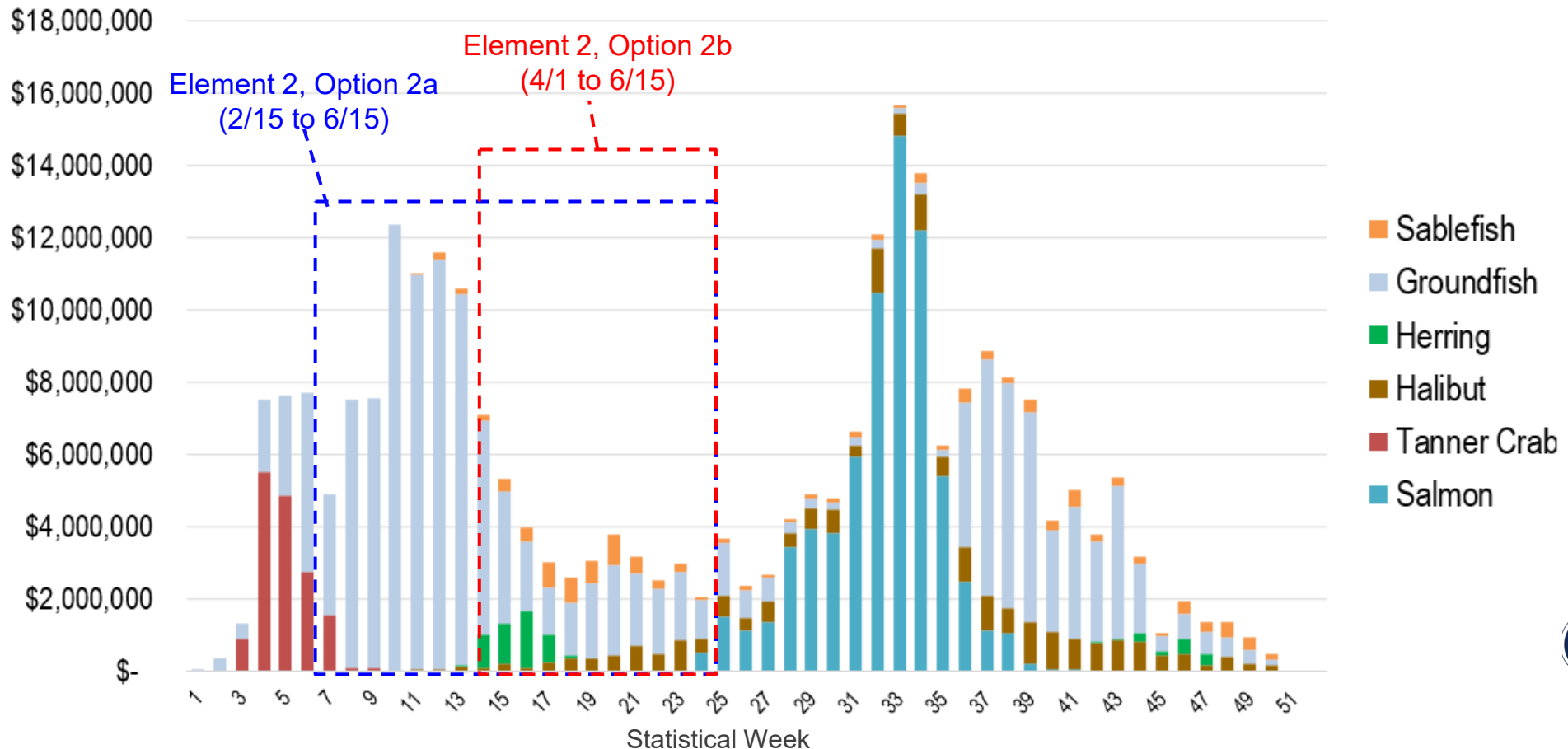
	% of Catch	% of Ex-Vessel Value	% of Wholesale Value
<b>Rockfish Program Target Fisheries</b>	4%	45%	42%
<b>Arrowtooth Flounder</b>	54%	22%	28%
<b>Pacific Cod</b>	14%	13%	12%
<b>Pollock</b>	16%	11%	10%
<b>GOA Shallow-Water Flatfish</b>	8%	5%	5%
<b>Other NPT Targets</b>	5%	3%	4%

Data from Tables 3-14 & 3-15 (pg. 57 & 58)

Percentages shown are percentages of Rockfish Program & non-rationalized NPT target fisheries, combined.

# Kodiak Processing Sector (Section 3.5)

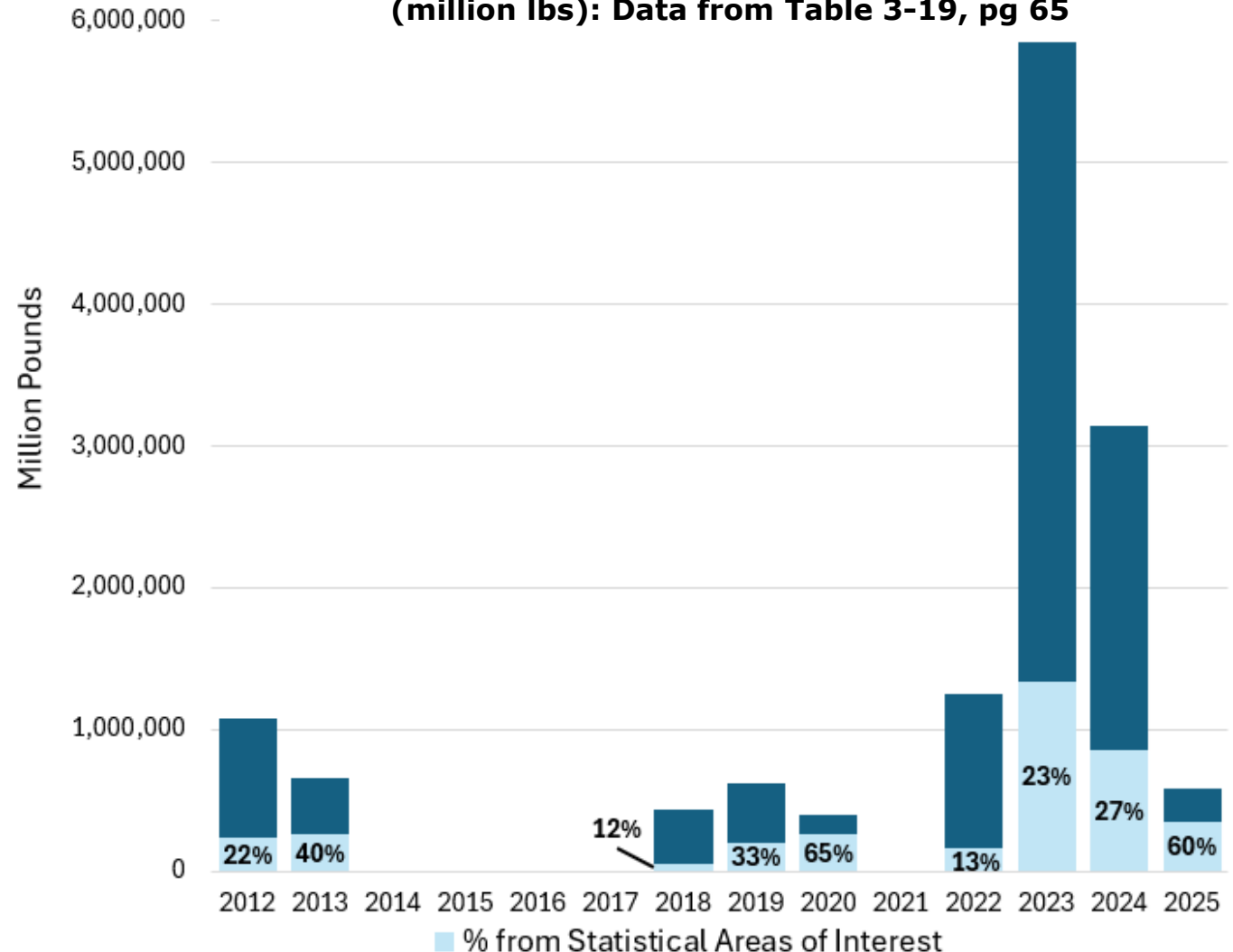
Nominal Wholesale Value of Fish Processed by Kodiak Shore-Based Processors, Annual Average for All Processors, 2022-2024 (Figure 3-5, pg. 83)



# Kodiak Tanner Crab Fisheries (Section 3.2)

- Proposed closure areas overlap/lie adjacent to areas of importance for Tanner crab subsistence, sport, & commercial harvests
- Subsistence/sport efforts tend to be centered around Kodiak communities & areas accessible via road system, e.g., Ugak Bay & Sitkalidak Strait
  - ~17% of Kodiak Island households use Tanner crab; sharing of Tanner crab resources is common

**Kodiak District Commercial Tanner Crab Harvest Volume (million lbs): Data from Table 3-19, pg 65**



## Participation/Engagement by Community (3.4)

Community	Harvesting Engagement					Processing Engagement	
	Groundfish pot vessel owners	PTR vessel owners	NPT vessel owners	Kodiak commercial Tanner crab vessel owners	Sport & Subsistence Tanner crab harvesters	Groundfish pot & trawl harvest from 525702	Kodiak Commercial Tanner Crab
<b>Kodiak</b>	X	X	X	X	X	X	X
<b>Other Kodiak Island Communities</b>				X	X		
<b>Homer</b>	X			X			
<b>Newport</b>		X	X				
<b>Seattle MSA</b>		X	X				



# Economic and Social Impacts

## **4.1: Methods**

4.2: Baseline Conditions under Alternative 1

## **4.3: Expected Effects of Alternative 2**

4.4: Affected Small Entities

4.5: Net Benefits to the Nation

# Methodology and Key Assumptions (Sec. 4.1)

**Degree & nature of impacts on groundfish fleets are proportional to:**

## **1. Extent of Reliance on Areas for Target Fishing**

- Magnitude of displaced efforts estimated using current/historical fishing patterns
- Assumed impacts are largely proportional to reliance

## **2. Degree of Catch Redistribution**

- Impacted vessels seek to replace catch within target fishery, OR seek to replace revenues through other target fishing efforts
- Kodiak fleet primarily comprised of multigear/multispecies boats, which may have more operational flexibility to replace displaced catch/revenues in other fisheries
  - i.e., vessels w/ a CGOA trawl LLP endorsement often use both NPT & PTR (Table 4-1)
- Catch may be redistributed spatially, or in some cases temporally if seasonal closure is chosen

## **3. Costs of adjusting fishing behavior**

- Operating costs may increase if vessels do not find comparable alternative fishing patterns
- Decreased operational efficiency can occur via changes to catch composition, increased competition, increased travel/fuel costs, etc.

# Groundfish Pot Impacts (Section 4.3.1.1)

## Extent of Reliance on Areas

- Harvests in the areas been low in the last decade; higher volumes of catch may be displaced if TACs increase in the future
- Seasonal closure windows largely outside Pacific cod pot seasons
- Low revenue dependence; most vessels derive <10% of annual income from pot harvests from the areas

## Degree of Catch Redistribution

- Highly likely that displaced Pacific cod pot catch volumes would be recoverable
  - Fishing activity largely occurred outside of closure areas in the last decade; many comparable areas



## Pelagic Trawl Impacts (Section 4.3.1.2)

### Extent of Reliance on Areas

- Annual closure option would displace PTR activity occurring in the fall; areas are important for B season pollock harvests
  - Very little displacement under seasonal closure options
- Half of Central Gulf PTR CVs operate in the area annually
  - Vessels are highly diversified; most earn <10% of annual revenues from 525702 PTR harvests

### Degree of Catch Redistribution

- Vessels will attempt to redistribute effort to adjacent areas, or alternative fishing locations
  - Constrained by factors such as existing closures, and spatial catch specifications
- Catch/revenue redistribution likely, albeit with potential increased costs



# Nonpelagic Trawl Impacts (Section 4.3.1.3)

## Extent of Reliance on Areas

- NPT fishing activity occurs in the area year-round; displacement would occur under any closure duration
  - Seasonal closure windows overlap 'gap season' flatfish efforts
- Half of Central Gulf NPT CVs operate in the area annually
  - Vessels are highly diversified; most earn <10% of annual revenues from 525702 NPT harvests

## Degree of Catch Redistribution

- Displaced volumes from most target fisheries likely to be redistributed, albeit with potential increased operational costs
  - Shallow-water flatfish appear most concentrated in 525702; vessels may pivot to other targets if costs to replace shallow-water flatfish harvests are too high
- Temporal displacement possible under seasonal closure



## Potential Impacts to Non-Regulated Entities (Section 4.3.2)

### Community-Level Impacts (Kodiak)

- Action unlikely to impact community spending patterns in a discernable way
- Diverse economy, including in other fisheries

### Processors

- Impacts expected to be minimal; varies by option chosen
- If temporal displacement occurs, may shift timing of processing operations; i.e. during “gap season”

### Kodiak Tanner Crab Users

- Any localized benefits that may accrue may improve opportunities for subsistence, sport, or commercial users
- Magnitude & likelihood unknown





# Environmental Assessment

5.1: Methods

**5.2: Groundfish**

**5.3: Tanner crab**

**5.4: Chinook PSC**

**5.5: Halibut PSC**

**5.6: Habitat**

## Tanner crab life history (5.3)

- Bay and gully systems: may provide refuge from tidal forces, sites where soft sediment settles
- Migration: ontogenetic shift from inshore bays to connected offshore gullies; not thought to migrate outside regulatory areas (mark recapture tagging, 2004-2010)
- Cyclical recruitment: larger amounts of crab move through the system every few years (3-5 or 6 years; Figure 5-12 and Figure 5-13, pg. 145)
- Maturity ~ 5-7 years, hence cyclical recruitment period timing between peaks

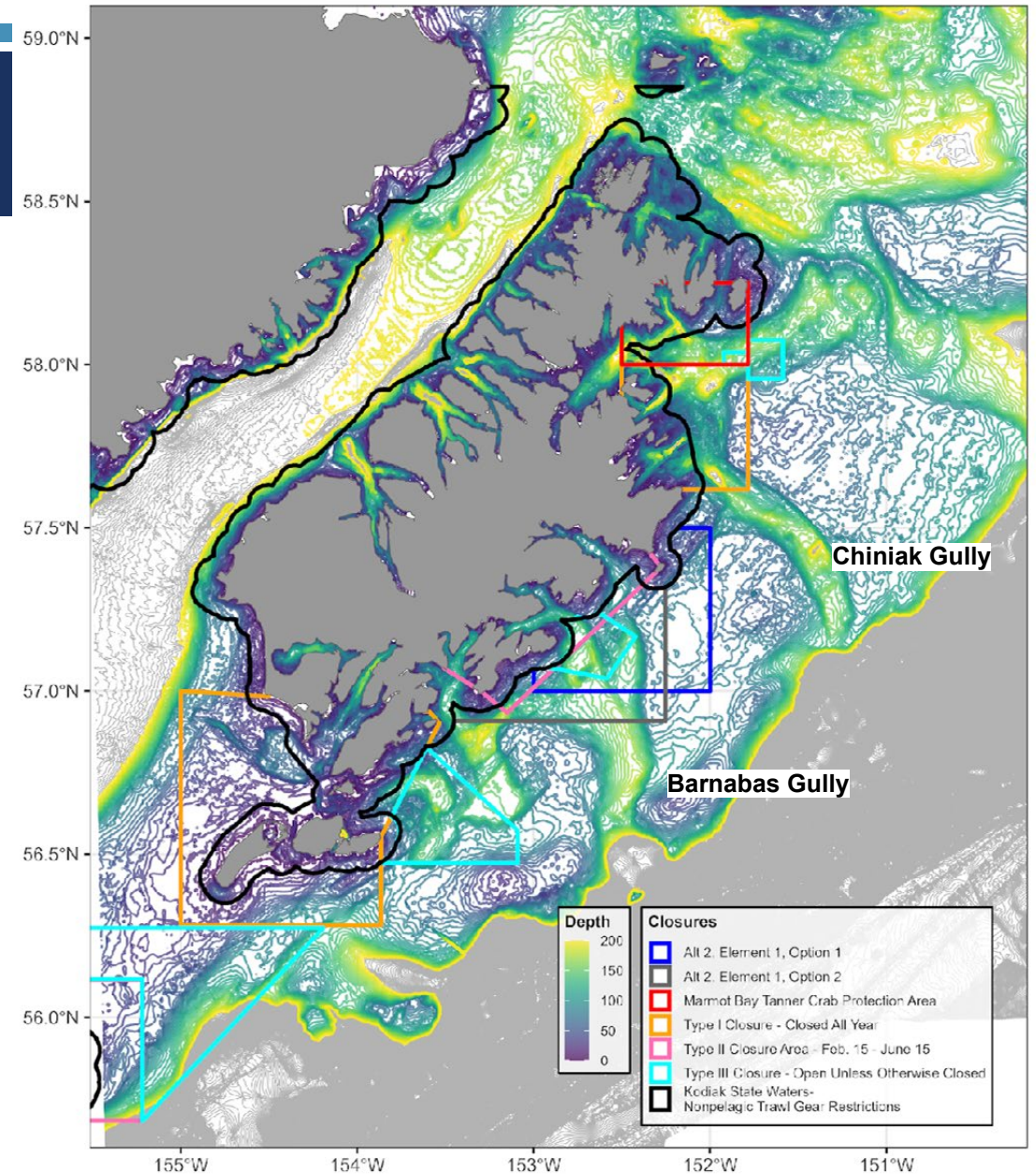


Figure 5-18, pg. 182: Bathymetric map of Kodiak Island, 5 m contours.

# Tanner crab molting & mating (5.3.1.4)

Event	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Primiparous female molt to maturity/mating	█	█	█	█	█	█	█					█
Primiparous peak of new egg clutch extrusion				█	█	█						
Multiparous females mate in deepwater aggregations				█	█	█						
Multiparous females mounding, larvae release				█	█	█						
Primiparous and multiparous egg clutch incubation	█	█	█	█	█	█	█	█	█	█	█	█
Egg clutch hatching				█	█	█	█					
Mass molting events - smaller, mixed sex; larger, males		█	█	█	█	█						
Male and female soft shell encounters - ADF&G survey				█	█	█	█					
Male molt - Western GOA					█	█						
Male molt - Southeast Alaska			█	█	█							
Benthic juveniles annual molt				█	█	█						

\*Tanner crab shell hardening duration unknown

Closure Duration  
Option 2a

Closure Duration  
Option 2b



# Tanner crab - annual abundance trends & harvest strategy

## 2025 Abundance (Sec. 5.3.5, pg. 157)

- Kodiak District: 85.2 million crab
  - Eastside Section
    - 30% of population
    - highest # mature males for last 5 yrs
  - Southeast Section
    - 34% of population
    - highest # of mature females
- Element 1, Option 1 (525702): 3.2 million crab
- Element 1, Option 2 (custom closure): 10.7 million crab

## Harvest Strategy (Sec. 5.3.1.2, pg. 130)

- Three different harvest strategies since survey start (1988)
- In newest strategy (2022), notable advancements, including female dimmer, and elimination of the use of a molting mature males calculation

2018: largest recruitment since 1988

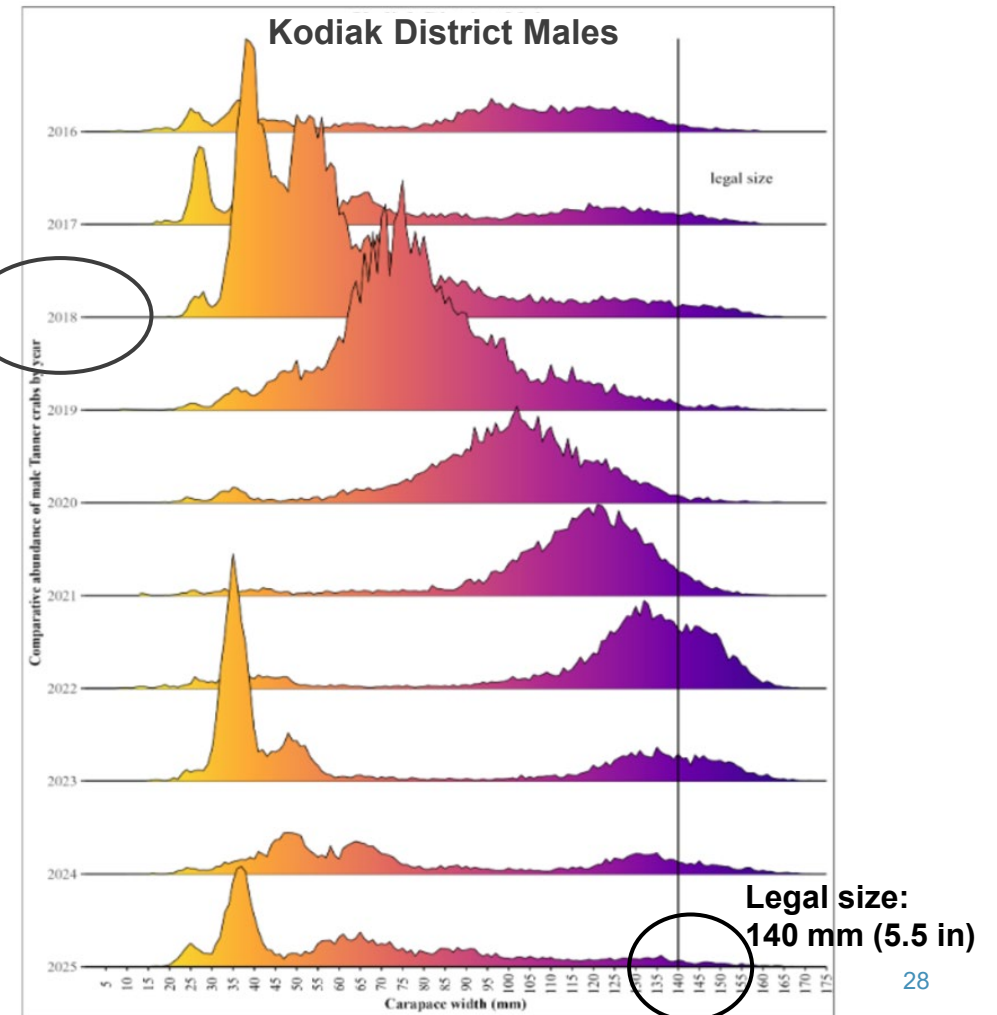
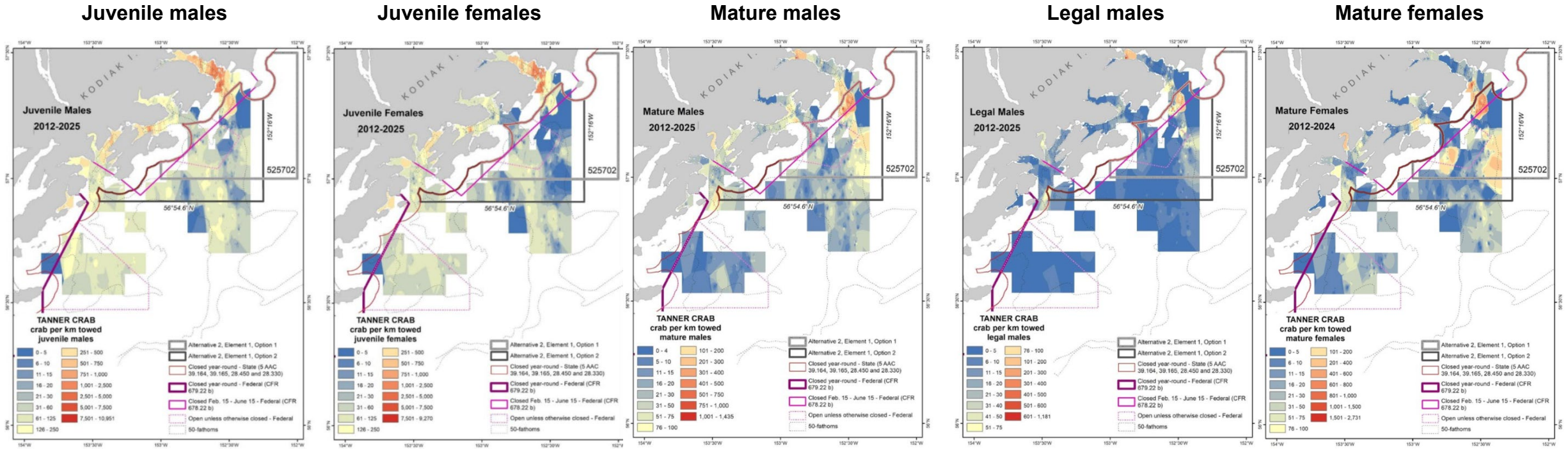


Figure 5-14, pg. 146: Male Tanner crab abundance by size, Kodiak District, 2016-2025.

# ADF&G Trawl Survey - Tanner crab density

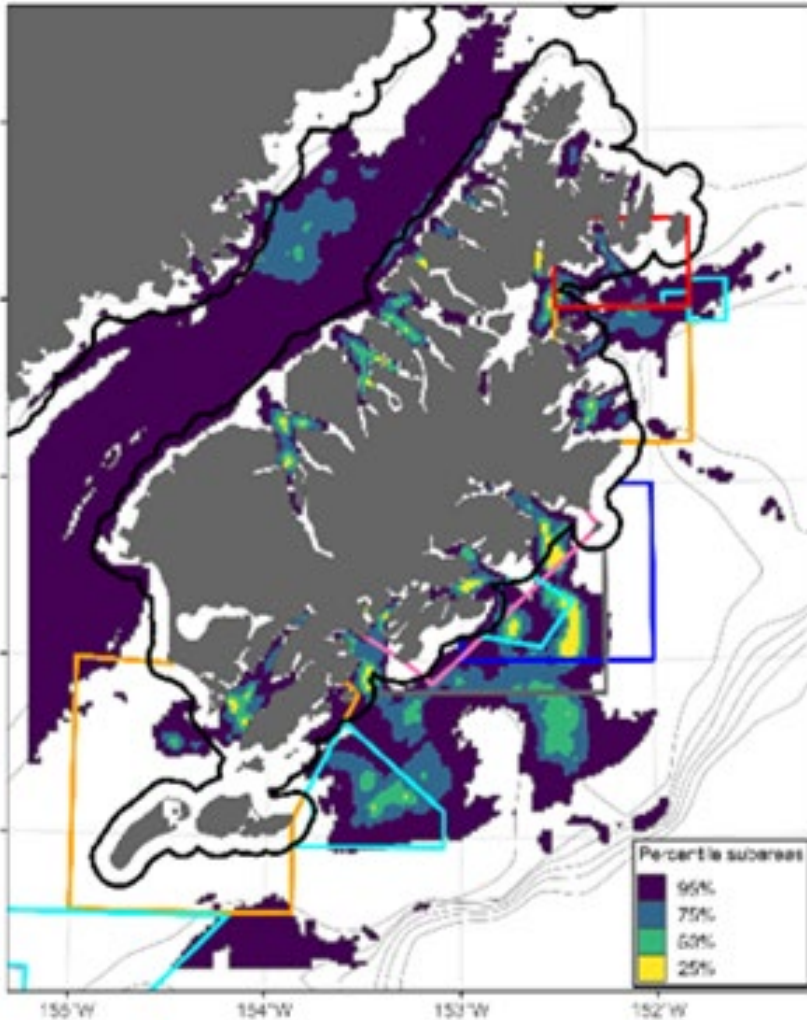


Appendix 1 Time period average density by sex and maturity  
Section 5.3.1.3 ADF&G survey details

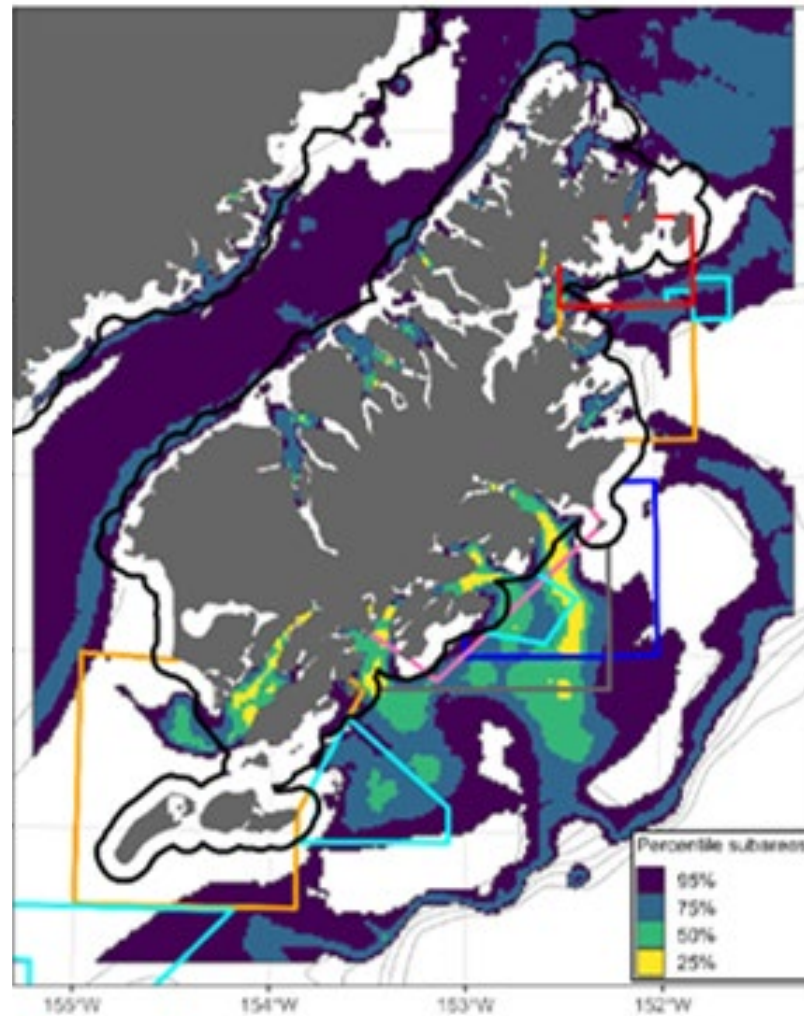


# Tanner crab species distribution models (Sec. 5.3.3)

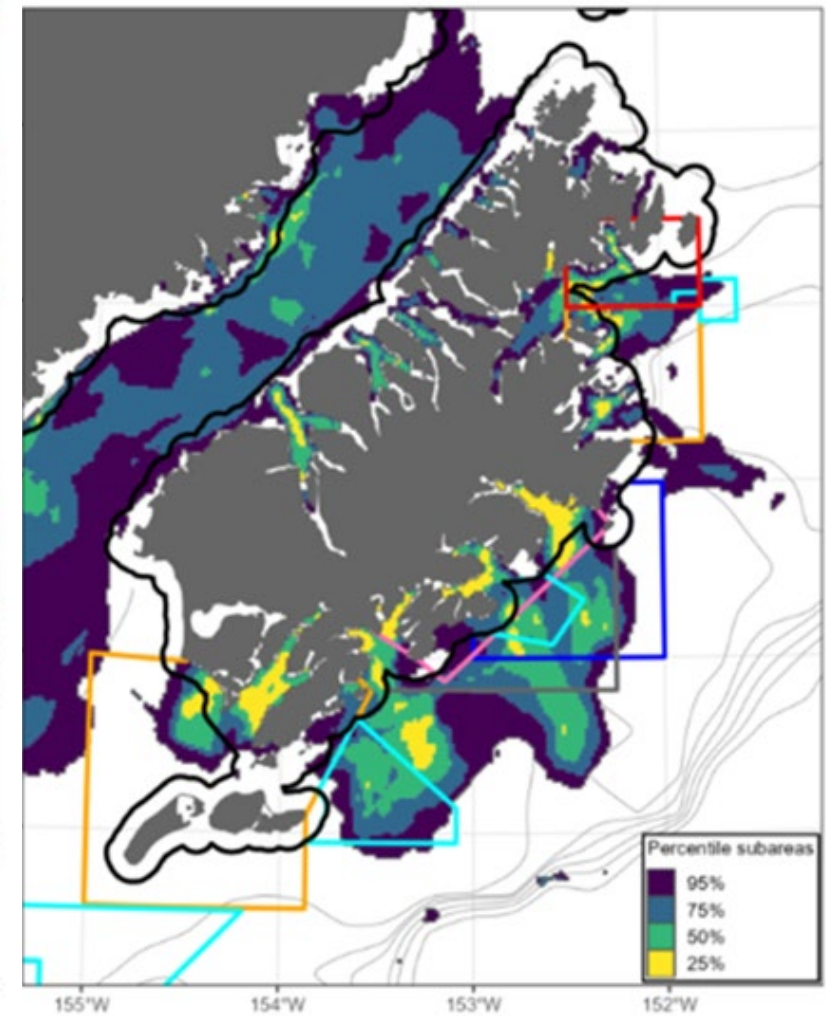
Mature Females (ADF&G)



Mature Males (ADF&G)



All Tanner crab (juv + mature;  
ADF&G + NMFS)



Figures 5-15 - 5-17, pgs. 149-151. Blue boundary = 525702 (Option 1); grey boundary = custom closure (Option 2). See Section 5.1.2.1 and Appendix 2.

# Potential sources of mortality (5.3.1.5 & 5.3.6)

## Sources of mortality

- Bycatch handling & discard mortality from groundfish and crab fisheries, varies by gear, likely higher for soft-shell crab
- Predation - e.g., potential inverse relationship with Pacific cod abundance
- Bitter Crab Disease - unclear pop. impacts
- Environmental factors (e.g., temperature, spring bloom timing)
- Other (e.g., cannibalism, density-dependent impacts)

## Unobserved mortality from groundfish fishing gear

- UFMWG Report (2023)
  - cannot quantify magnitude of unobserved mortality impacts
  - priority future research categories included: gear specific bottom contact estimates, crab spatial distribution, movement, life stage dependent vulnerabilities, encounter rate, and mortality rate
- Bering Sea bottom trawl w/ raised sweeps (Rose et al, 2012; Hammond et al 2013)
  - RKC more vulnerable; snow and Tanner mortality similar across gear components (~4-15%)
- Norway, smaller demersal trawl w/ mods (Brinkhof et al 2026)
  - center section of gear low damage to snow crab, mortality from other gear components not examined
- Limited to no unobserved mort. research for pelagic trawl gear



# Tanner crab PSC (5.3.4)

## By counts (# of crab)

- NPT highest
- On average, custom area (Option 2) higher PSC, but varies by year compared to 525702 (Option 1)
- Groundfish POT PSC higher before 2018
- Closure durations: NPT reduced; POT and PTR minimal to none
- Adjacent stat areas 525630 and 535632 also have PSC

## By rates (crab/ton of groundfish)

- Proposed closures very similar
- Closure durations: NPT rates generally increase across stat areas
- 525630 lower rate than proposed closures; 535632 much higher rate

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2012-2025
<b>Non-pelagic Trawl</b>	1.30	3.09	0.67	1.12	1.41	1.82	4.15	4.13	11.93	0.36	0.19	0.40	0.70	0.38	2.34
525630	5.10	5.42	1.35	0.40	2.03	1.89	6.46	4.30	34.69	0.48	1.32	3.04	2.49	0.58	4.90
525702	1.95	10.68	2.63	5.39	2.92	4.97	9.32	10.81	22.14	2.13	1.44	0.95	1.87	1.38	6.44
535632	0.38	7.22	2.35	1.66	3.65	17.37	13.09	4.46	46.86	1.68	0.16	*	4.40		12.73
535704				*			*	*							7.85
Custom*	2.42	9.55	2.41	4.90	2.83	4.48	8.98	9.99	23.66	2.02	1.43	1.34	1.95	1.31	6.29
Other CG	0.71	1.26	0.28	0.42	0.98	1.16	2.69	2.52	6.44	0.12	0.11	0.21	0.27	0.22	1.23
<b>Pot</b>	4.82	19.78	1.63	2.65	1.78	0.20	2.98	2.61	0.01	1.09	0.35	0.66	0.41	0.14	3.26
525630	4.07	3.27	0.13	1.74	3.18	*			0.00	0.00	*	*	*	0.00	2.88
525702	5.58	4.04	0.29	3.25	6.03	0.25				*	*	*	*	0.00	3.30
535632	4.72	2.17	*	1.78	0.55	*				*				0.00	2.64
535704	*	*	*		*	*				*					6.51
Custom*	5.88	3.83	0.27	3.14	5.56	0.24			0.00	2.16	0.00	0.00	1.37	0.00	3.44
Other CG	4.78	23.05	1.76	2.65	1.62	0.20	2.98	2.61	0.01	1.07	0.35	0.67	0.38	0.14	3.27
<b>Pelagic Trawl</b>	0.01	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.01	0.01	0.04	0.00	0.01
525630	0.50	0.00	0.00	0.01	0.00	0.00	0.03	0.00	0.09	0.00	0.40	*	0.00	0.00	0.01
525702	0.02	0.21	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.13	0.01	0.15	0.24	0.00	0.03
535632		*	0.00	0.00	0.00	*	0.08	0.00	0.01	0.00	0.01	0.00	*	0.00	0.00
535704				*	0.00						*				0.00
Custom*	0.03	0.16	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.11	0.02	0.13	0.24	0.00	0.02
Other CG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.01	0.00	0.00
<b>Total</b>	1.24	3.26	0.42	0.62	0.64	0.58	1.31	1.62	5.57	0.24	0.10	0.19	0.41	0.19	1.15

Source: NMFS Alaska Region Catch Accounting System, data compiled by AKFIN in Comprehensive\_PSC



Table 5-28, pg. 155. Tanner crab PSC rates (crab/ton groundfish), year-round closure duration (Element 2, Option 1)

# Distribution of Tanner crab abundance & groundfish fishing

Mature male Tanner crab SDM

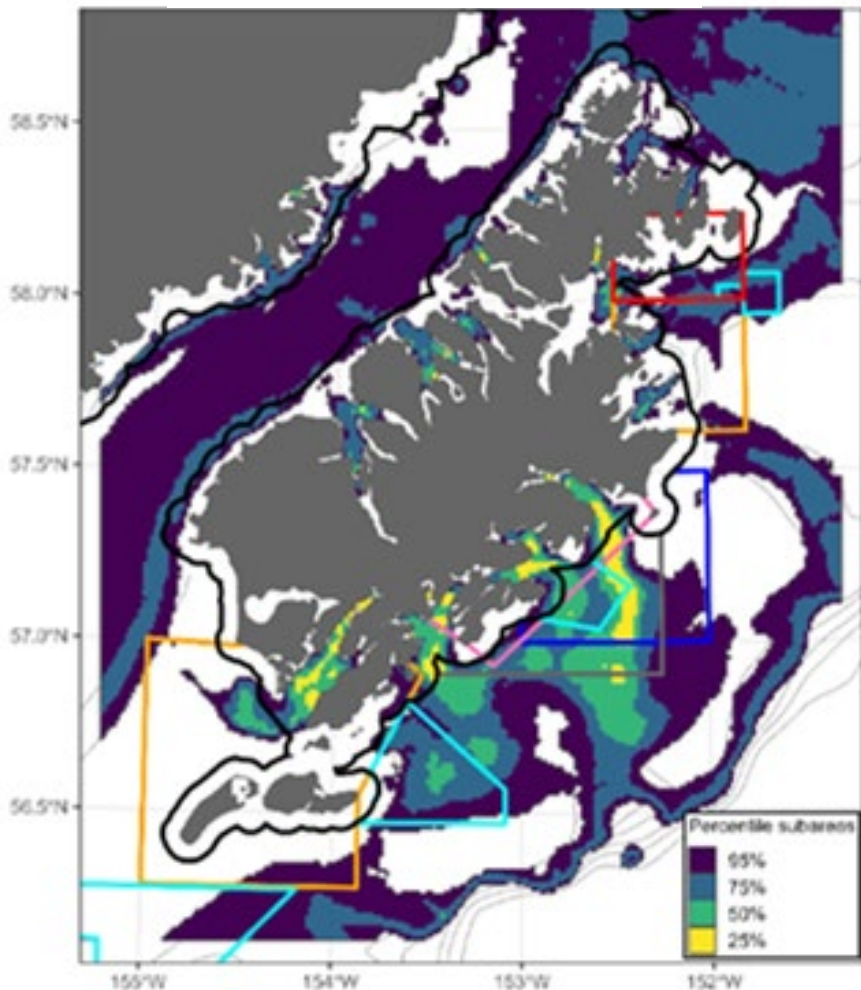


Figure 5-16, pg. 150

Nonpelagic trawl track density

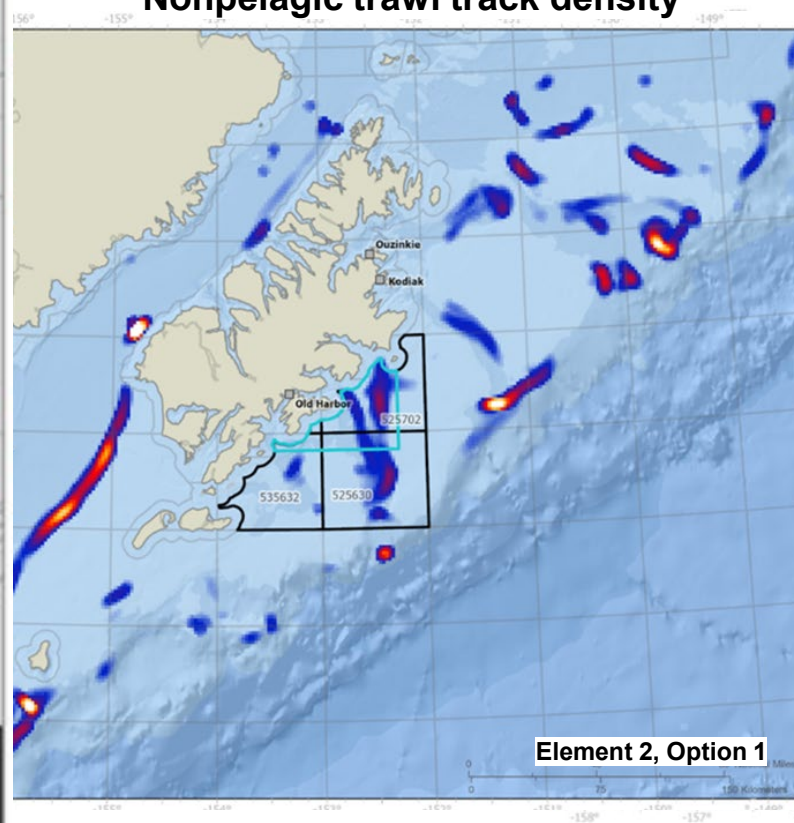


Figure 3-2, pg. 59

Pelagic trawl track density

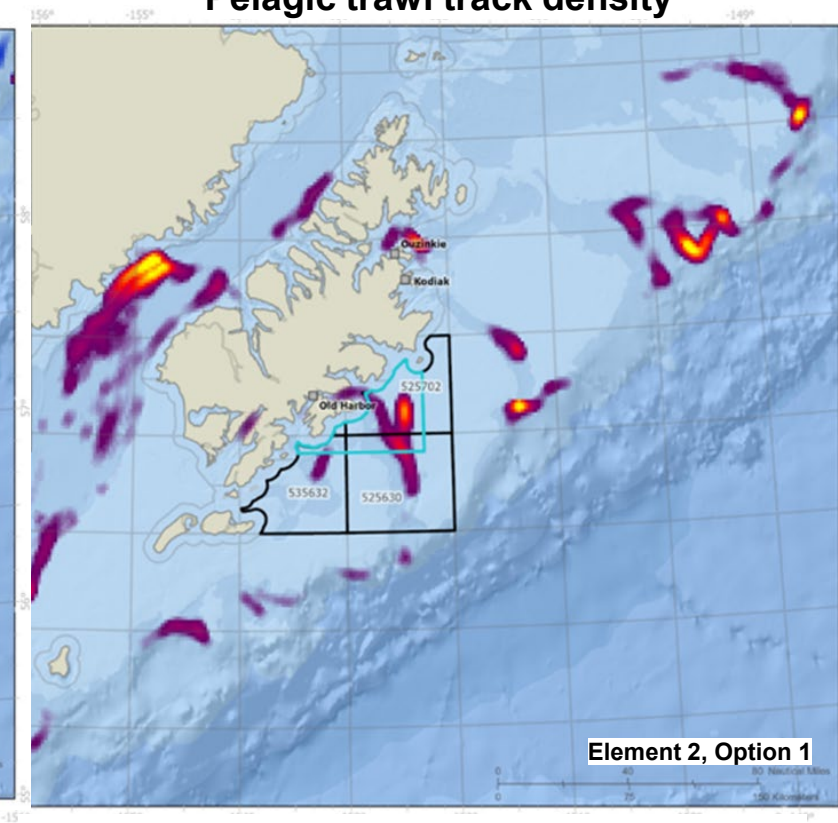


Figure 3-1, pg. 51

Element 2, Option 1

Element 2, Option 1

# Effects on Tanner crab from Alt. 2 (5.3.5)

Element 1: Area		Element 2: Duration			Element 3: Gear	
Option 1: Stat Area 525702	Option 2: Custom Area	Option 1: Year-Round	Option 2a: Feb 15 – June 15	Option 2b: April 1 – June 15	Option 1: NPT, PTR, & Pot	Option 2: NPT
Reduces benefits relative to custom closure, but still provides conservation benefit. Displacement may offset benefits.	Greatest conservation benefit; highest amount of Tanner crab population, highest amount of fishing. Displacement may offset benefits.	Aligns with soft-shell and egg clutch timing. Would displace the most fishing, and would provide the greatest conservation benefit.	Aligns with majority of crab soft-shell window. Would displace NPT activity; reduces benefits relative to year-round closure. Temporal displacement may offset benefits.	Aligns with peak molting/mating activity. Would displace NPT activity; reduces benefits relative to year-round closure or longer time closure window option. Temporal displacement may offset benefits.	Greatest conservation benefit; would reduce interactions and displace the most fishing activity.	Reduced conservation benefit relative to Option 1; would still provide conservation benefits.



# Alt. 2 Effects: Groundfish, Chinook & Halibut PSC

## Groundfish (Sec. 5.2.2)

- **Pollock:** varies from negligible to moderate, mainly from potential redistribution of fishing
- **Pacific cod:** minor impacts mainly from potential redistribution and potential reductions in efficiency but diversity of gear types, locations, and flexibility from reallocation
- **Rockfish:** minor impacts, relatively small removals
- **Flatfish:** minor impacts at stock level, but potentially moderate localized impacts, particularly for shallow water flatfish due to higher concentrations

## Chinook PSC (Sec. 5.4.2)

- Limited amount in either proposed closure area compared to CGOA
- Mainly from pollock PTR fishery
- Low rates for either proposed closure area and adjacent stat areas (same seasonally)
- Minimal impact compared to status quo

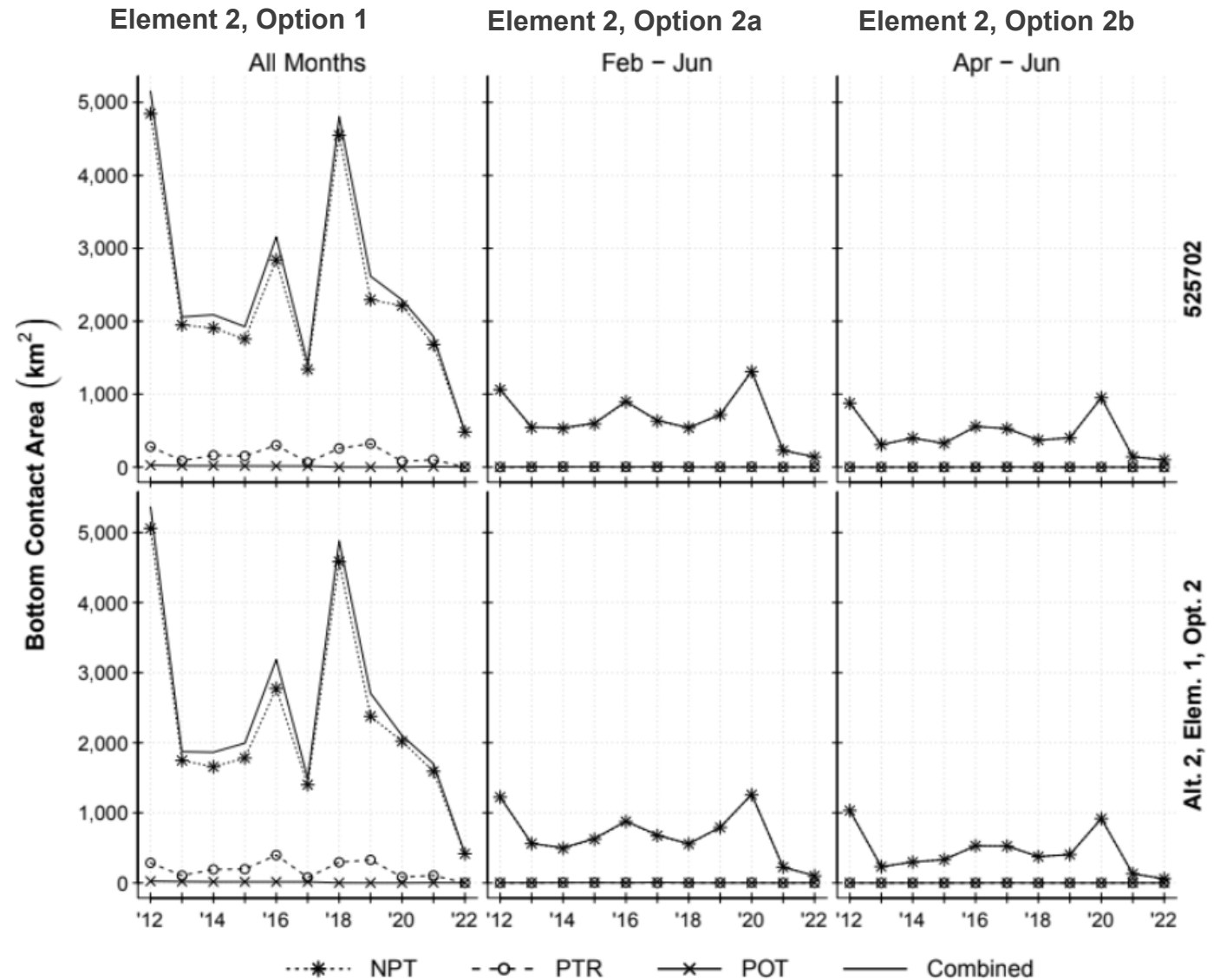
## Halibut PSC (Sec. 5.5.2)

- Highest in NPT fishing
- Similar between proposed closure areas
- Seasonally, PSC rate increases, but similar between proposed closure options
- Similar PSC rates in adjacent stat areas if displacement occurred
- Impacts not expected to be significant



# Alt. 2 - Effects on Habitat (Sec. 5.6.4)

- Historical contact estimates (2012-Aug 2022) from Fishing Effects model, Fishing Module
- Monthly bottom contact area summed to produce a value for each year
- Bottom contact area contains overlap and are not estimates of unique area disturbed
- Proposed closure areas very similar
- Similar spatial fishing activity patterns to the track density maps
- Implementation of either closure area expected to decrease bottom contact area within closure boundaries, but displaced fishing activity may result in bottom contact elsewhere
- Ongoing research may result in changes to PTR bottom contact adjustments



**Figure 5-20, pg. 186:** Summed bottom contact area by year, gear type, proposed closure area, and closure duration option. Fishing Effects model, CIA legacy database, 2012- Aug 2022





# Alternative 3: Evaluate Existing Closure Areas

## Section 7

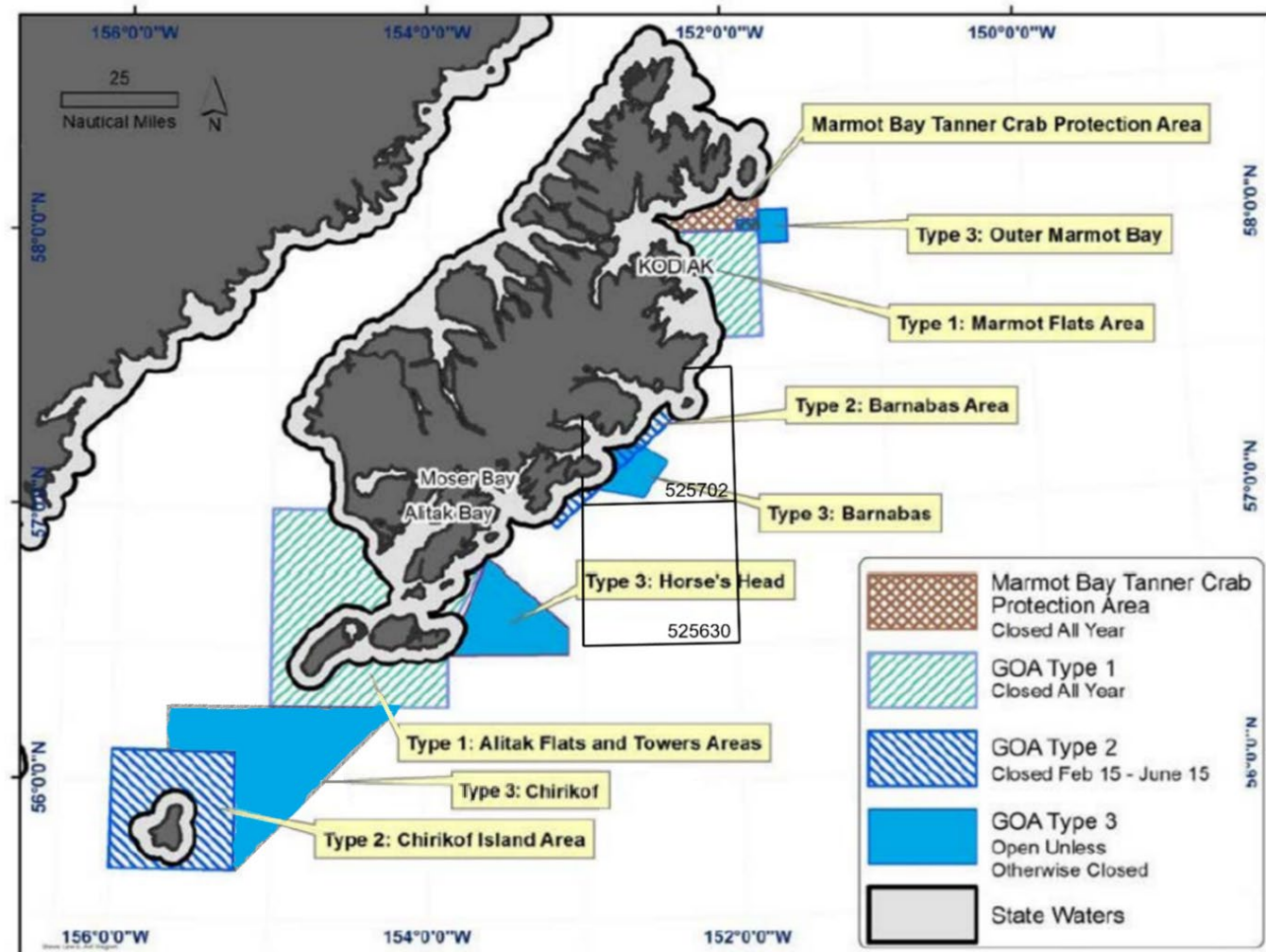
# Alternative 3 Approach and Overview

**Alternative 3: Evaluate existing GOA crab closure areas, & consider options for modification or removal**

- Type I-III Areas, implemented for RKC protection/conservation
- Marmot Bay Tanner Crab Protection Area

Discussion-paper style analysis; broad overview of objectives, rationale/history, recent crab abundance & PSC estimates, and considerations

Development of evaluation options under Alt. 3 may inform development of criteria and timelines to review effectiveness of Alt. 2



Modified from Figure 5, § 679.22(b)(1) and (b)(3). See also Appendix B, GOA Groundfish FMP.

# Objectives of GOA Type I-III Closure Areas for RKC (Sec. 7.1, 7.2)

## Type I-III Closures (est. 1986-1989)

- Established to promote rebuilding of severely depressed RKC stocks by reducing bycatch mortality
- Additional protections were established throughout implementation process, as outlined in table
- Type III areas have never been triggered; threshold based on RKC abundance from 1960's/1970's, and has never been updated

Elements Considered, & Rationale Behind Selection	
CLOSURE AREA	<p><b>Type I &amp; II:</b> Based on female RKC distribution (from 1960s)</p> <p><b>Type III:</b> Areas adjacent to existing Type I/II, thought to be rearing areas &amp; migratory pathways</p>
CLOSURE DURATION	<p><b>Type I:</b> Closed year-round; to provide maximum protections</p> <p><b>Type II:</b> Closed 2/15 to 6.15; to protect RKC during period of highest vulnerability (soft-shell phase)</p> <p><b>Type III:</b> Open unless abundance-based threshold met; to further facilitate rebuilding efforts while otherwise maintaining groundfish fishing opportunities</p>
PROHIBITED GEAR	<p><b>Type I/II:</b> Closed to NPT gear; only flatfish fishery had occurred in the areas at the time</p>



# Objectives of Marmot Bay Tanner Crab Protection Area (Sec. 7.1 & 7.2)

## Marmot Bay Tanner Crab Protection Area (est. 2014)

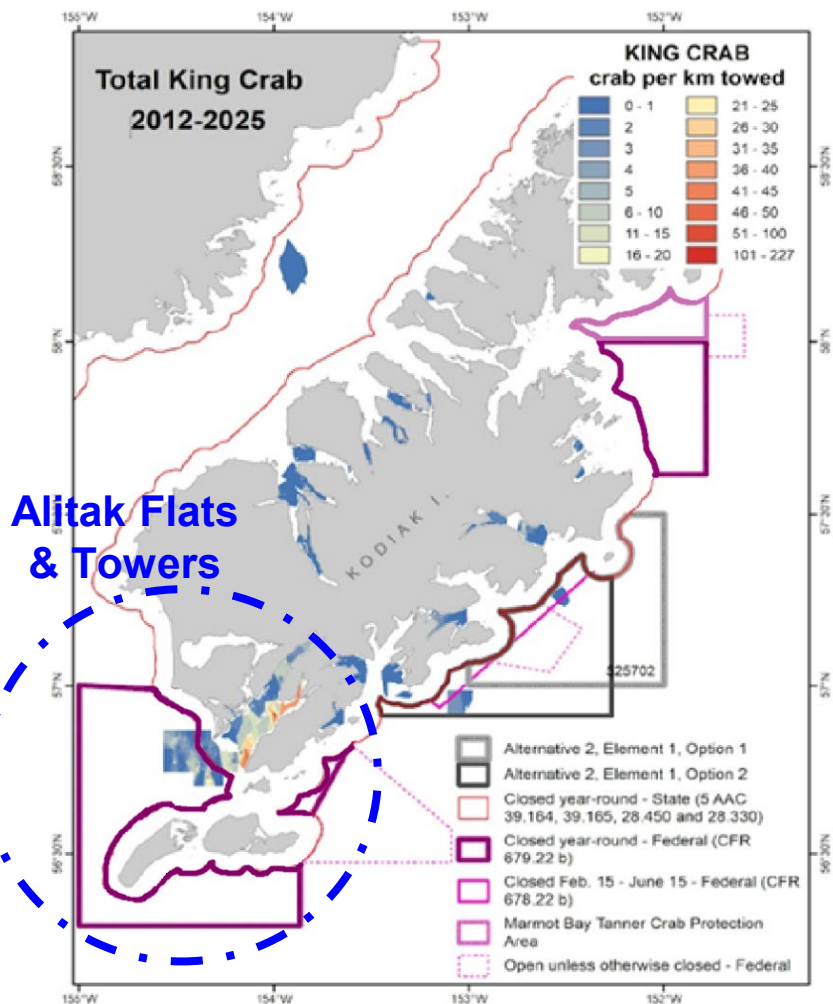
- Established to protect Tanner crab by reducing Tanner crab bycatch in GOA groundfish fisheries, and reduce gear contact from NPT
- Trailing amendment requiring NPT gear modifications (elevated sweeps)
- Originally included observer coverage requirements in other areas w/ high Tanner PSC
  - Not included in final rule

Elements Considered, & Rationale Behind Selection	
CLOSURE AREA	<p>Considered areas of high Tanner abundance: Marmot Bay, Chiniak Gully, 525702, 525630</p> <p>Selected Marmot Bay; highest observed PSC mortality rate, and lower levels of groundfish impacts</p>
CLOSURE DURATION	<p>Considered annual &amp; seasonal (1/1 to 7/31)</p> <p>Year-round closure offered higher protections, aligned duration with adjacent Marmot Flats Type I area</p>
PROHIBITED GEAR	<p>Considered groundfish pot &amp; trawl</p> <p>NPT contributed majority of Tanner PSC in CGOA. Pot gear also contributed PSC intermittently, but occurred predominantly in other areas in the CGOA</p>

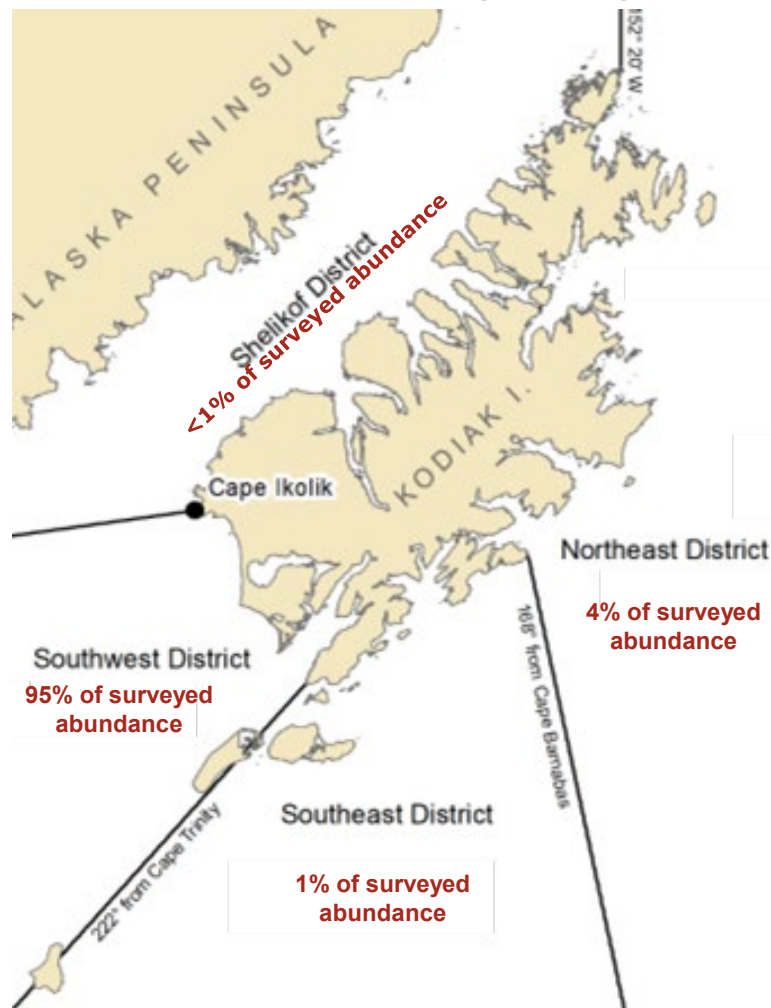


# RKC abundance & PSC estimates in existing closures (Sec. 7.4)

ADF&G Abundance Est., 2012-2025  
(Fig. 7-2, pg. 206)



Abundance by King Crab Management District, 2012-2025 (Fig. 3-3, pg. 64)



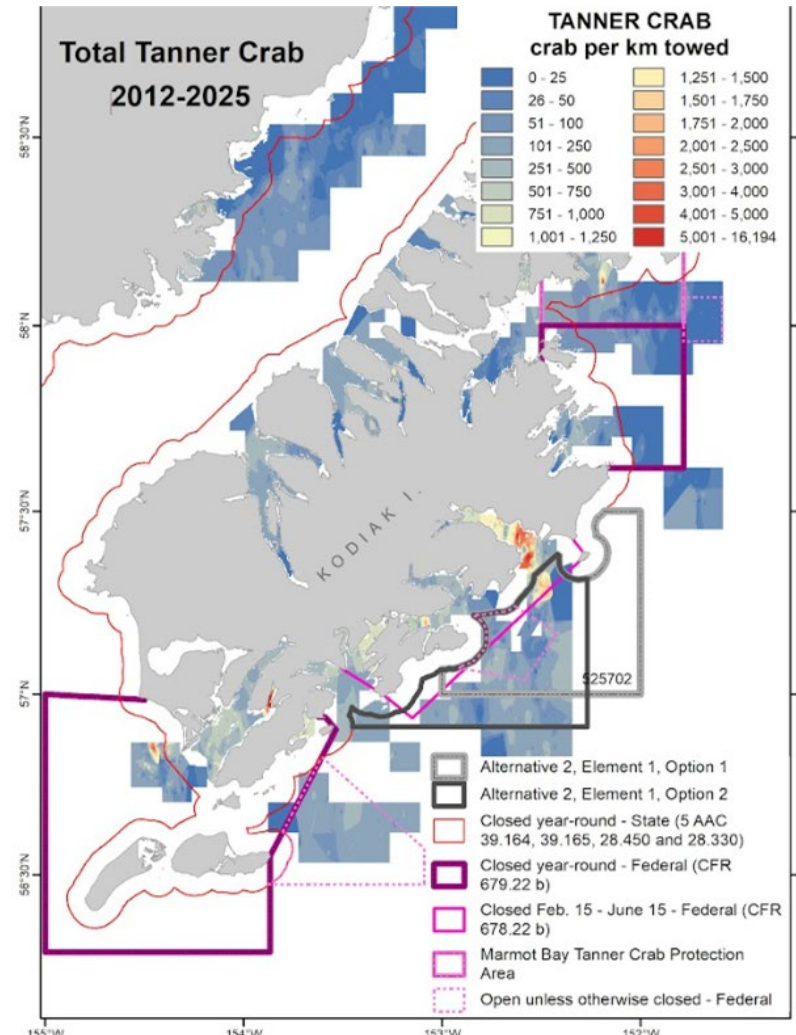
RKC Abundance & PSC by Closure Area

		% of Surveyed Abundance (2012-2025)	PSC* (2012-2025)
<b>Marmot Bay Tanner Crab Protection Area</b>		None	None
<b>Type I</b>	Alitak Flats & Towers	18%	<1 crab/year
	Marmot Flats	None	None
<b>Type II</b>	Chirikof Island	NA; survey not conducted in Chirikof	None
	Barnabas	<1%	None

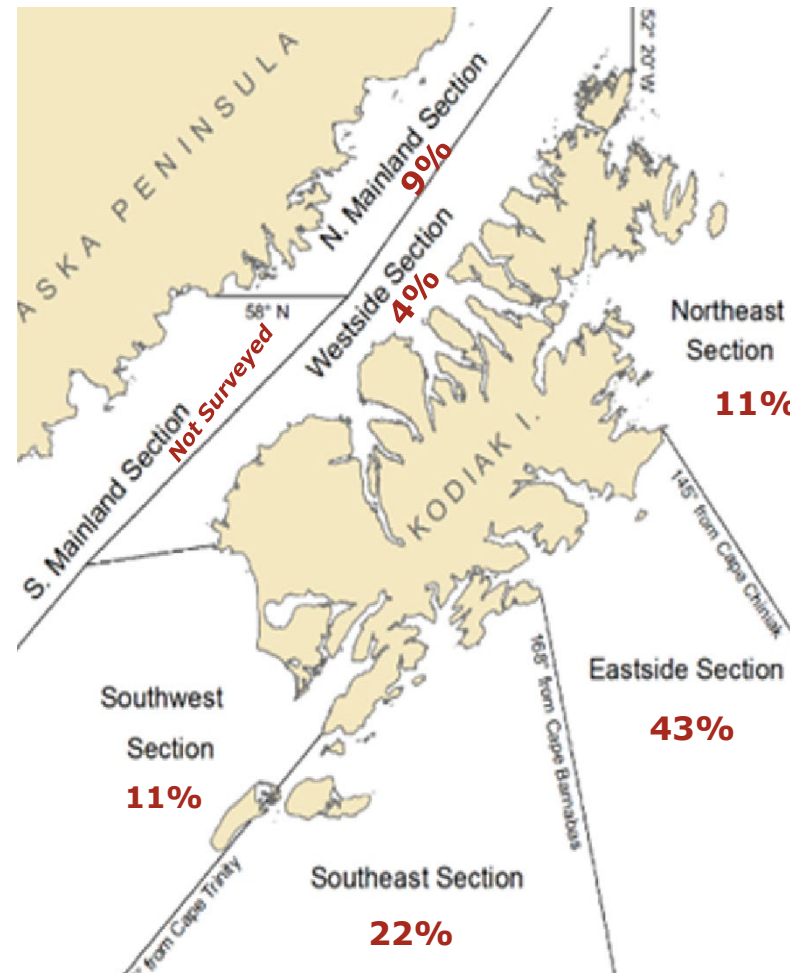
Data from Tables 7-2, 7-3, and 7-4, pgs. 204-205  
\*PSC method sums overlapping stat. areas and is therefore a conservative estimate, which may overstate PSC counts

# Tanner abundance & PSC estimates in existing closures (Sec. 7.4)

ADF&G Abundance Est., 2012-2025  
(Fig. 5-10, pg. 143)



Abundance by Tanner Crab Management District, 2012-2025 (Fig. 3-3, pg. 64)

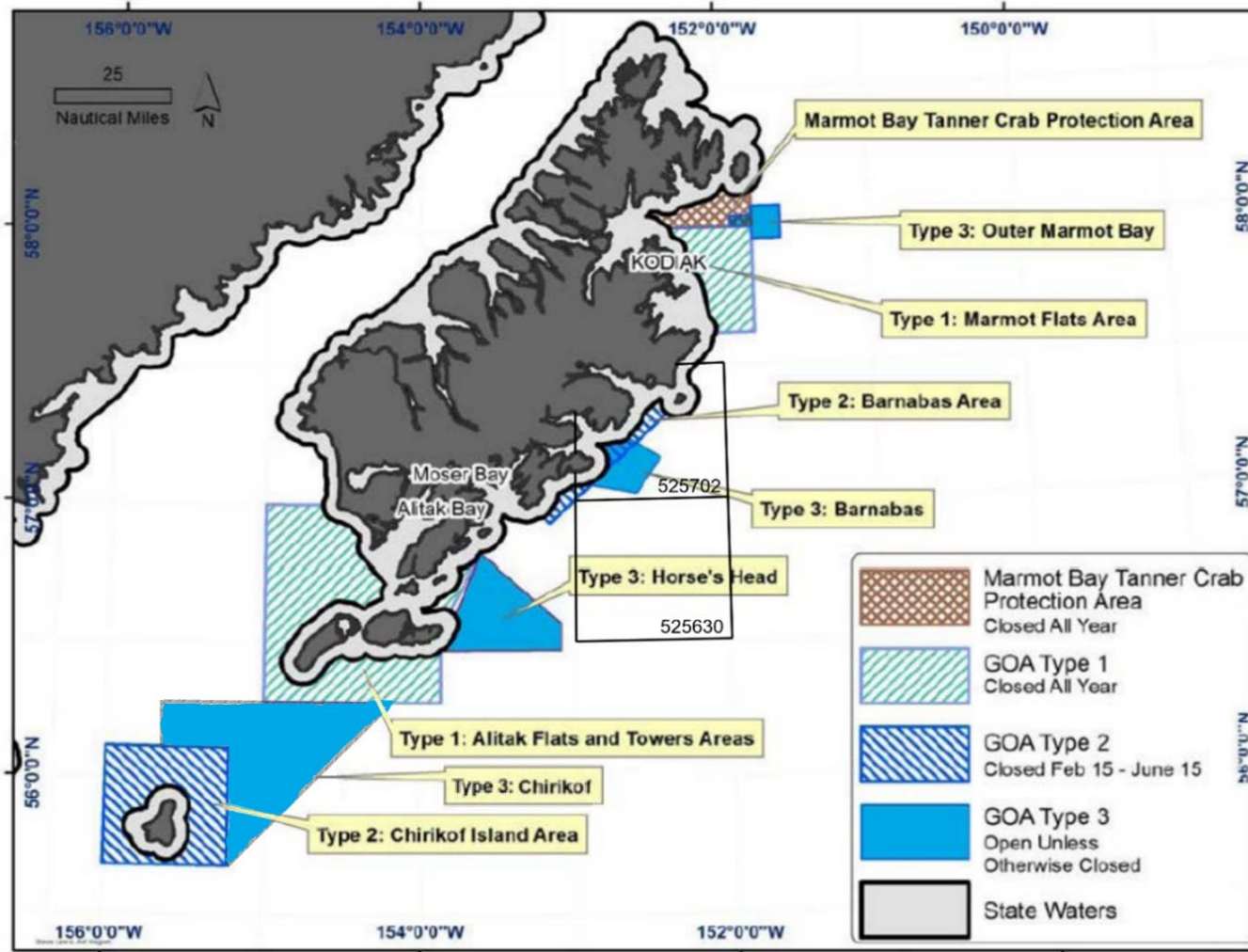


Tanner Abundance & PSC by Closure Area

		% of Surveyed Abundance (2012-2025)	PSC* (2012-2025)
<b>Marmot Bay Tanner Crab Protection Area</b>		1%	Historically high, declines over time
<b>Type I</b>	Alitak Flats & Towers	4%	104.4 crab/year
	Marmot Flats	2%	Historically high, declines over time
<b>Type II</b>	Chirikof Island Area	NA; survey not conducted in Chirikof	43 crab/year
	Barnabas Area	6%	17,700 crab/year

Data from Tables 7-5 and 7-6, pg. 207-208. PSC method sums overlapping areas together and is therefore a conservative estimate, which may overstate PSC counts

# Considerations for existing closures (Sec. 7.3)



<b>Marmot Bay Tanner Crab Protection Area</b>		Low abundance relative to other Kodiak crab protection areas
<b>Type I</b>	Alitak Flats & Towers	Last remaining portion of king crab stock
	Marmot Flats	May provide incidental Tanner protections; overlaps a portion of Chiniak Gully
<b>Type II</b>	All Areas	Seasonal closure duration based on data from 1970s/80s, could be revised
	Chirikof Island	Not surveyed; abundance difficult to quantify
	Barnabas	Overlaps Alt 2 proposed closure areas
<b>Type III</b>	All Areas	Have never been triggered; benefits have not yet been afforded Outdated threshold & trigger
	<b>All Closure Areas</b>	Potential for incidental protection from overlapping closures (e.g. SSL*), and adjacent State water NPT closures

Modified from Figure 5, § 679.22(b)(1) and (b)(3). See also Appendix B, GOA Groundfish FMP.

\*See Section 2.2.1, pg. 31-32 for more information on SSL closure overlaps



# Next Steps

## Next steps

If the Council wishes to move forward with this action, the Council may:

- provide input and recommendations,
- refine the alternatives and options under consideration,
- request additional analysis,
- identify a preliminary preferred alternative, and/or
- release the analysis for final action

