

BSFRF Crab Research Update

NPFMC – June 2026



Scott Goodman
Executive Director

*Photo Credits:
C. Lescher*

Coordination and progress with partners and our team:



Ms. Madison Heller-Shipley
Mr. Cory Lescher
Dr. Gordon Kruse
Dr. Tim Loher
Dr. Gary Stauffer
Mr. Scott Goodman



Update to Council Includes:

D1 BSFRF Crab Research Update
JUNE 2026

- CPS seasonal distribution surveys (BBRKC, CPS3 and beyond)
- Tagging and movement research - continuing w/ partners
- Ongoing synthesis of information – tags, survey, fishery, habitat, temps →
- Sharing of current research with industry partners → PTR options
- Opilio MSE – Industry, NOAA, and ADF&G exploring new options
- Tanner Crab PhD and related research – focus on shortcut MSE
- OPS surveys – opilio sampling w/ pots, trawls (Opilio, OPS1 and beyond)
- Simulated pot loss research – UFM exploration of pot function/status
- Substantial Disaster Relief and Other Research



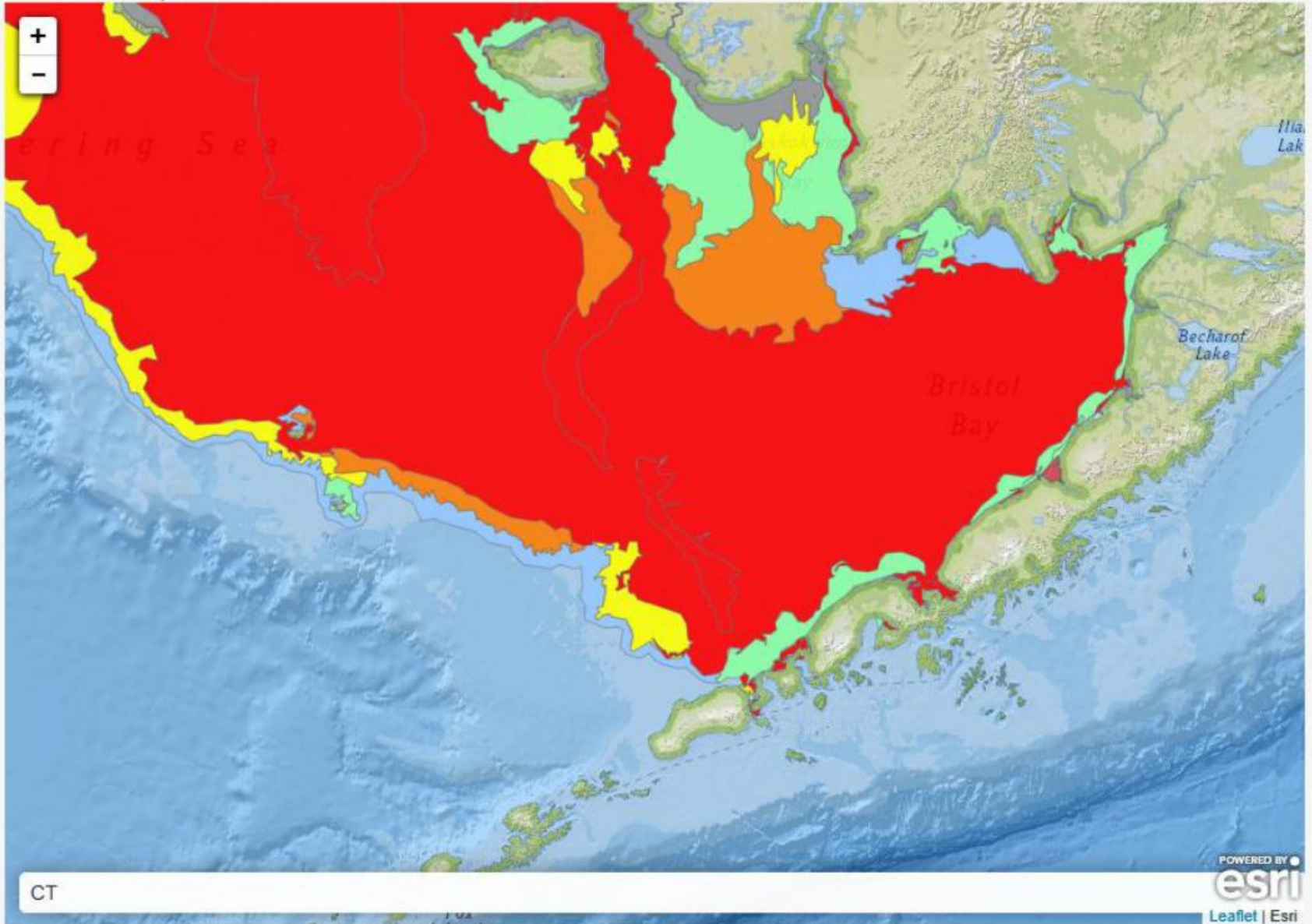
➤ CPS3 Cancelled after trying to wait out ICE

- All 3 boats staged, loaded, ready in DH for a week
- Cooperation with all partners, ADFG/NOAA/others was critical



Ice Analysis Layer: Concentration Stage Forecast [Legend](#)

CT created: 04:08 Tue Apr 07



Zoomable Maps

Standard Ice Analysis & Forecast Maps

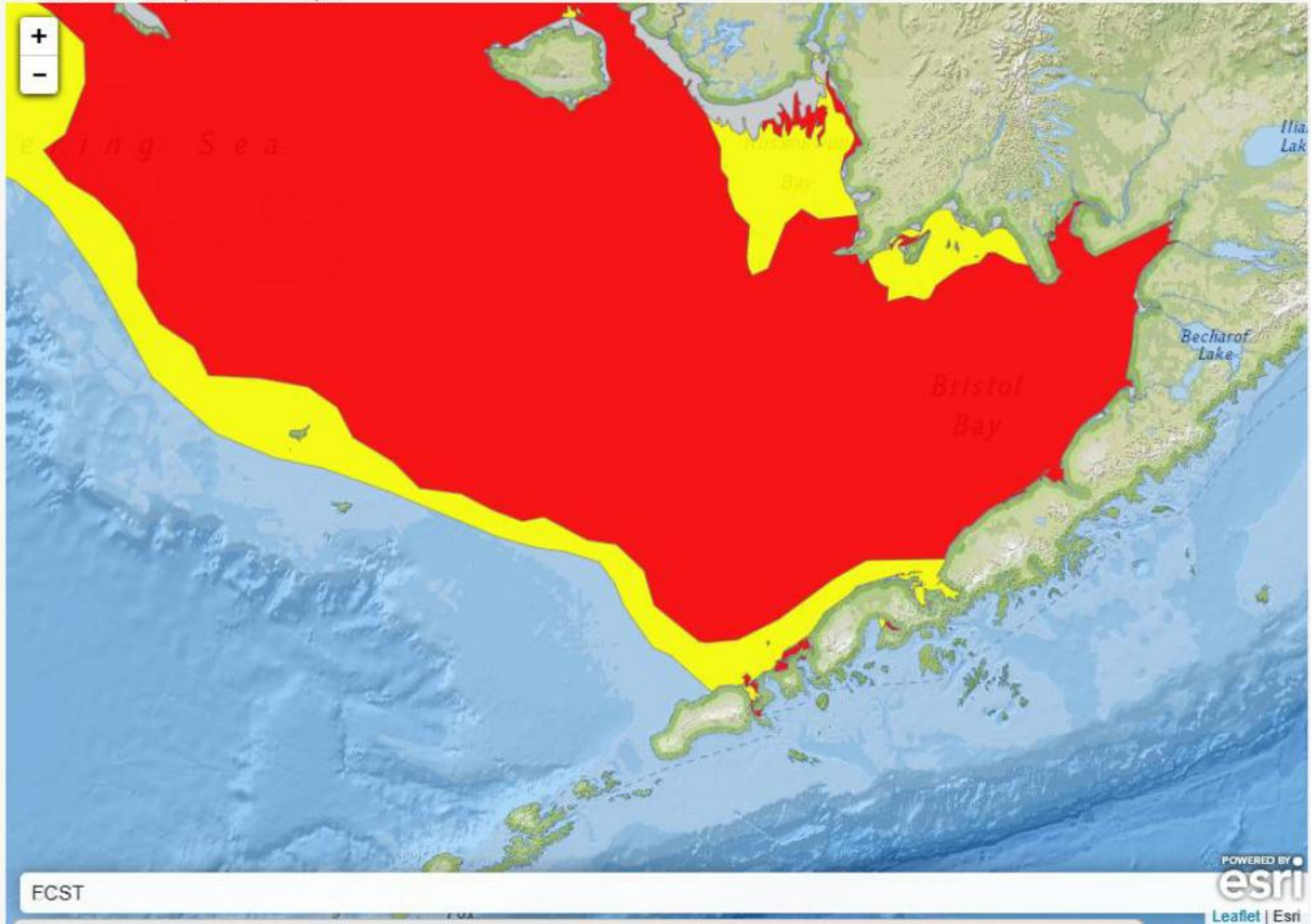
Sea Ice Forecast

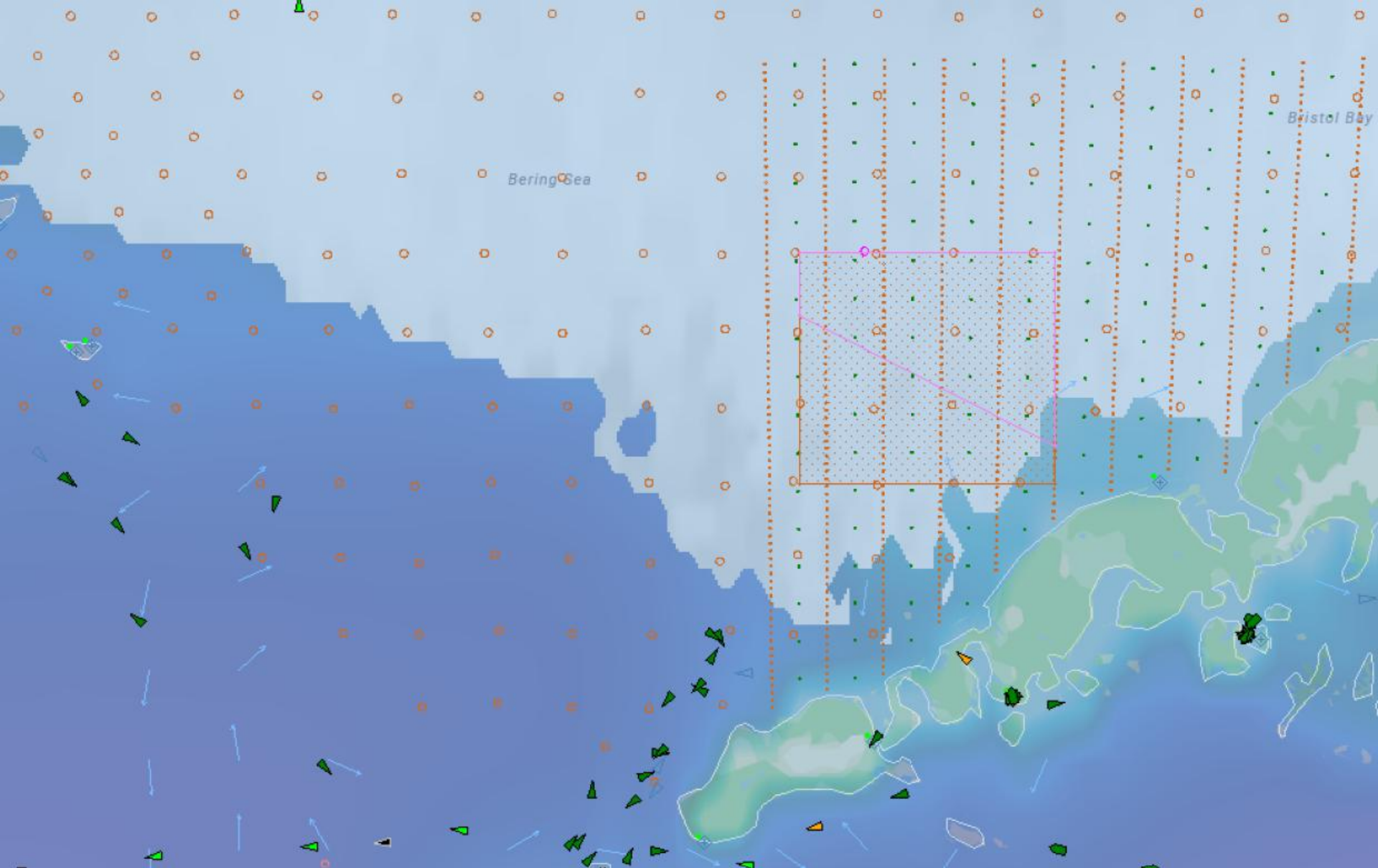
3 Month Sea Ice Outlook

Additional Satellite Resources

Ice Analysis Layer: Concentration Stage Forecast [Legend](#)

FCST created: 03:53 Mon Apr 06; valid for Sat Apr 11





- Vessels, gear, and people de-staged 3/23-3/26
- Save remaining resources for upcoming projects



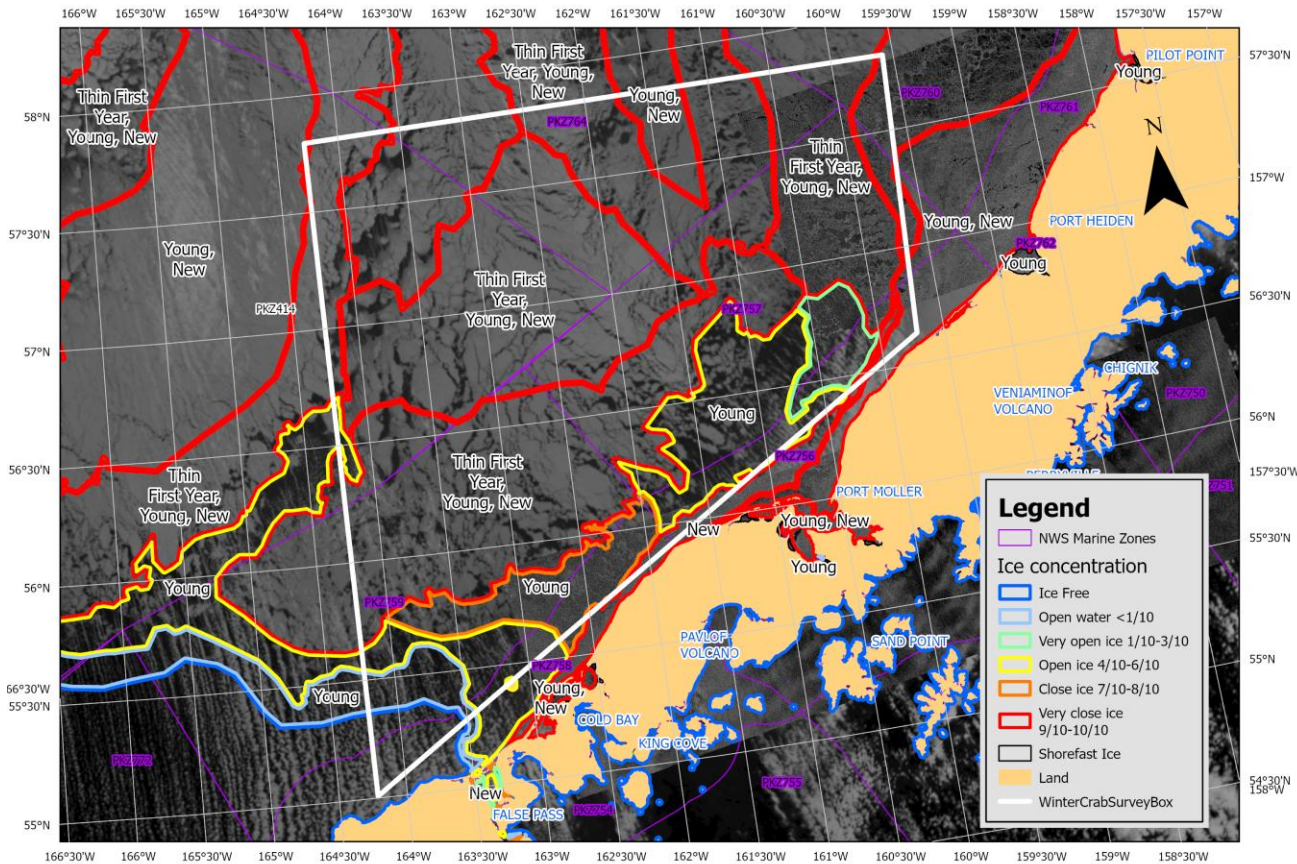
3/16/2026 1:01 PM

To: Leah Zacher - NOAA Federal <leah.zacher@noaa.gov>, cory@alaskacrabbers.org, sgoodman@nrccorp.com, mshipley@nrccorp.com,

Good afternoon,

Today's key points:

- Northerly winds continue through the week
- Pack ice will continue to encroach on the Alaska Peninsula
- Long term guidance suggests no change in meteorological pattern anytime soon (continued northerly winds)
- We are nearing record extent for the eastern Bering Sea/Bristol Bay in the last 30 years



0 25 50 100 Nautical_Mile

NOAA-21 Infrared satellite image
16 March 2026 1348 UTC

Winter Spring BBRKC surveys -

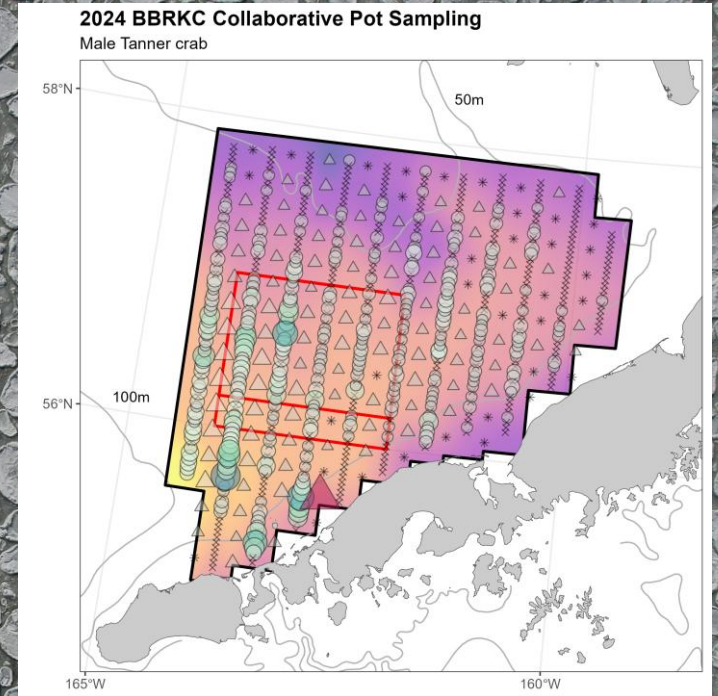
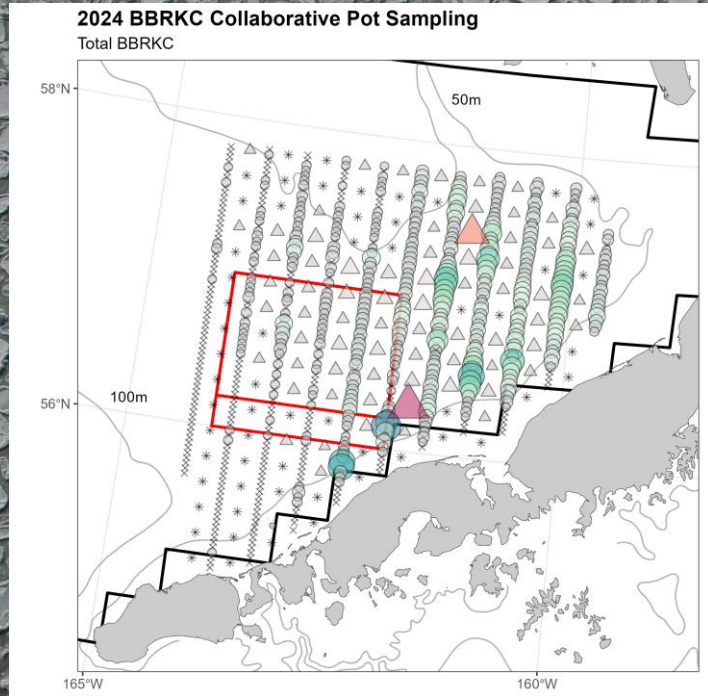
- Current plans are adjusting to missing 2025 & 2026
- Plans going forward include 2 additional iterations

BBRKC Field Work

Year	Project	Vessels	Cost \$M	Source
2023	CPS1	2	1.00	ADFG/NOAA
2024	CPS2	3	1.25	BSFRF CDS
2025				
2026				
2027	CPS3	3	1.25	BSFRF DR
2028	CPS4	3	1.25	BSFRF DR



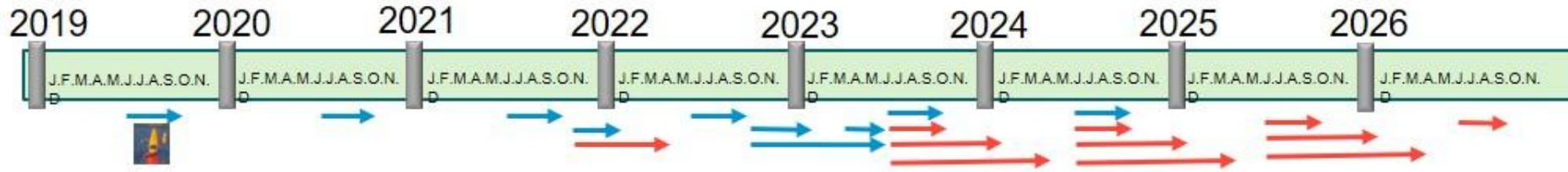
Winter Spring BBRKC surveys -



Summary Item	CPS1 - 2023		CPS2 - 2024	
	POT	TRW	POT	TRW
Pot Lifts/Tows	637	0	646	128
RKC Catch	10,191		6,415	496
RKC Sex Ratio (M/F)	77/23	<--->	76/24	44/56
Bairdi Catch	670		1,009	928
Bairdi Sex Ratio (M/F)	83/17	<--->	99/1	68/32

Synthesis and summary with other information (tags) to inform options

8 Years of Red King Crab Tagging



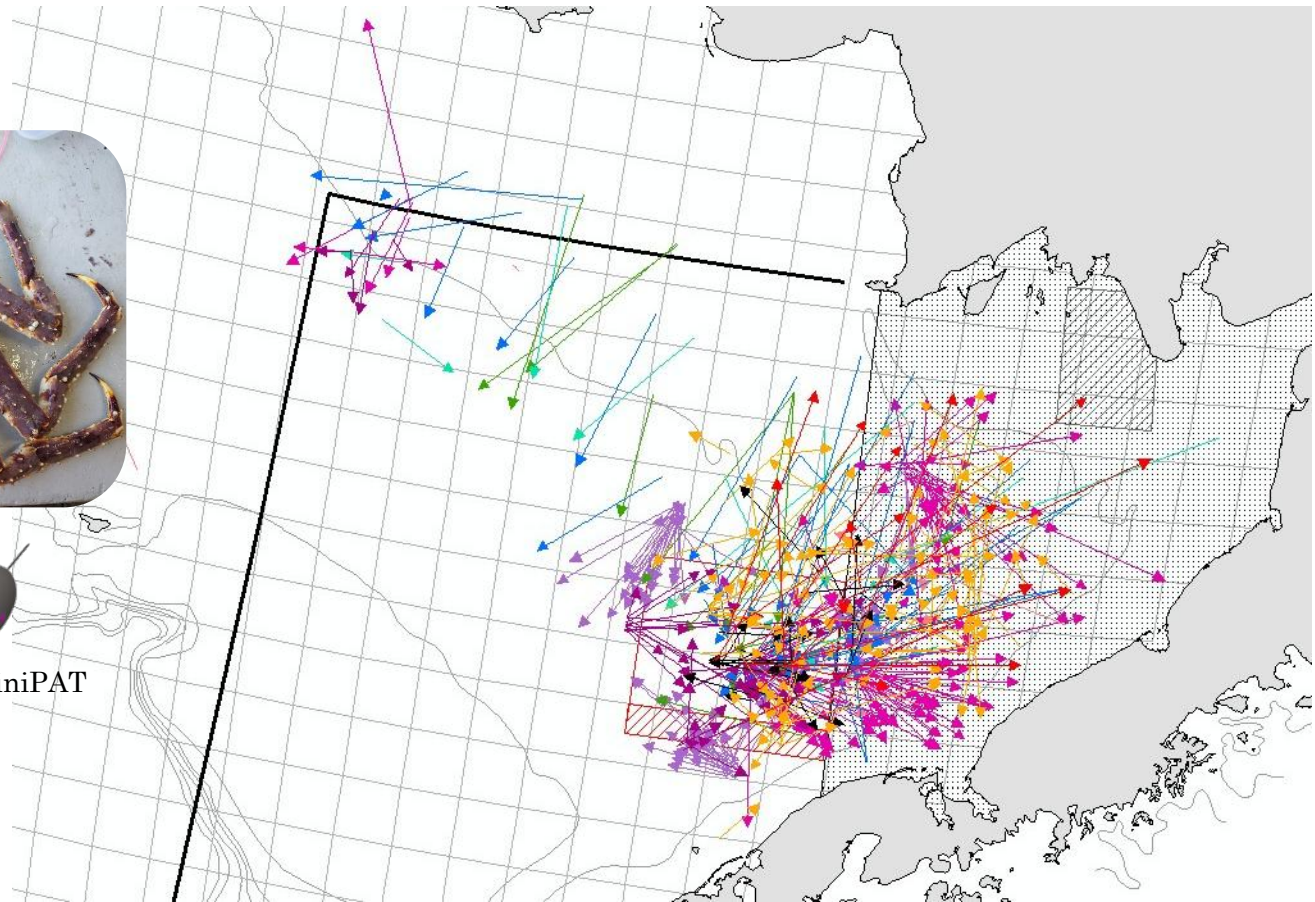
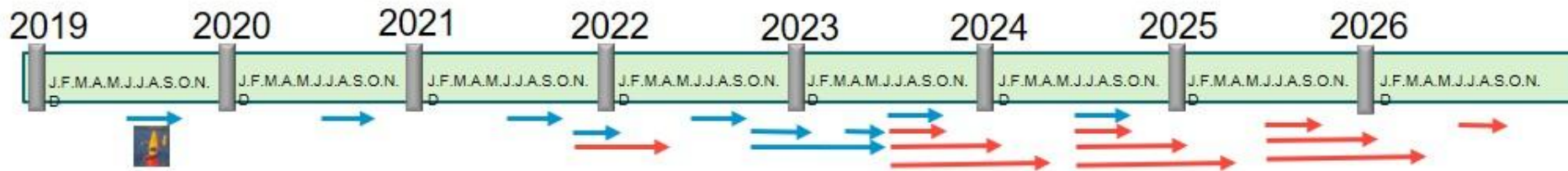
Information from Dr. Leah Zacher (NOAA AFSC Kodiak)

8 Years of Red King Crab Tagging

Satellite Tags Deployed

Sex	Time	Released	Recovered	Success
Male	Jul to Oct 2020	84	79	94%
	Jun to Oct 2021	15	13	87%
	June to Oct 2022	16	13	81%
	June to Oct 2023	40	37	93%
	June to Oct 2024	49	36	73%
	Nov 2021 to Jan 2022	90	46	51%
	Oct 2022 to Jan 2023	20	20	100%
	Oct 2022 to Jun 2023	20	15	75%
	March/April to Jun 2023	100	91	91%
Female	Nov 2021 to April/May 2022	225	116	52%
	Jun 2023 to Oct 2023	16	10	63%
	Jun 2023 to Jan 2024	25	16	64%
	Jun 2023 to Apr 2024	34	14	41%
	Jun 2024 to Oct 2024	37	19	51%
	Jun 2024 to Jan 2025	59	33	56%
	Jun 2024 to Apr 2025	73	21	29%
	Jun 2025 to Jan 2026	53	30	57%
	Jun 2025 to Apr 2026	53	Analysis in Progress	
Total Satellite Tags		1014	*495	*64%

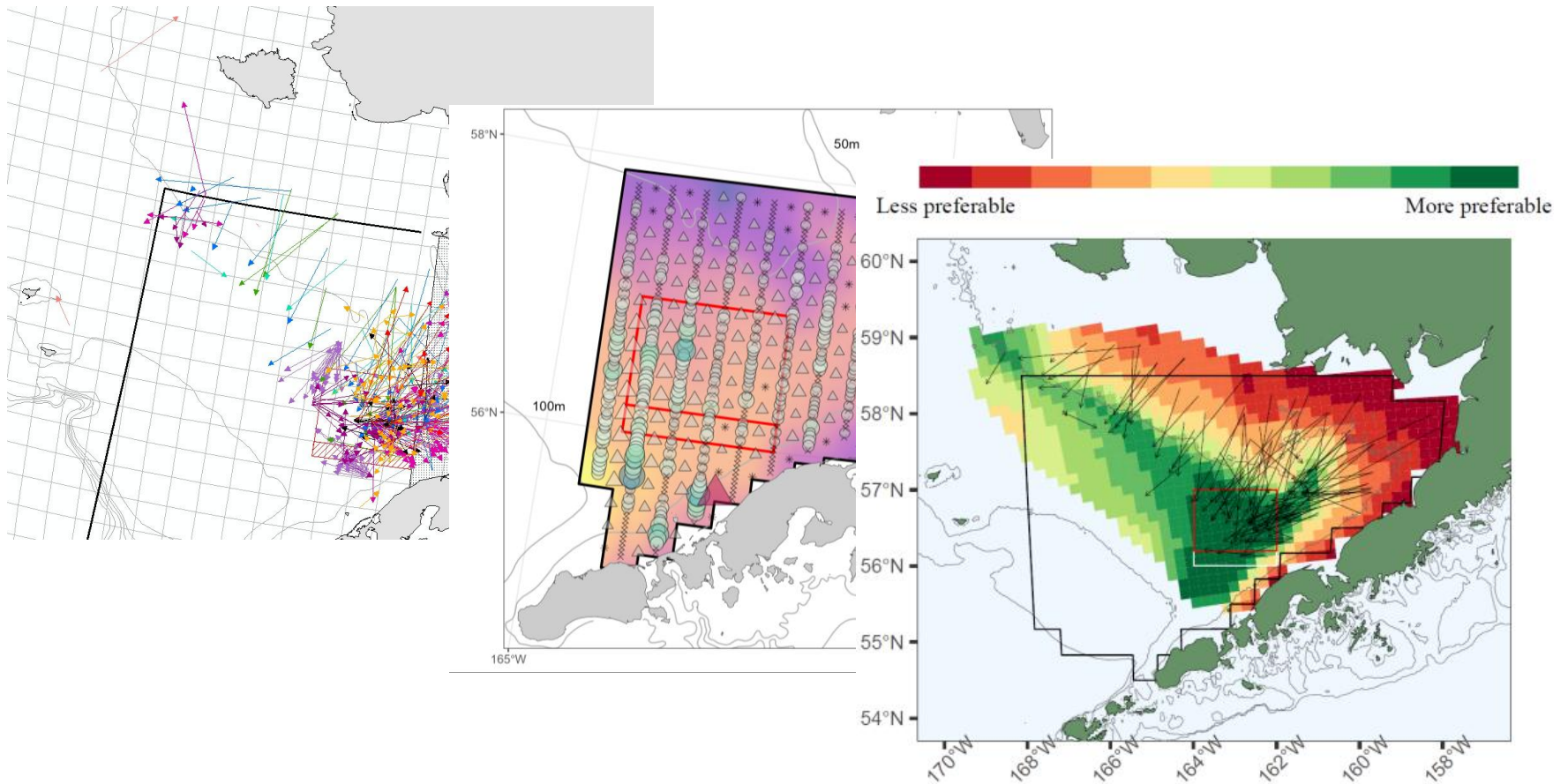
8 Years of Red King Crab Tagging



Support of Dr. Sean Hardison's research

→ synthesizing available data to inform options

- BSFRF has approved direct support of this research for 2026, likely beyond



Movement models to inform knowledge of crab habitat distribution in data-poor seasons

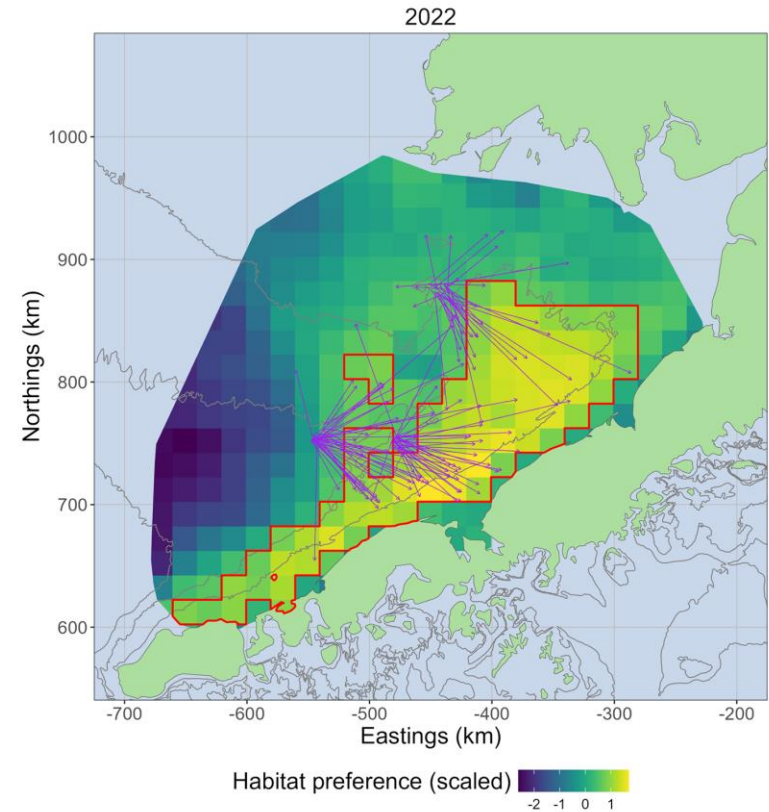
BBRKC distribution relative to closure areas changes seasonally and with environmental dynamics

Movement models relate the movements of tagged crab to environmental dynamics

- Used to identify *preferred habitat* – where crab want to go given environment and tagging observations

Bottom temperature, depth, and sediment grain sizes explained mature female BBRKC winter-spring movement

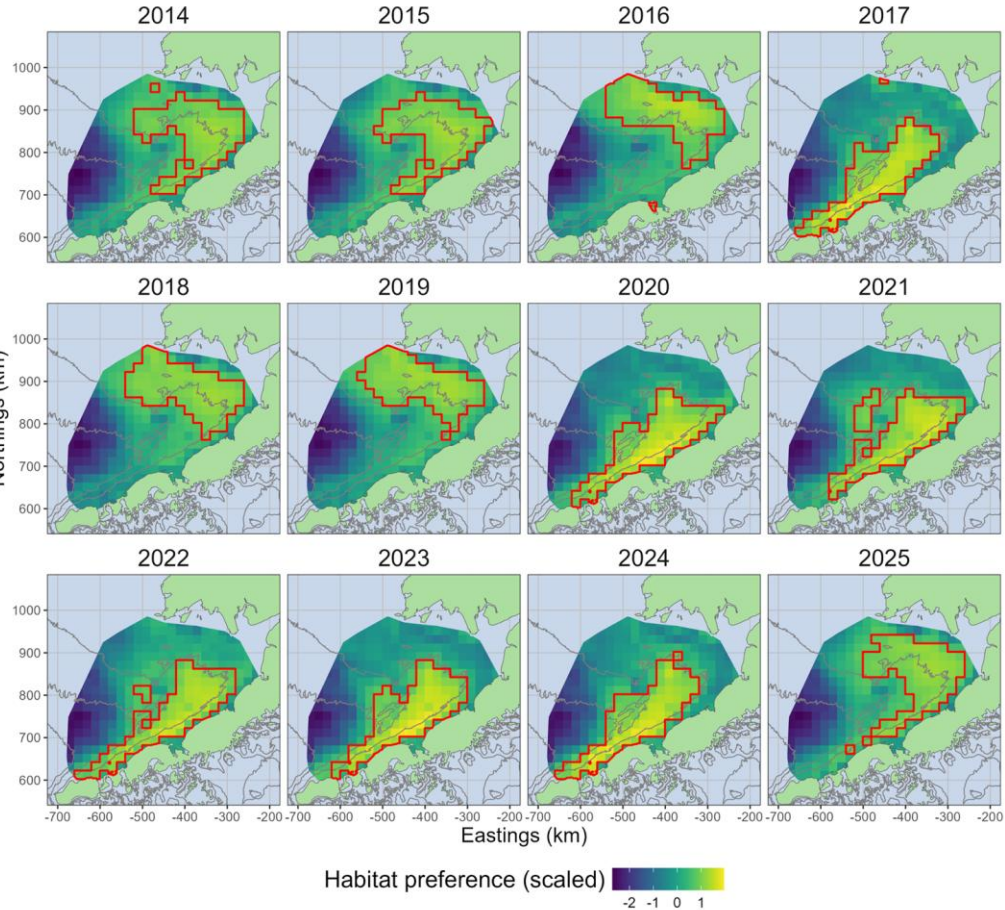
- Developed spring habitat preference maps from movement model
- Validated using Collaborative Pot Sampling 1/2 data



Predicted habitat preferences from movement model fitted to female BBRKC tags deployed between November 2021- April/May 2022. Red is upper quartile habitat (“highly preferred habitat”).

Predicted spring female BBRKC habitat distributions vary with bottom temperatures

The predicted distribution of preferred habitat for mature female BBRKC varies by year

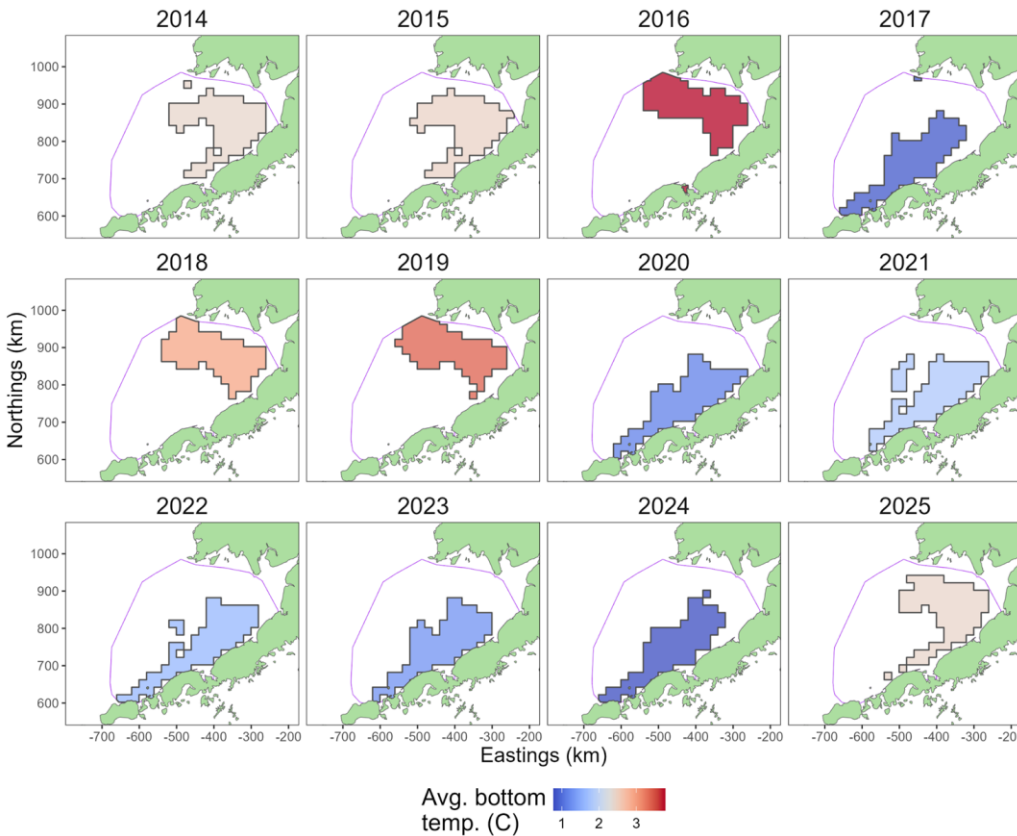


Predicted spring female BBRKC habitat distributions vary with bottom temperatures

The predicted distribution of preferred habitat for mature female BBRKC varies by year

Bottom temperatures drive year-to-year patterns in habitat distribution

- **Warm years** – Preferred habitat in central/northern Bristol Bay
- **Cool years** – Preferred habitat along Alaska Peninsula out toward Unimak Island



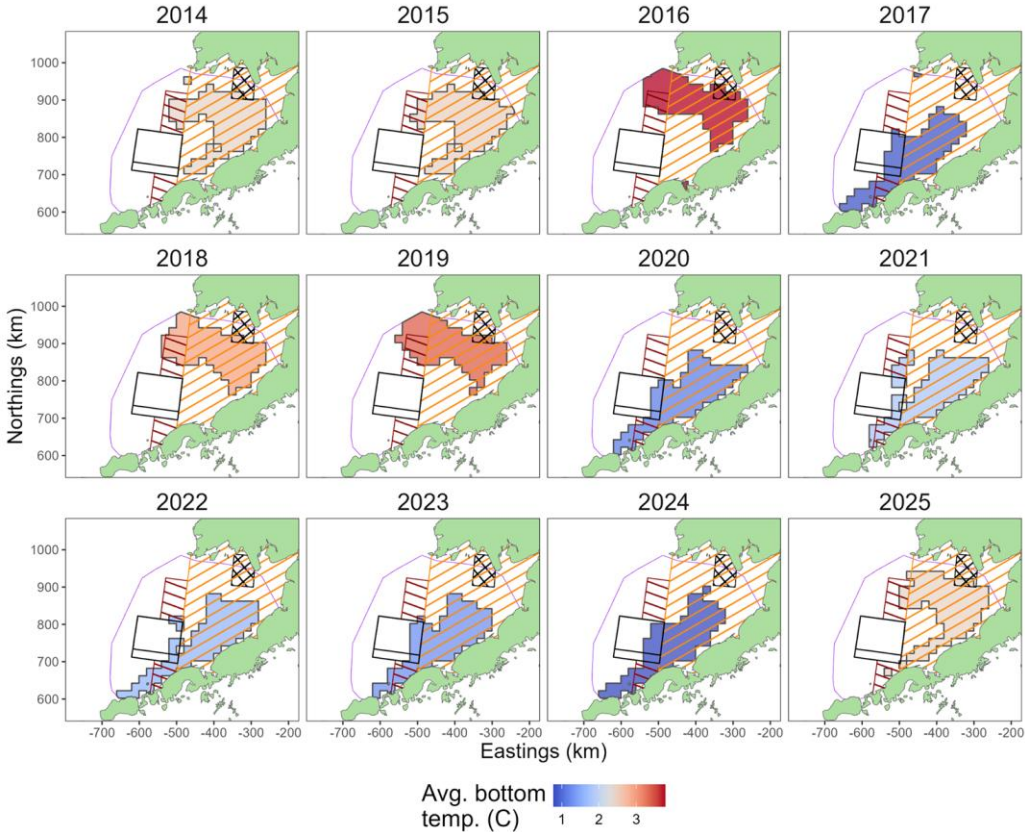
Predicted spring female BBRKC habitat distributions vary with bottom temperatures

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Dynamic environments create dynamic habitat preferences; not always contained by closure areas



Next steps: projecting habitat distribution in support of dynamic closure areas

Given bottom temperature projections, we could use this model to project preferred habitat distribution into late April/early May

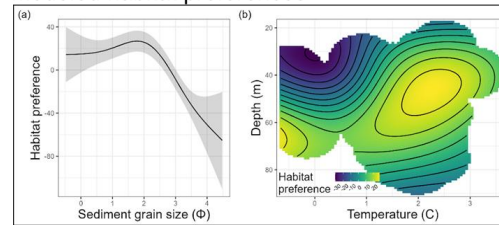
- Projected habitat preference distribution as data product for industry partners

Future work will fit model using multiple tag deployments in multiple seasons

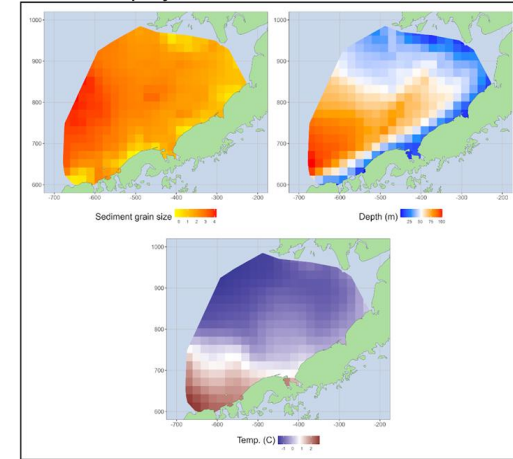
- Building capacity for short-term, on-demand forecasts
- Using movement models to project BBRKC density in addition to habitat preference

Tags have enormous potential for understanding distribution and crab-gear interactions during data-poor seasons

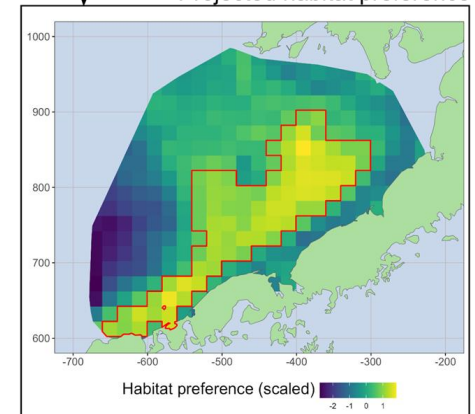
Modeled habitat preferences



Static and projected environmental covariates



Projected habitat preference



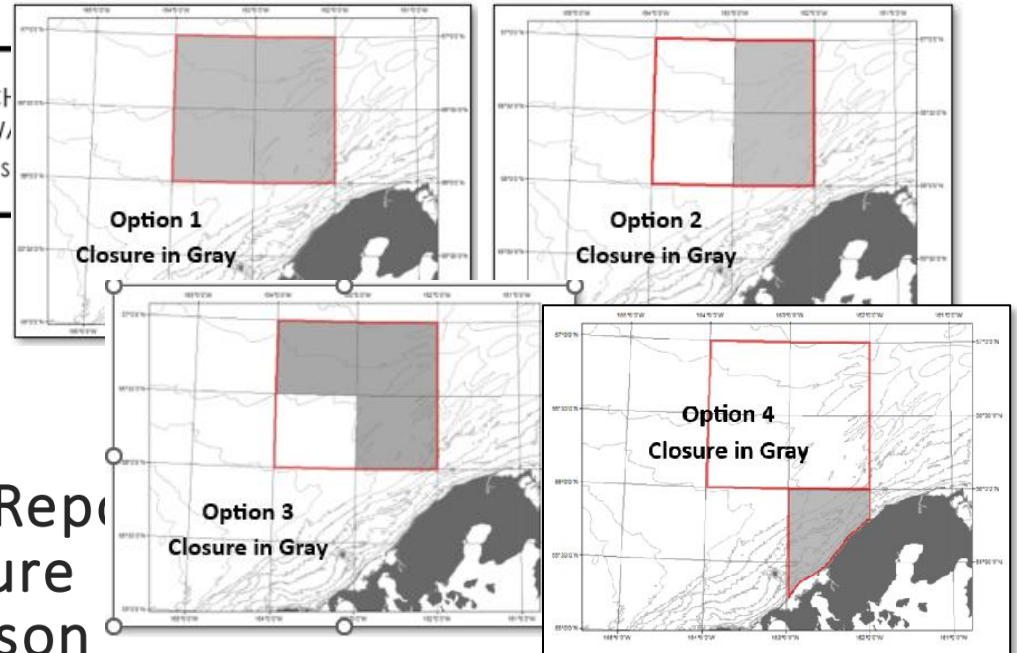
Sharing and cooperation with pollock industry

- BSFRF plans to share/help coordinate options again as in A-season 2026



November 12, 2025

RE: Suggested Options for BBR Closure Areas for PTR, 2026 A-Season



Bering Sea Pollock Industry Report on Dynamic Spatial Closure Measures for 2026 A Season

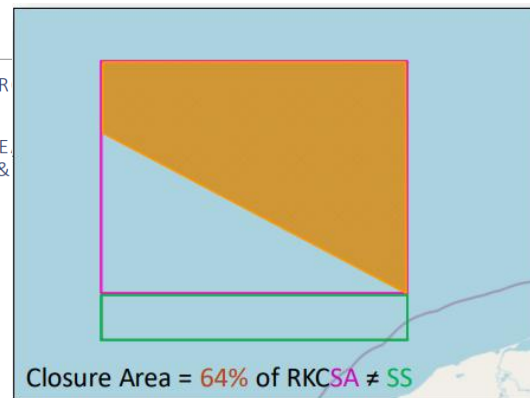
NPFMC MEETING – DECEMBER 2025 – B9

SUSIE ZAGORSKI - AFA CV IC MANAGER AND INSHORE IPA REPRESENTATIVE

CAITLIN YEAGER – AT SEA PROCESSORS ASSOCIATION REPRESENTATIVE

JAMES MIZE – MOTHERSHIP IPA REPRESENTATIVE

AUSTIN ESTABROOKS – AT SEA PROCESSORS ASSOCIATION & REPRESENTATIVE



MSE Research for Crab – Two Focus Projects



Is the easy way the
right way for
modeling crab?

Assessing **Shortcut** Management
Strategy Evaluation (**MSE**) **Methods**
for Applied Fisheries Management
in **Alaska**

May 14, 2026

Madi Heller-Shiple, PhD
CPT



SNOW CRAB MSE

A Collaboration with Industry, State, and Federal
Partners to Evaluate and Inform
Options/Flexibility for Opilio Management

Addressing several research questions/objectives:

1. updating the state harvest control rule and evaluate interactions with the federal control rule
2. addressing exploitation rates, size structure, industry retention options
3. considering environmental thresholds and how those might be built into options
4. developing performance metrics that balance conservation and economic outcomes
5. incorporating stakeholder input into MSE progress and recommendations

TANNER CRAB MSE

As part of PhD research supported
by DR Research with BSFRF

Opilio Pot Sampling 1 (OPS1)

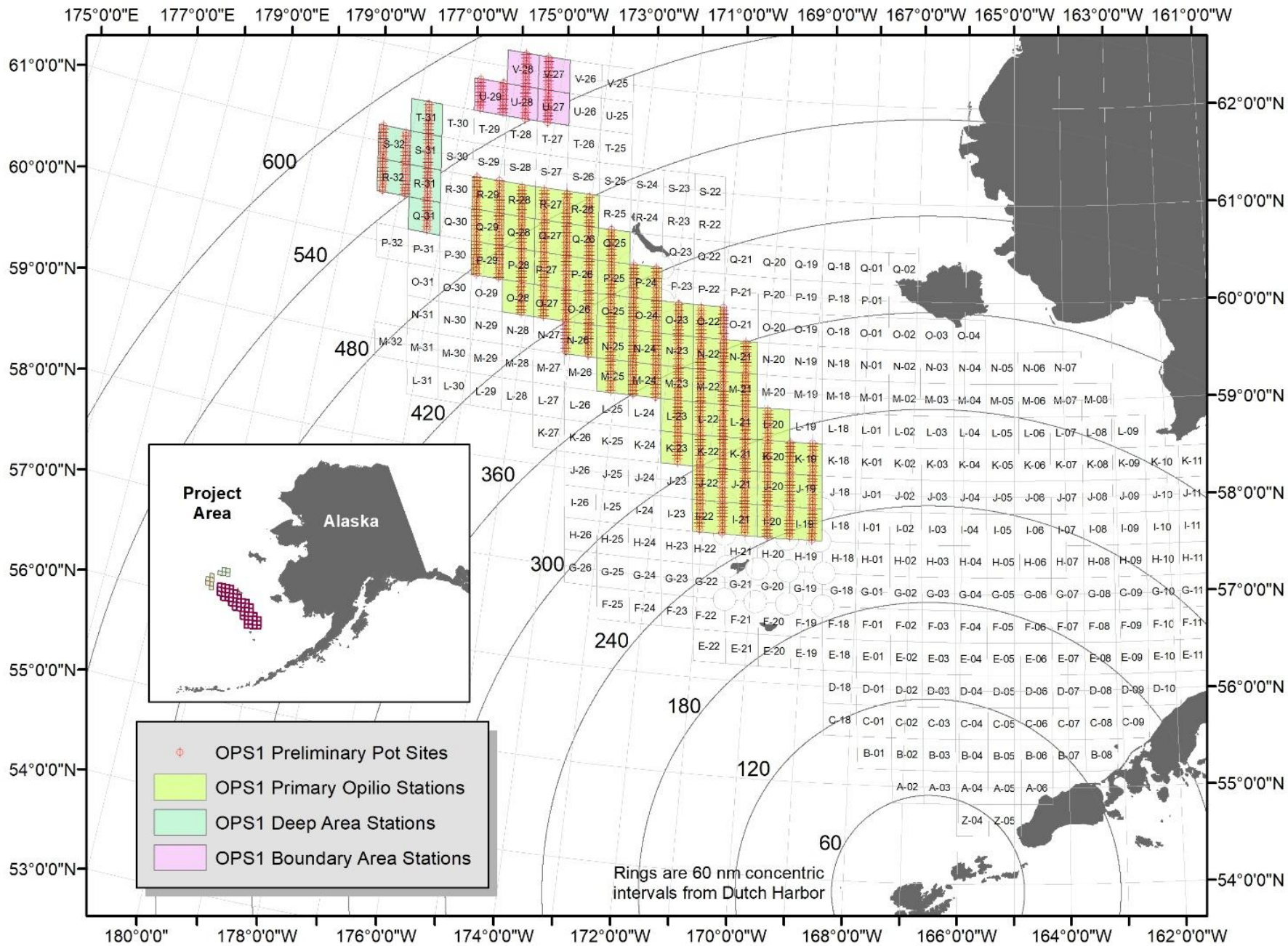
[may include additional effort for NMFS survey gear testing]

Project online for August 2026

Objectives, sampling area, logistics,
permitting – all complete

RFP for Crab
Charters
Open Now





Opilio Pot Sampling 1 (OPS1)

Research Questions

1. How can focused snow crab sampling support improved understanding of stock recovery dynamics?
2. How do opilio catch rates and size compositions differ across gear types and in particular areas within the survey grounds?
3. How can crab industry vessels and stakeholder input be built into disaster relief crab research?

Opilio Pot Sampling 1 (OPS1)

Primary Objectives

- Validate/calibrate Opilio CPUE from trawl/pot sampling
- Increased sampling density to examine variance
- Targeted sampling at fine scale in areas (in/out of survey area)
- Index area stations in deep water, EBS/NBS boundary
- Collection of chela measurements, higher spatial resolution
- Collect bottom temperature information over OPS area
- Secondary – cameras in pots, bait tests, tagging

Disaster Relief Research Planning → Opilio and BBRKC [through NPRB]

No.	Title	PI	Contact	Org
5056	CLRUP North- Chionoecetes Left-to-Right and Under Pressure in a changing NBS	Andrew Seitz	acseitz@alaska.edu	UAF
5063	Top-to-Bottom assessment of early life snow crab ecology in a melting northern Bering Sea	Jared Weems	jared.weems@alaska.gov	ADFG
5065	Understanding the link between Bristol Bay red king crab larval supply and recruitment strength	Ben Daly	ben.daly@alaska.gov	ADFG
5067	Understanding lost crab pot degradation and impacts on the Bristol Bay red king crab stock	Scott Goodman	sgoodman@nrccorp.com	BSFRF
5077	Metabolic costs of migration for Bering Sea snow crab in response to rapid regional warming	Trond Kristiansen	trondkr@faralloninstitute.org	Farallon Institute
5079	Population genomics of Bristol Bay red king crab for fishery management and enhancement	Kristen Gruenthal	kristen.gruenthal@alaska.gov	State of Alaska

LOST POT RESEARCH



“Understanding lost crab pot degradation and impacts on the Bristol Bay red king crab stock”

➤ A fixed gear UFM project focused on simulated loss of crab pots in Bristol Bay

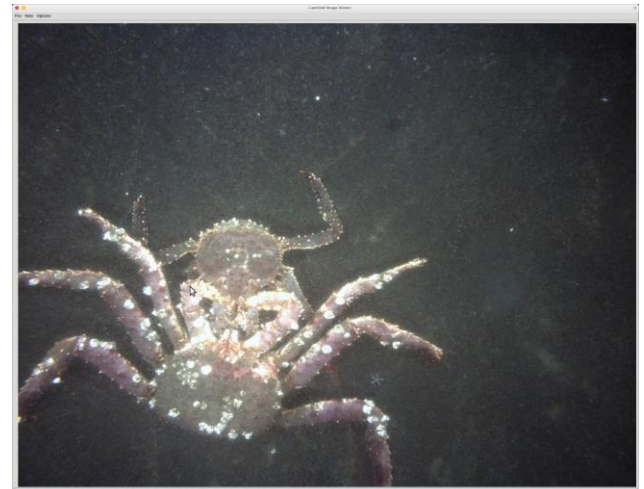
- 50-60 BBRKC pots deployed as baited, fishing pots “left out”
- Approximately November 1, 2026, timed with early part of fishery
- Pots will test rot cord decay times with pop-up satellite tags
- Cameras will record time-lapse activity in several pots
- Smart buoys will mark pot locations
- Pots will be deployed and recovered with crab charters
- All pots intended to be retrieved by the end of 1 year (season)
- Several details are in final planning/testing development
- PI’s Goodman, Lescher, Antonelis, several collaborators
- Reporting more on this soon after pilot testing

Assisting, coordinating on crab habitat research

- Early life and juvenile habitat area survey/evaluation
- Working with ADFG and others on charters and details



- Adult red king crab habitat evaluation near/around fishing activity
- Advising ABSC on habitat research project in development



- More reporting on habitat research soon...



Top 12 Research Priorities, 2024-2028 – **CRAB IN RED**

(bullets are not in order, shortened summary text from ACTUAL)

- Reduce **western Alaska salmon bycatch** in Bering Sea groundfish fisheries
- **Quantify fishing gear impacts on crab and their habitat – toward gear innovation**
- Evaluate **marine mammal-fishery interactions** and potential mitigation measures
- Examine economic, social, and cultural **effects of fisheries and policy on communities** over time
- Actionable **ecosystem indicators** relevant to assessments that **address climate change impacts** to managed stocks
- **Acquire basic life history information** - emphasize improved estimates of **size/age at maturity** & related dynamics
- **Spatial distribution, habitat requirements, and movement of crabs relative to life history events & fishing**
- Predictive tools & **models that evaluate projected climate scenarios** on managed resources to inform options
- **Retrospective and meta- analysis** on ‘efficacy and rationale’ of fishery management plans perform over time
- **Norton Sound Red King Crab** case study as a pilot study for the **incorporation of Local Knowledge**
- Improve **surveys in untrawlable habitat**, particularly for rockfish, Atka mackerel, sculpins, and **snow crab**
- Improve **discard mortality rate estimates** for scallops, crab, and groundfish stocks by gear types

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*Photo Credits:
C. Lescher*