

# Crab Foundation – Research Update – January CPT - 01.11.24

- *Research Priorities*
- *A Few Focus Projects*
- *What's Next*



Scott Goodman | Executive Director  
Bering Sea Fisheries Research Foundation

# RESEARCH PRIORITIES

## NPFMC Top Ten Research Priorities for 2022-2024

1. Spatial distribution and movement of crabs relative to life history events and fishing.
2. Conduct routine fish, crab, and oceanographic surveys in the Arctic Ocean.
3. Develop a framework and collect economic information.
4. Develop stock-specific ecosystem indicators and incorporate into stock assessments.
5. Cooperative research efforts to supplement existing at-sea surveys that provide seasonal, species-specific information on upper trophic levels.
6. Develop tools for analyzing coastal community vulnerability to fisheries management changes.
7. Maturity estimates for Bering Sea and Aleutian Island crab stocks.
8. Collection of socio-economic information.
9. Gap Analyses on loss of biological samples due to implementation of Electronic Monitoring.
10. Norton Sound Red King Crab case study.

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### # Council Top 10 Research Priorities, 2022-2024

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1 Crabs - distribution/movement during life history & fishing

2 Arctic Ocean - routine multi-spp & oceanographic surveys

3 Economic information - framework and collection

4 Ecosystem indicators per spp - into assessments



5 Cooperative research - survey/seasons supplement

6 Community vulnerability analyses to management



7 Maturity estimates for BSAI crab stocks

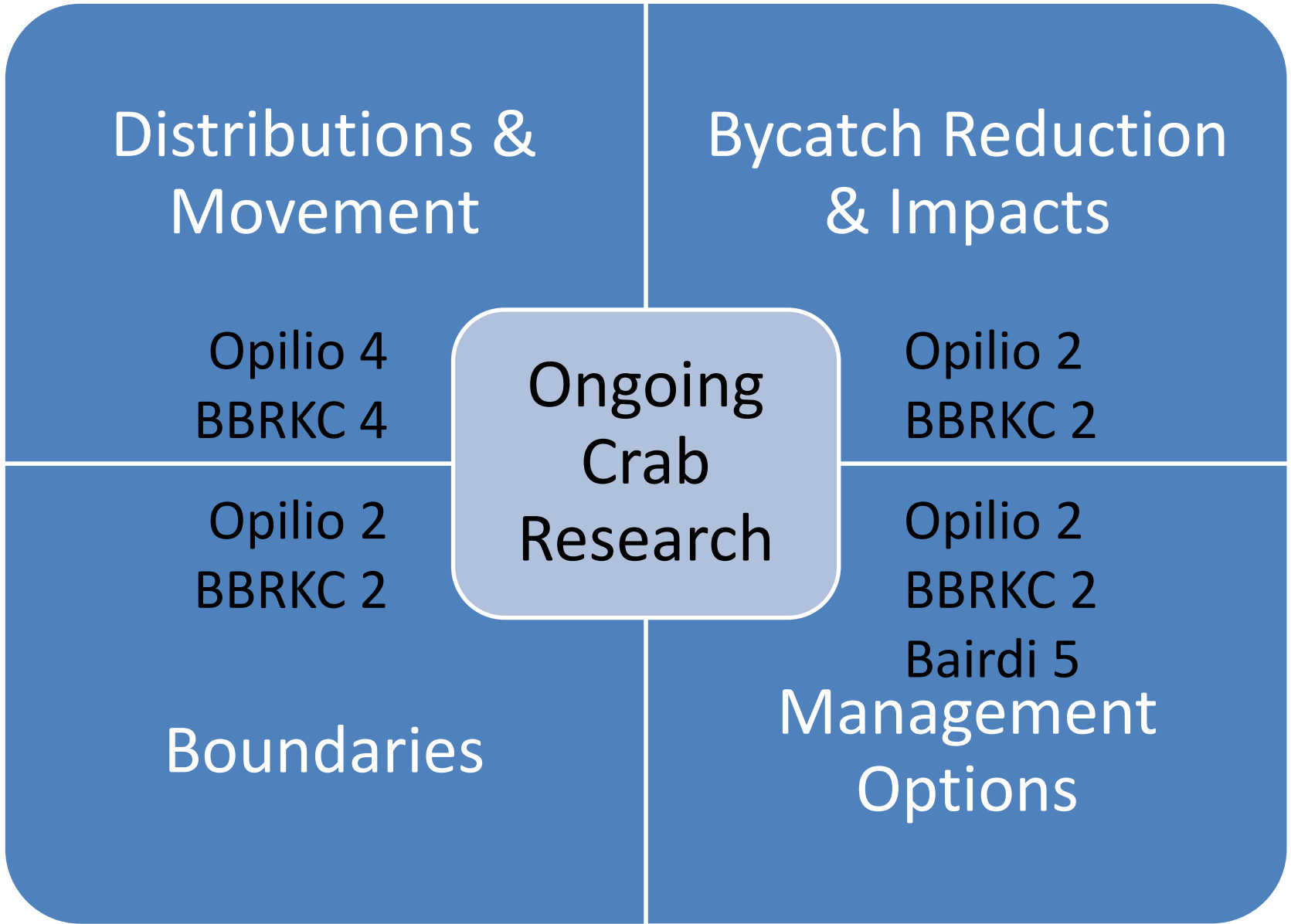
8 Socio-economic information collection

9 EM biological samples loss gap analyses



10 Norton Sound red king crab case study

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Distributions & Movement

Opilio 4  
BBRKC 4

Bycatch Reduction & Impacts

Opilio 2  
BBRKC 2

Ongoing Crab Research

Opilio 2  
BBRKC 2

Opilio 2  
BBRKC 2

Bairdi 5

Boundaries

Management Options

*Looking for continued feedback from stakeholders/collaborators during planning*



# RESEARCH PRIORITIES

*BOD Official plans are in review – these are some of our focus areas we are considering currently*

- Modified crab pots to reduce bycatch (regulatory discards)
- Condition of derelict crab pots and their effects on crabs
- Seasonal RKC distribution/movements with respect to management boundaries
- Drivers of snow crab stock dynamics
- Effects of bottom contact by pelagic trawl vessels on crab on the seafloor
- Predation as a bottleneck to red king crab recovery
- Estimation of natural, handling and discard mortality of crab stocks
- Estimation of size-at-maturity and reproductive potential for improved HCRs
- Physiological responses of crab to climate stressors
- Development of crab explicit management strategy evaluation (MSE) options
- Feasibility of artificial propagation of BSAI crab stocks



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## ➤ Focused Research Areas

**CRAB SURVEY RESEARCH** – new efforts are needed to fill critical information gaps in the winter and spring periods. Summer surveys provide a rich, long time series, but don't cover winter grounds, or mating/molting activity in time and space, which would update protections for crab, and enable us to set tag results into the context of population densities.

**Focus species: BBRKC, snow crab**

### **COLLABORATIVE POT SAMPLING projects**



*Loher et al summary*

[\(LINK\)](#)



*Opilio Pot Sampling – Planning Now (Pilot 2024)*

## ➤ Focused Research Areas



# CPS2 2024

**Continuation of CPS1 – 2<sup>nd</sup> seasonal pot sampling**  
**3 charters for CPS2, adding a trawl sampling**  
**ADFG & NOAA personnel are collaborators w/ BSFRF**  
**Same general footprint and timing of sampling**  
**BSFRF supporting the project w/ primary funding**  
**No tagging occurring during this season**  
**Camera, gear work, other sampling included**

# ➤ Focused Research Areas



# CPS2 2024

## REQUEST FOR PROPOSED CHARTER (January 19, 2024)

### Vessel Selection for Winter-Spring BBRKC Charter Project – CPS2 (March 2024) BSFRF/ABSC/NOAA/ADFG Collaboration

**Summary:** This is a second, seasonal, high priority crab research project focused on Bristol Bay red king crab with three primary objectives that include: 1) generating estimates of winter/spring BBRKC spatial distribution for different size/maturity/sex/shell condition categories using two sampling gears, 2) collecting physical data (e.g., bottom temperature) that will allow variability in BBRKC distribution within and between years to be analyzed, and 3) estimating overlap in distributions between BBRKC and predatory groundfish (Pacific Cod, Sculpins, Pacific Halibut) and groundfish that are targeted by pelagic and non-pelagic trawl gear (Northern Rock Sole, Yellowfin Sole, Walleye Pollock, Pacific Cod). We seek to charter two (2) Bering Sea crab vessels, and one (1) Bering Sea trawl catcher-vessel for trawl sampling, both with experienced fishing crew (4-5+ fishers per vessel). A collaborative science party (3-4 scientists) will board each vessel and work with the crew to complete this work. Project leads/contacts are Scott Goodman (BSFRF), Mike Litzow (NOAA), and Chris Siddon (ADFG).

#### Open Period:

January 19 through February 2 (midnight PST)

#### Expected Charter Start Date:

March 12-13, 2023

***DRAFT ANNOUNCEMENT***



## ➤ Focused Research Areas

# *OpilioWorkshop*

- International focus on comparative snow crab research & management
- Non-public, applied science focused workshop
- Steering Committee has met twice – some details
  - timing is late April-early May, 2024 prior to May CPT
  - location is St John's, Newfoundland, CA
  - cohosted by BSFRF and CA DFO, with collaboration from others
  - Inclusion of industry stakeholders, focused on science
- Some preliminary objectives include
  - comparisons of management approaches
  - applied research topics to help w/ further understanding Bering Sea
  - considerations of maturity indices

Further information is pending...

we'll be reaching out, please inquire if you are interested to Scott, Tim, or Gordon

## ➤ Focused Research Areas

# ***BREP Pot Gear Work***

- Seeking BREP or other funding for pot specific bycatch research
- Focused on two primary objectives about impact on crab from pots...

### **“Assessment of Bering Sea Crab Interactions with Active and Derelict Pot Gear During and After Fishing Seasons”**

- Monitoring CPUE during active fishery based on gear details; escape mechanisms, mesh size, soak times, etc.
- Simulating the continued CPUE of pots “as lost pots” to document CPUE and life of pot
- Monitoring crab behavior in and around active and simulated lost pots (cameras)
- Develop a plan to census the scale and magnitude of BS pot loss, some info is available already to inform preliminary estimates
- Continued collaboration between BSFRF / NRC / ABSC
- Status – Pre Proposal submitted, further updates pending

## ➤ Upcoming Research

- What's on the horizon?
- Research funds are available – SQ, CDS, DR, etc.
- Several options to be ready for
- Pot sampling, camera work, trawl sampling, tagging charters, gear work, other research
- Coordinating with State of Alaska and NOAA and stakeholders - what next projects may be
- Charter options may be similar or more selective depending on the project(s)
- We are firming up research project plans now, coordinating on several projects/plans

# ***JAN CPT Update, Anchorage AK***



Please feel free to reach out with questions anytime

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