



**NOAA
FISHERIES**



Seasonal Movement of King Crabs in Bristol Bay

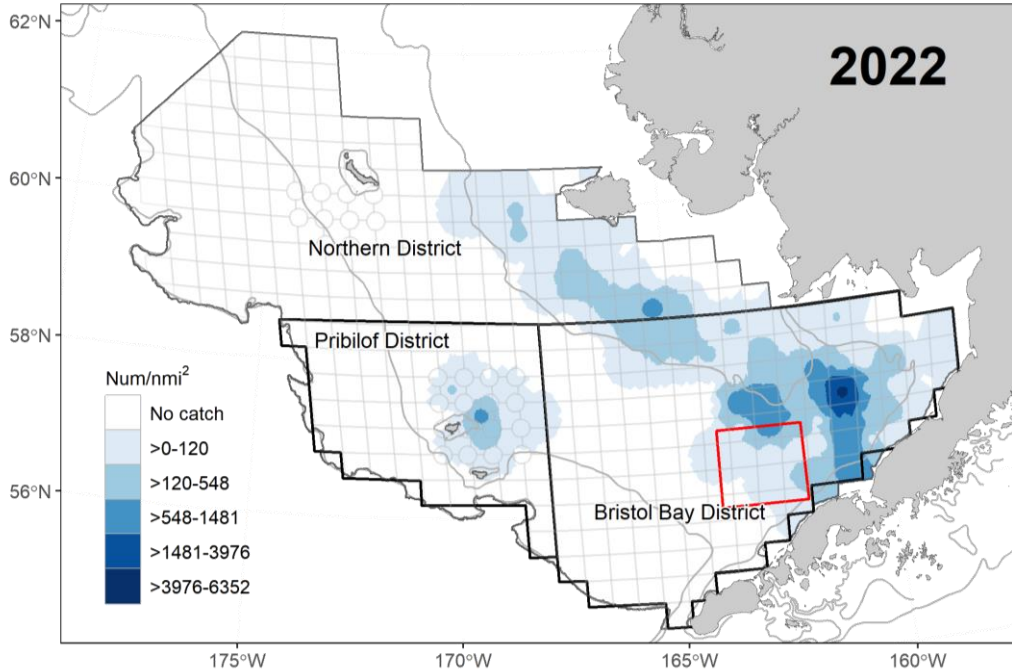
Leah Zacher

NOAA Fisheries, Shellfish Assessment Program

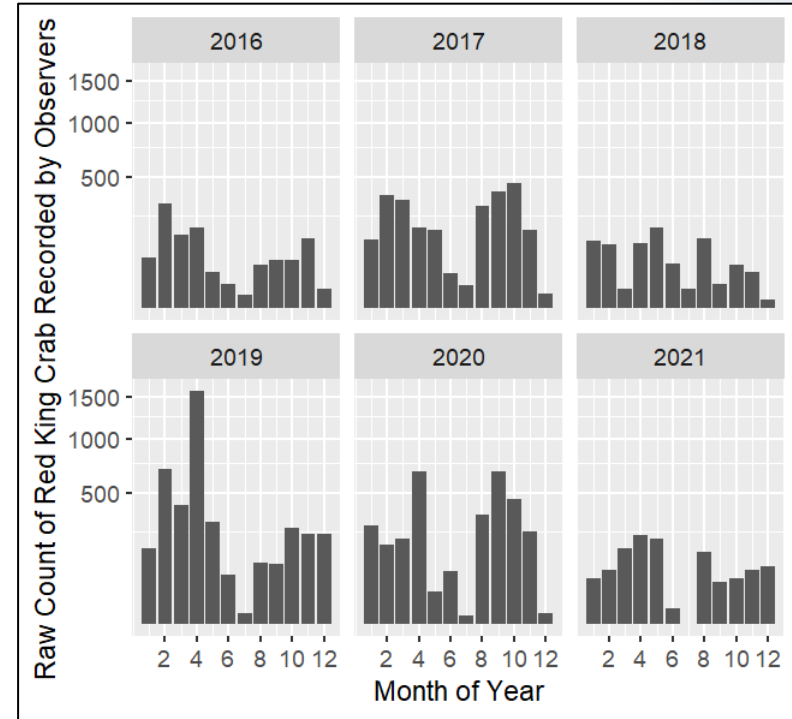


Collaborators: Scott Goodman (BSFRF), Madison Heller-Shipley (BSFRF), Ben Daly (ADF&G), Andy Nault (ADF&G), Vicki Vanek (ADF&G), Mike Litzow (NOAA) & Robert Foy (NOAA)

Eastern Bering Sea Trawl Survey (~June) Mature Female Red King Crab

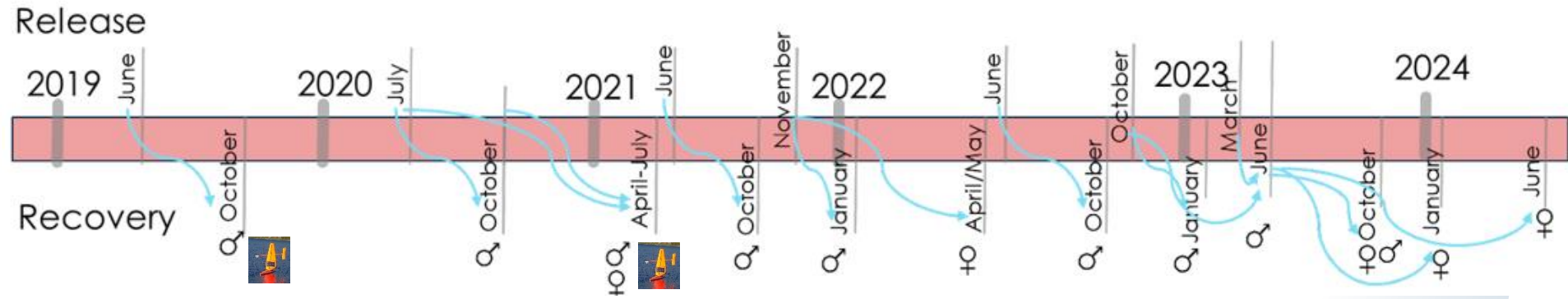


Non-pelagic Trawl Bycatch of Red King Crab



Where are the crab in the winter/spring and fall?

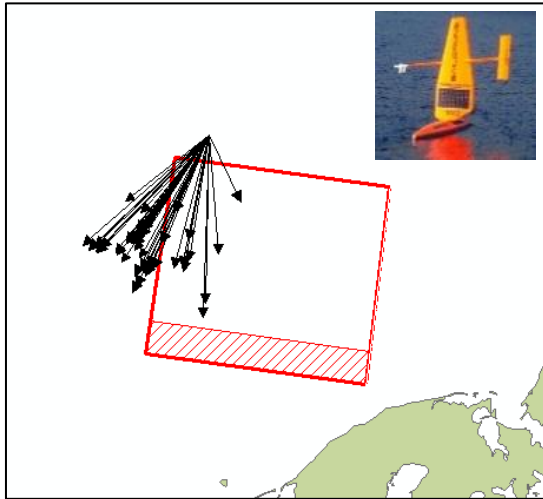
5th Year of Red King Crab Tagging



June/July to October Movement

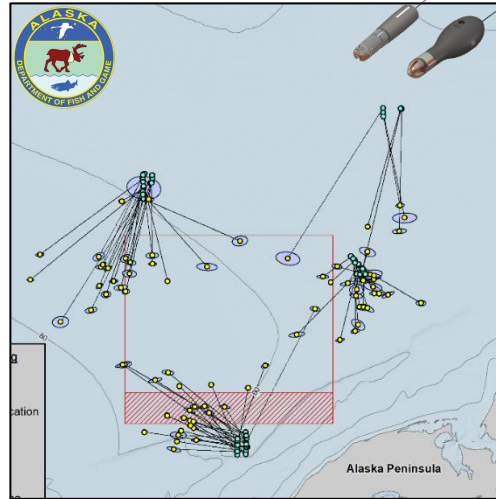
Mature males

2019



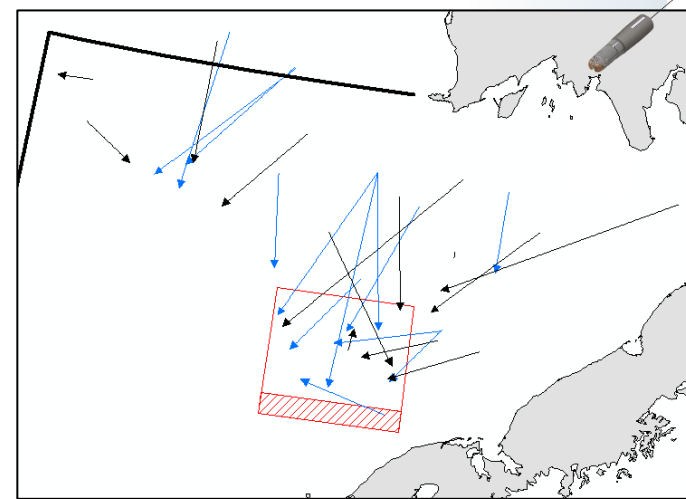
N = 148 tagged

2020

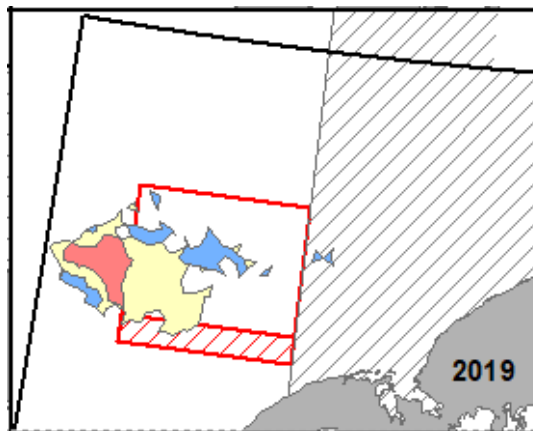


N = 84 tagged

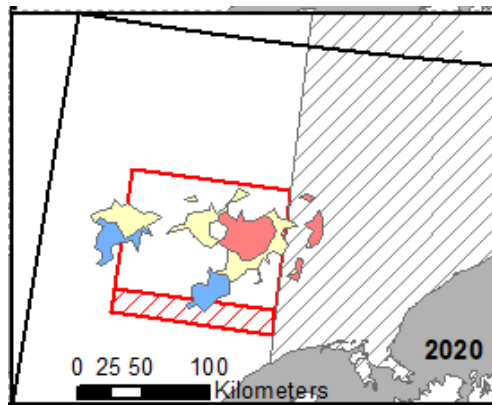
2021/22



Blue: 2020 (N = 15 tagged)
Black: 2021 (N = 16 tagged)



2019



2020

0 25 50 100
Kilometers

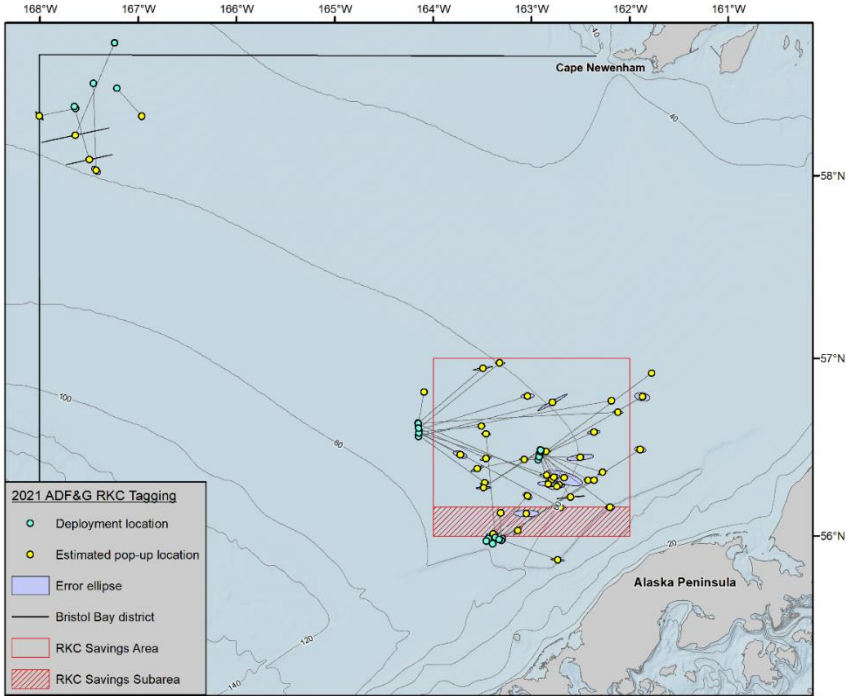
Moved ~0.5 miles/day
Acoustic Tag Success: ~30%
Satellite Tag Success: >80%



October/November to January Movement

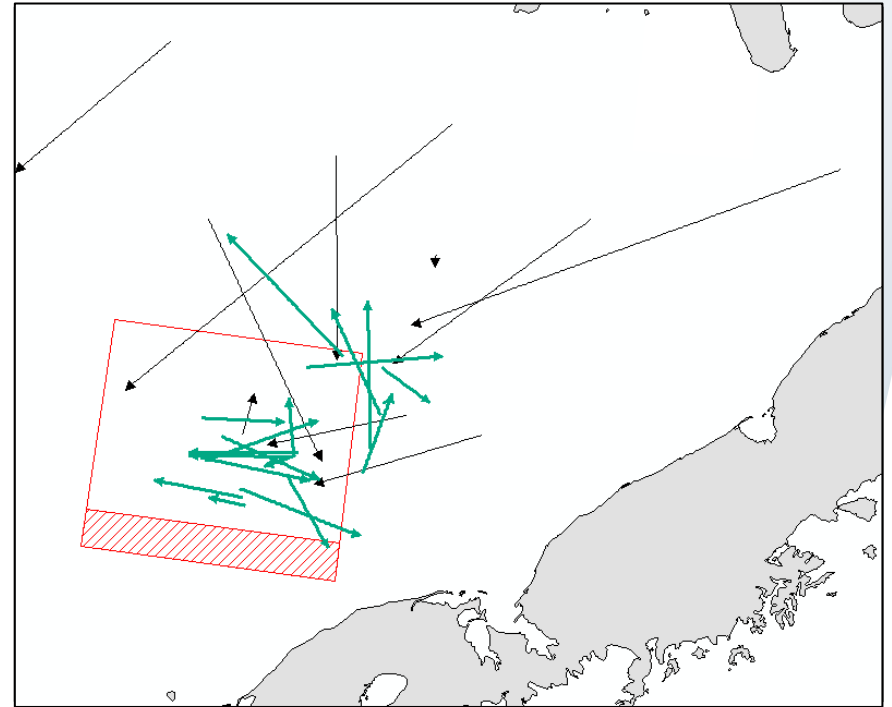
Mature males

2021-22

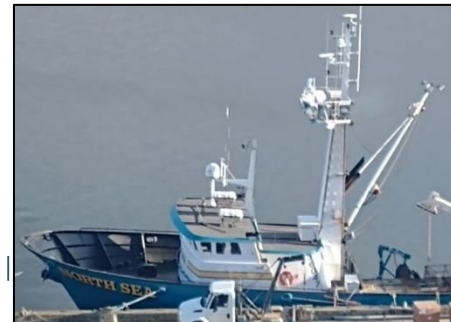


N = 90 tagged mean rate: 0.48 miles per day

2022-23



Black: June – October 2021 (N = 16 tagged)
Green: October 2021 – January 2022 (N = 20 tagged)



November 2021 to April/May 2022 Movement

Mature females

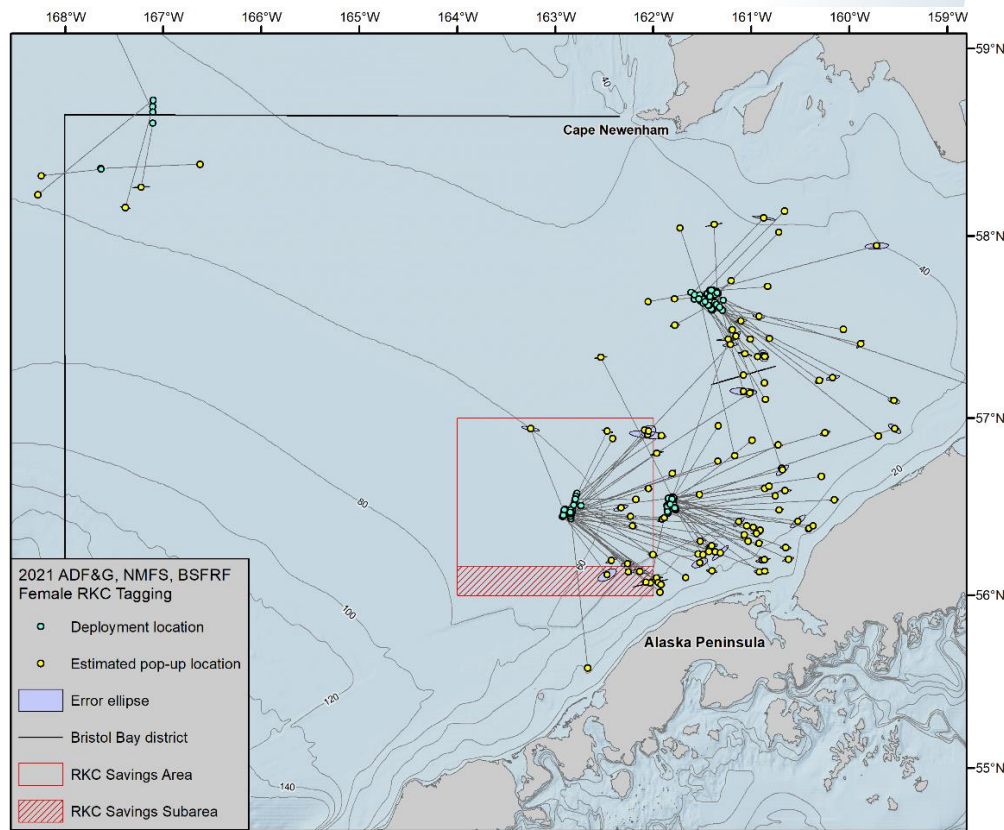


Mature Females

225 Crabs Tagged

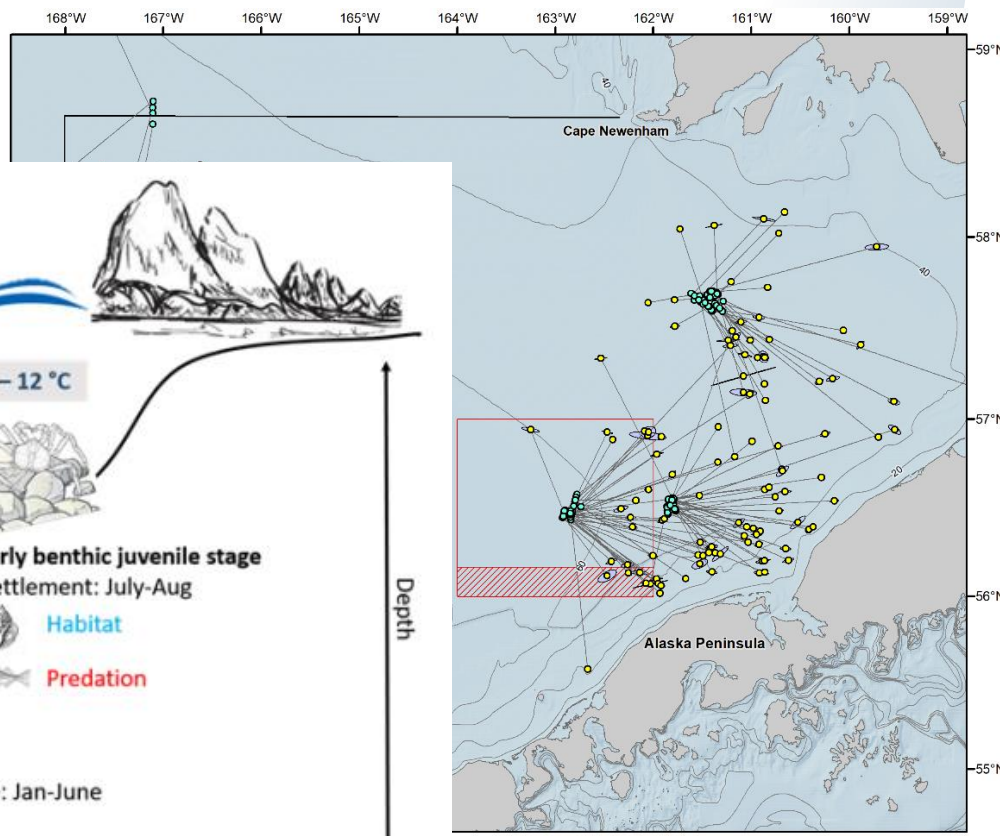
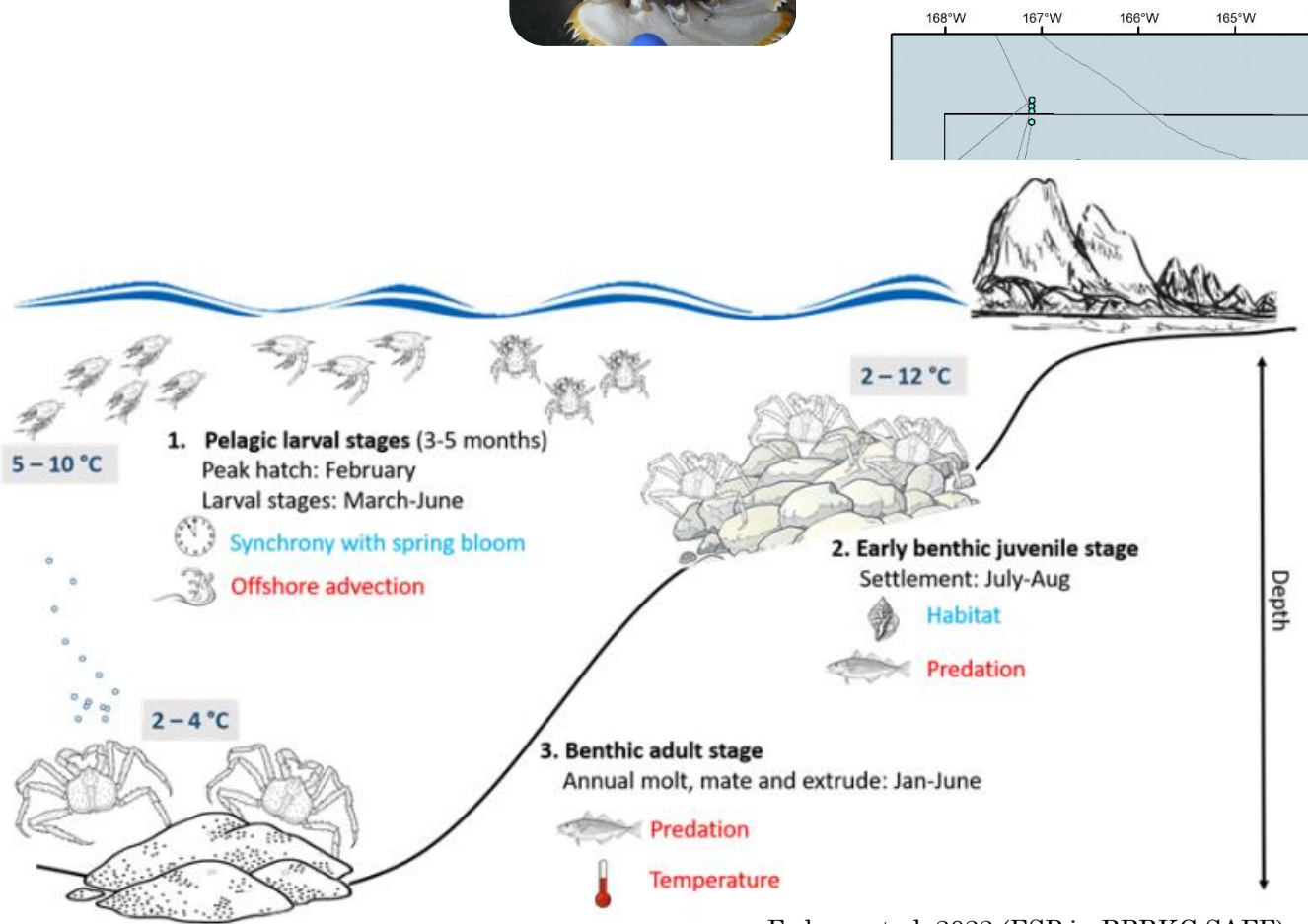
Pop-up late April/early May (6 months)

Mean rate: 0.26 miles per day



November 2021 to April/May 2022 Movement

Mature females

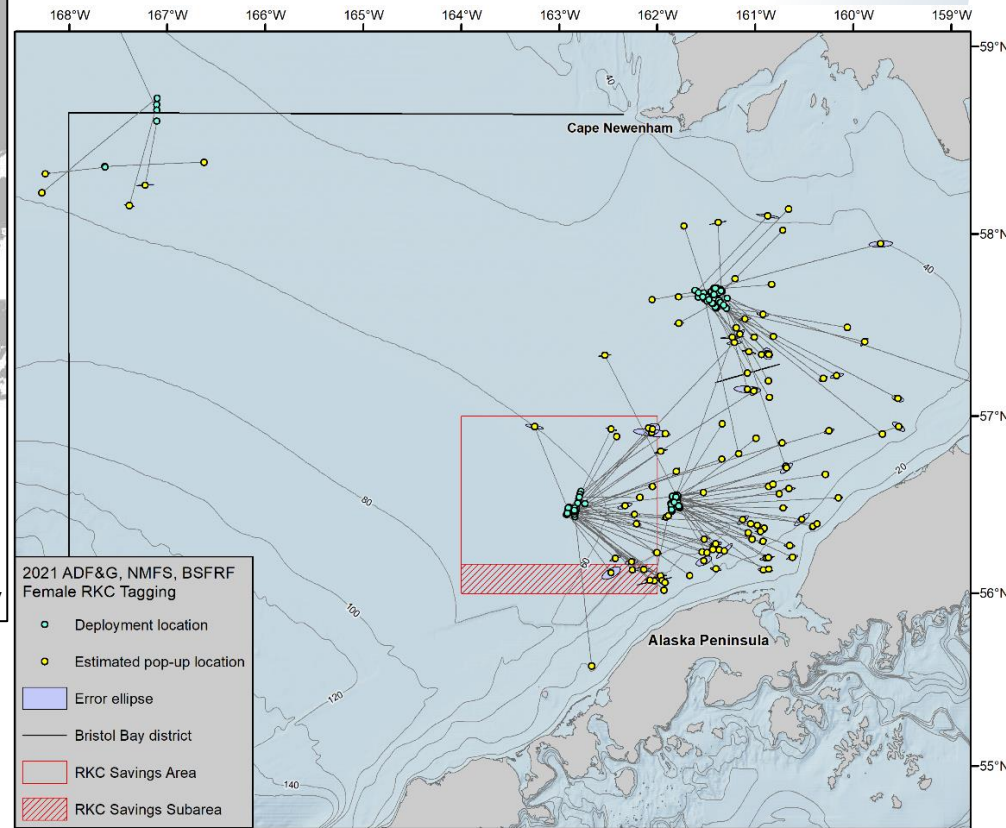
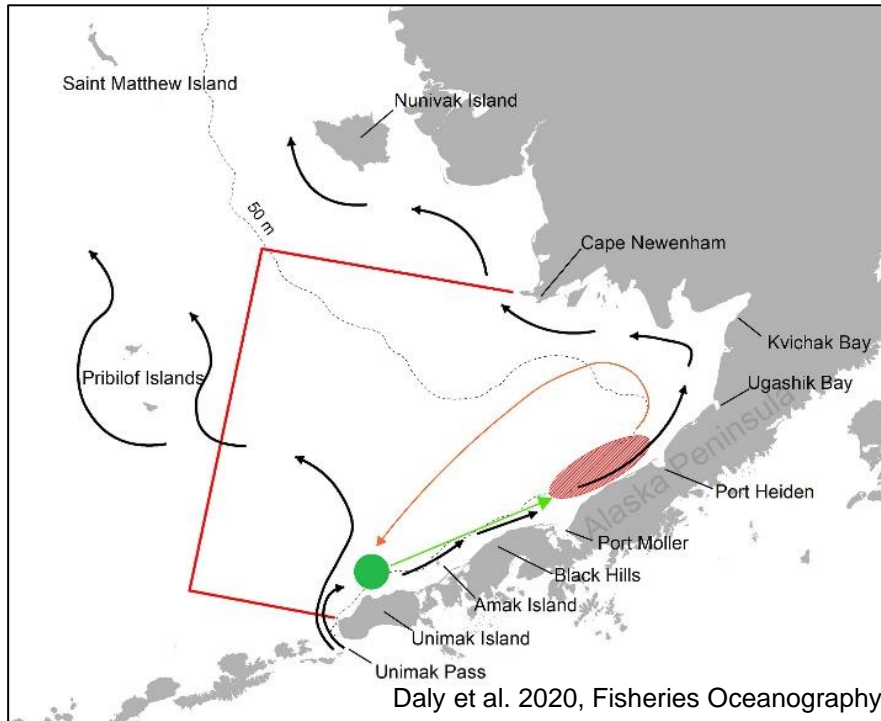


Fedewa et al. 2022 (ESP in BBRKC SAFE)



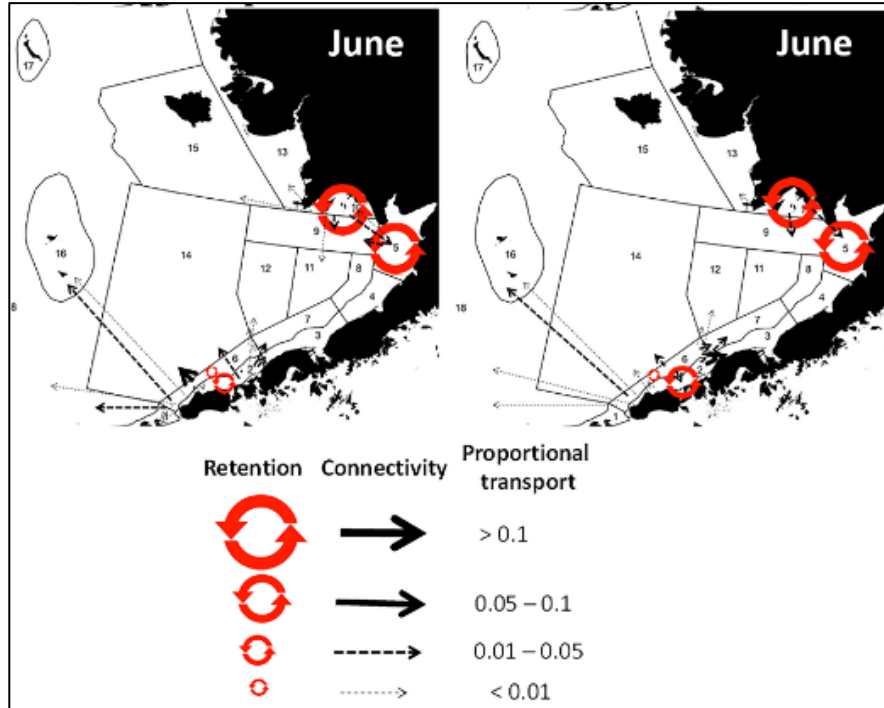
Where are population bottlenecks

Mature females

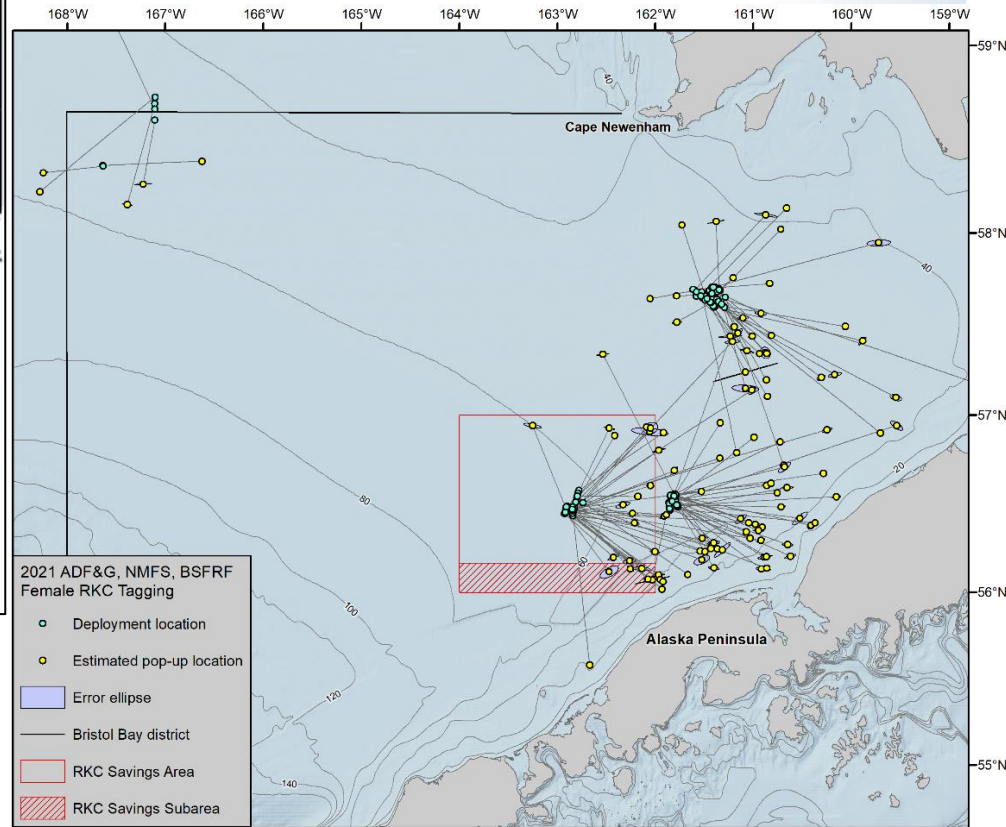


Where are population bottlenecks

Mature females



Daly et al. 2020, Fisheries Oceanography



Summary

Male Movement into Fall

- Consistent directional movement
- Generally movement towards or into the Red King Crab Savings Area (some years further west)

Male Movement into Winter

- Crab west of the Savings Area “turn around” and move back east
- Less consistent movement for crab within Savings Area

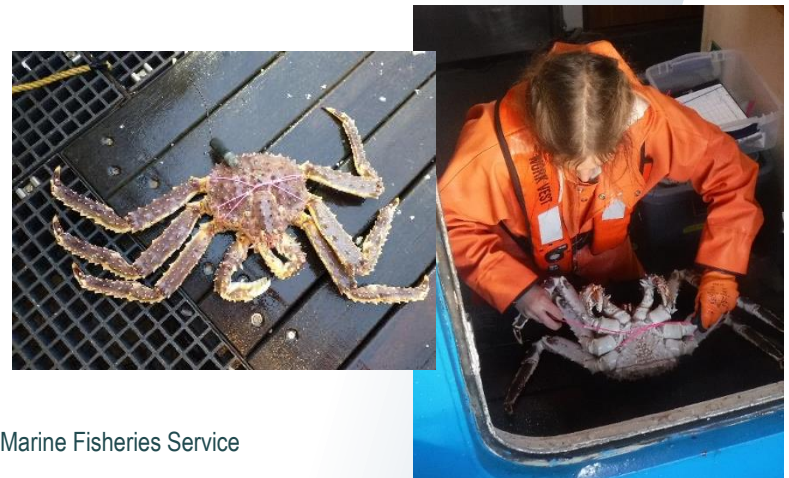
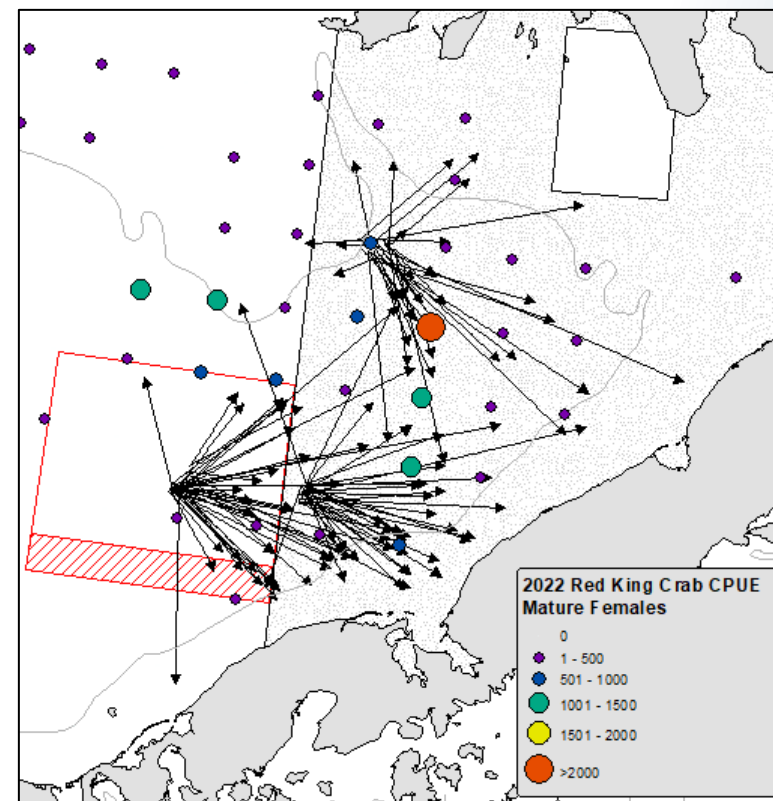
Female Movement into Spring

- Mating/molting grounds in eastern Bristol Bay, both nearshore and offshore
- No evidence of females moving to historical mating grounds near Unimak Island



Next Steps

- Scaling up from individual to population level movement/distribution?
 - 2nd set of tags put out during cost recovery will surface in June
 - Tagging during winter survey in “hotspots”, tags will surface in June
 - Will distribution of tagged animals be the same as distribution from NMFS survey?
- Focus on female distribution
 - Seasonal movement from “known” summer distribution, with tags coming up in fall, winter, and spring.
- Continue to monitor June to October movement for males
- Habitat connections & use of tag temperature data





THANK YOU!!!