Catch Accounting of Trawl-Bycaught Red King Crab (*Paralithodes camtschaticus*) in the Bering Sea

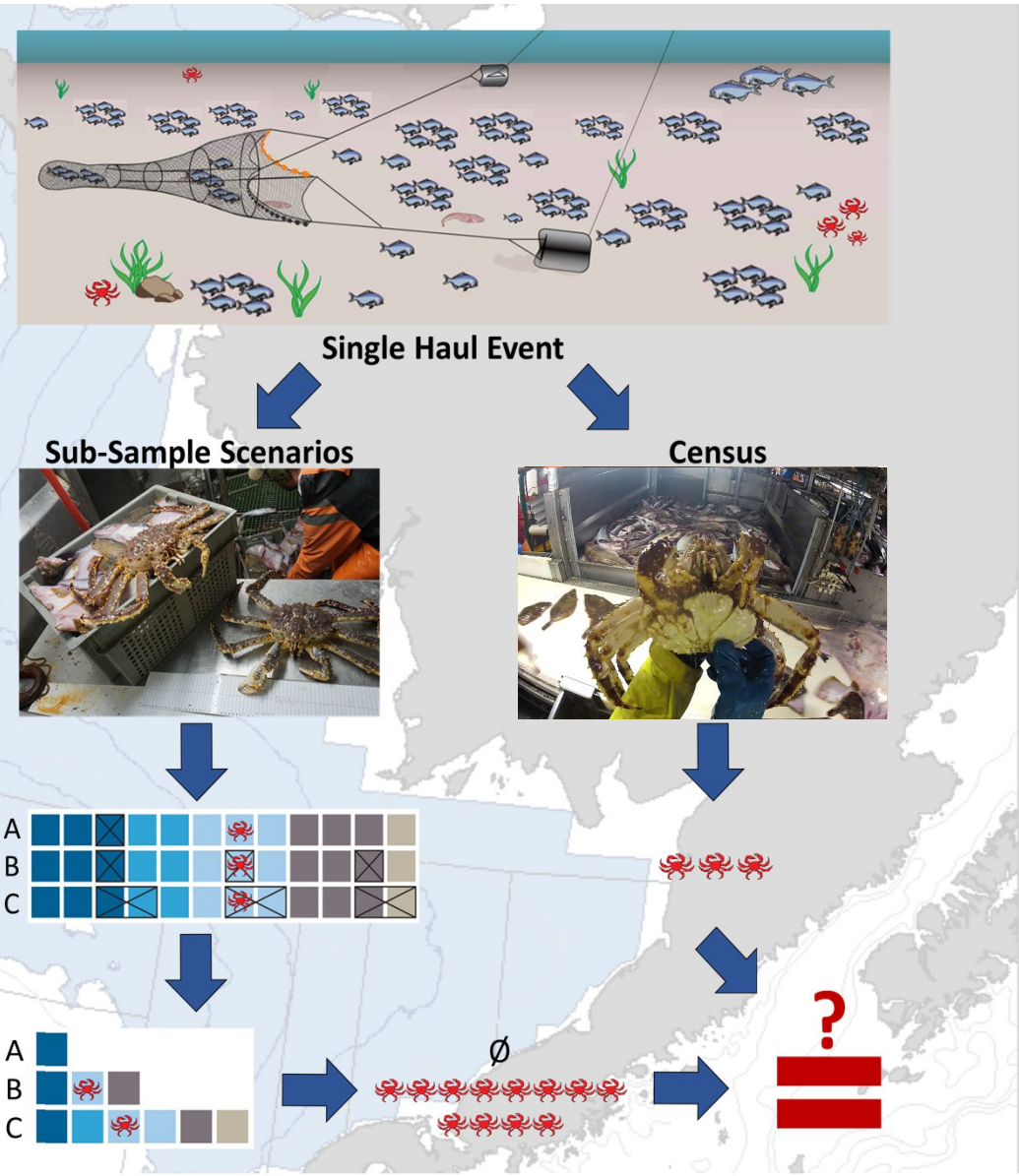
Cory Lescher
clescher@alaskapacific.edu
Alaska Pacific University
FAST Lab

Thesis Advisor: Dr. Brad Harris
Committee Members: Dr. Noelle Yochum and Dr. Jason Gasper,
Industry Collaborator: John Gauvin

Motivation

- RKC exhibits patchy distribution compared to target catch
- Sub-sample estimate extrapolation

Codend coming on board vessel: 53 metric tons (116,800 lbs) for 70 minutes towing time.



Motivation

- 80% assumed discard mortality
- RKC vitality metrics on-deck vs in factory

Exemptions Requested:

National Standard 9 - Bycatch (50 CFR 600.350 (d) and 50 CFR 679.21(a)(2)(ii))

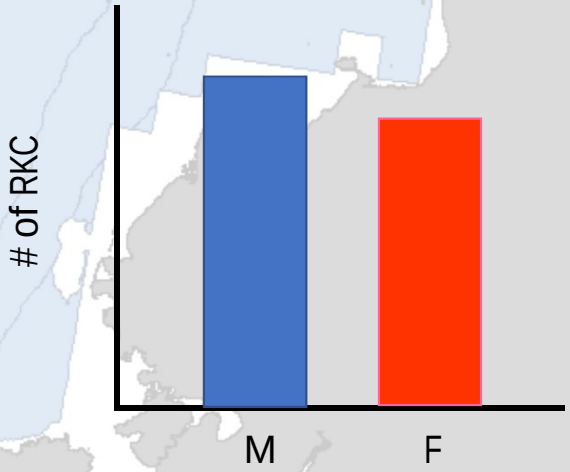
Whole-Haul RKC in Factory

Viability Study on Deck

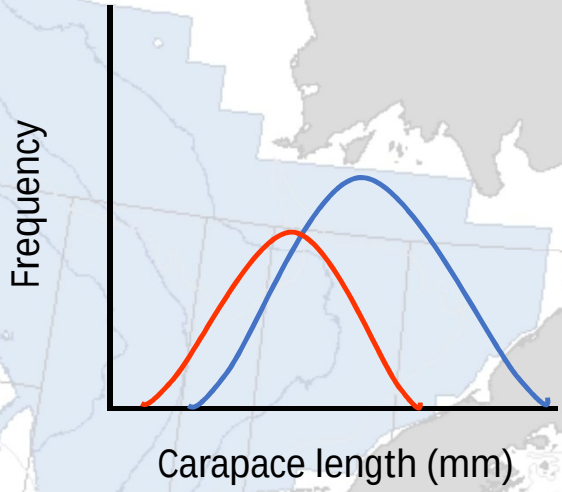
No additional crab PSC or changes to observer sampling

Objective 1

- Collect RKC biological catch composition data
  - Sex
  - Size
  - Shell condition
  - Clutch assessment (females)
  - Vitality metrics



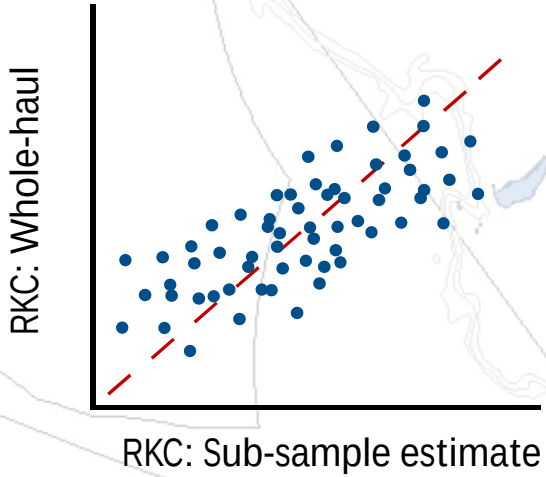
Sex



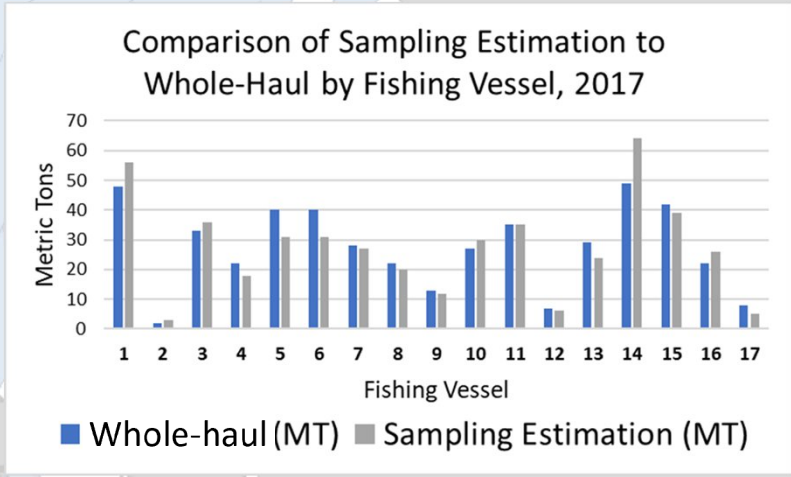
Size

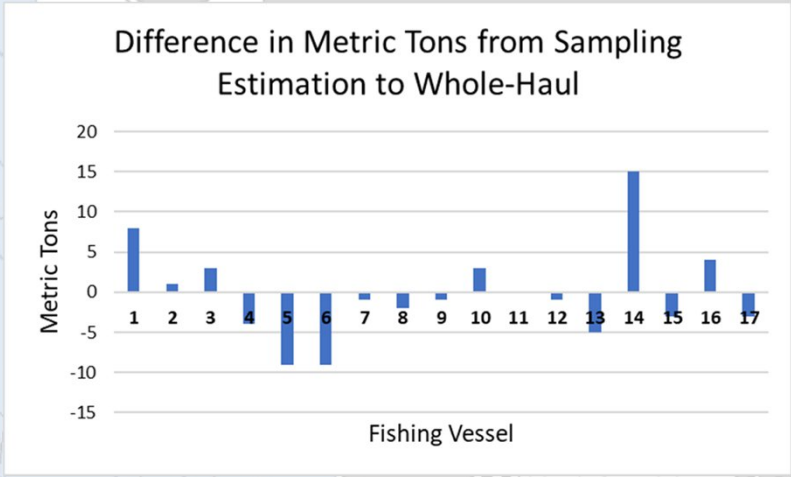
Objective 2

- Whole-haul vs sub-sample estimates
- Analyze RKC distribution



Halibut Example

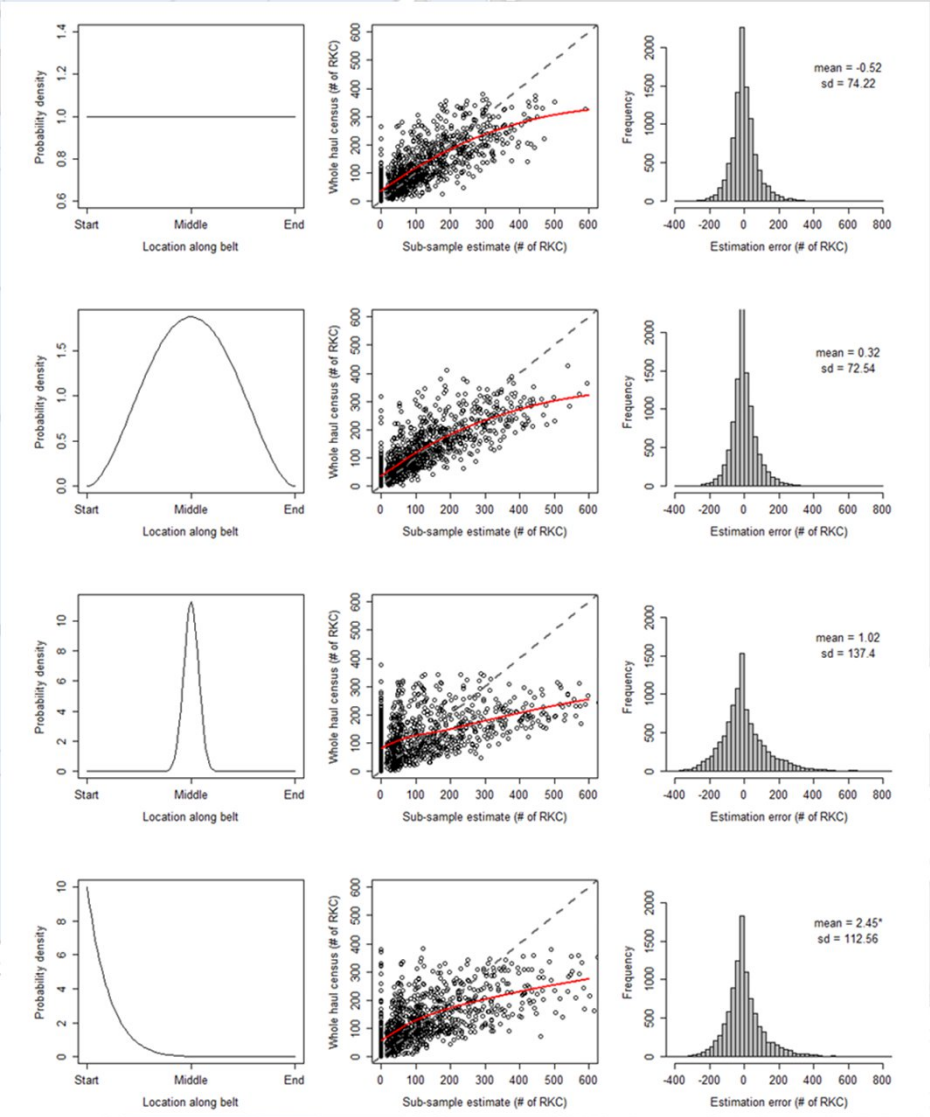




2017 Whole-haul = 580 metric tons
Sampling estimation = 575 metric tons

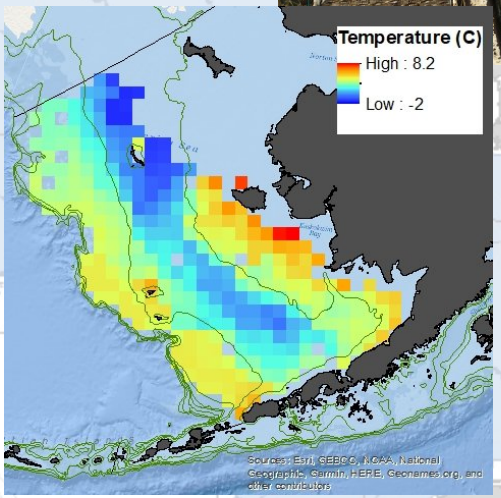
Objective 2

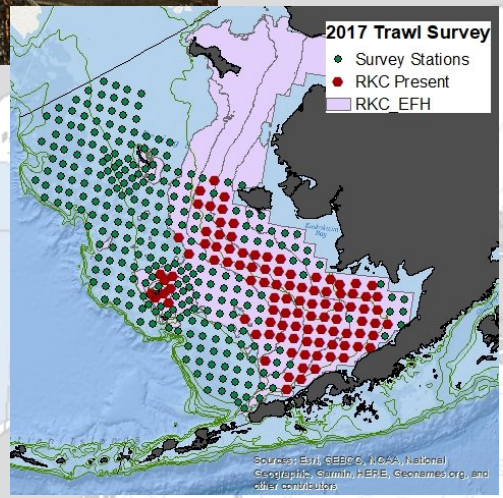
- Whole-haul vs sub-sample estimates
- Analyze RKC distribution



Objective 3

- Haul characteristics
  - Haul time and location
  - Tow duration
  - Fishing depth
  - Vessel's towing speed
  - Target catch
  - Total catch (haul) weight
    - CPUE
- Environmental variables
  - Seafloor water temperature
  - Ambient air temperature (obj 4)





Objectives 1-3

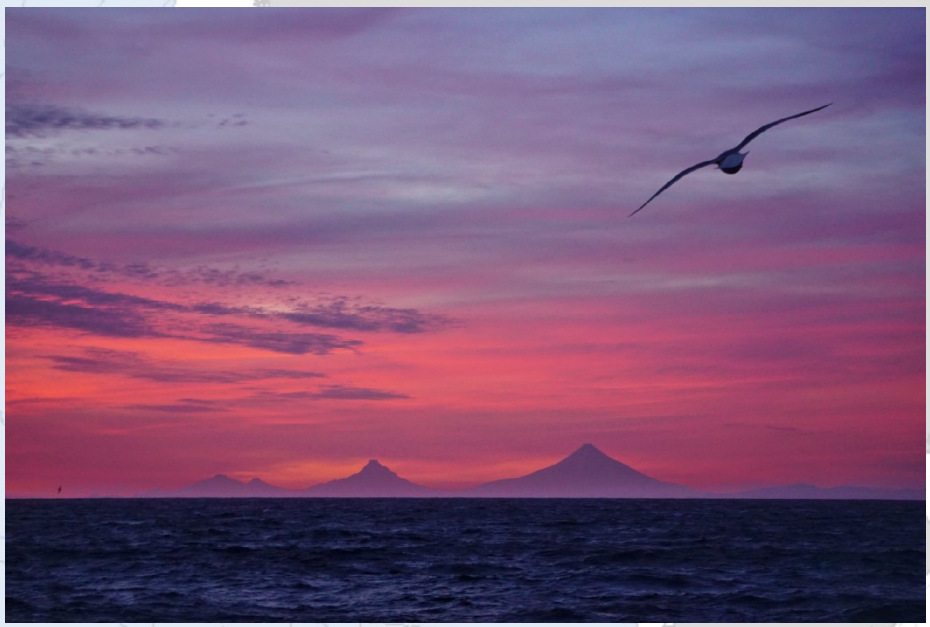
- Haul-level
  - Trip-level
    - Vessel-level
      - Fleet-level

Objective 4

- 72-hour on-deck vitality observation
  - Injury, reflex impairment
  - On-deck vitality assessment
  - In-factory vitality assessment
  - RKC biological data
  - Haul characteristics
  - Metrics to predict mortality

Summary

- RKC Whole-haul accounting
  - Important dynamics in the relationship between trawl-caught target and PSC species
  - More informed use of data generated via observer sampling
  - Potential improvements in PSC rate estimation for NMFS and industry management for crabs and other species
- Viability pilot study
  - Enhance our understanding of the variables that influence discard mortality and metrics that can be used to evaluate discard survival
  - Better field and laboratory studies in the future



Sunrise over the Bering sea and Aleutian islands.

Thanks for your time
Questions/comments?