

2018 ADF&G Saint Matthew Island pot survey: results for blue king crab

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Alaska Department of Fish and Game

Crab Plan Team meeting

September 10-13, 2018

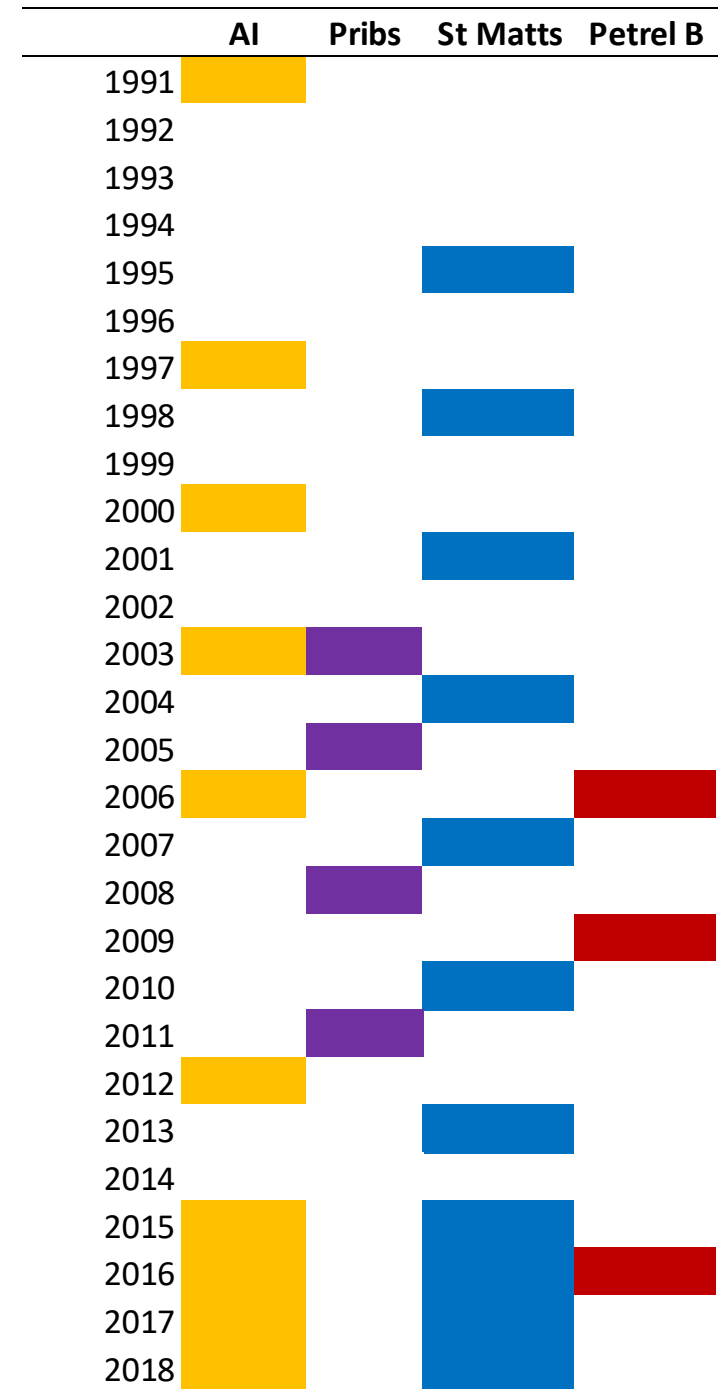
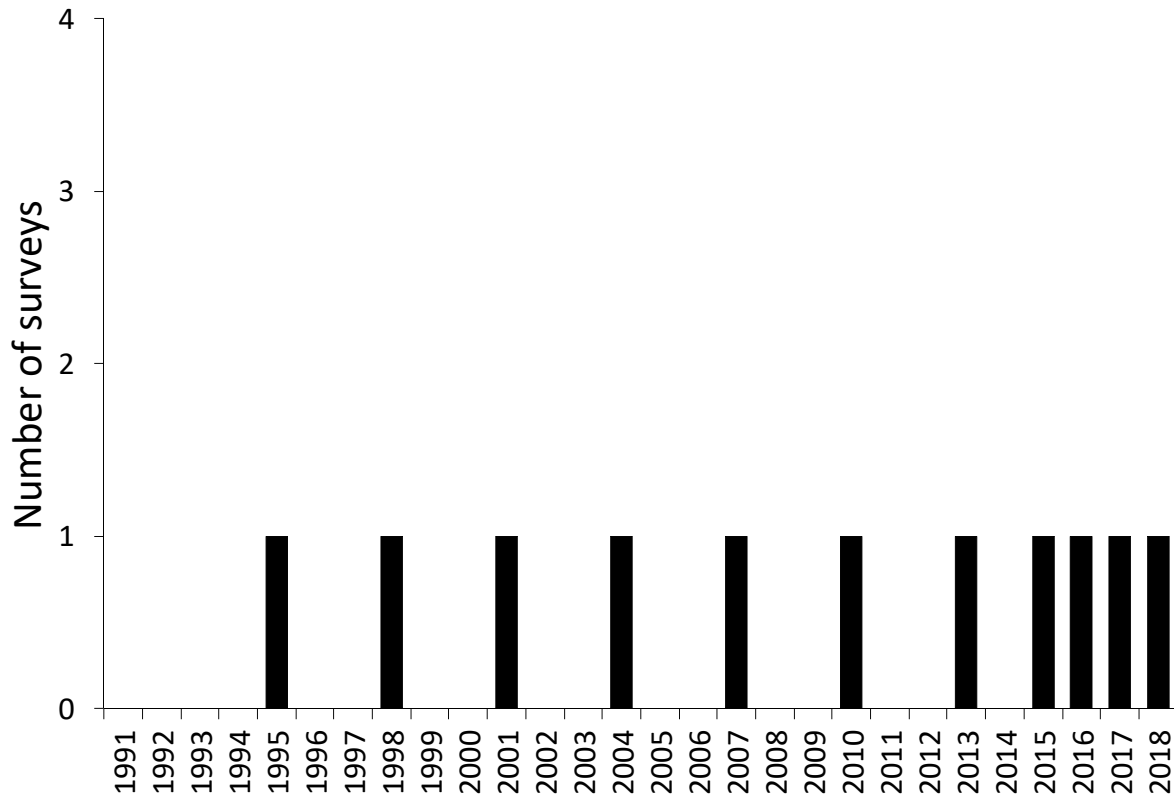
Seattle, WA

A brief history.....

- Pot surveys: AIGKC, Pribis, St Matts, Petrel Bank
 - Determine size compositions
 - Depth distribution
 - Abundance index via CPUE
 - Estimate size at maturity
 - Tag and release
 - Oceanographic data
 - Platform for special studies
- AIGKC evolved into industry collaborative survey: best way to cover the vast spatial expanse
- Pribilof Islands survey was put on hold due to low population abundances
- Saint Matthew Island survey has been conducted annually in recent years
- Petrel Bank surveys were to provide information needed by fishery managers to consider a fishery opening
- Norton Sound trawl triennial surveys

ADF&G Westward Region pot survey frequency

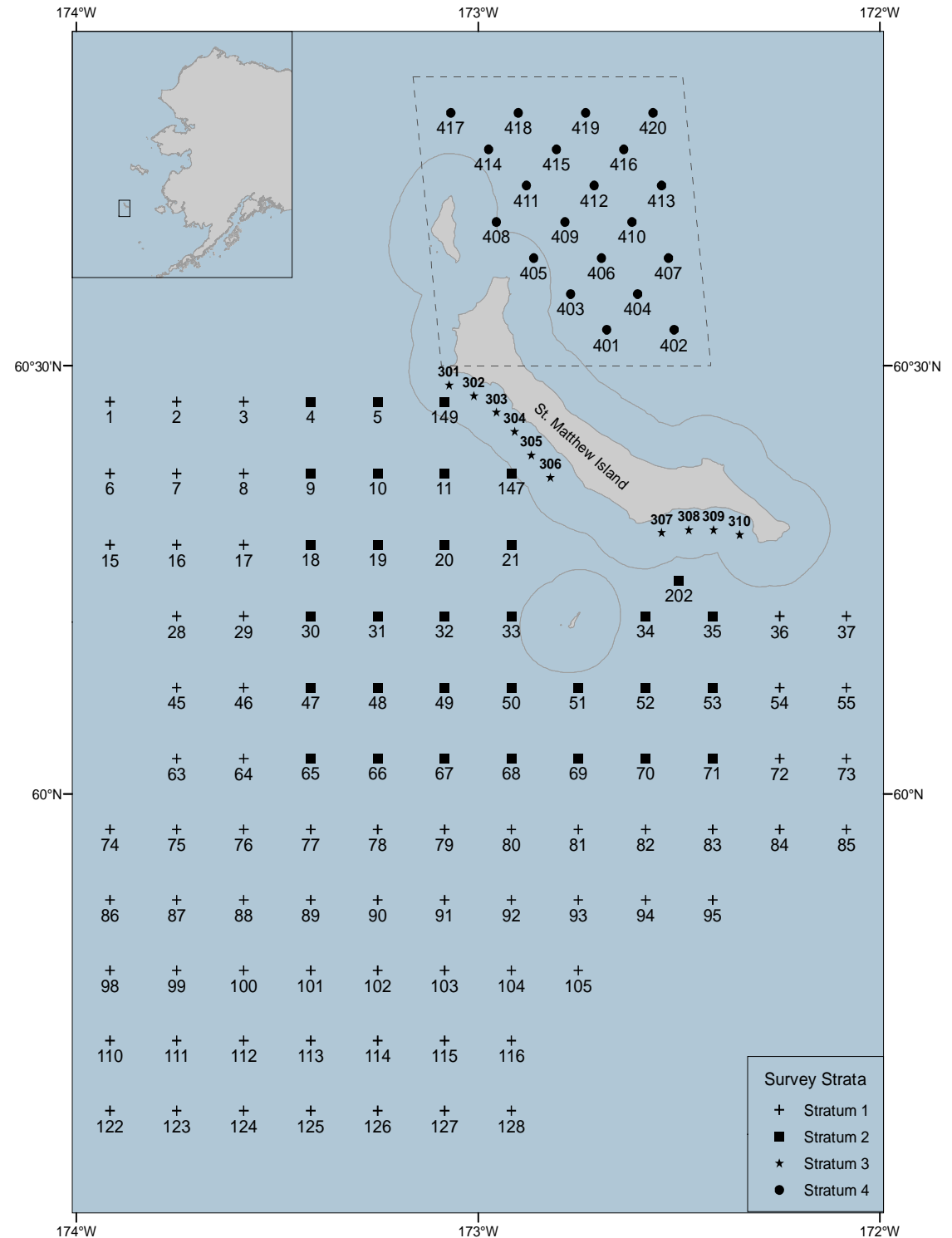
Saint Matthew Island survey frequency



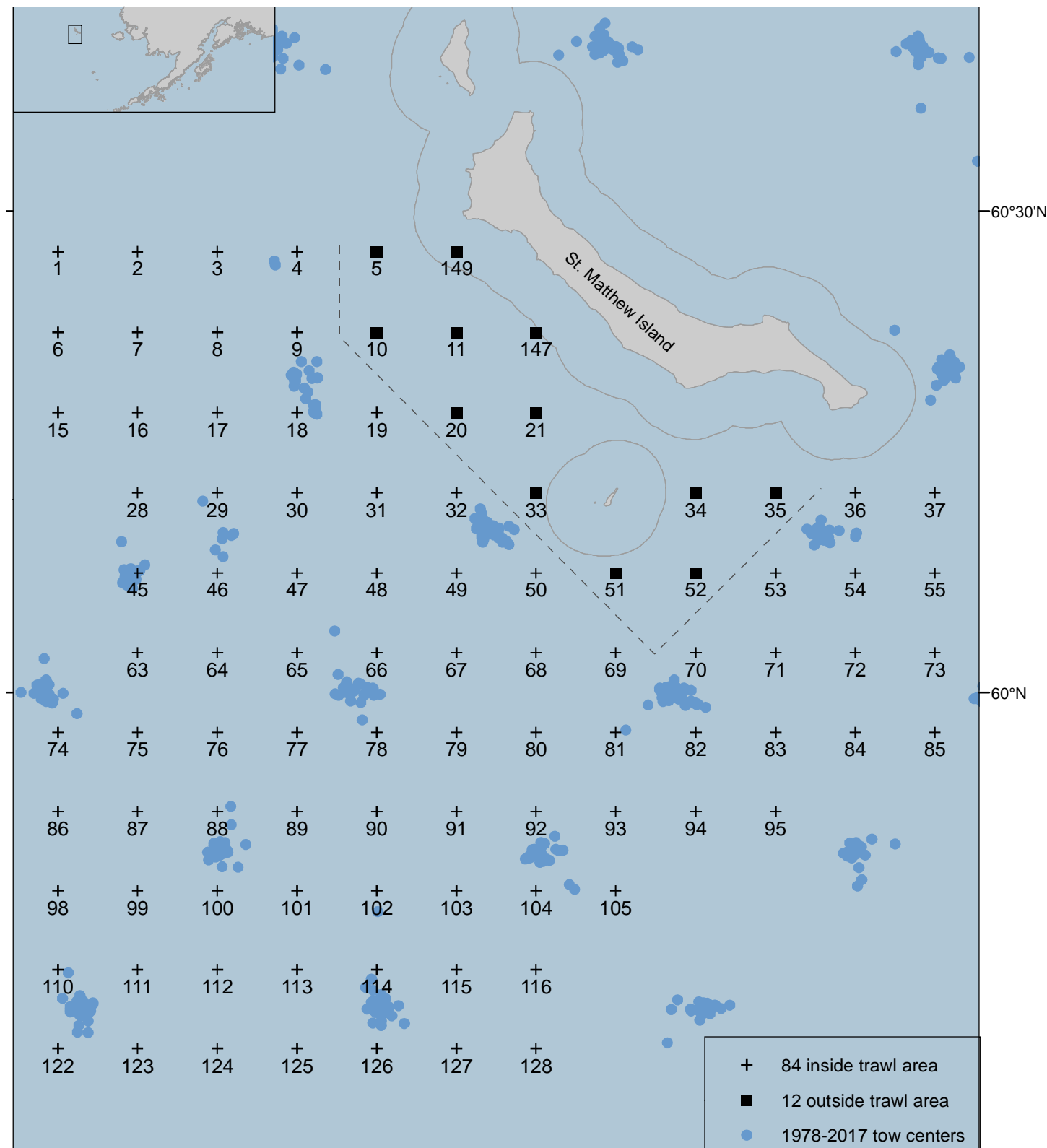
St Matts pot survey area

“Core 96” = Strata 1 + 2

- Sampled all survey years, best for inter-annual comparisons



Station density relative to NMFS survey



Sampling Design

Gear:

- Commercial king crab pots (7 ft x 7 ft x 34 inches)
 - Manufactured in 2013
 - 2.5 inch mesh
 - 2 tunnel eye openings (9 x 36 inches)
 - No escape rings or panels
 - Cotton twine to protect against ghost fishing if lost
 - Baited with 3.8 L chopped herring
- 4 pots per station
- CPUE/station

Soak time: target 30-36 h (2018 31 h)

Sub-sampling?

- Never for BKC, sometimes for snow crab (not in 2018)

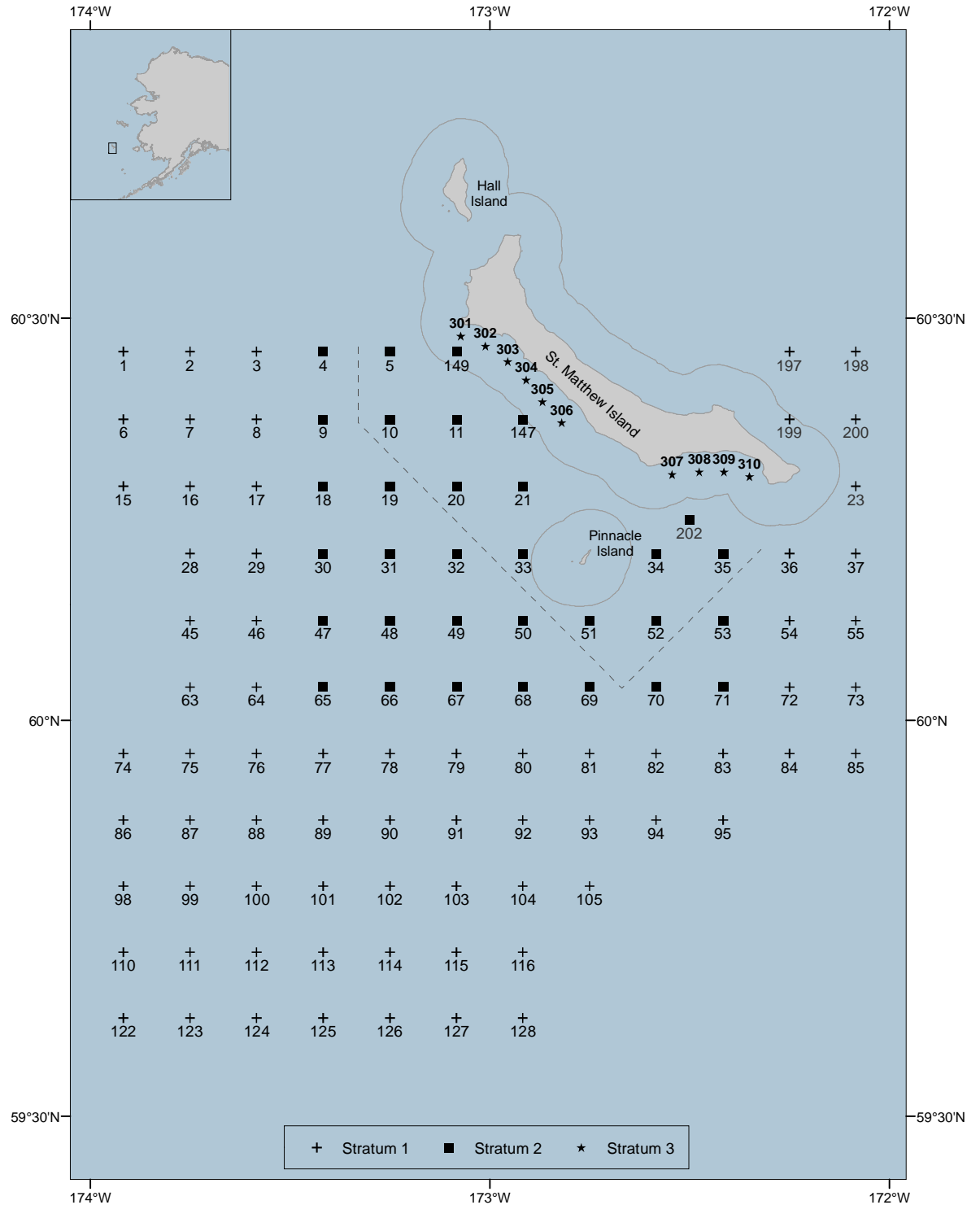
2018 Sampling

St. Matthew Island

- Strata 1 & 2:
 - 96 in-common stns
 - 6 additional stns
- Stratum 3
 - 10 stns
- Snow crab chela data

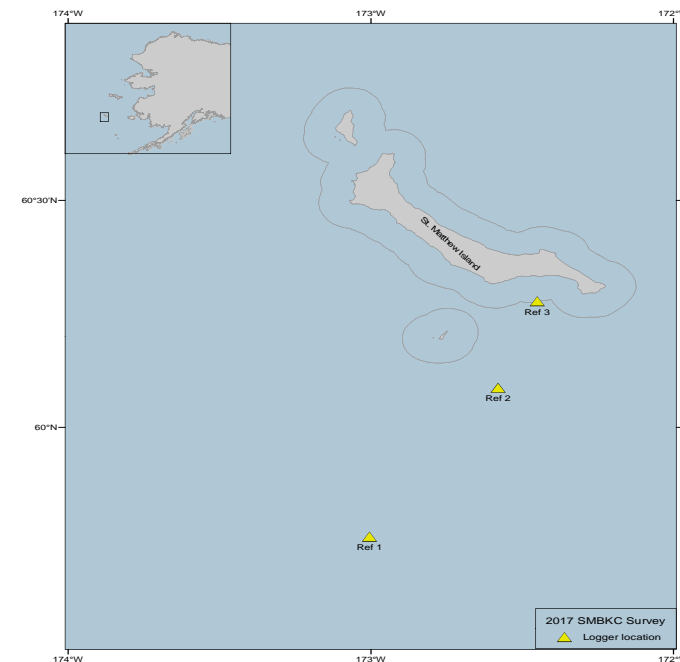
Pribilof Islands

- Satellite tagging of Tanner crabs



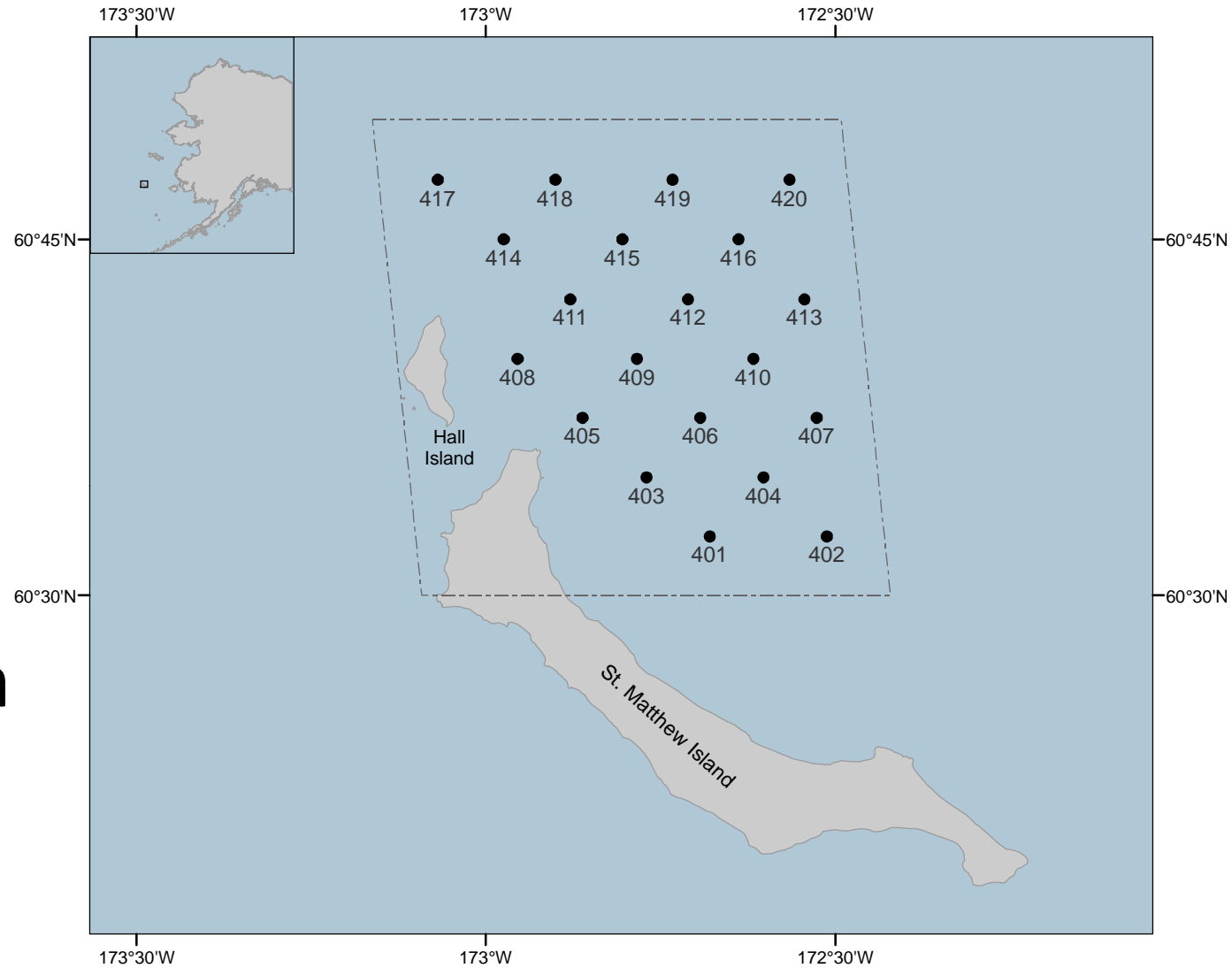
Oceanographic Data

- Temperature/Depth logger in 1 pot at each station
- 2 “Reference Pots”
 - 2 non-station pots
 - Duration of survey
 - Temperature , pH, dissolved oxygen, depth, salinity
 - Same location in Strata 1 & 2
for last 5 surveys



Stratum 4 =
NMFS R-24

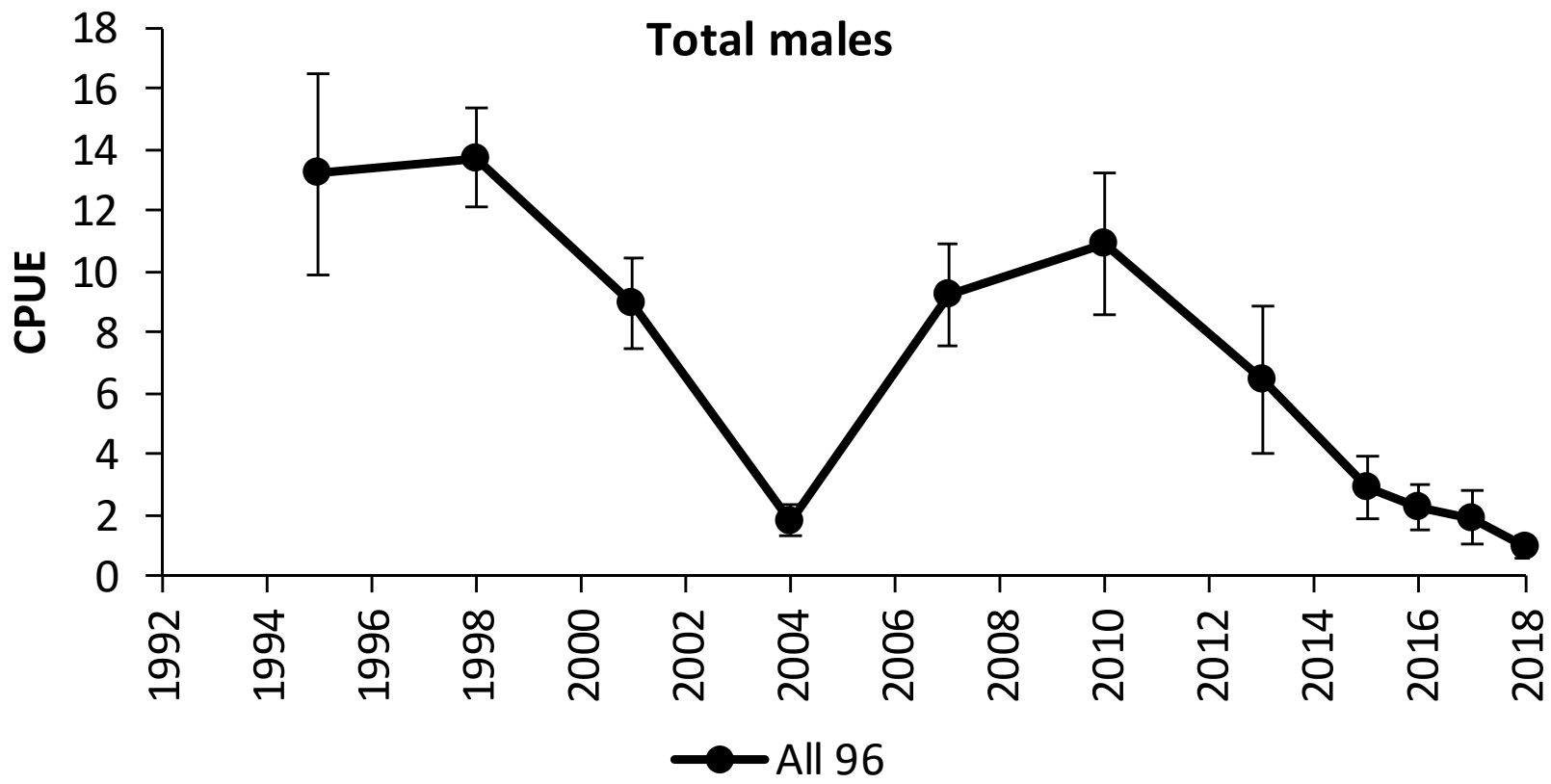
Not sampled in
2018 due to
restrictions in
charter duration

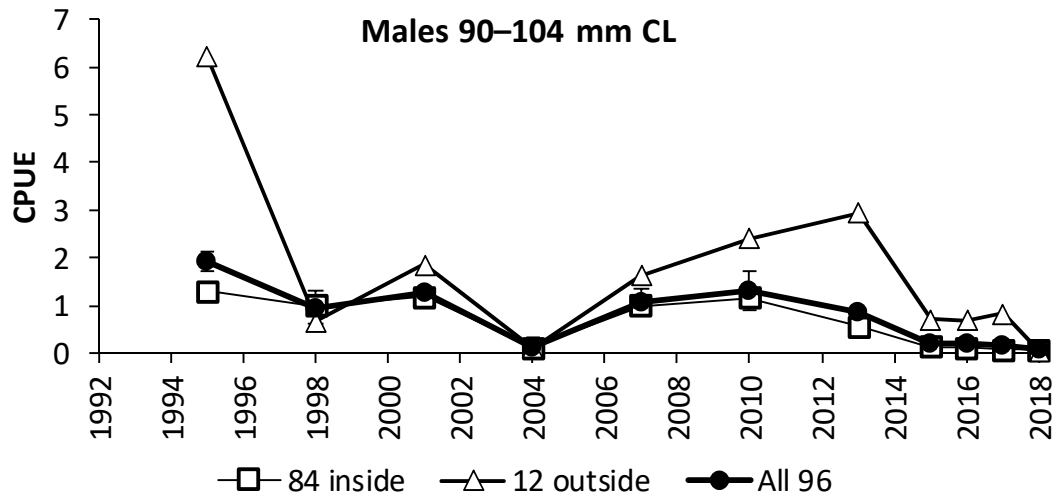
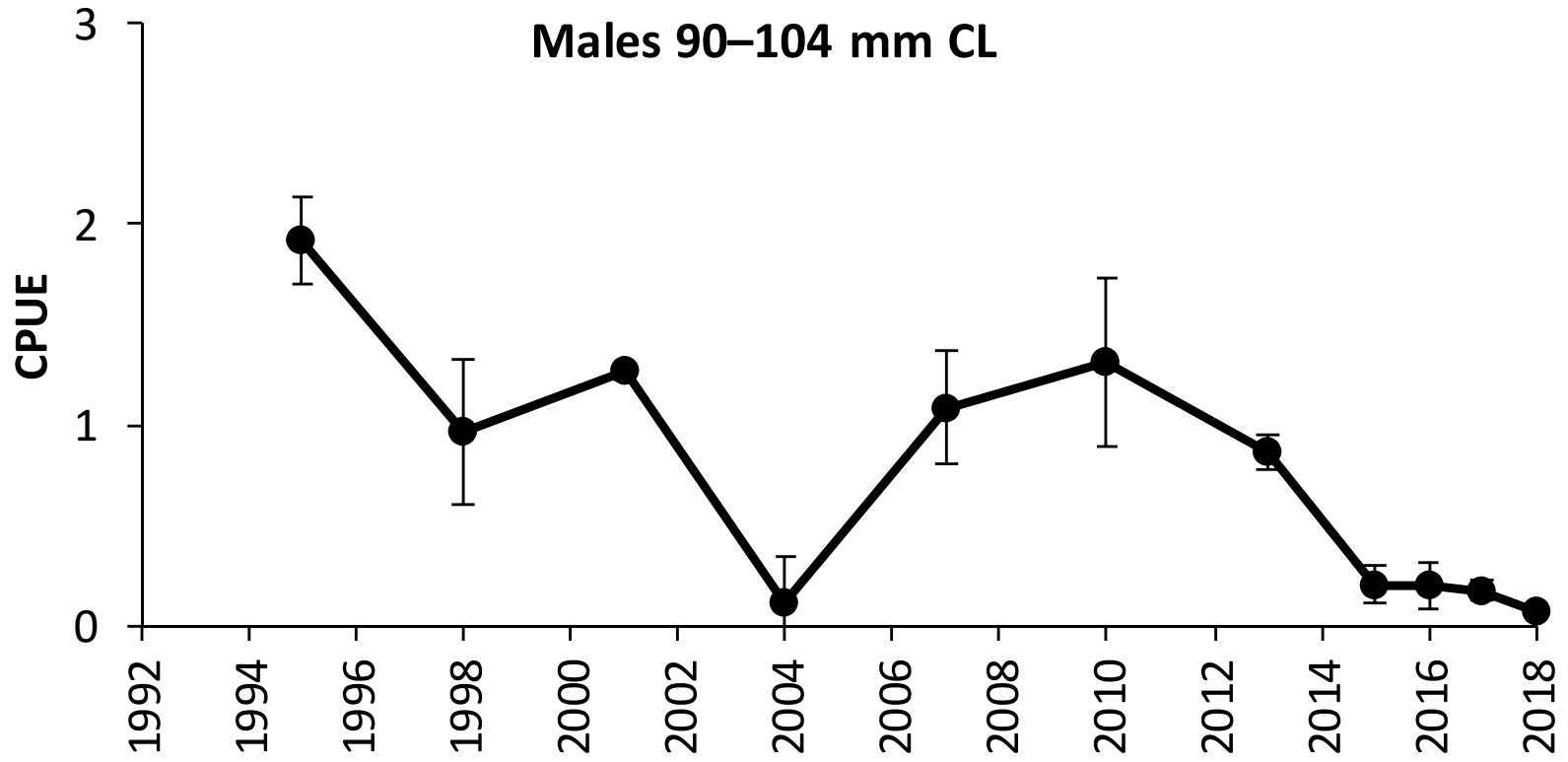


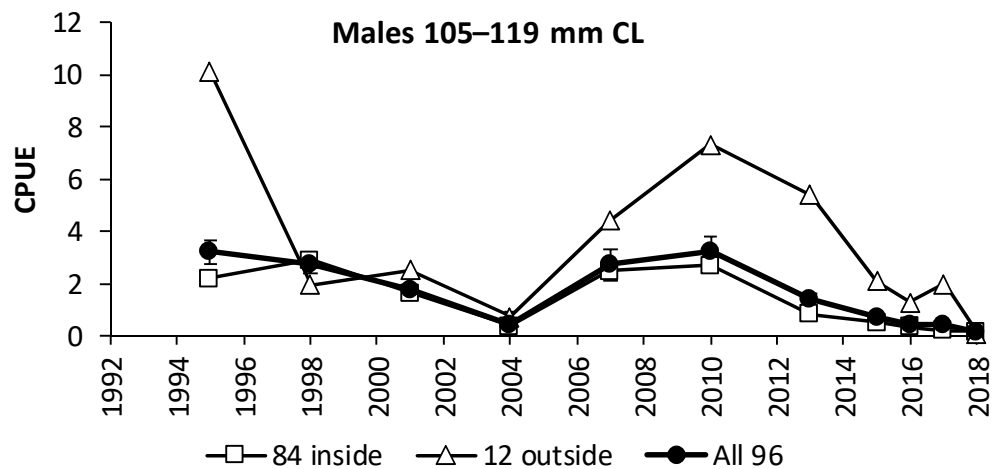
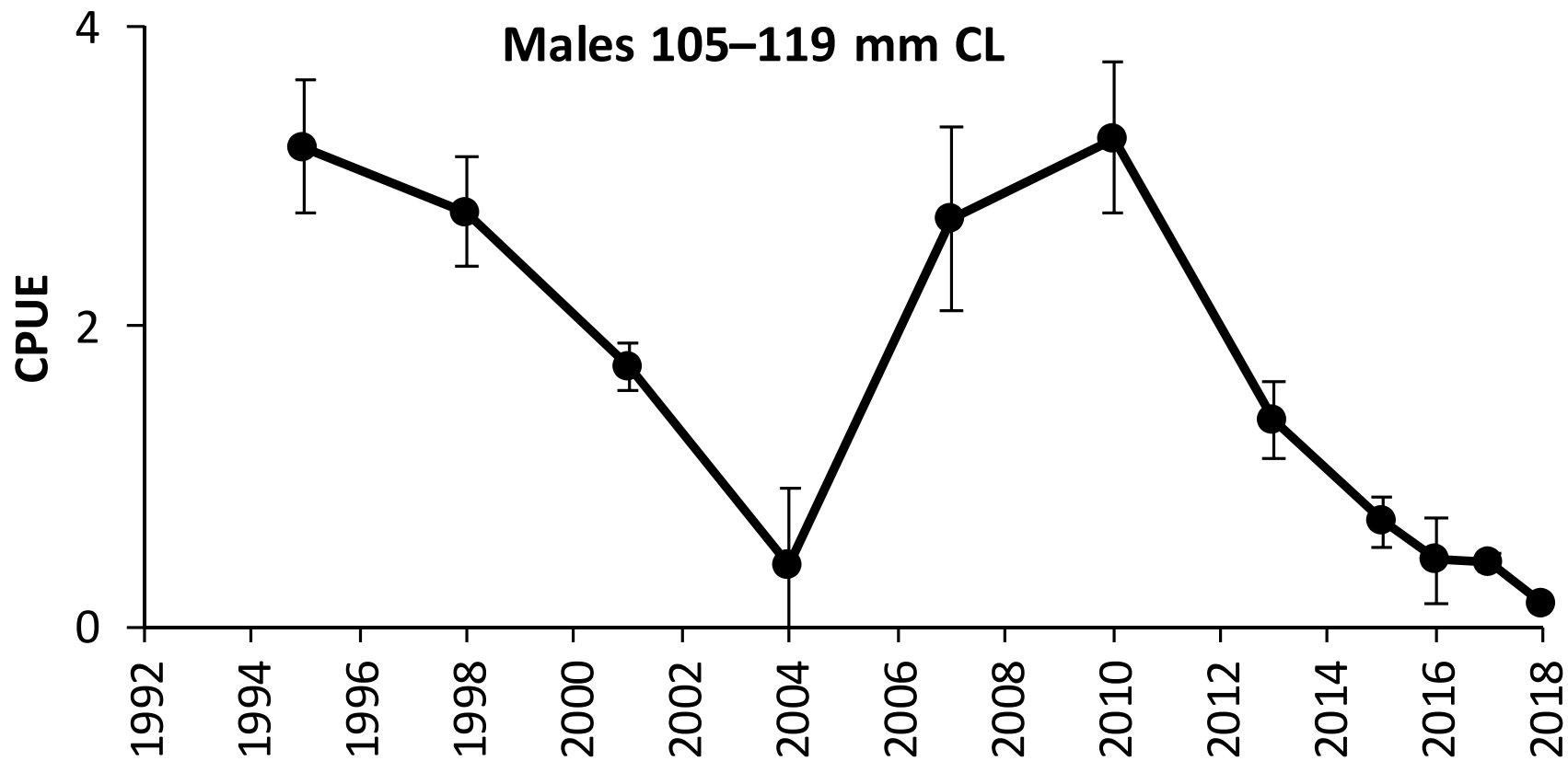
P/V Stimson

- Normally ADF&G survey charters commercial fishing vessels
- Received 0 viable bids from fleet
- Alaska Wildlife Trooper patrol vessel Stimson stepped up
 - 156 ft
 - Primary function: enforcement of commercial fisheries in the Bering Sea and Bristol Bay

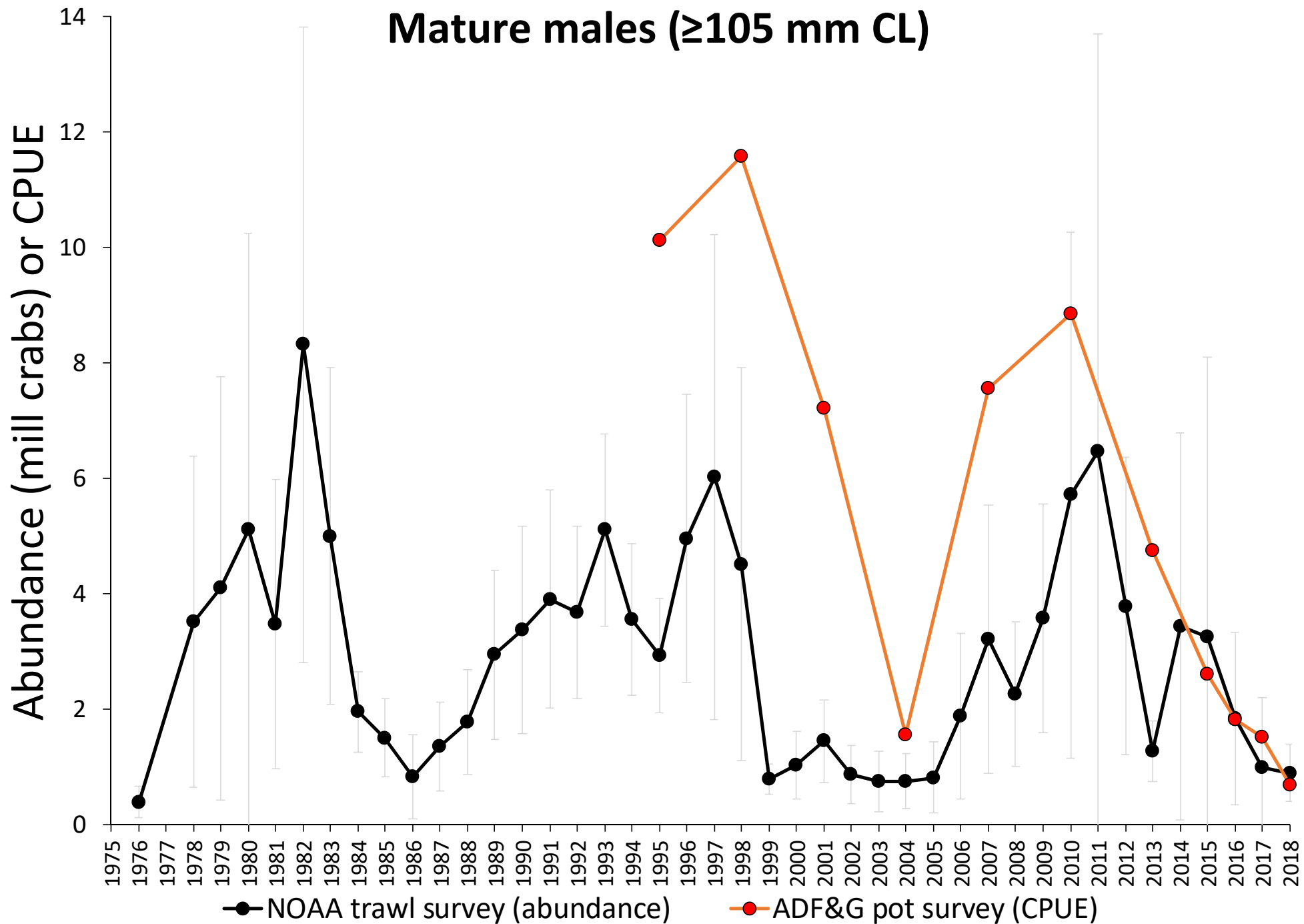


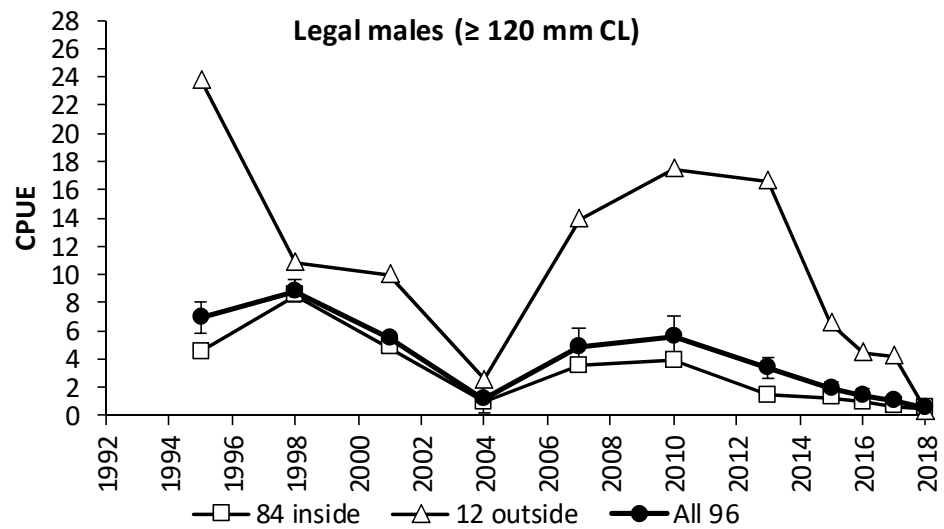
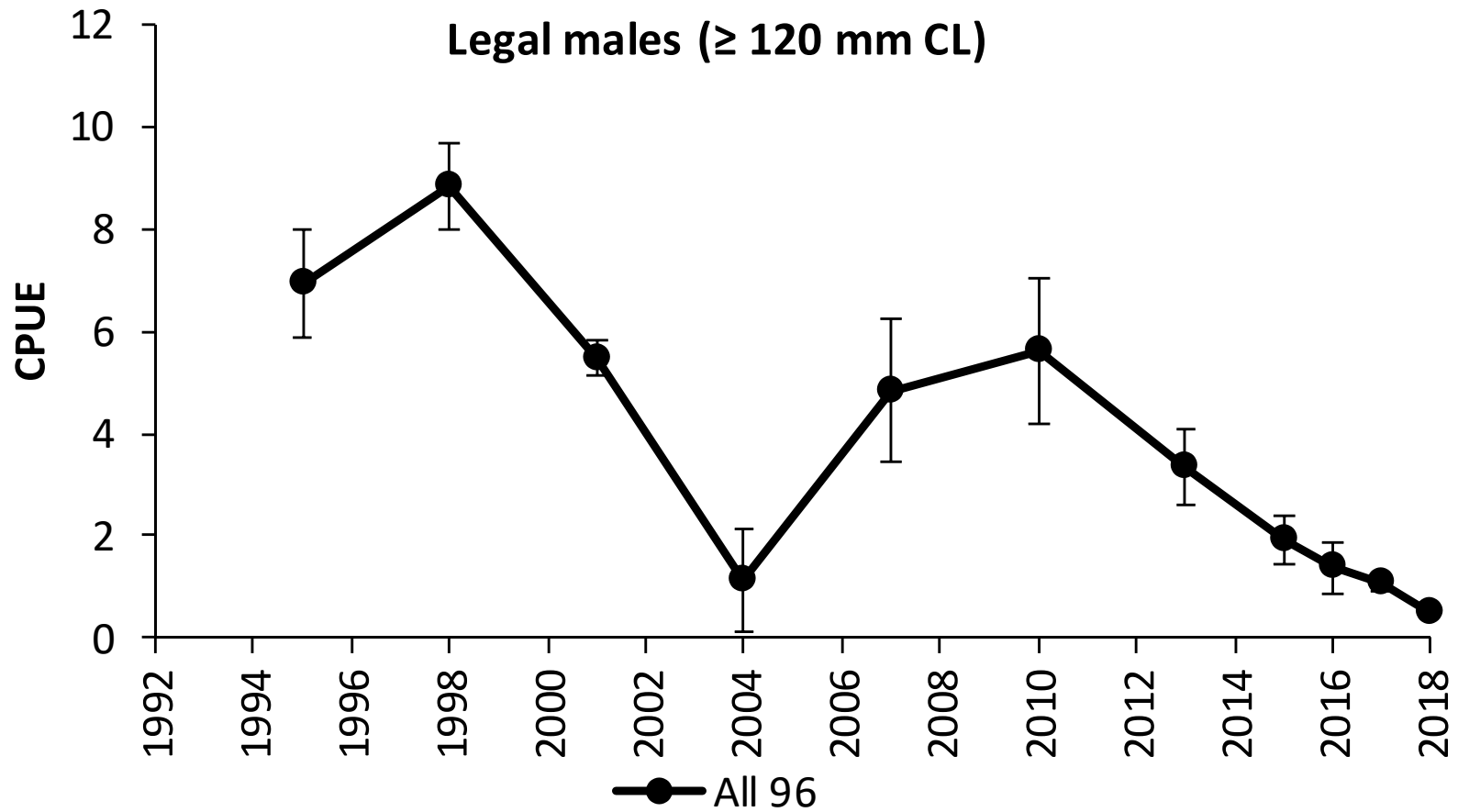




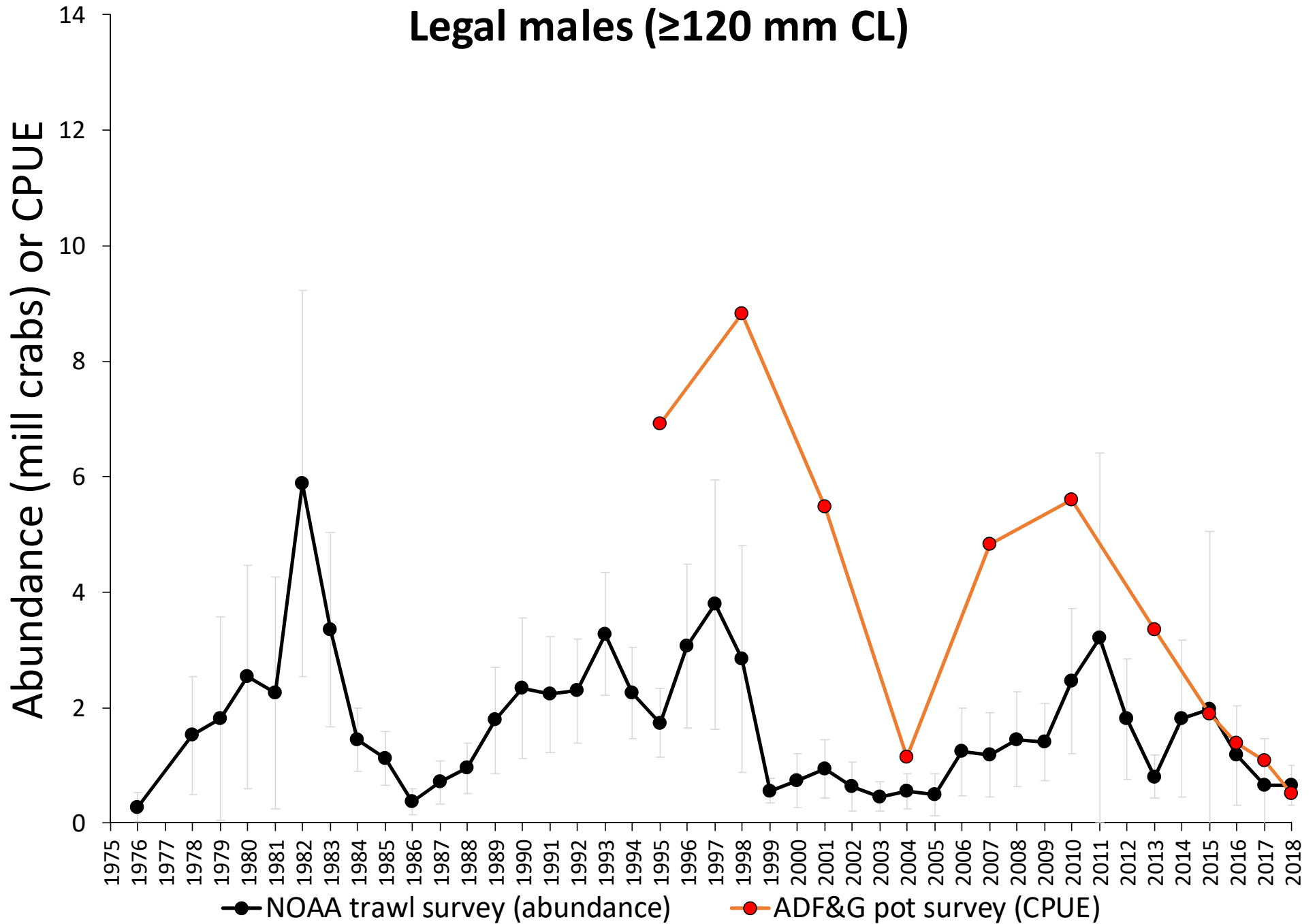


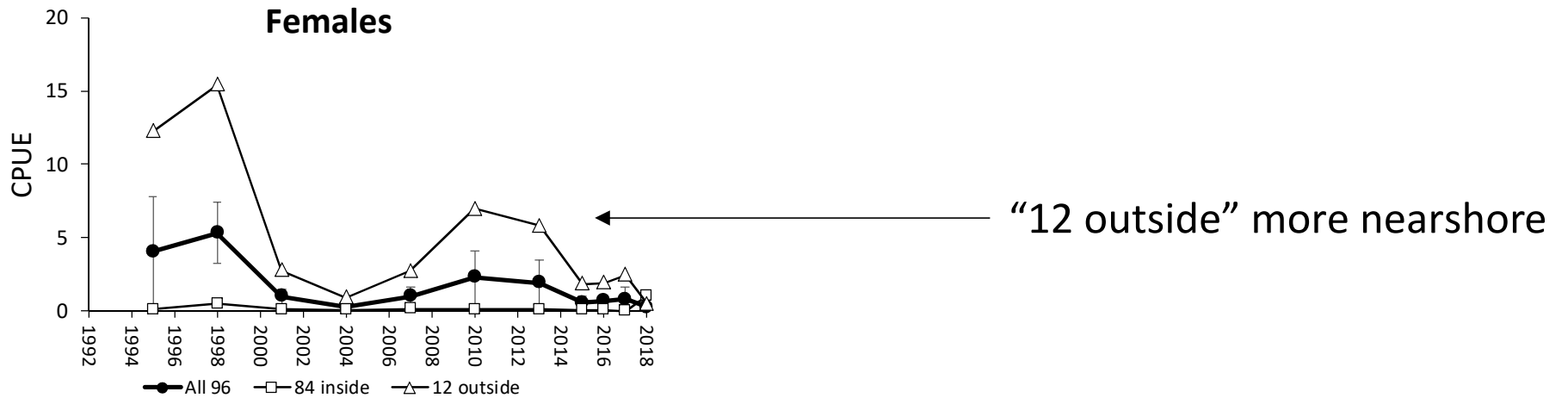
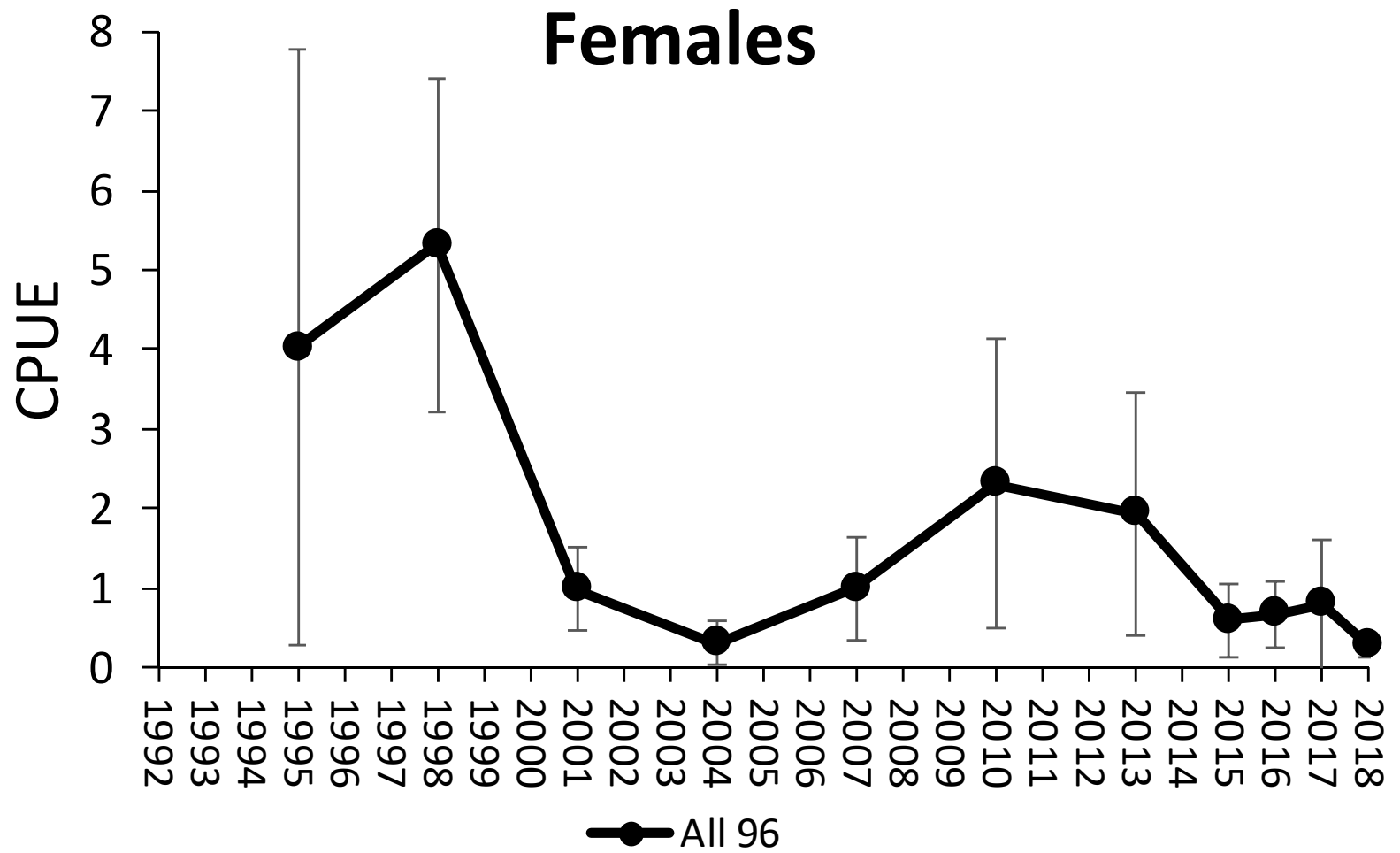
Mature males (≥ 105 mm CL)

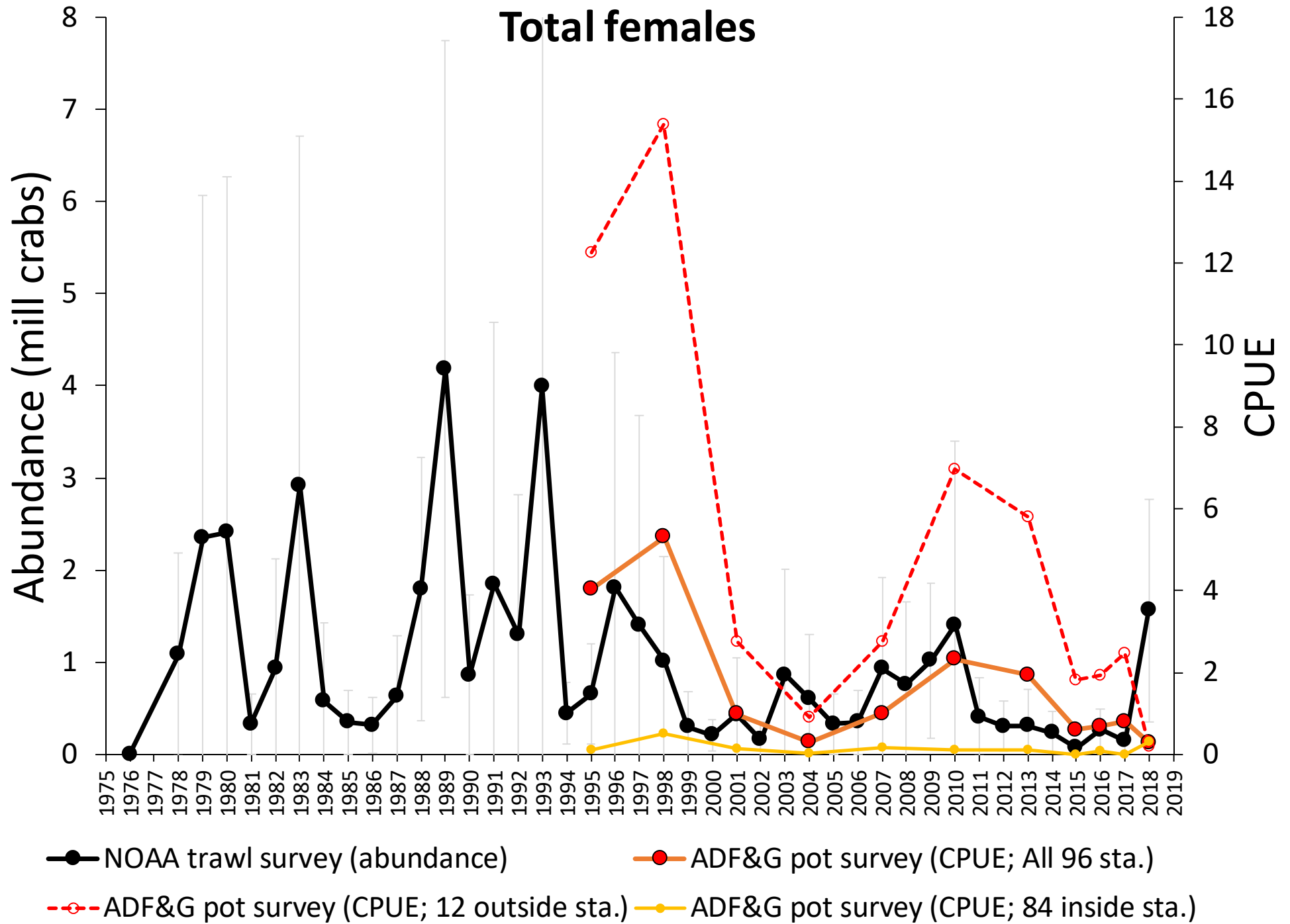




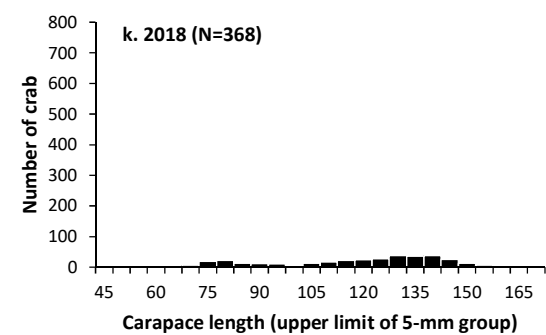
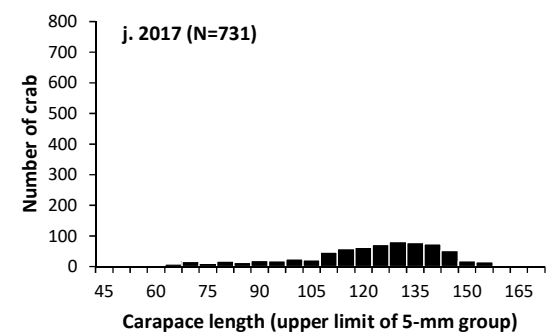
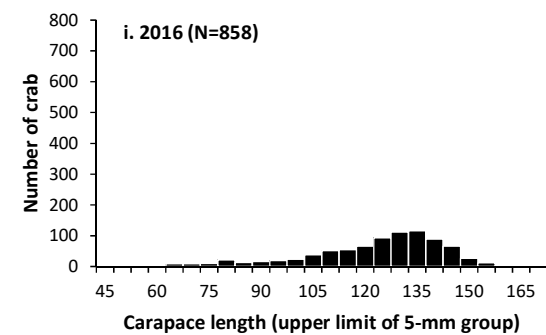
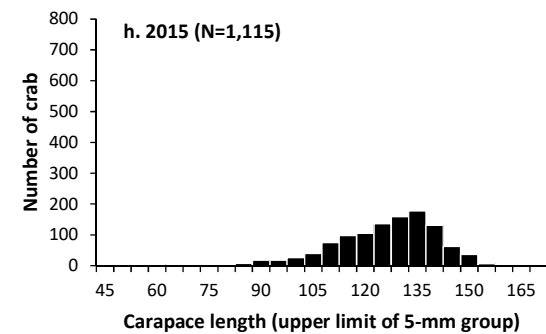
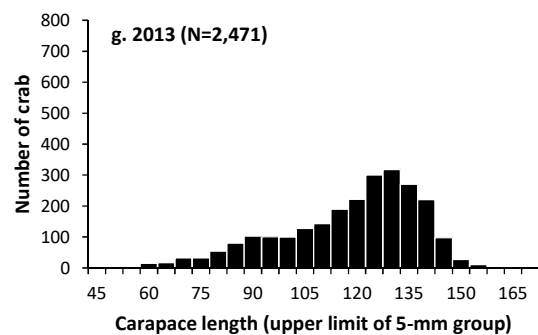
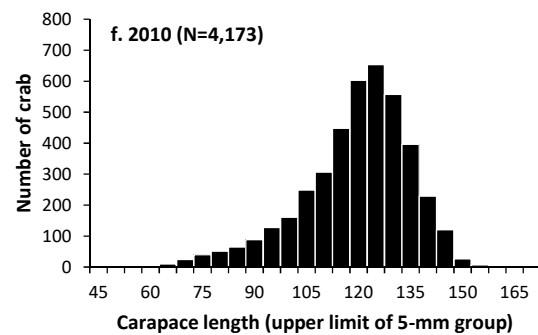
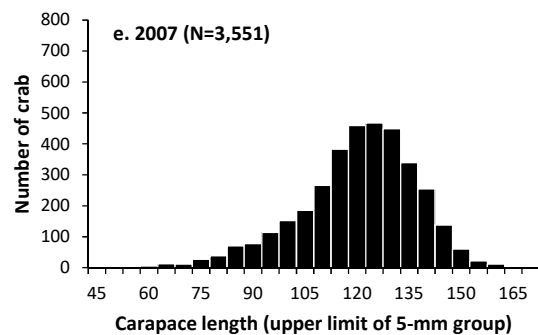
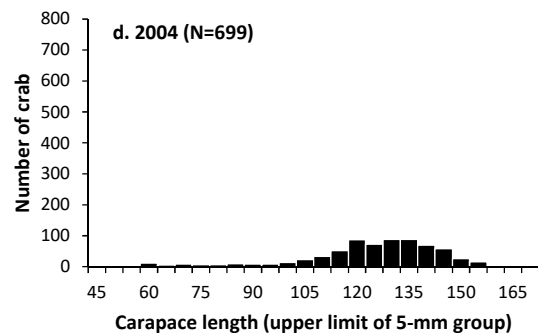
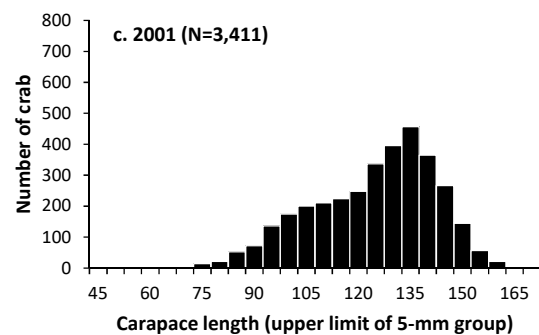
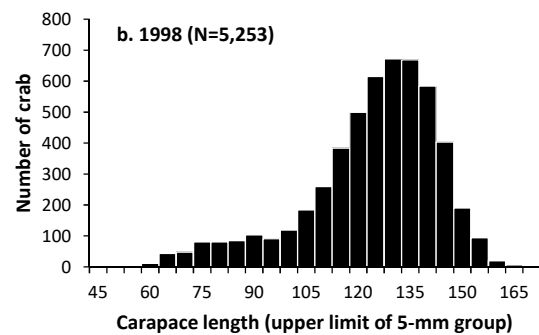
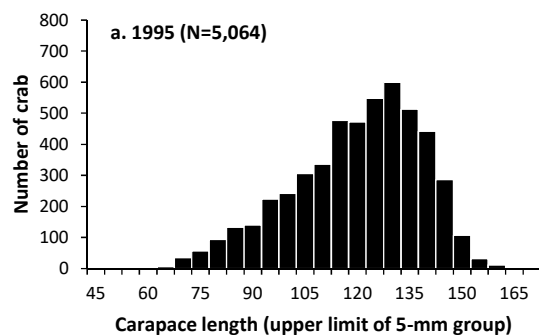
Legal males (≥ 120 mm CL)



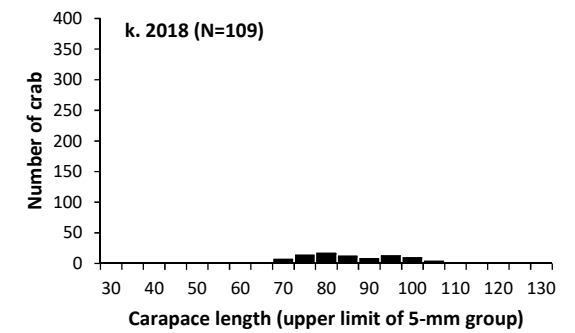
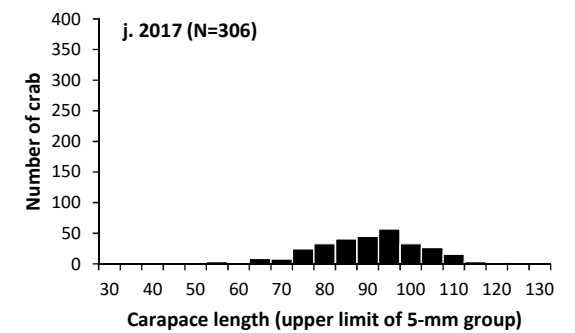
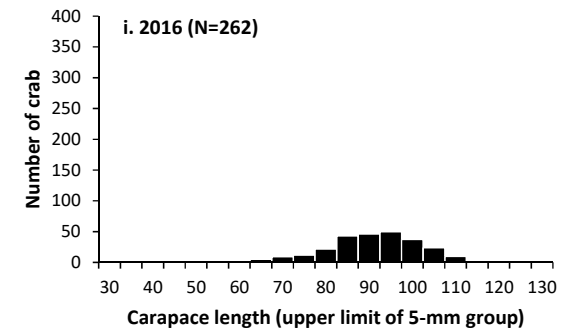
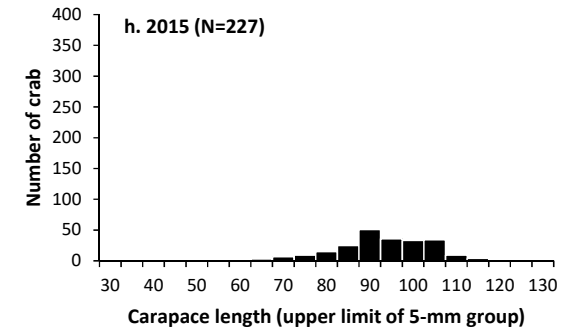
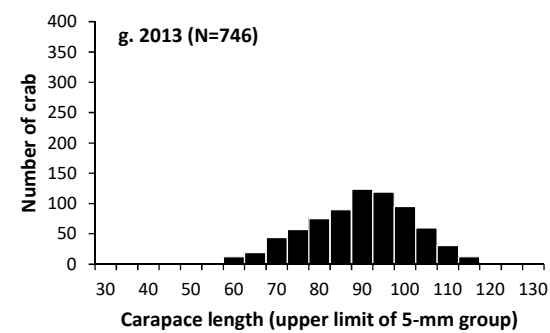
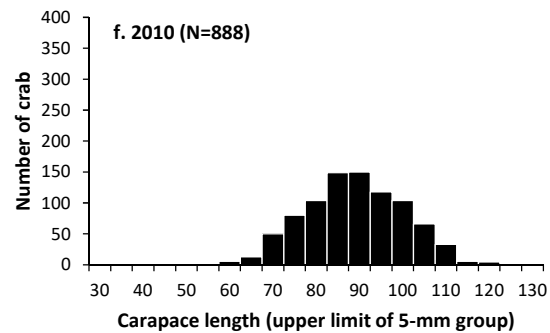
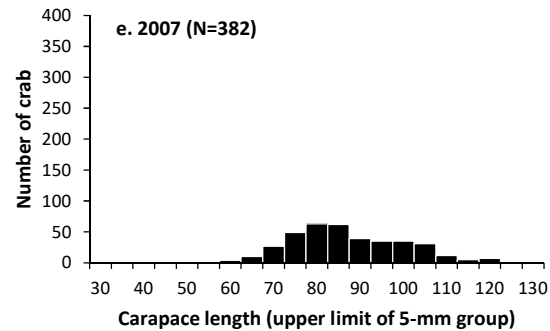
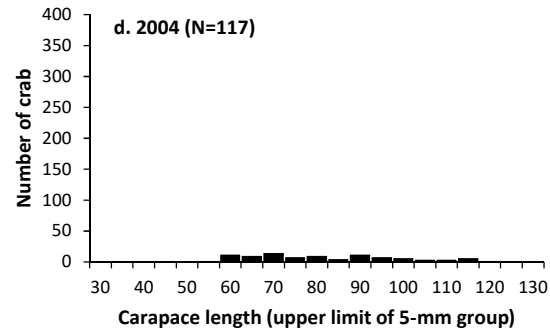
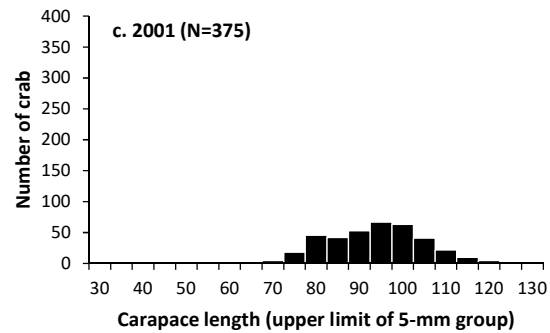
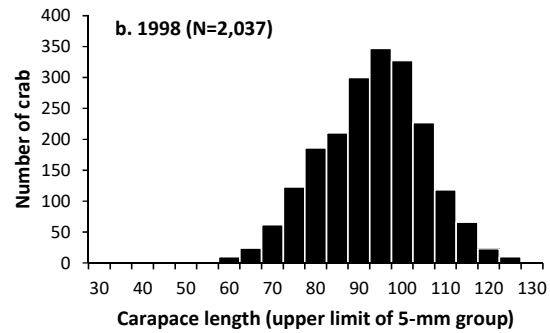
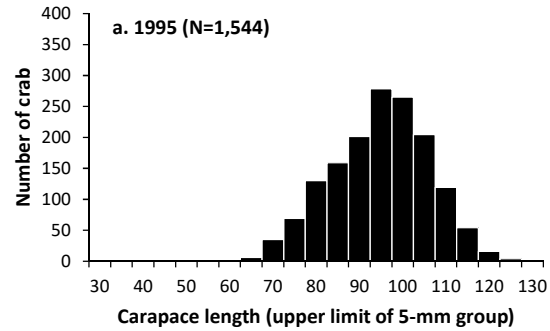




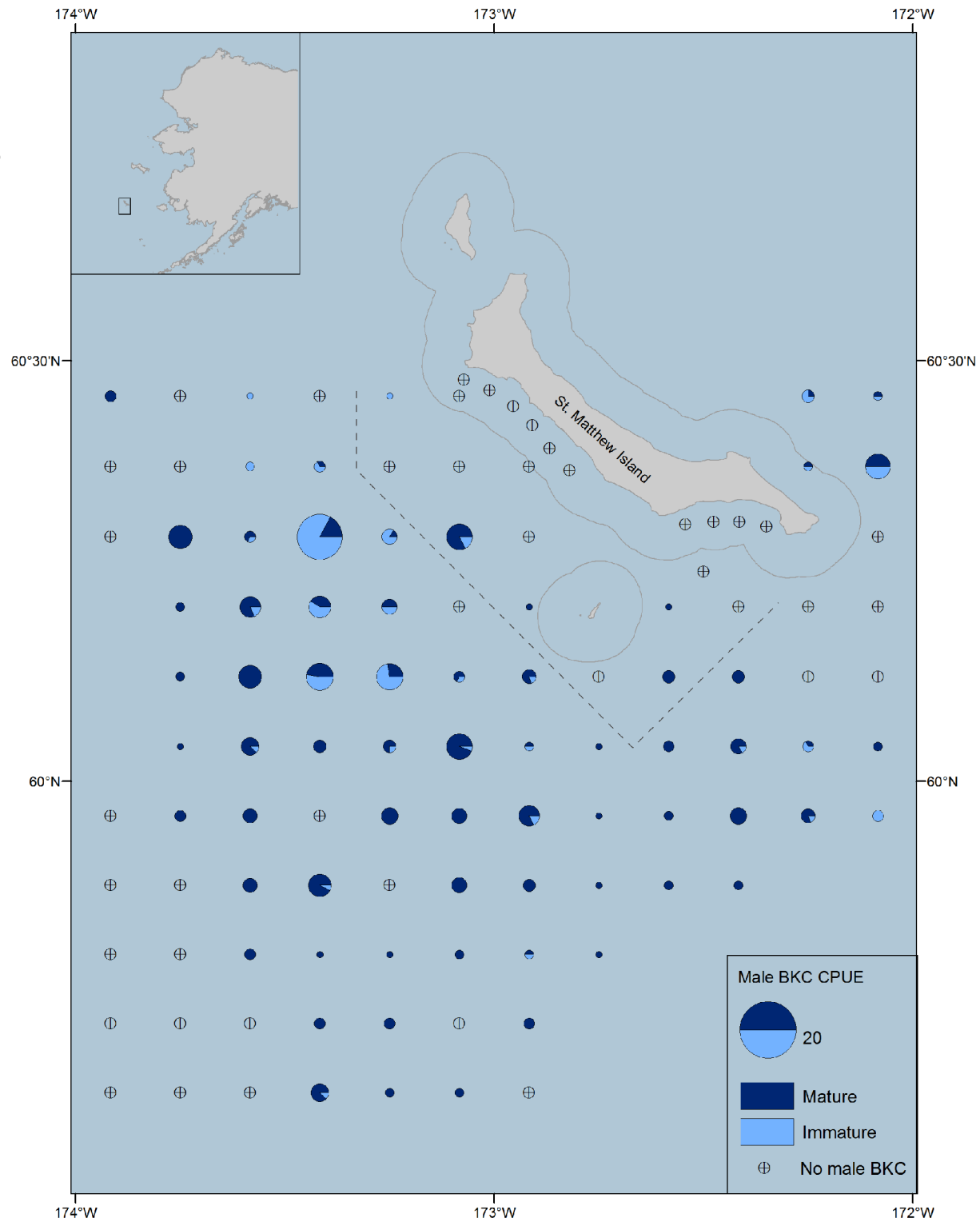
Males



Females

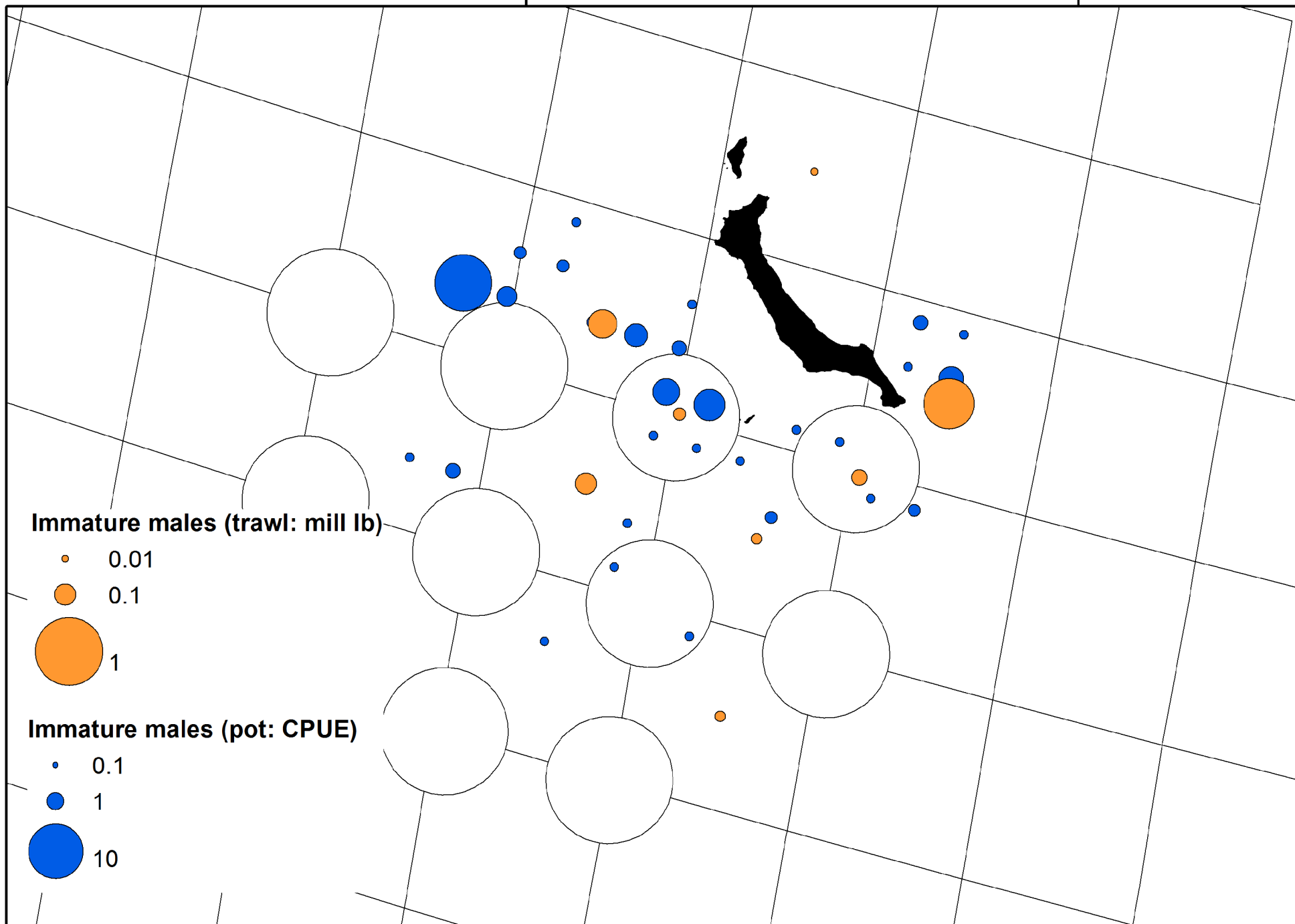


Male BKC CPUE



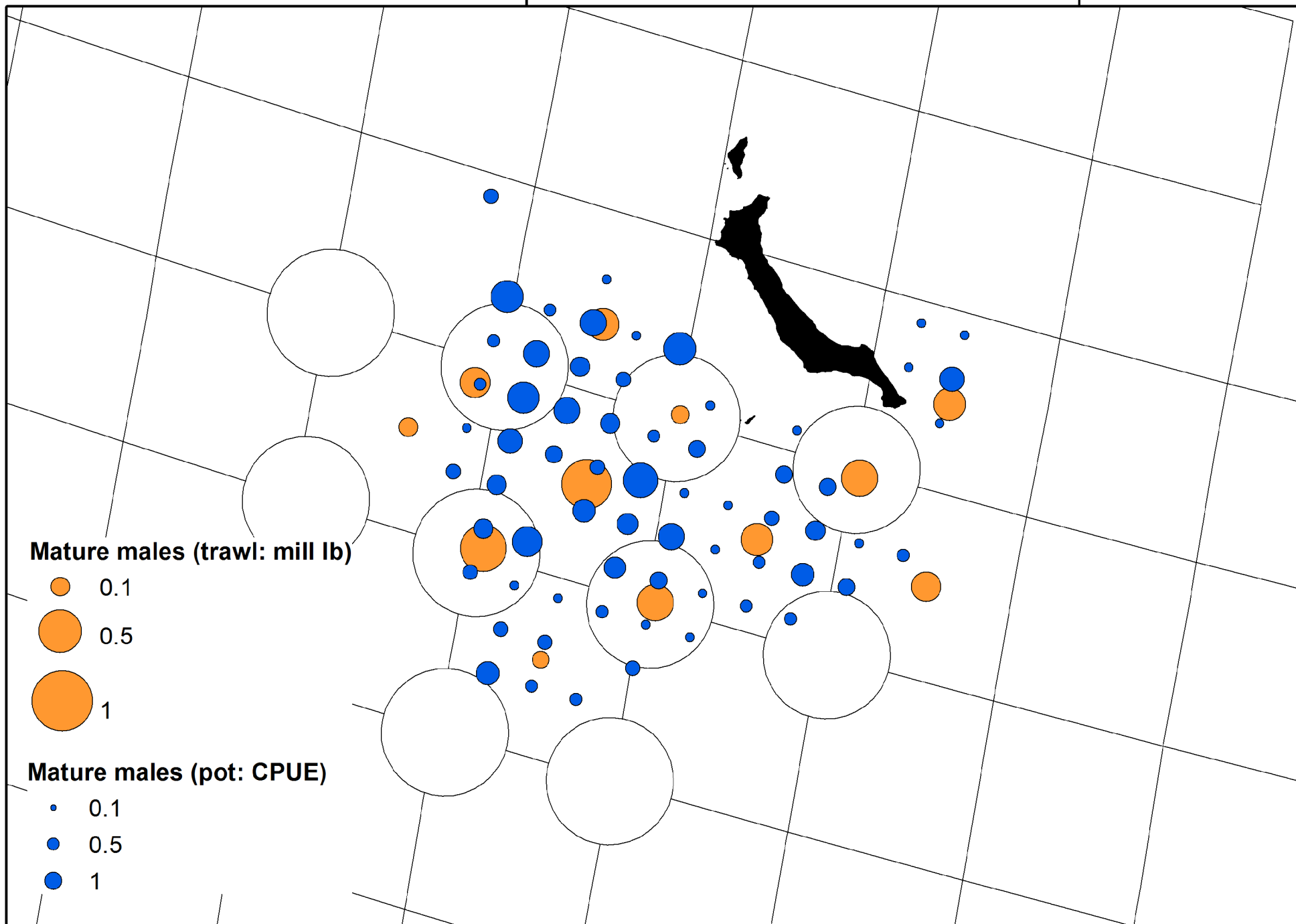
174° W

172° W



174° W

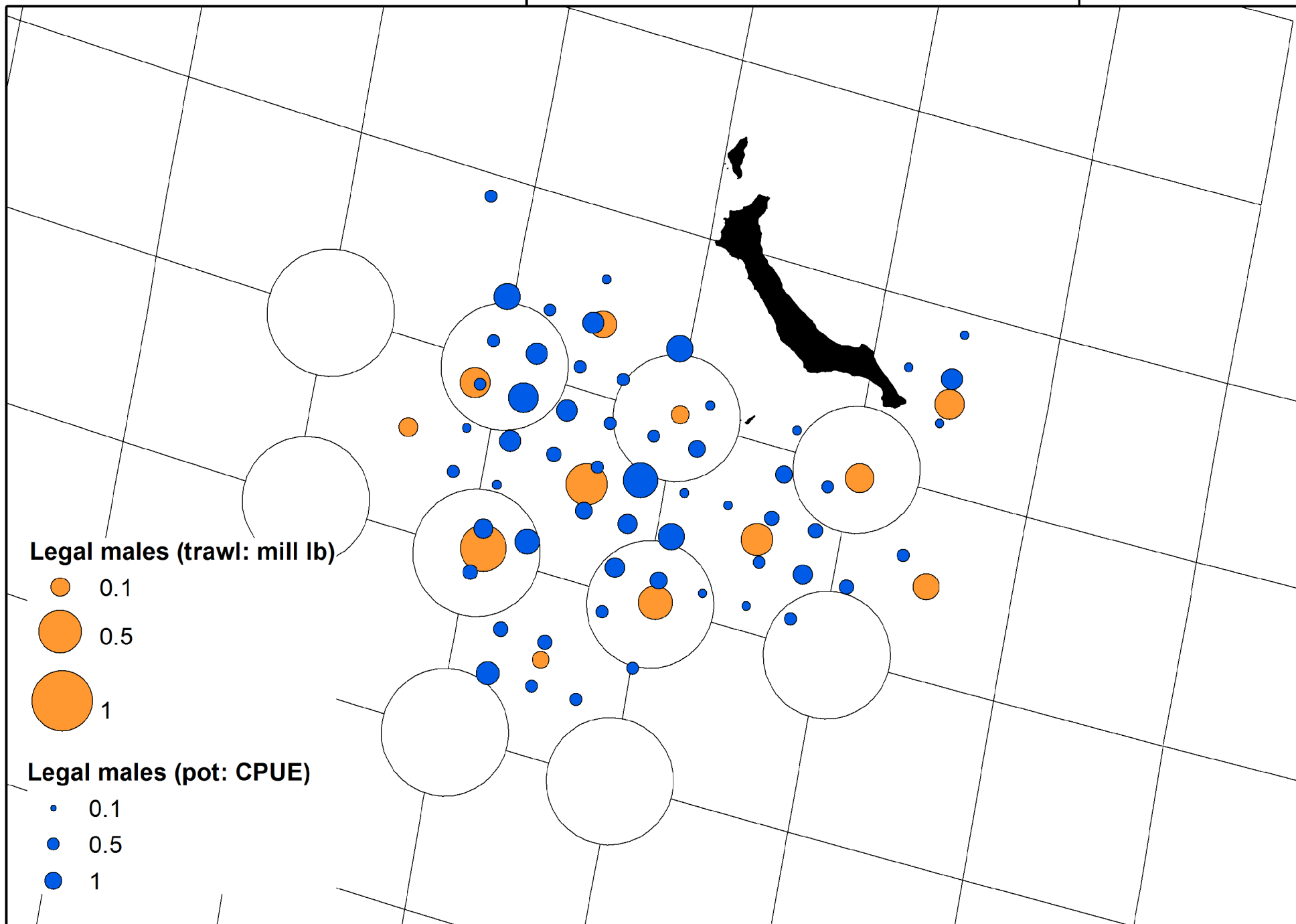
172° W



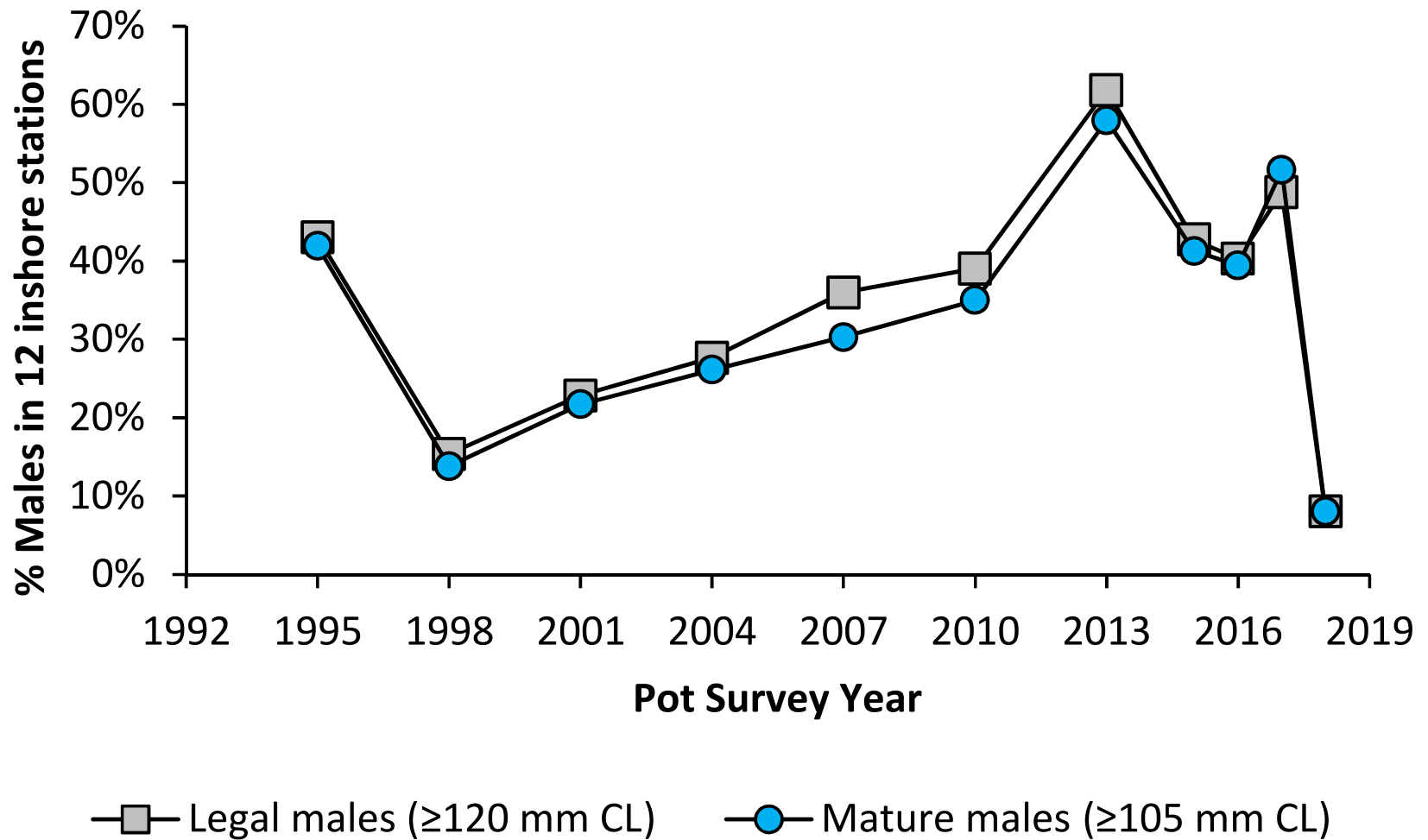
60

174° W

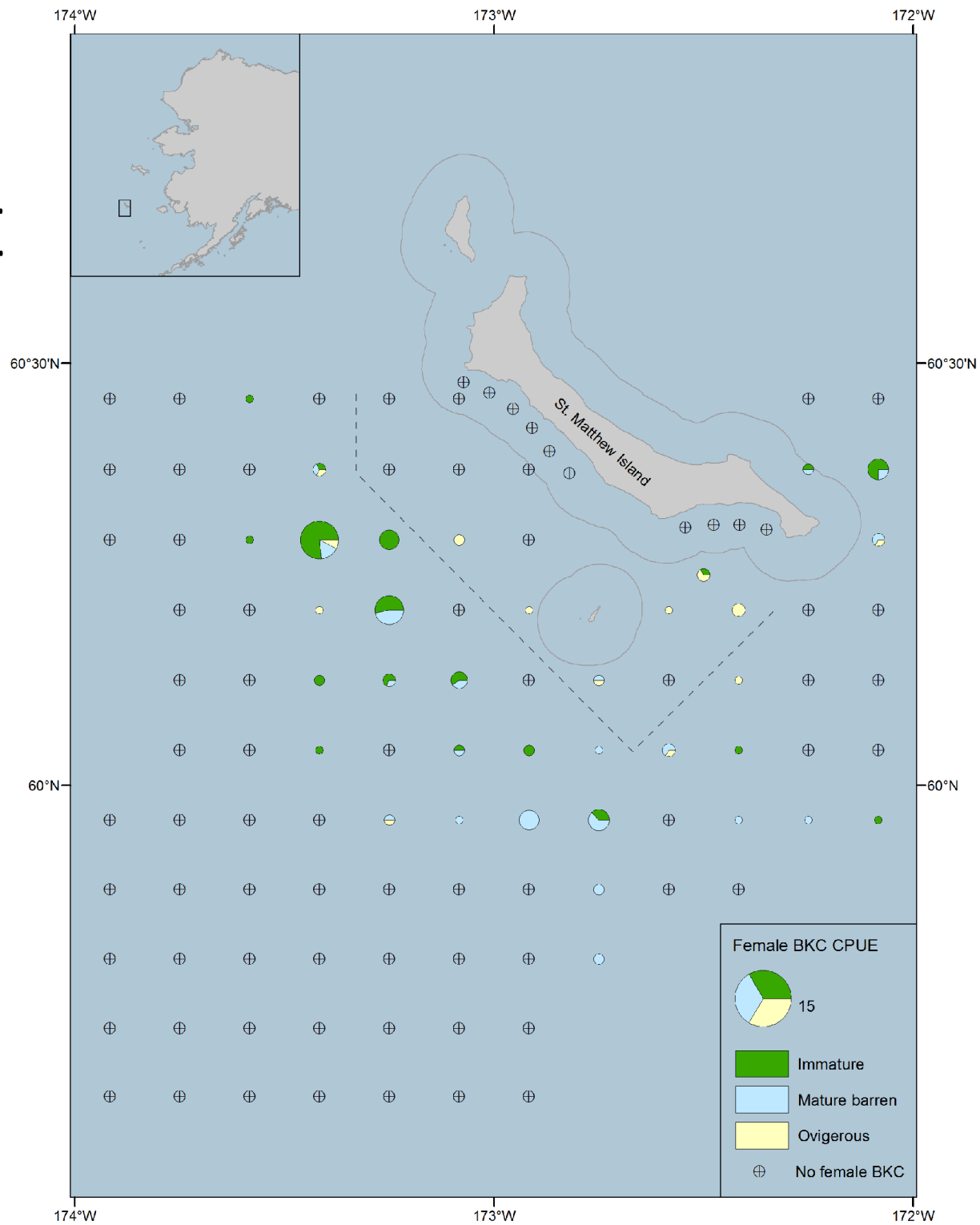
172° W



Contribution of 12 inshore stations



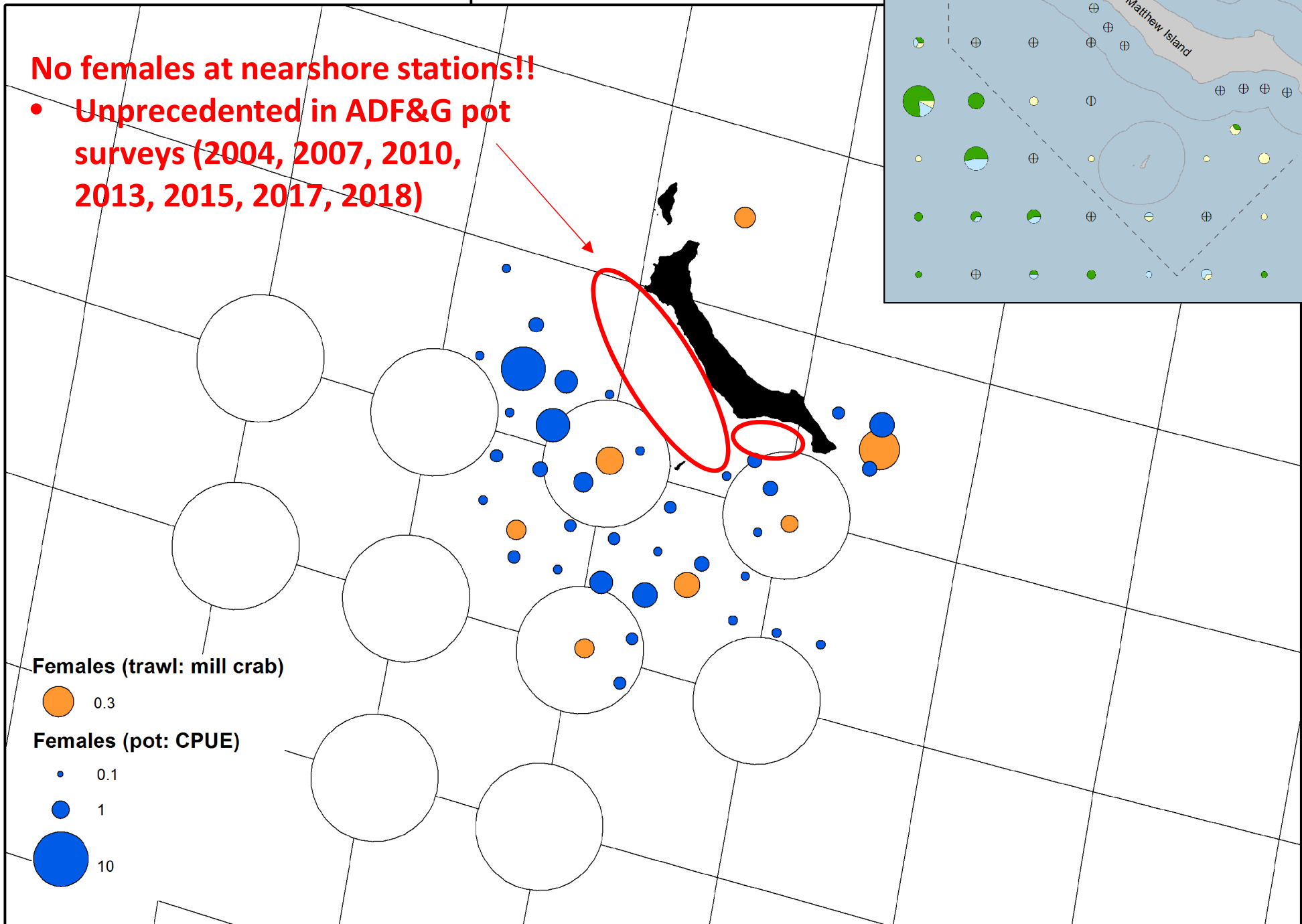
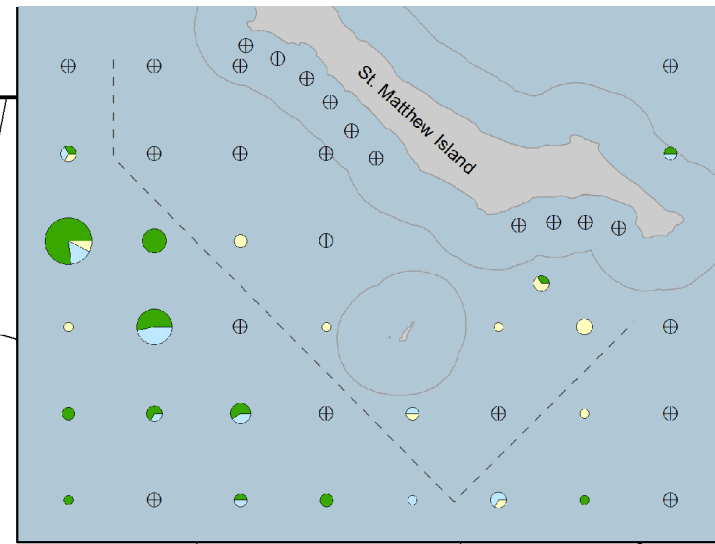
Female BKC CPUE



174° W

No females at nearshore stations!!

- Unprecedented in ADF&G pot surveys (2004, 2007, 2010, 2013, 2015, 2017, 2018)

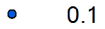


Females (trawl: mill crab)



0.3

Females (pot: CPUE)



0.1



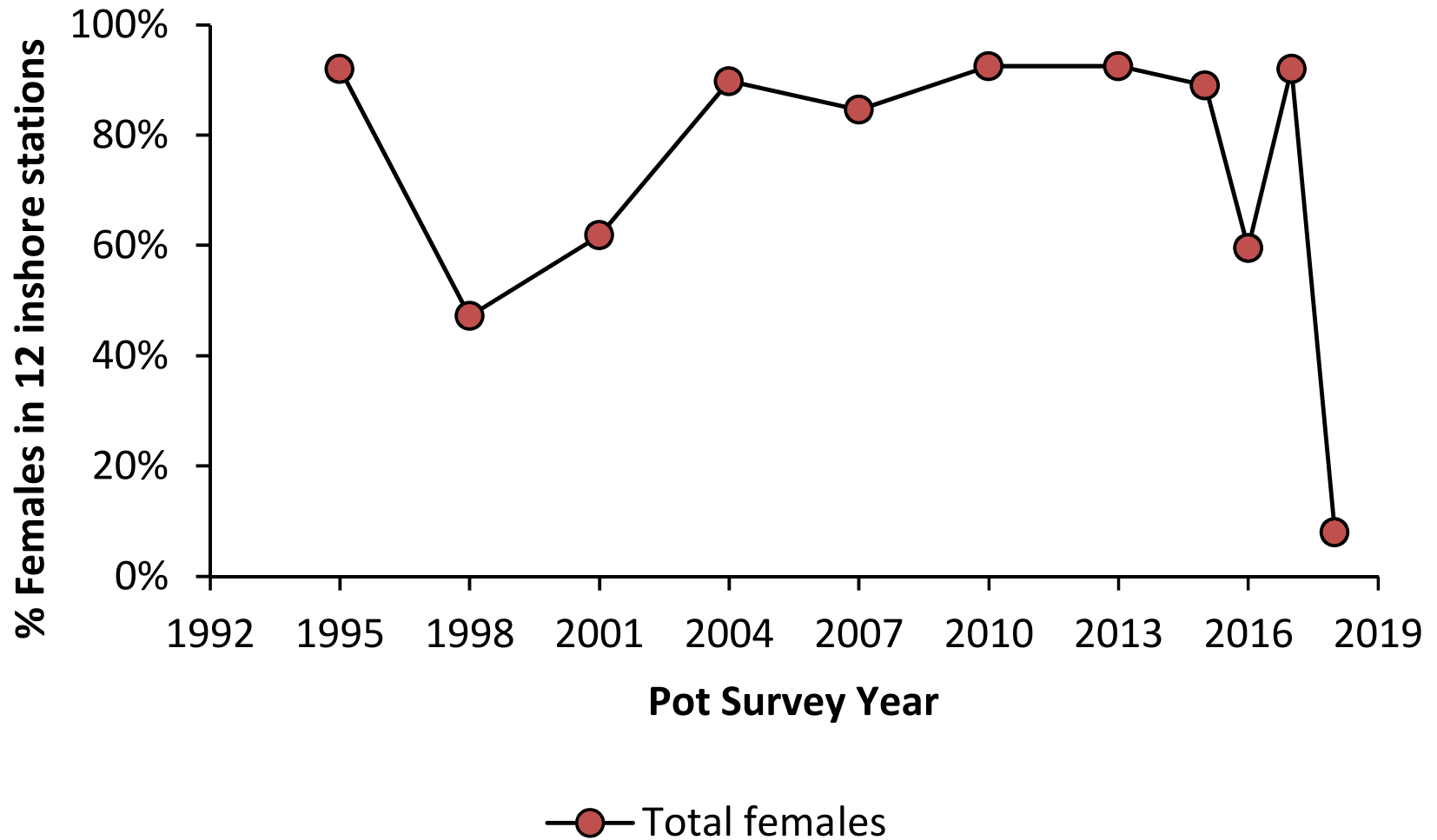
1



10

60

Contribution of 12 inshore stations



2018 Special Studies: Tanner satellite tagging

Understand movement of industry preferred size Tanner crab in the Pribilof closure area (pilot study)

- Location within PI closure area based on NOAA trawl survey “hot spots”
- **WildlifeComputers**: high success on halibut in Bering Sea, never been used on crab
- 2 types: **mrPAT** (pop-up date/location, temp), **miniPAT** (pop-up date/location, depth, temp, tracking data via light-based geolocation)
- 2017 survey: 10 mrPAT
 - 5 for Dec 1, 2017 (got 3 locations)
 - 5 for May 1, 2018 (got 0 locations).....hardware corrosion issue?
 - ~450 Floy tags
- 2018: 11 mrPAT, 3 miniPAT
 - Dec 1: 3 mrPAT, 1 miniPAT
 - Jan 1: 3 mrPAT
 - April 1: 3 mrPAT, 1 miniPAT
 - May 1: 2 mrPAT, 1 miniPAT
 - **~1,000 Floy tags**

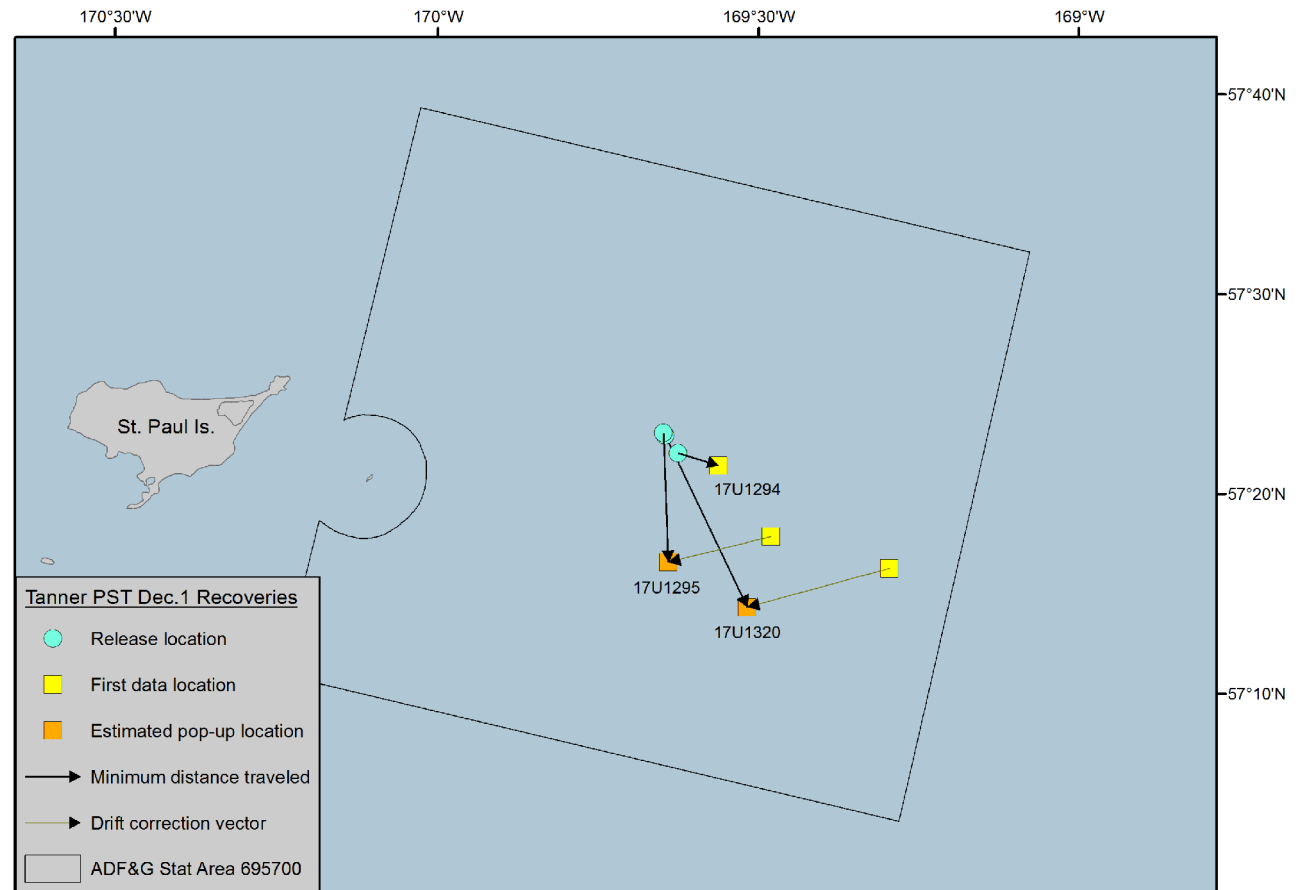
Past special studies

- RKC genetics
- BKC tagging

Tanner Crab Satellite Tag Recovery

- Deployed Aug 2017
- Popped Dec 2017

End location corrected using known drift data of first tag



| Tag | PTT | Distance (km) | km/day | m/day | Uncorrected Distance (km) |
|---------|--------|---------------|--------|-------|---------------------------|
| 17U1320 | 172374 | 18.182 | 0.191 | 191 | 24.950 |
| 17U1295 | 172373 | 12.332 | 0.130 | 130 | 14.290 |
| 17U1294 | 172372 | 4.036 | 0.042 | 42 | — |