

Review of TACs

Bering Sea Crab 2025/26 Season

ADF&G presentation to BSAI crab industry, 9 Oct 2025

Join by ZOOM

<https://us02web.zoom.us/j/84761713350?pwd=aSkEvY7nNI1146jxKEIO7fyfBNNHoz.1>

Meeting ID: 847 6171 3350

Passcode: 692605

2025/26 Specifications Summary

Fishery	OFL (mill lb)	ABC (mill lb)	TAC (mill lb)
Pribilof blue king crab	0.0026	0.0020	0
	(total catch)	(total catch)	(directed fishery closed)
Pribilof red king crab	1.08	0.81	0
	(total catch)	(total catch)	(directed fishery closed)
St. Matthew blue king	0.29	0.21	0
	catch)	(total male catch)	(directed fishery closed)
Bristol Bay red king crab	12.90	10.32	2.68
	(total catch)	(total catch)	(retained catch)
Bering Sea Tanner crab	112.47	89.98	1.13 (EBT), 10.12 (WBT)
	(total catch)	(total catch)	(retained catch)
Bering Sea snow crab	44.33	26.60	9.30
	(total catch)	(total catch)	(retained catch)

BSAI Crab Management Process

May

- Fisheries conclude – fishery data summarized for assessments
- NPFMC Crab Plan Team (CPT) meets to discuss model scenarios for September

June-August

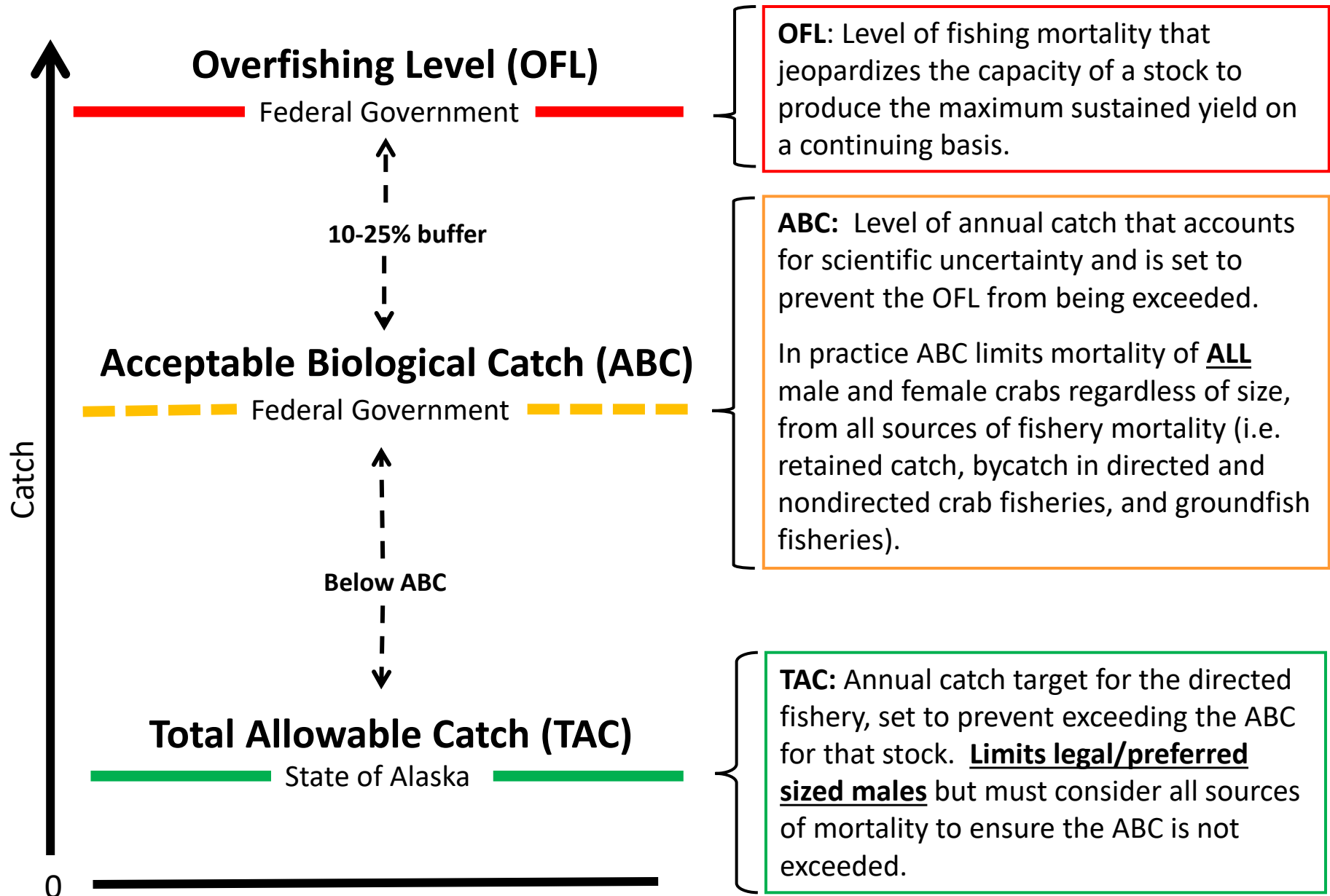
- NOAA EBS bottom trawl survey

August

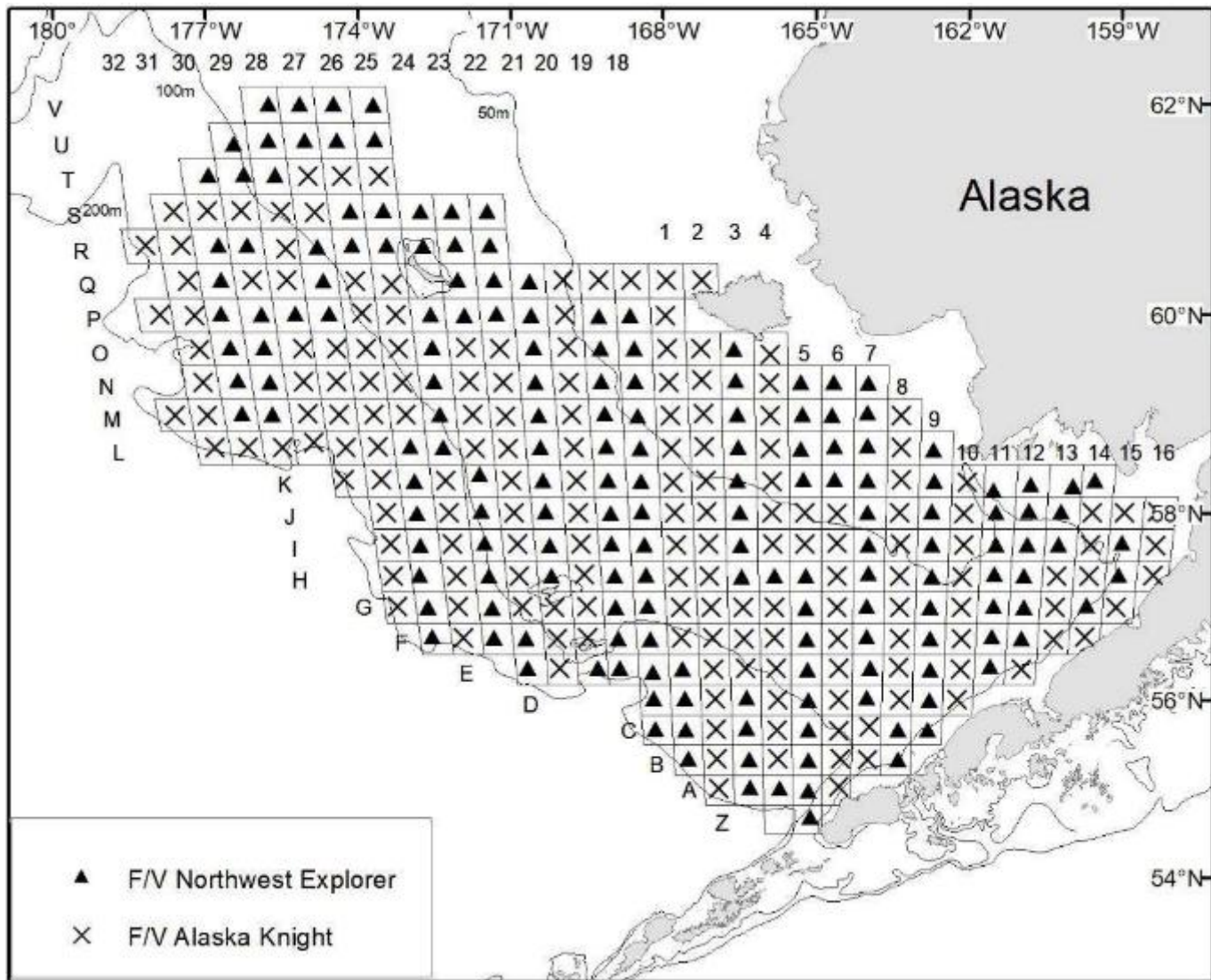
- Survey data summarized for assessment authors
- Preliminary survey results made public ~Sept 1.

September/October

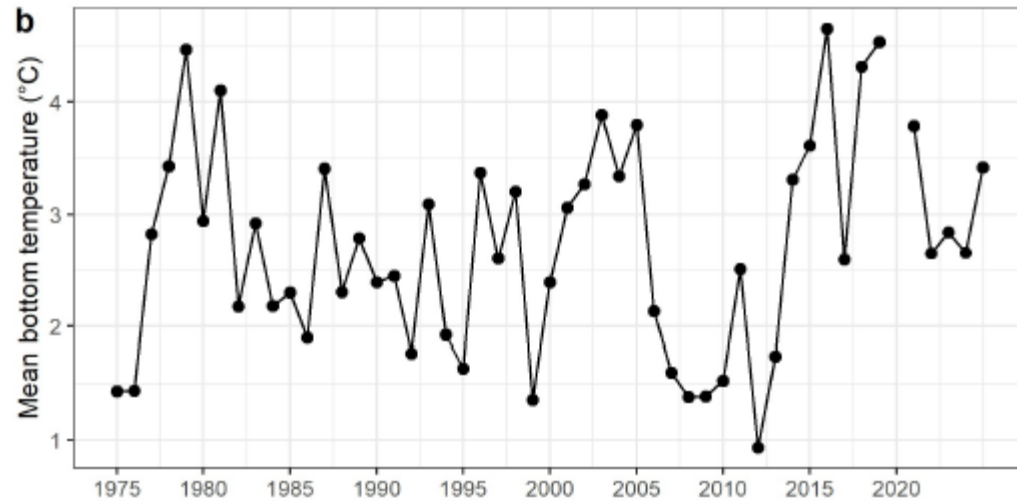
- CPT meets in September (Seattle) to recommend OFLs/ABCs
- NPFMC Scientific and Statistical Committee (SSC) reviews CPT recommendations early October – Council adopts OFLs/ABCs
- ADF&G reviews all survey, assessment, fishery, environmental information and sets TACs after Council adopts OFLs/ABCs
- Seasons open October 15



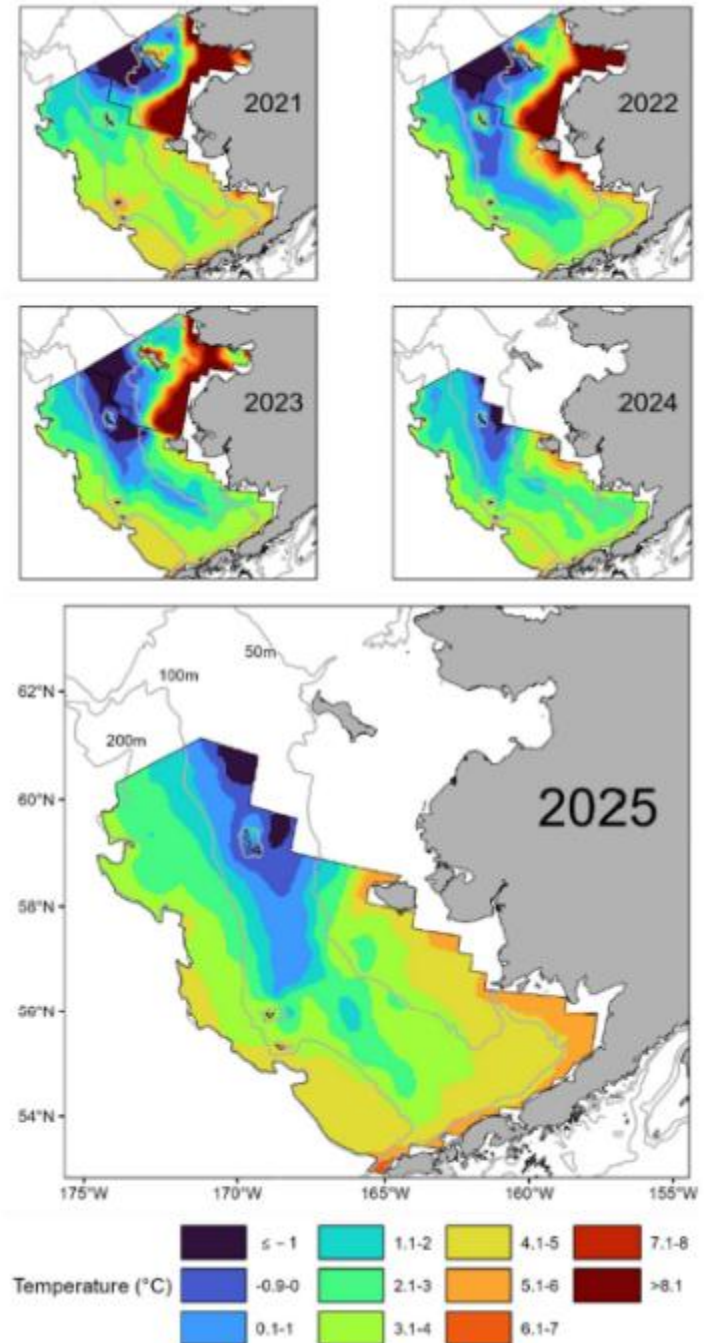
NOAA EBS bottom trawl survey



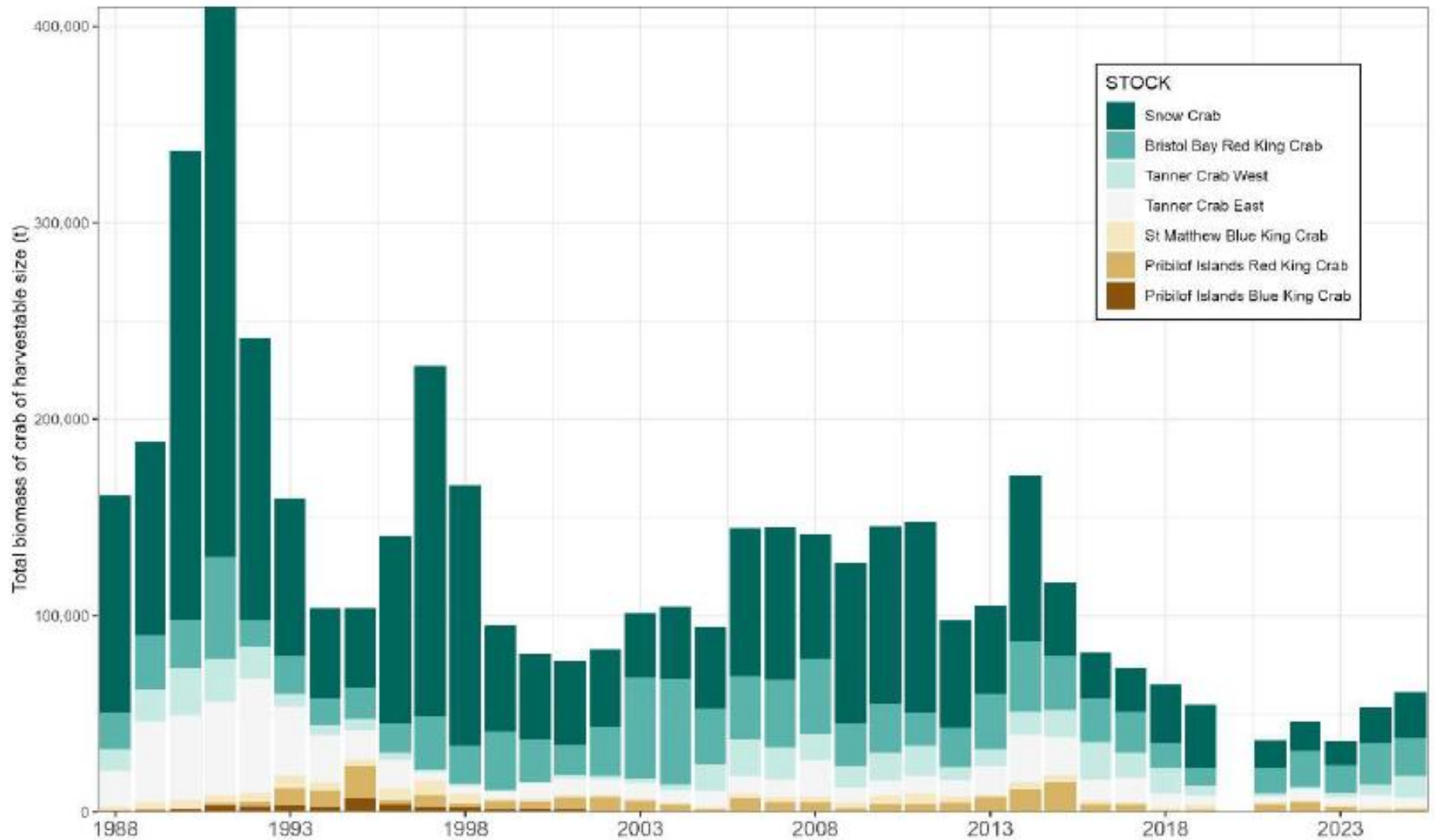
2025 EBS trawl survey bottom temperature



- Bottom temperature slightly warmer than 1975-2024 mean
- Cold pool extent below average



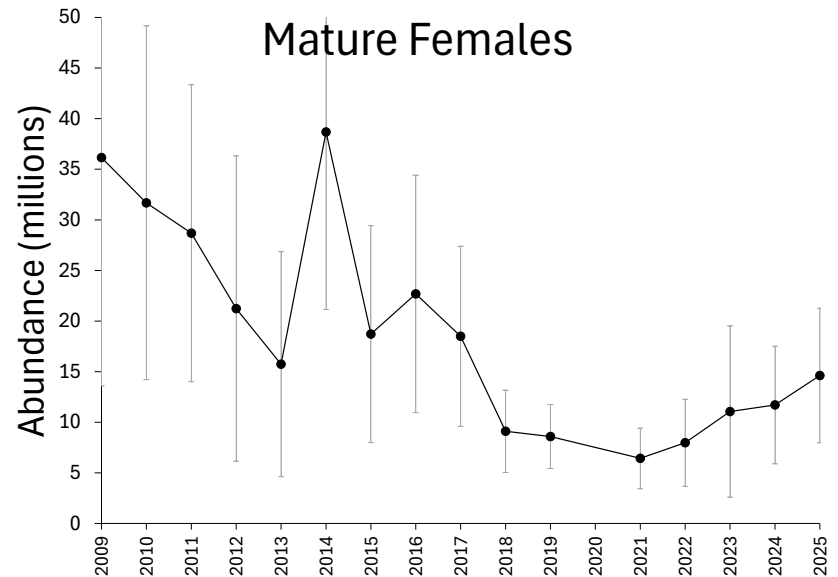
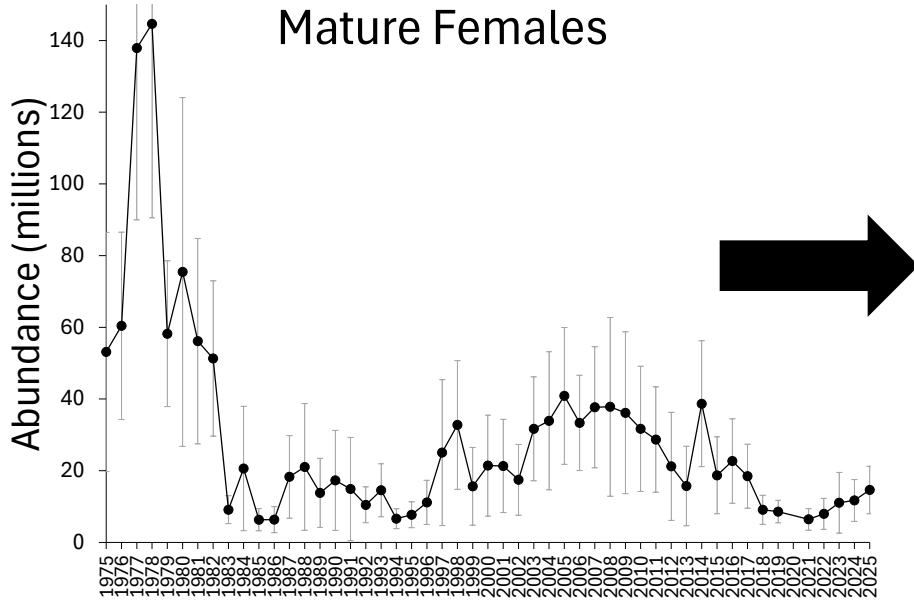
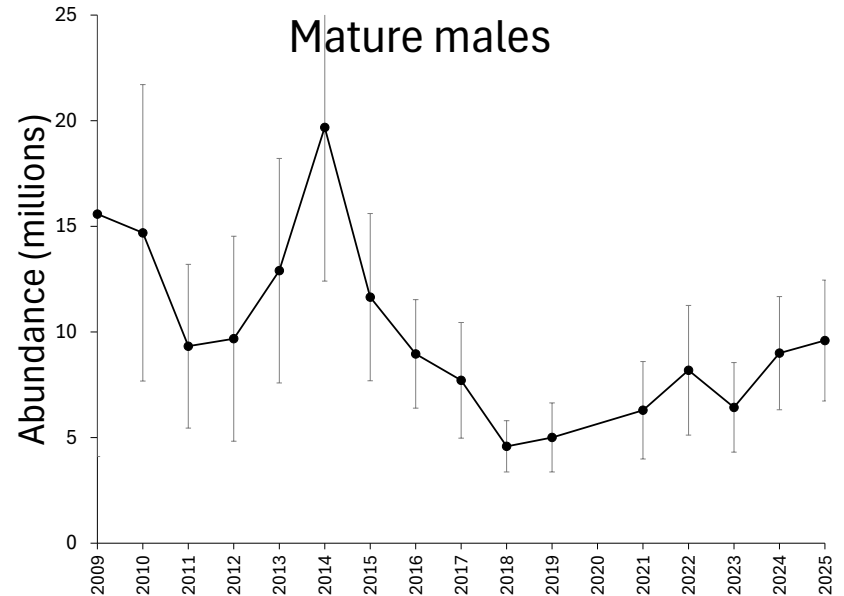
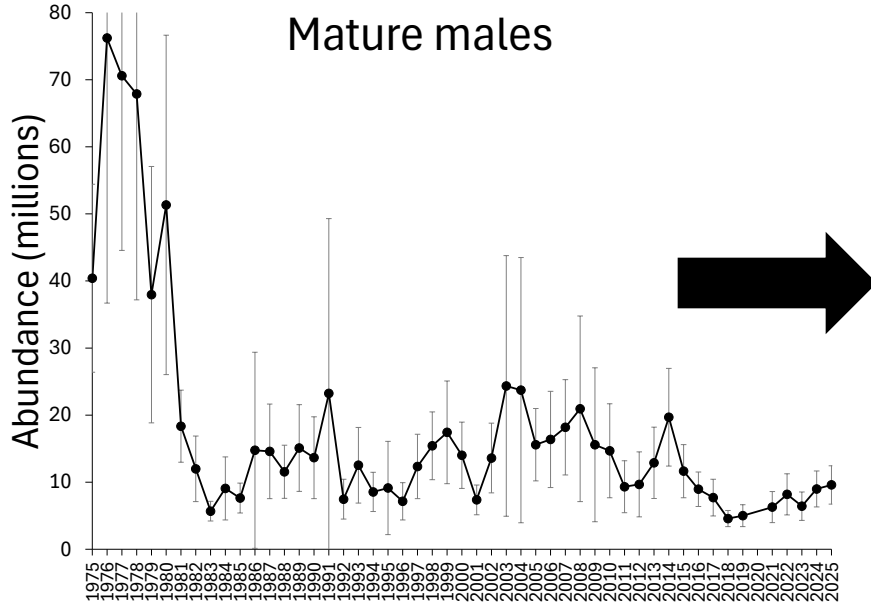
EBS trawl survey crab results



Take Aways - 2025 EBS trawl survey

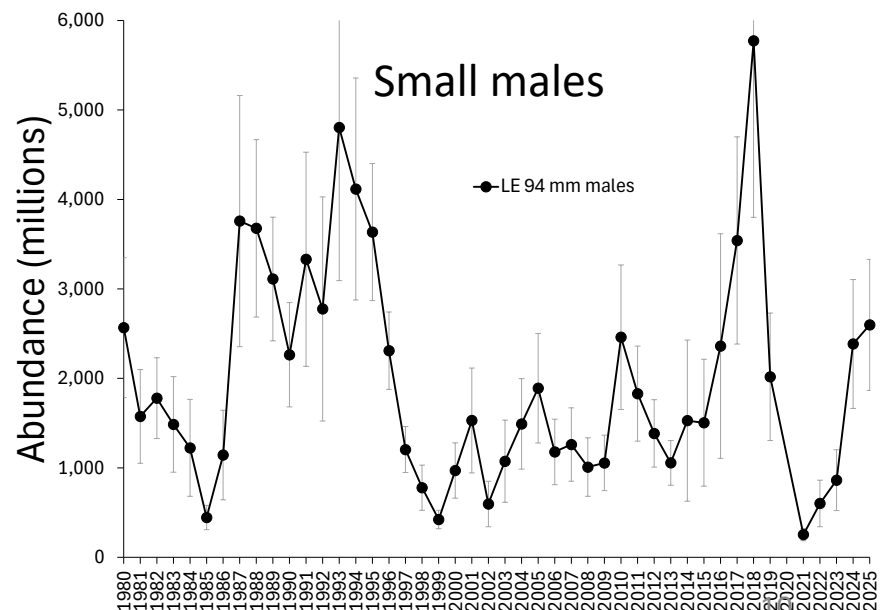
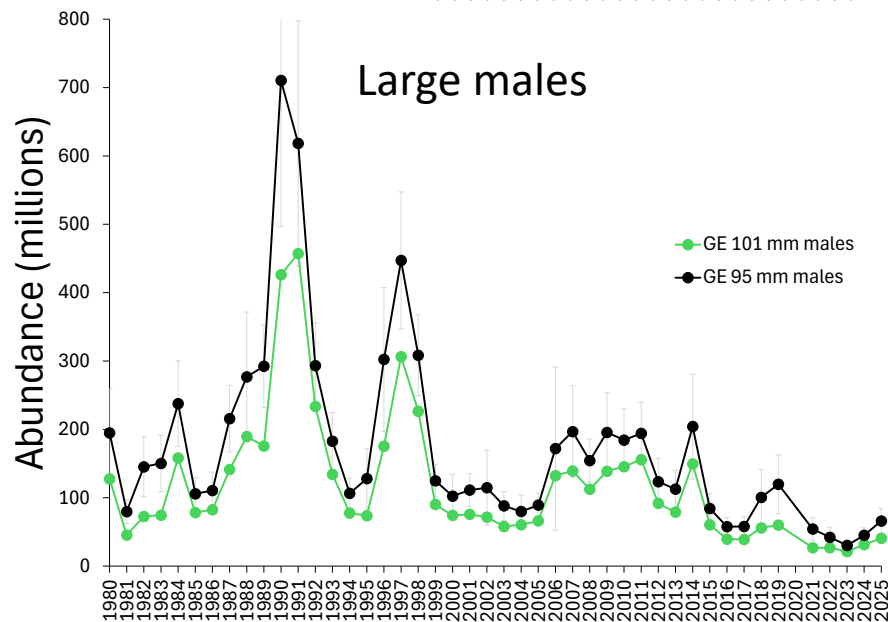
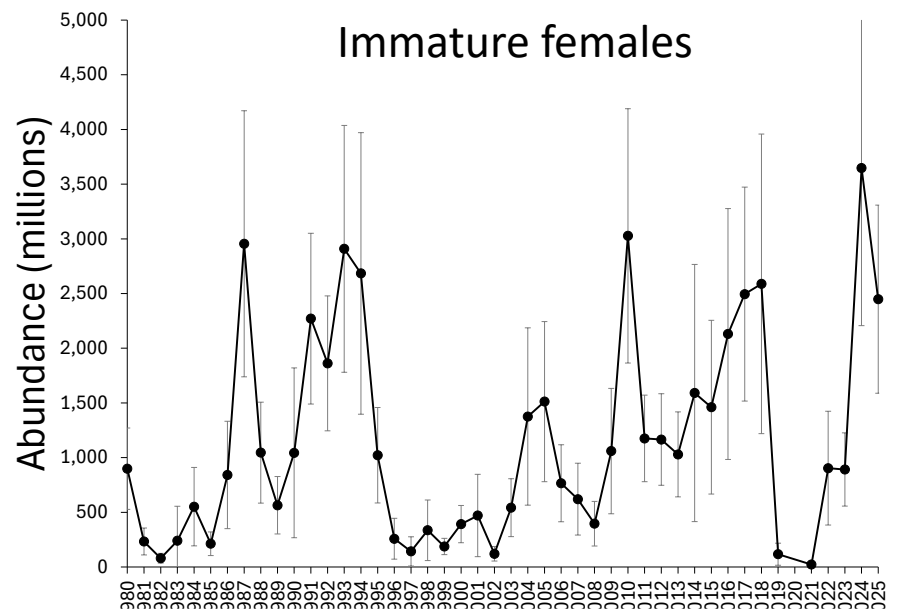
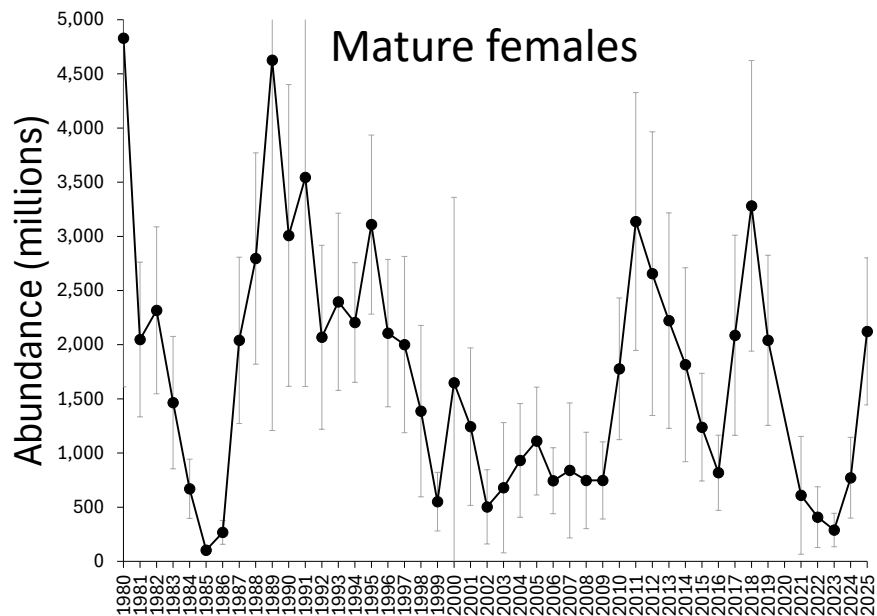
- BBRKC: Slight increases in mature crab abundance, but population is still at low levels = **small fishery**
- Snow crab: Strong increases of mature male and female abundance, modest increase in industry-preferred males, but large males still at low levels, high abundance of hybrids = **small fishery + hybrid add-on**
- Tanner crab: Decreases in east, large abundance increases in west = **largest fishery since 2015**

Bristol Bay red king crab



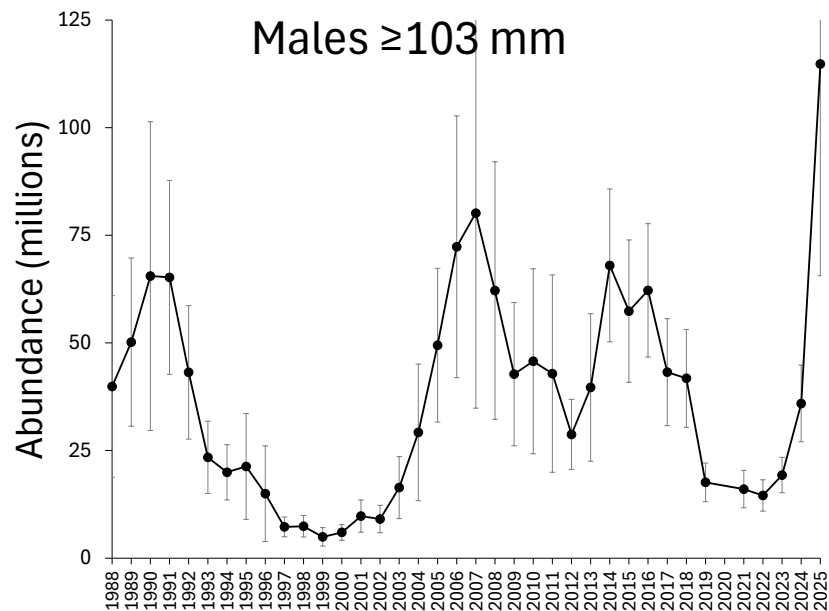
NMFS survey data

Snow crab

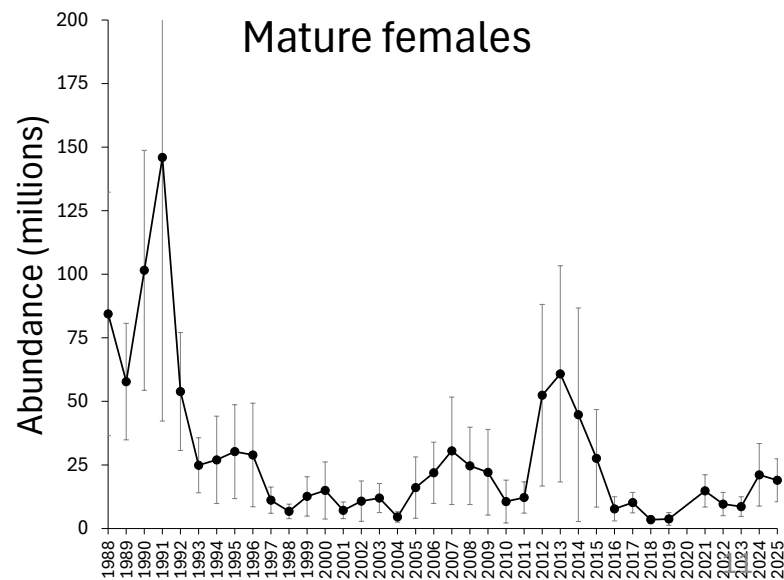
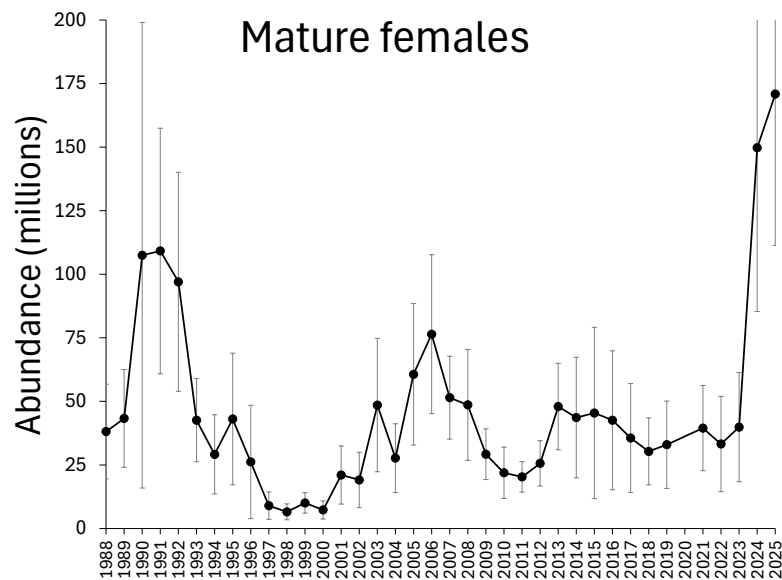
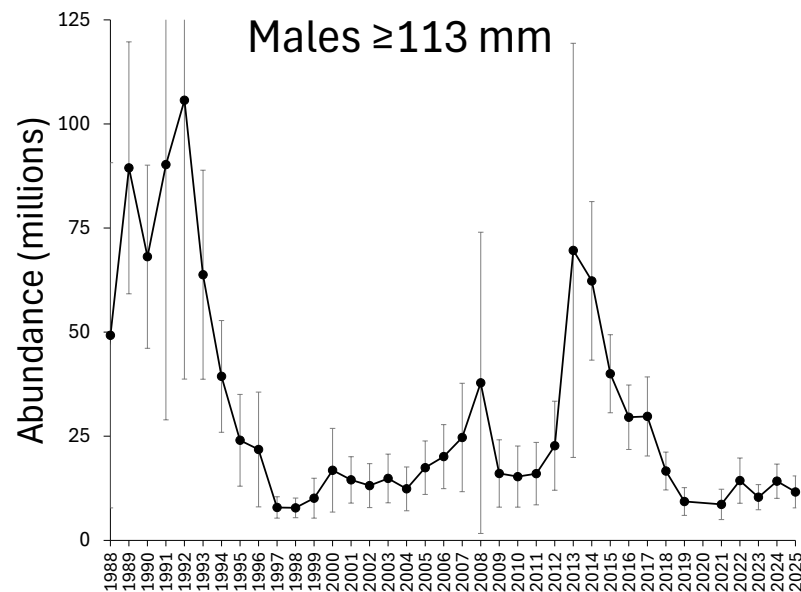


NMFS survey data

Tanner crab WEST



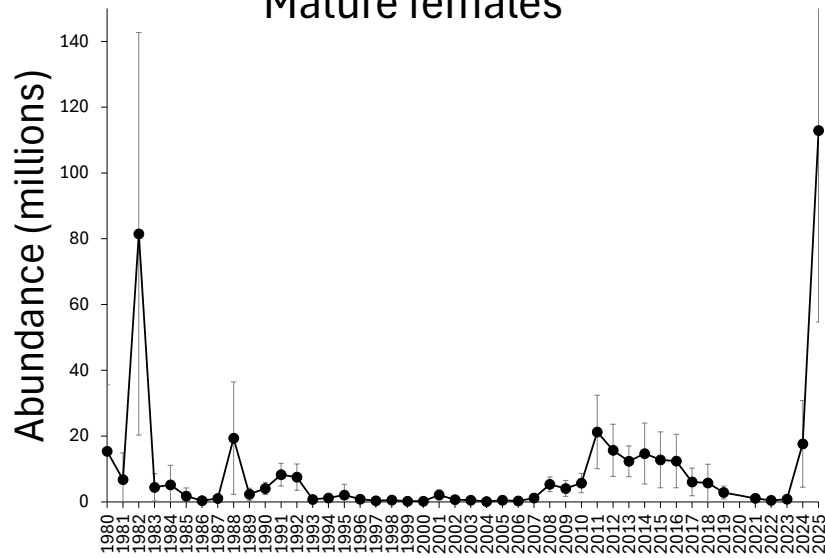
Tanner crab EAST



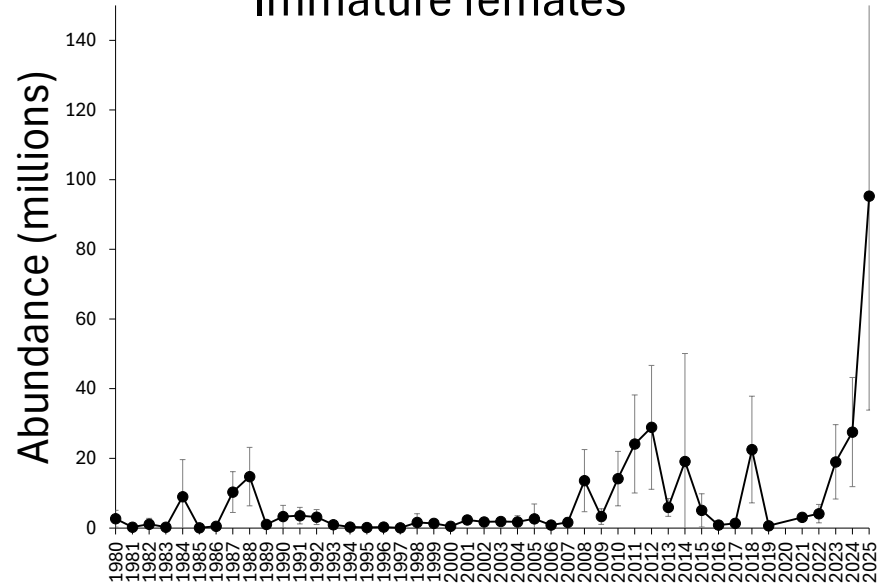
NMFS survey data

Chionoecetes hybrids

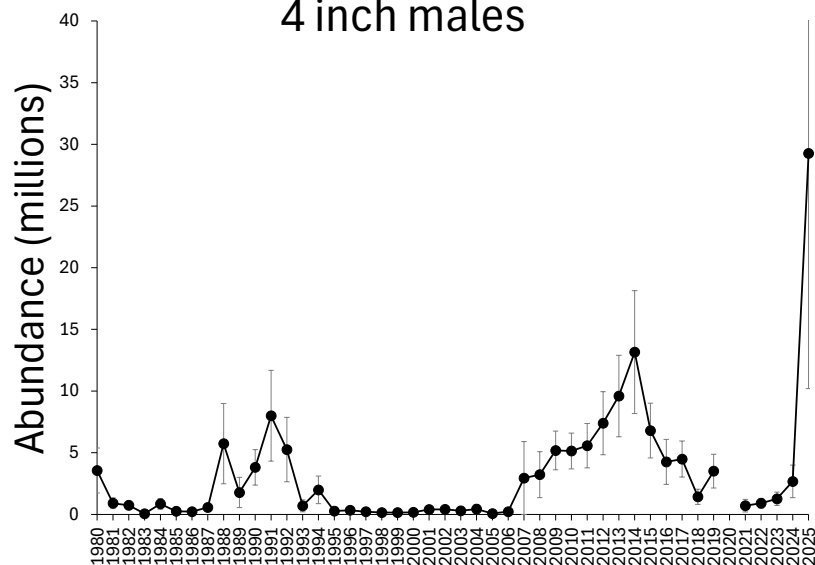
Mature females



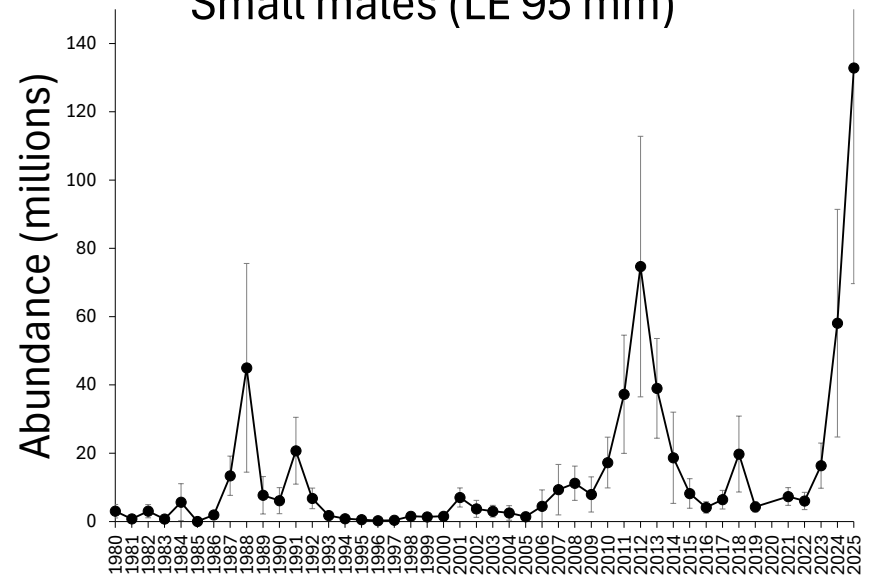
Immature females



4 inch males



Small males (LE 95 mm)



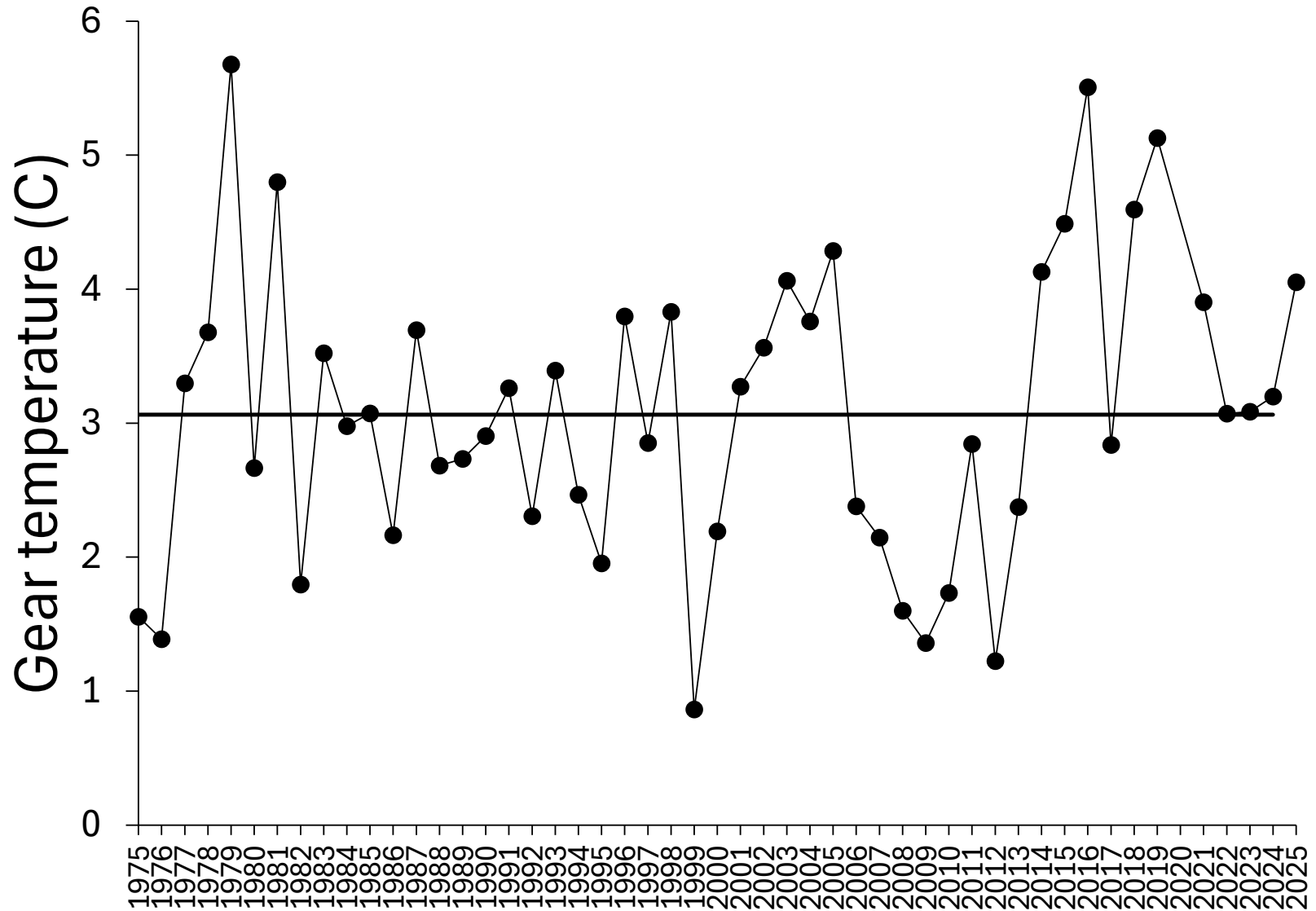
NMFS survey data

Bristol Bay Red King Crab

RKC life history

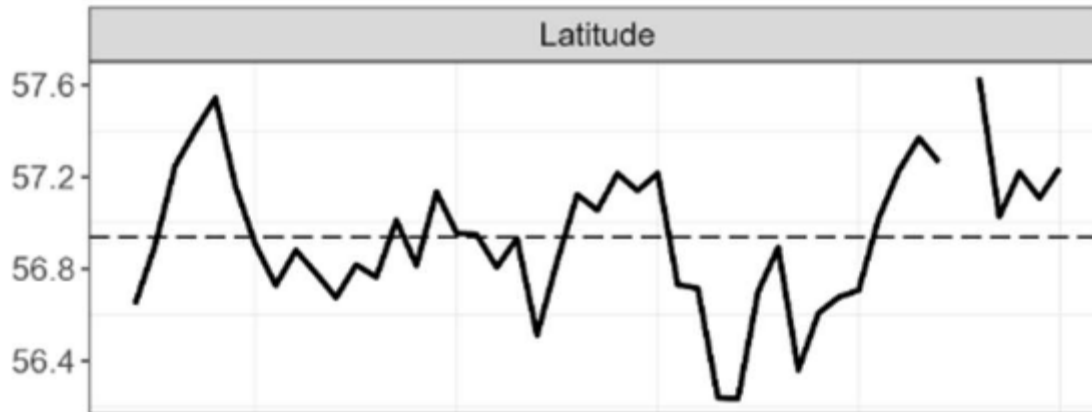
- Several months as pelagic (water column) larvae
 - Larvae: food availability (spring bloom timing), predation, larval advection to good habitat, thermal tolerance, OA, ...
- Juveniles - Require specific nursery habitat (first 2 years)
 - Juveniles: habitat availability, predation, thermal tolerance, disturbance/fishing mortality, OA,
- Mature at ~5-12 years, may live >20 years
 - No terminal molt
- Must mate to produce clutch (no sperm reserves)
- Podding behavior
 - Patchy distribution – bycatch and survey precision considerations

Bristol Bay Trawl Survey Bottom Temp

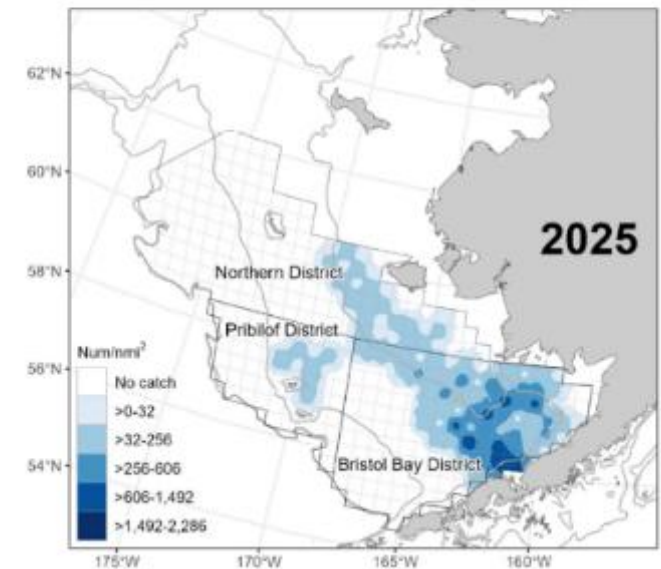
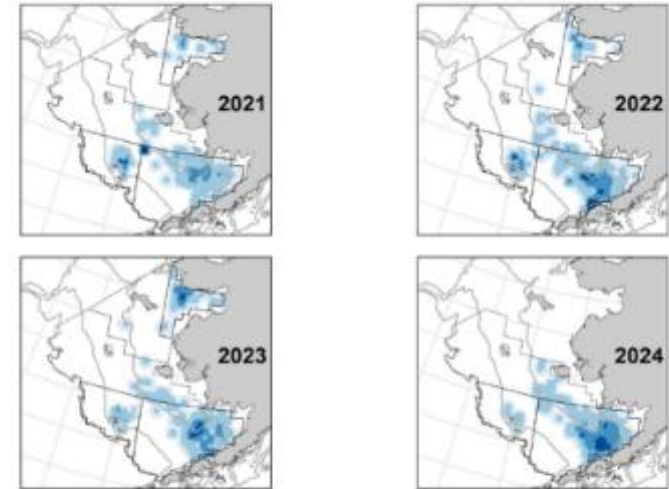


BBRKC Distribution

Weighted center of distribution



Red King Crab Legal Male



2025 NOAA-AFSC EBS Trawl Survey Tech Memo

2025 Assessment: Scenario 24.0c.2

- SSC + Council adopted CPT recommendations
- Stock status:
 - Current: 107% of B_{MSY}
 - Projected: 91% of B_{MSY}
- OFL: 12.90 million pounds
- ABC: 10.32 million pounds
 - Total fishery mortality across all fisheries
 - Based on a 20% buffer on OFL

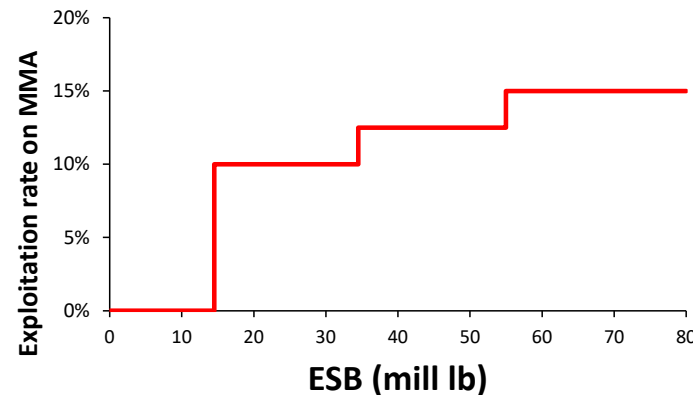
BBRKC State Harvest Strategy

1. Stock thresholds for opening fishery:

- Mature-sized females (≥ 90 mm CL), and
- Effective spawning biomass (ESB)

2. Exploitation rate on mature-sized (≥ 120 -mm CL) male abundance:

- 10%, when ESB < 34.75 -million pounds
- 12.5%, when ESB is between 34.75-mill lb and 55.0-million pounds
- 15%, when ESB ≥ 55.0 -million pounds



3. Harvest capped at 50% of legal male abundance

Thresholds for Opening the Fishery

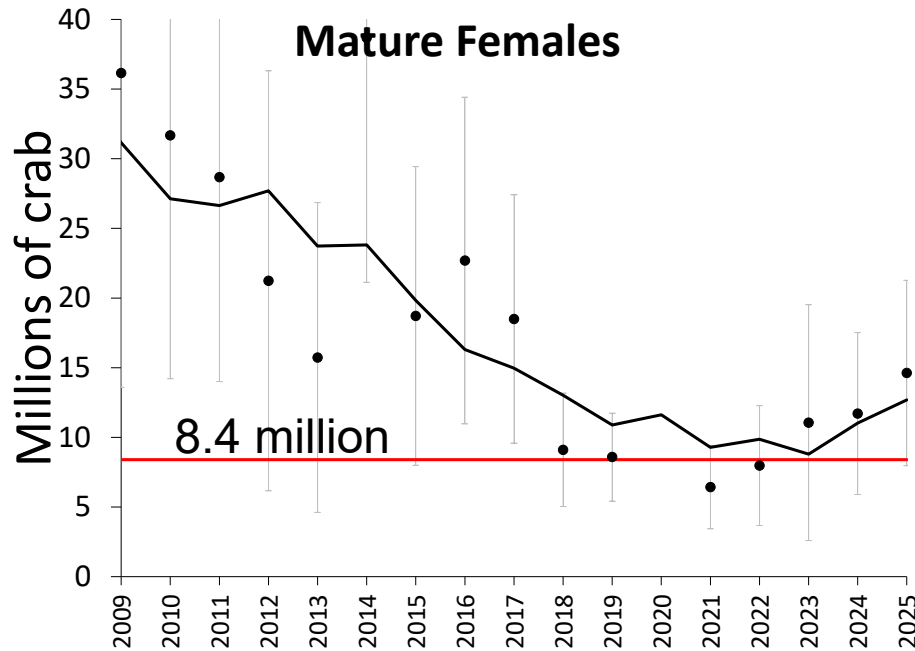
8.4-million mature females

+

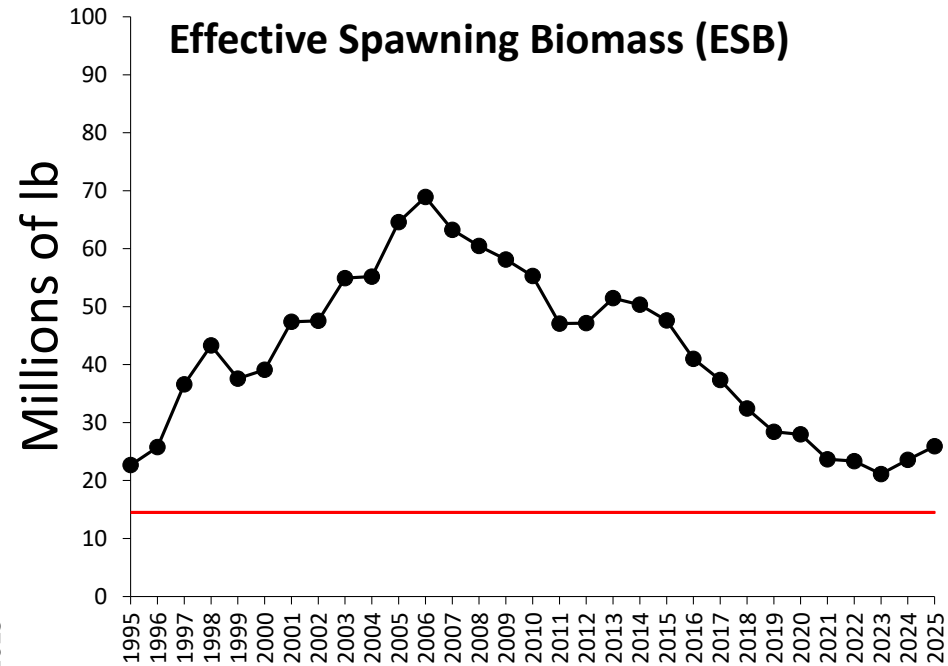
14.5 million pounds
effective spawning biomass, ESB

Both threshold values are specified in state regulation

Harvest Strategy Closure Thresholds



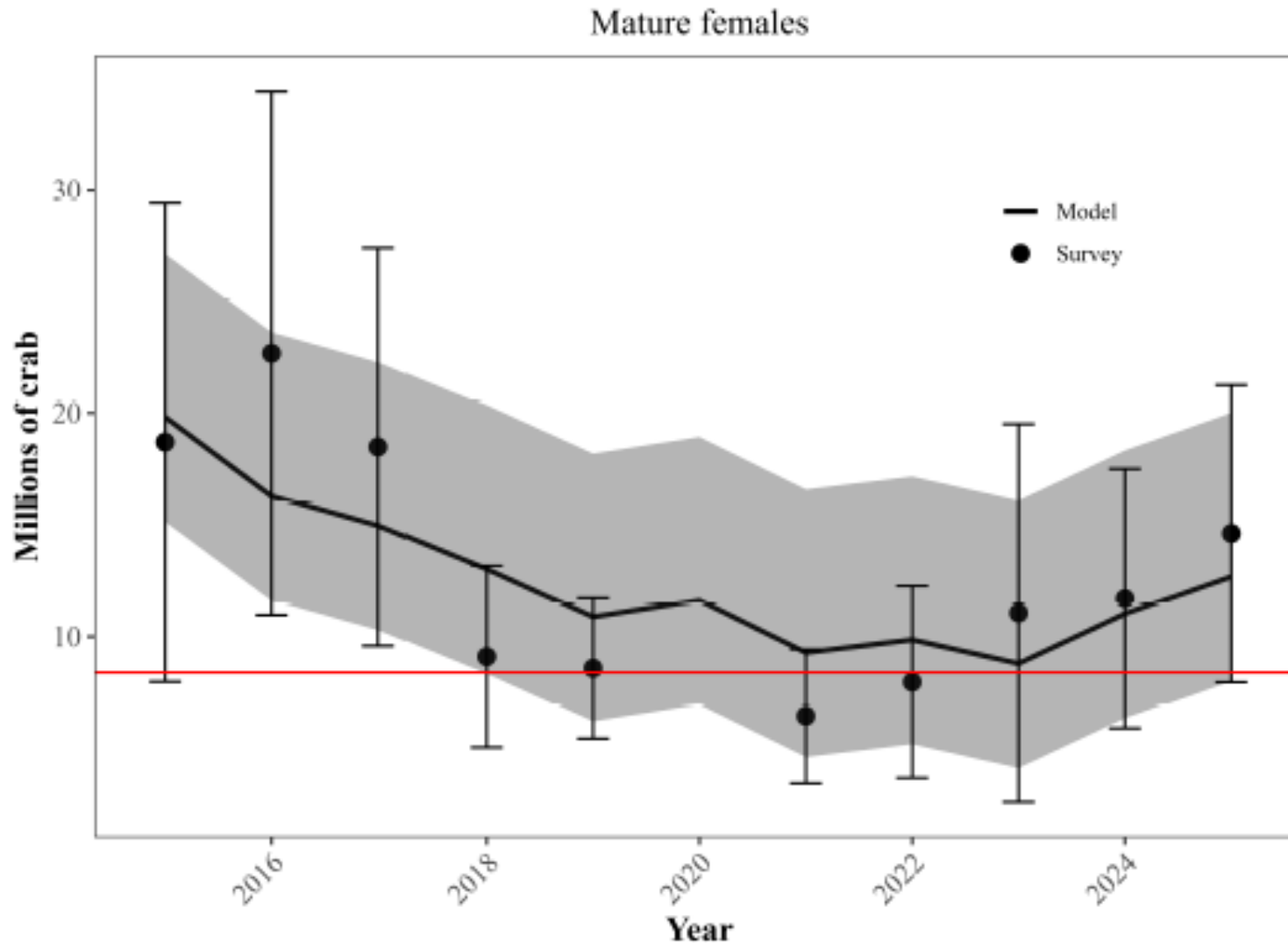
2025 area-swept: 14.6 million
2025 model: 12.7 million



2025 model: 25.9 million lb

2025 estimates above BOTH thresholds

Survey area-swept + model estimates



BBRKC State Harvest Strategy

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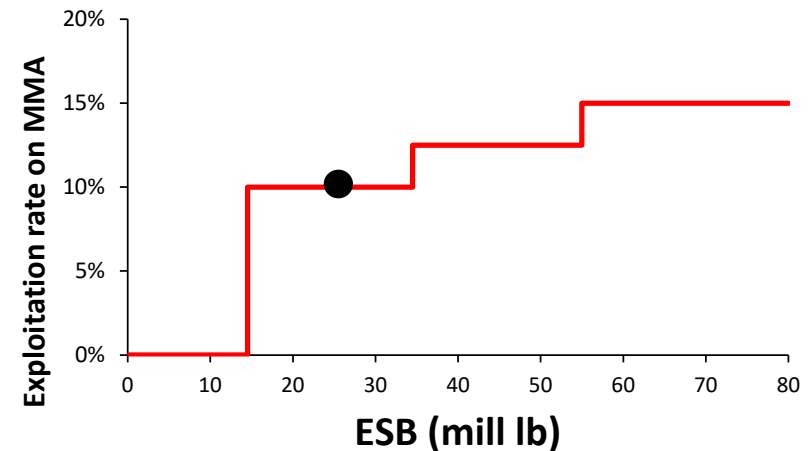
2025 ESB = 25.9 mill lb



Computation

- 2025 MMA = 7.891 mill
- 0.1×7.891 mill = 0.7891 mill crabs
- 0.7891×6.80 lb (ave wt) =

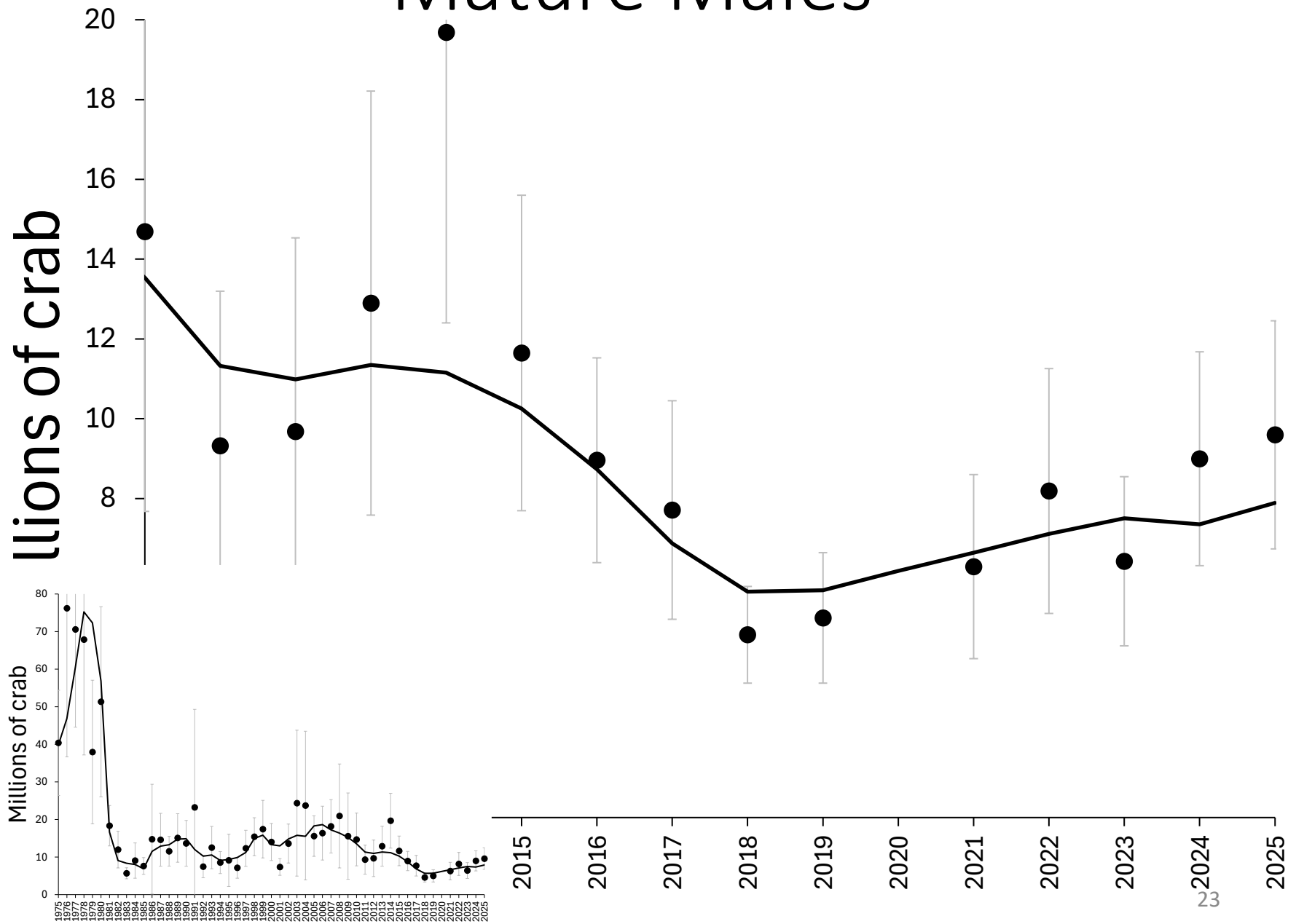
5.37 mill lb TAC



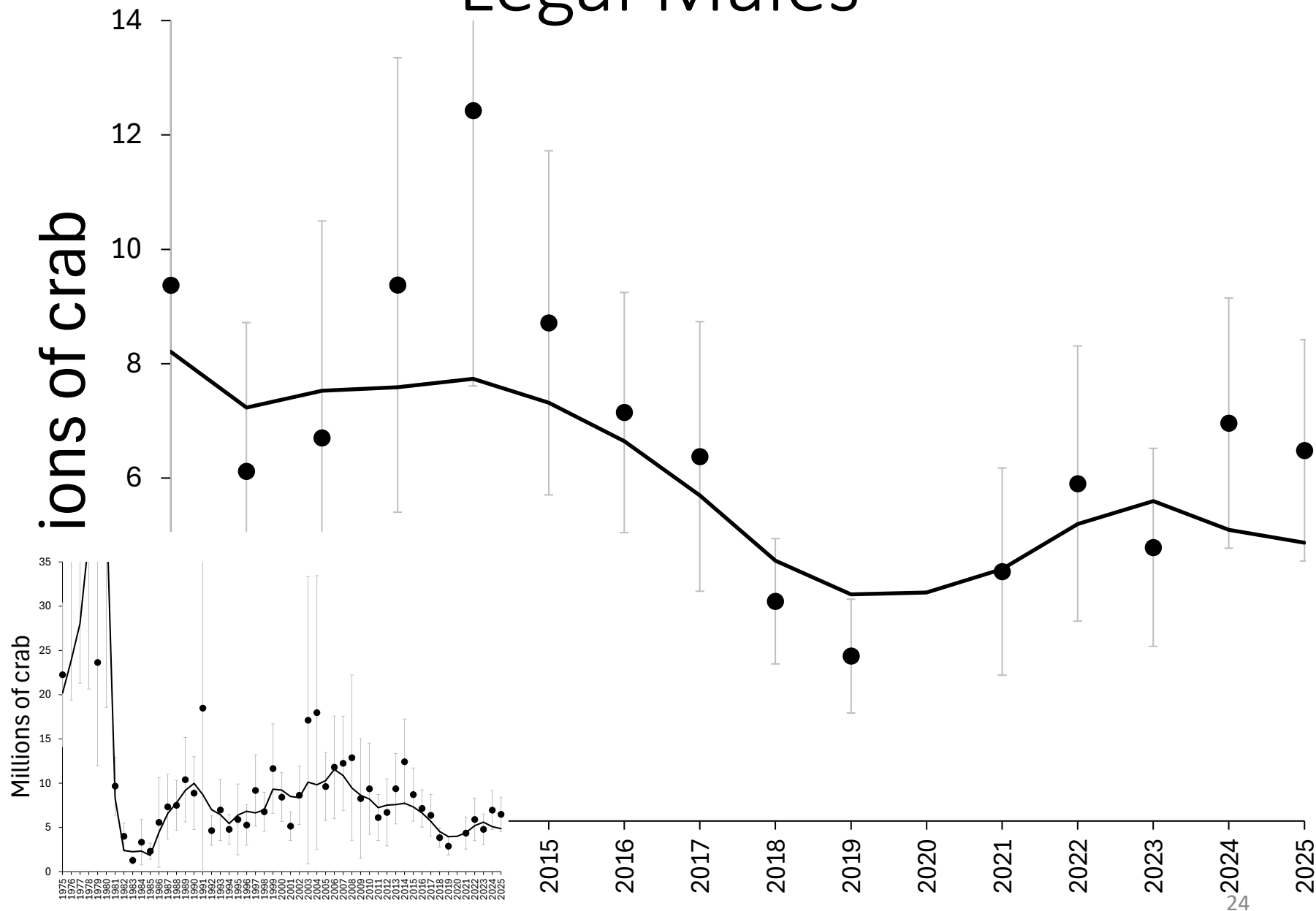
3. Harvest capped at 50% of legal male abundance

4.87 mill $\times 0.5 = 2.43$ mill crabs..... > 0.7891 mill crabs

Mature Males

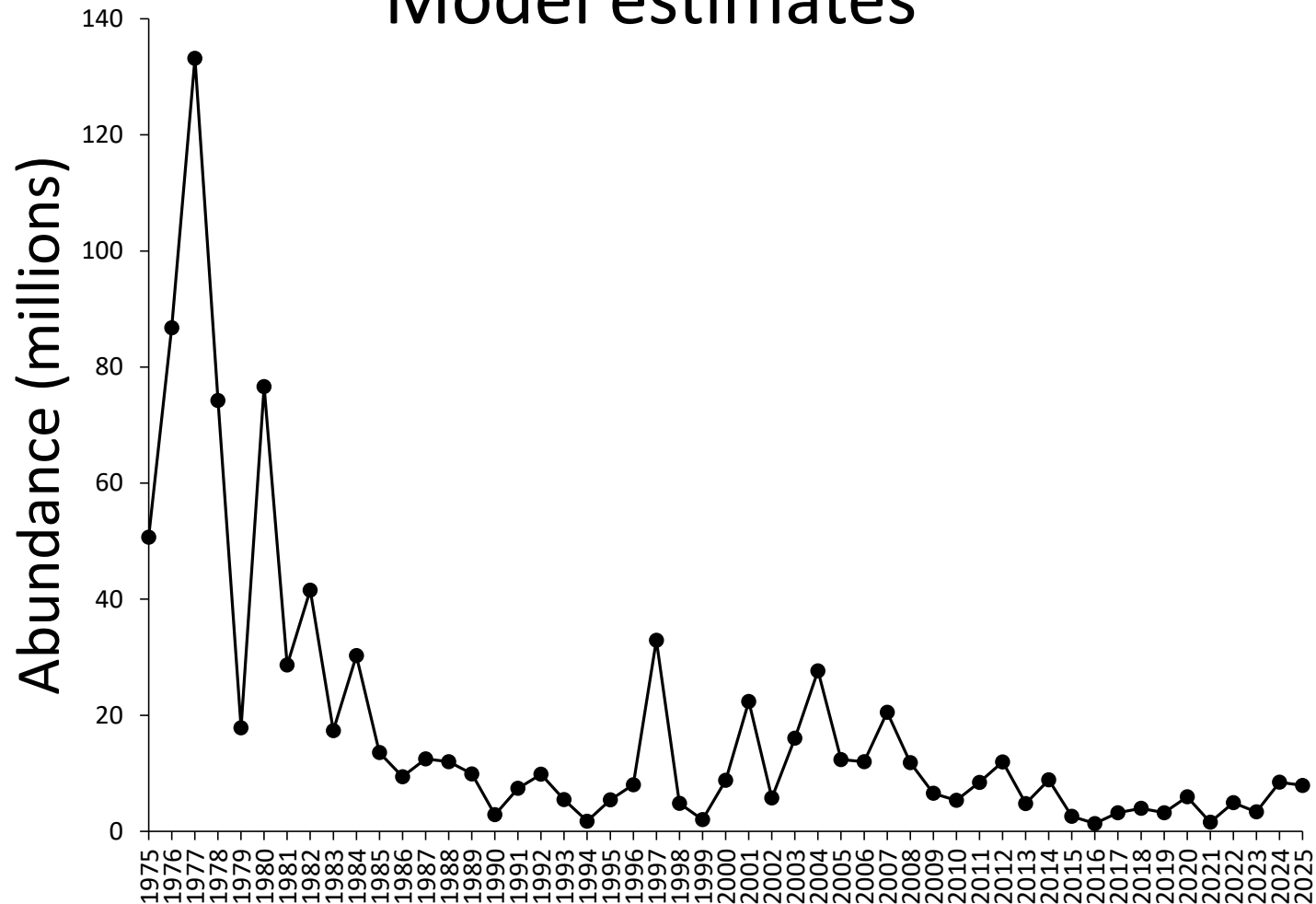


Legal Males

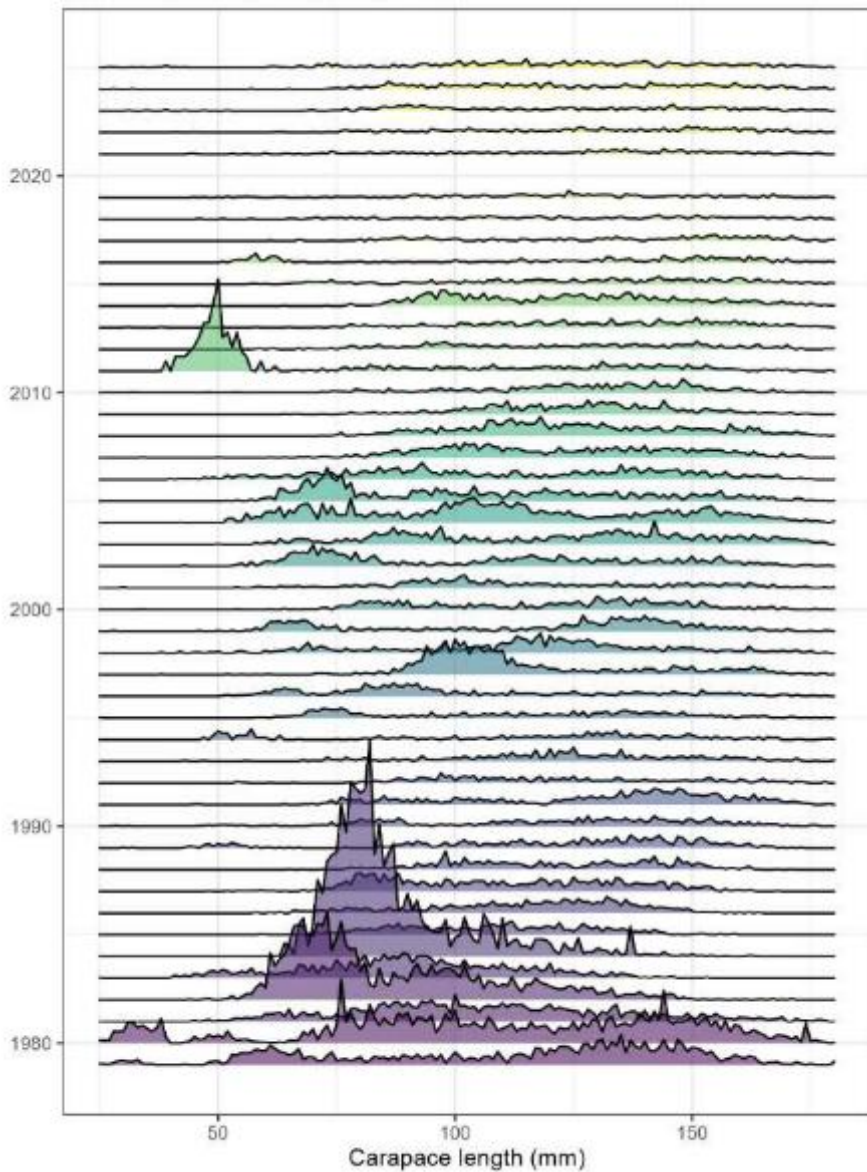


Low Recruitment

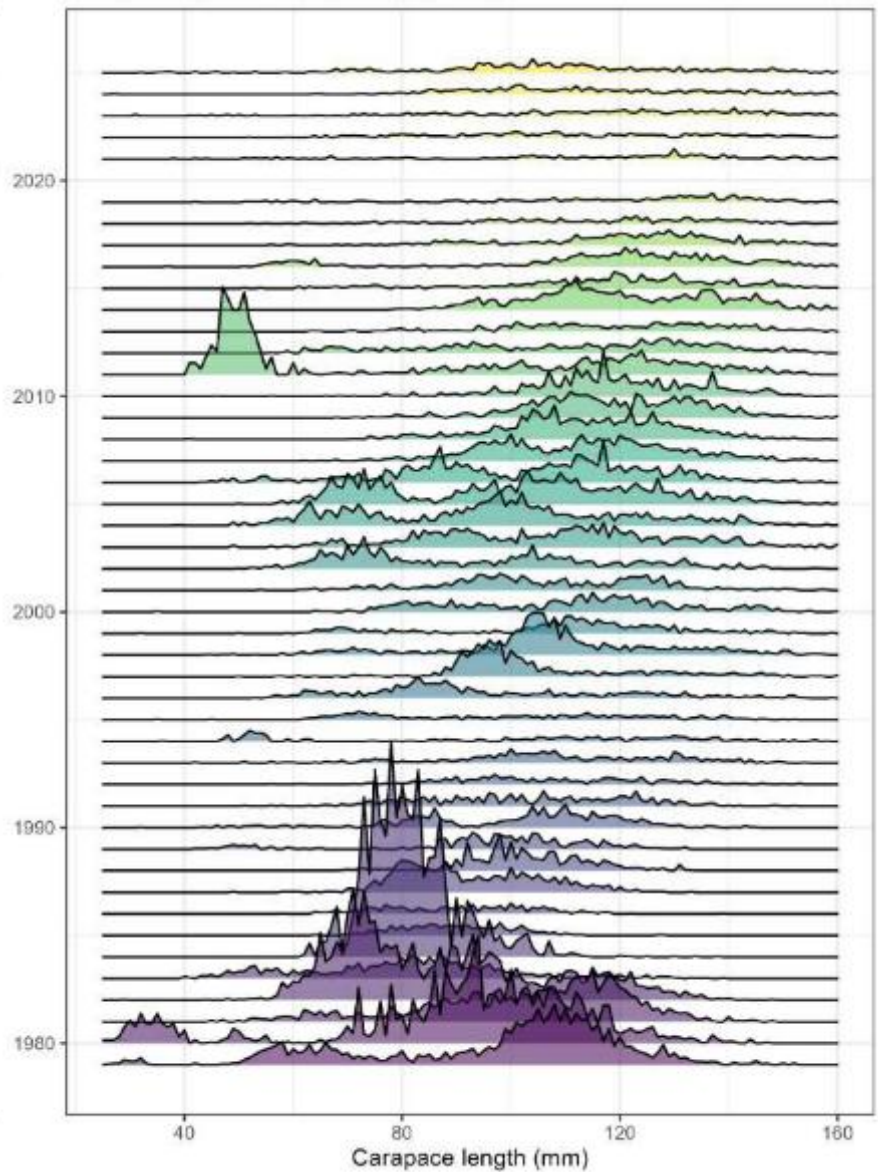
Model estimates



Males



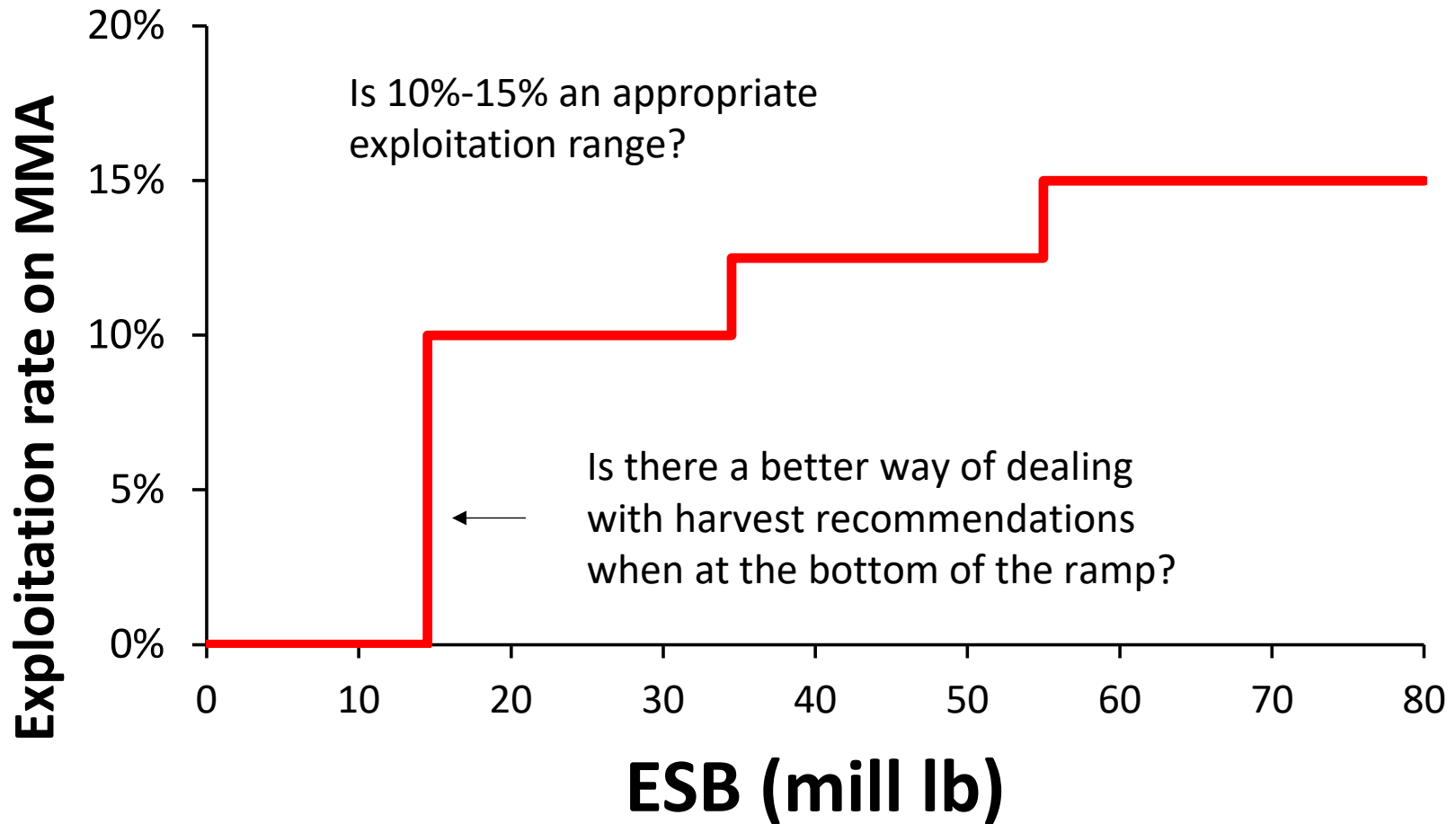
Females



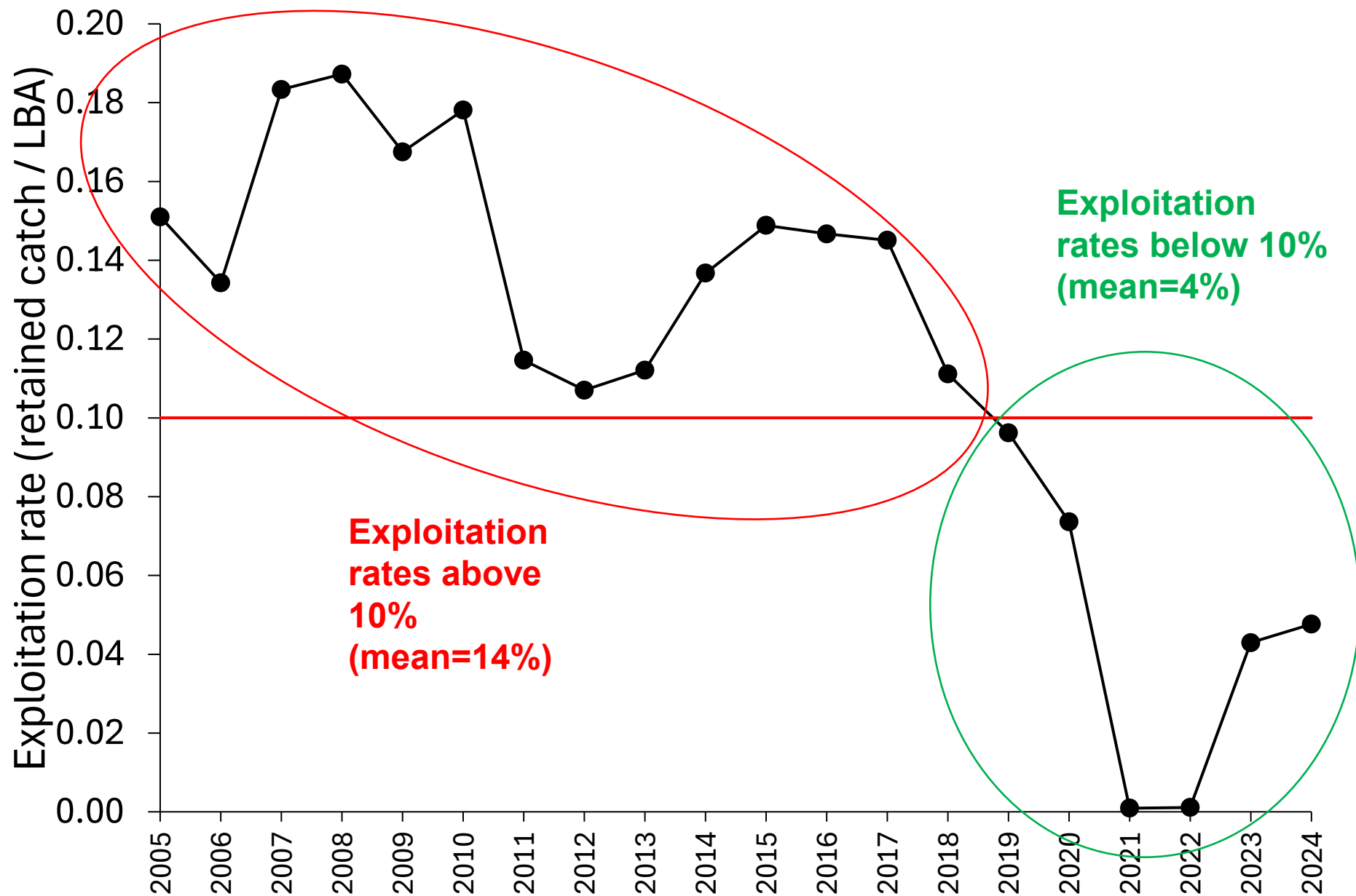
BBRKC Stock Condition

- Big picture, stock still at low density, but showing population growth
 - Some increase in 2025 survey, but data is “noisy”
 - Population ~stable
 - Steady as she goes
- Very low recruitment
- Uncertain future environmental conditions
- Appropriate harvest strategy advice?

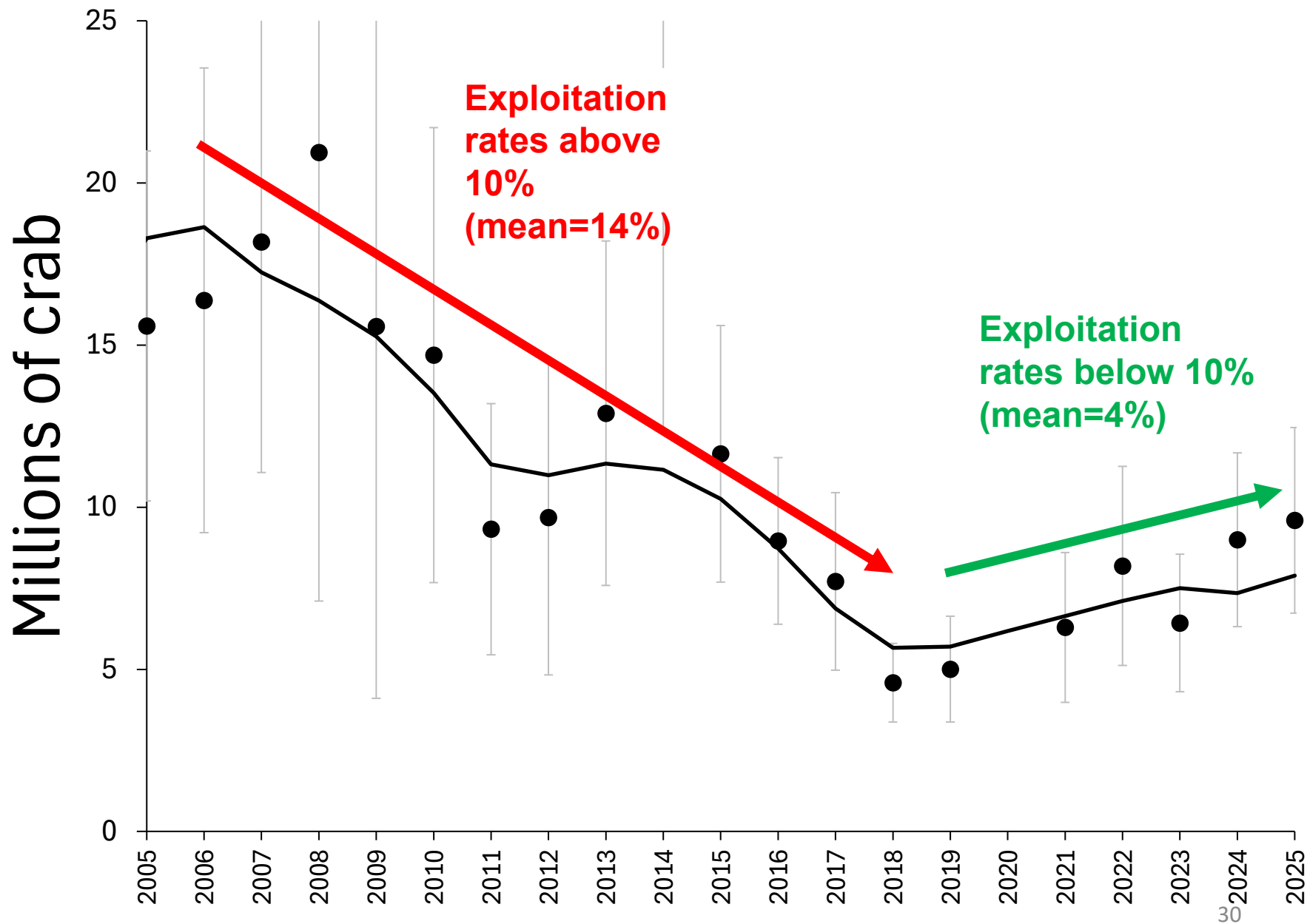
Appropriate harvest strategy advice?



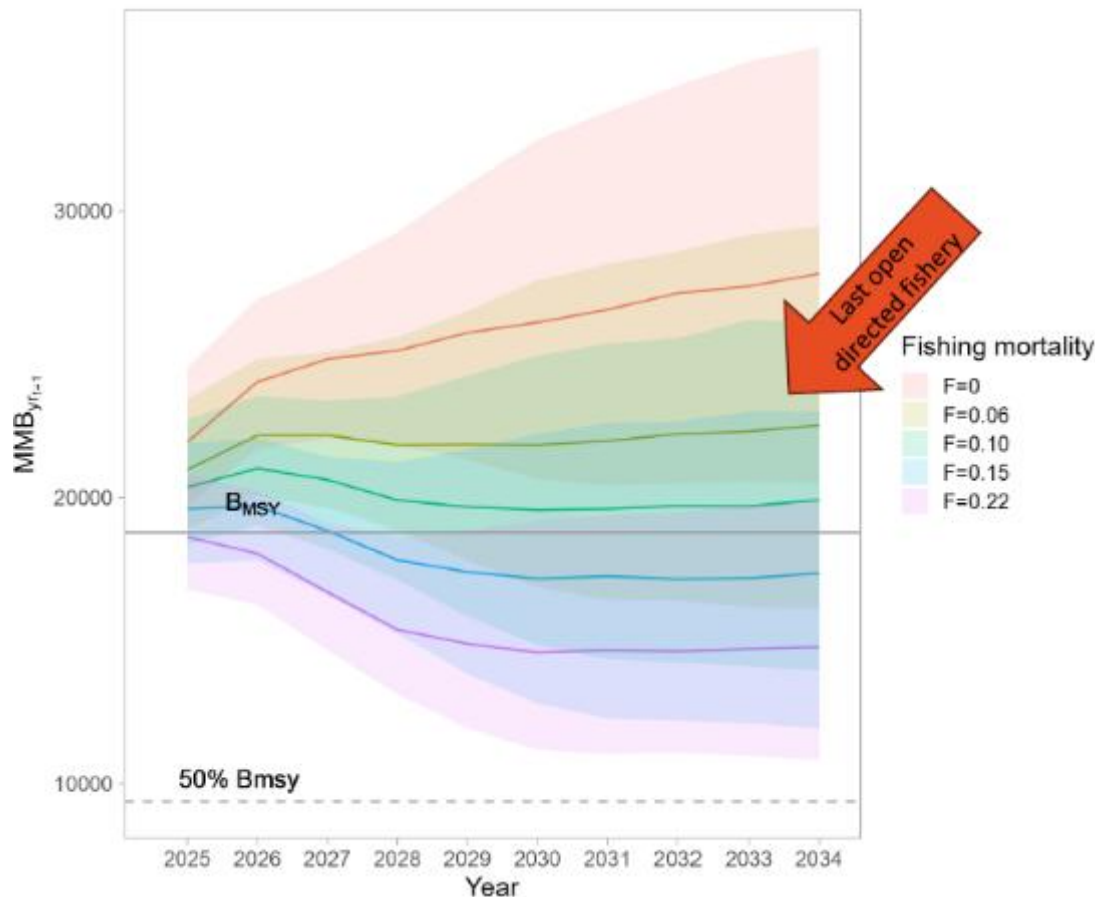
Mature males



Mature males



Model projections under varying rates of fishery mortality

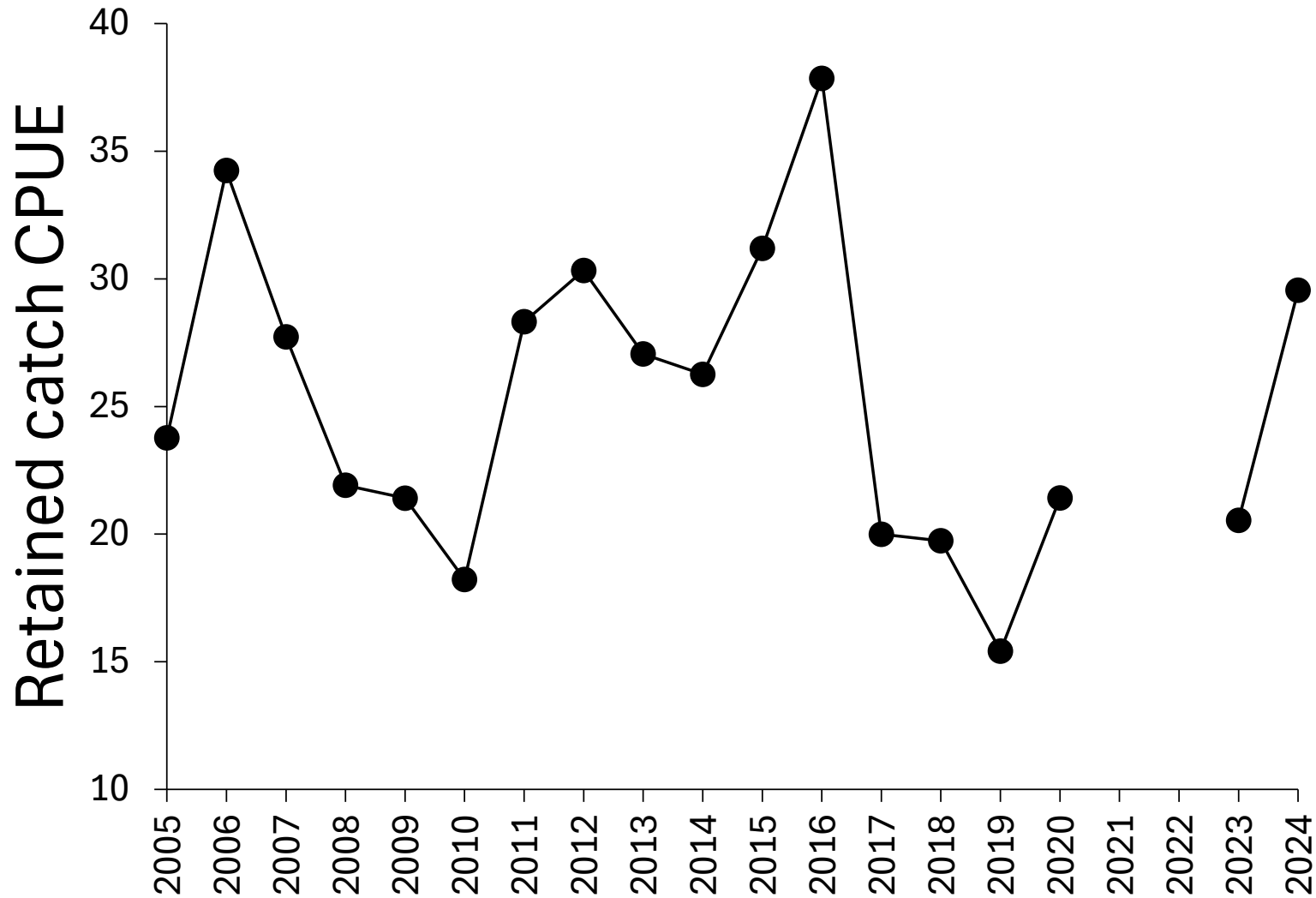


- **2023 and 2024** decisions used stock projections under varying levels of fishery mortality to inform exploitation rates
- **5% exploitation rate** on mature males corresponds to some level of population stability

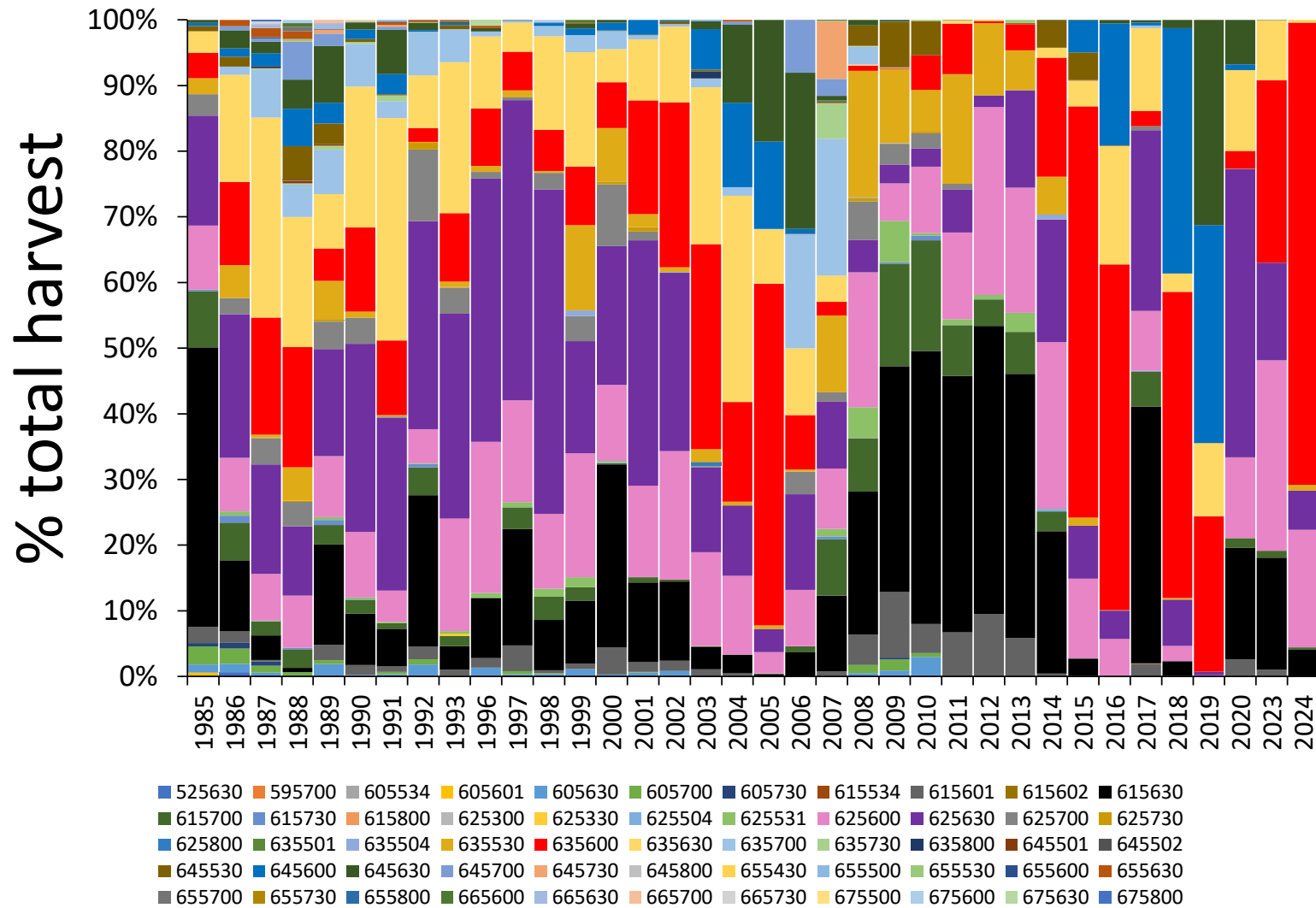
Precaution is appropriate

- We are not out of the woods
- Seeing some stability and/or population growth associated with reduced exploitation starting in ~2019
 - Steady as she goes
- Same approach as last 2 years (5% exploitation rate)
 - BBRKC harvest strategy 10% exploitation floor might be too high, given current stock levels and low recruitment
 - Low density increases depensation risk
 - Low recruitment limits population growth even with low fishing mortality
 - **$0.05 \times 7.891 \text{ mill} \times 6.80 \text{ lb} = 2.68 \text{ mill lb}$**

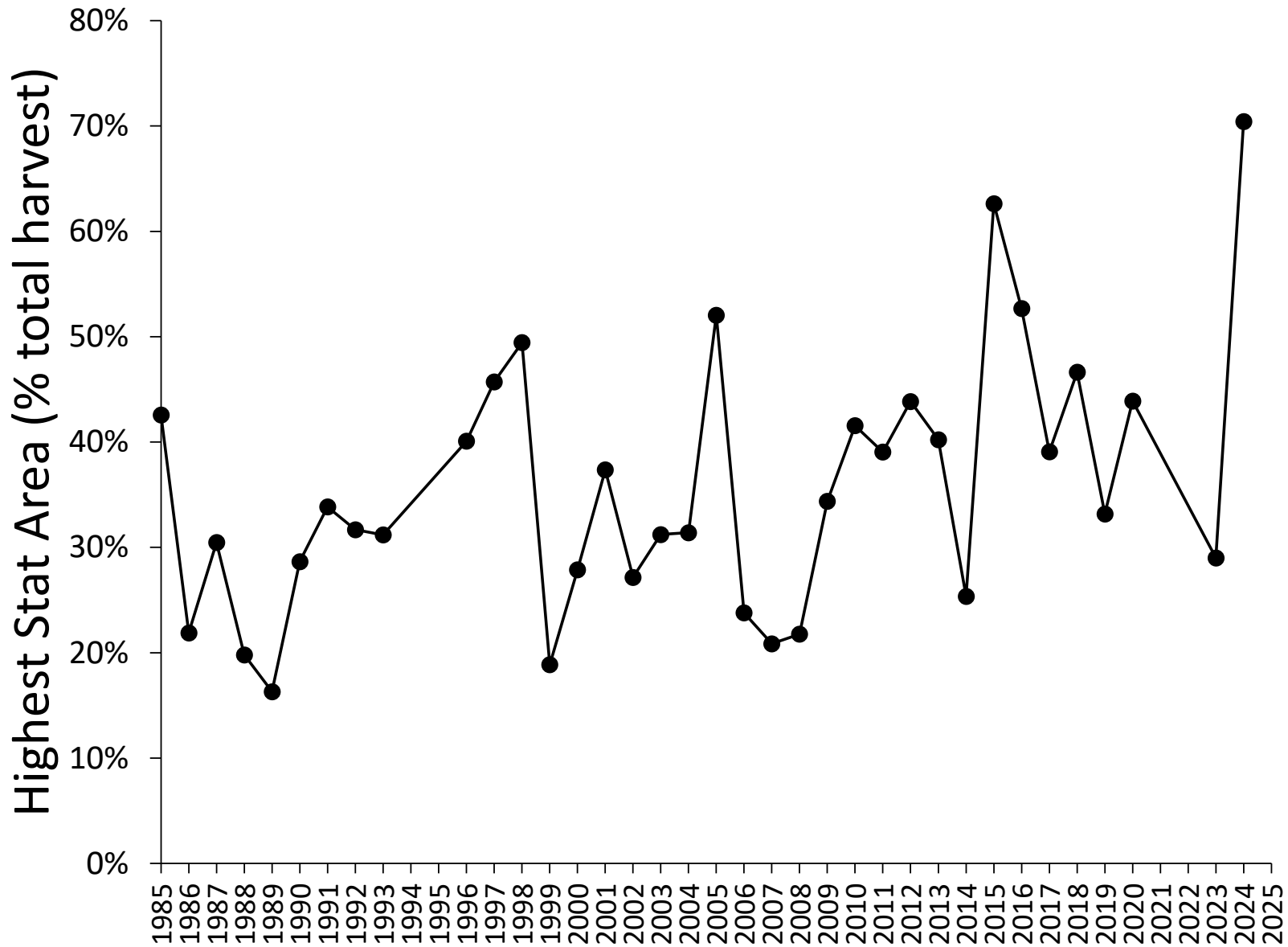
Fishing performance



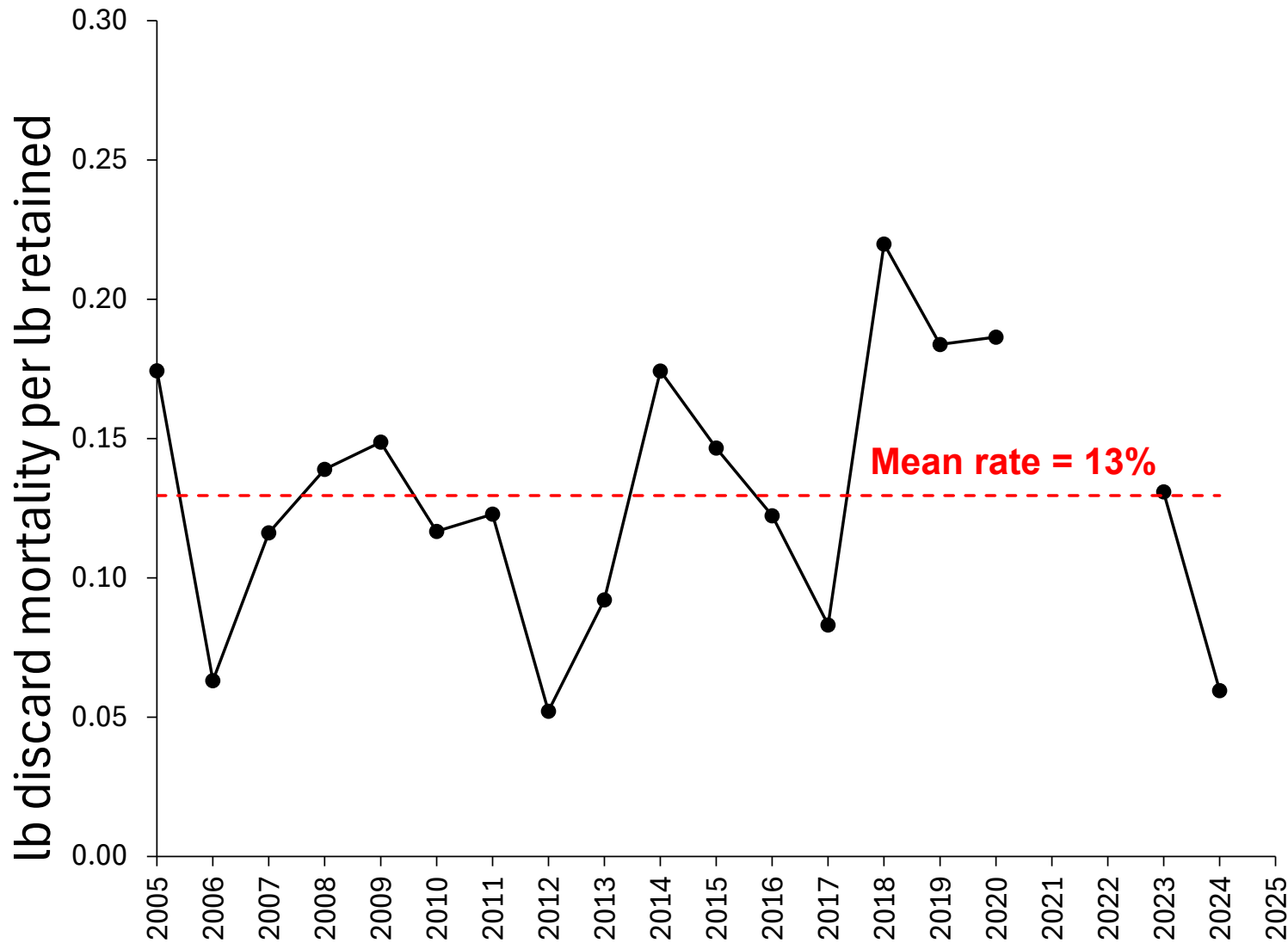
Harvest by stat area



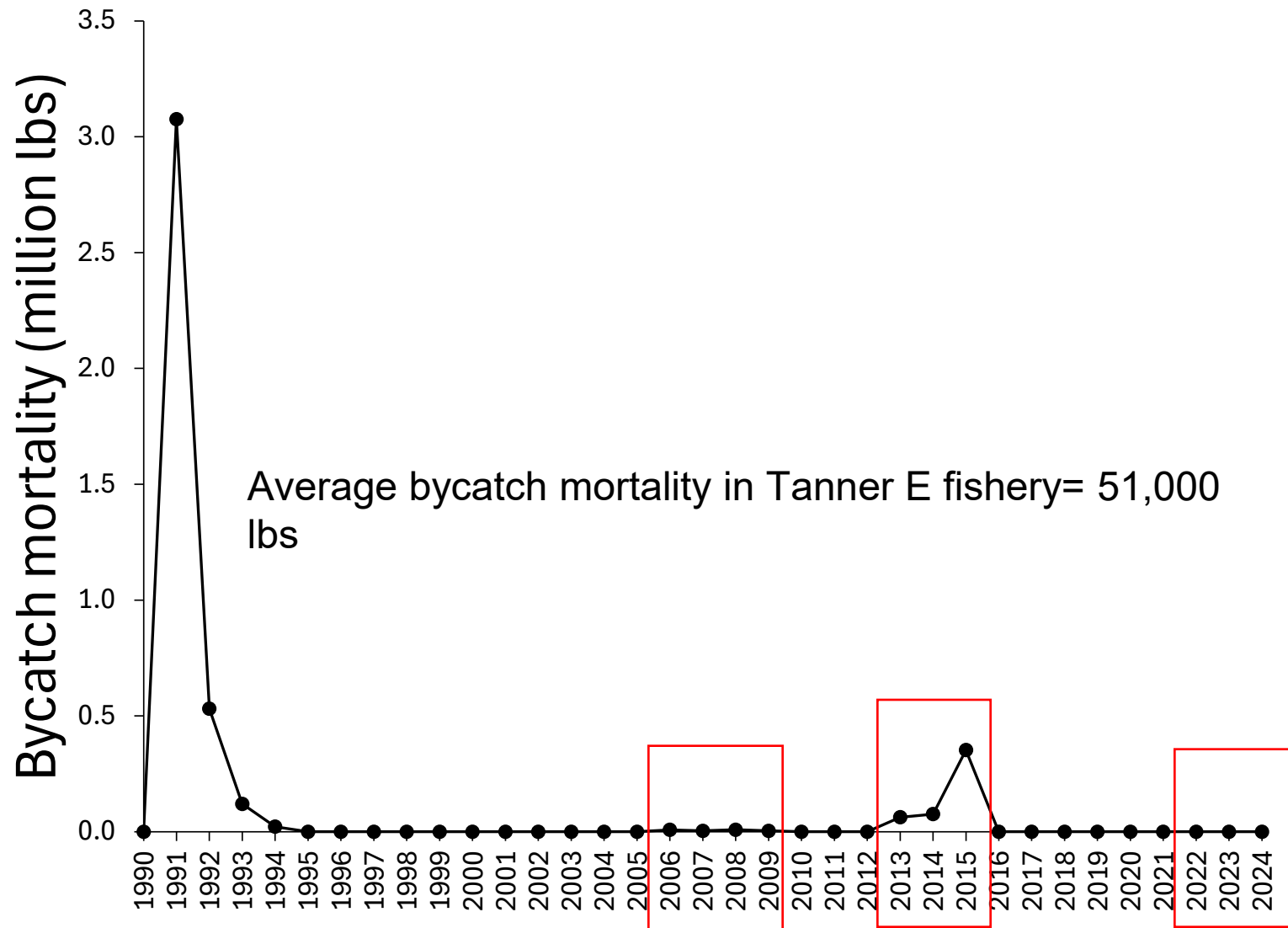
Top-catching stat area



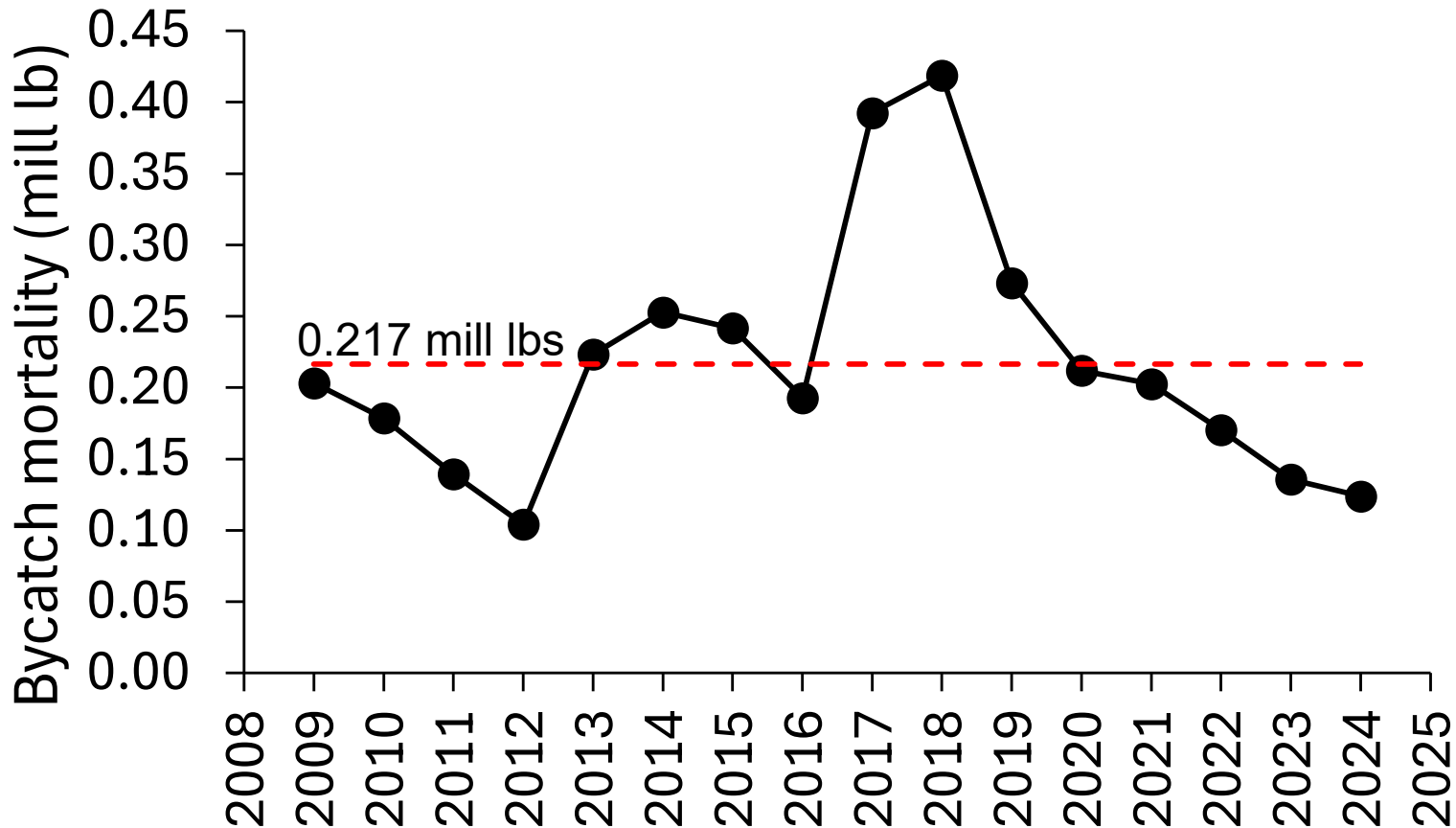
Discard mortality in directed fishery



Bycatch in Tanner fishery



BBRKC bycatch mortality in groundfish fisheries



In Summary

- Recent environmental conditions do not appear to be favorable for BBRKC
- Some stability with reduced exploitation
- Opening the fishery has risk
 - Low recruitment limits population growth
 - Depensation concerns?
- Need to reconsider exploitation rates for contemporary population conditions
 - Sub-10% exploitation likely needed at low stock status

Looking ahead...

Rethink harvest strategy

- Is doing 'more of the same' meaningful?
- Revise exploitation rate and closure threshold?
- Stock health metrics beyond mature animals?
- Thresholds close and open fisheries
- Absent closure stanzas, add more/different metrics to reopen to ensure rebuilding is occurring

2.68 million pounds best attempt to balance fishing opportunity without further risk to stock

Snow crab

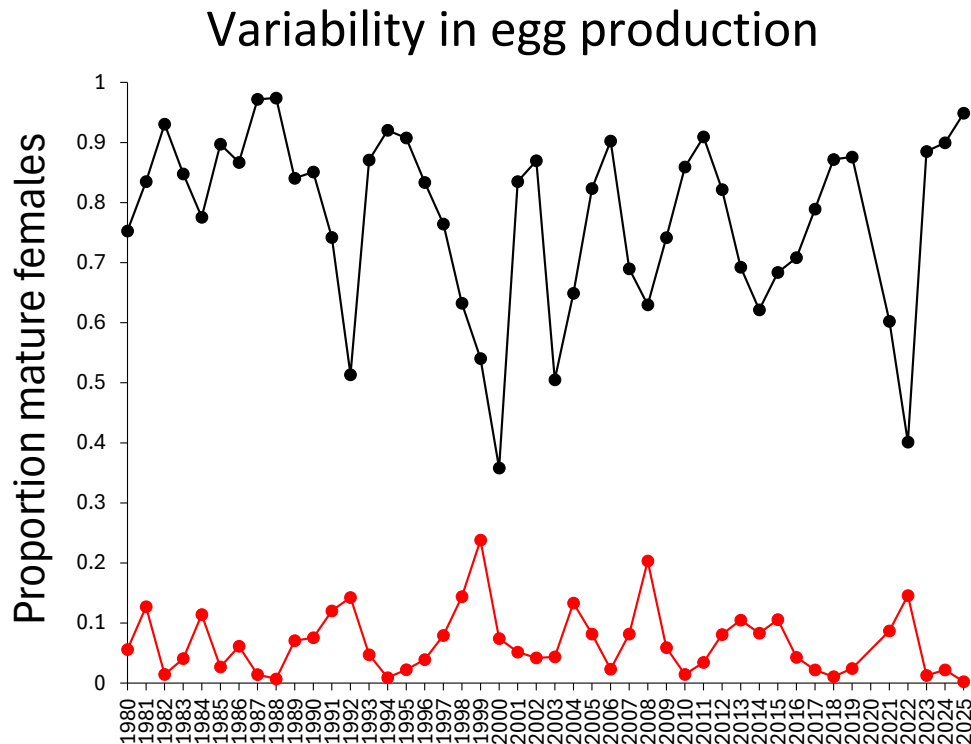
2025 big-picture

- 2025 EBS trawl survey showed further increases in most components of the population.....great, optimism!!!
 - Big increases in morphological males and females
 - BUT.....large males still at low levels
- Assessment model jittering analysis indicated convergence problem
 - SSC /Council recommended Tier 4 approach for harvest recommendations using smoothed survey estimates, and morphological male maturity definition
 - Tool for this year until Tier 3 model convergence are improved
- How best to define male maturity as currency of management is an ongoing challenge

The “currency of management”

Must protect the reproductive viability of the population

- Mature females: egg production
- Mature males: sperm production



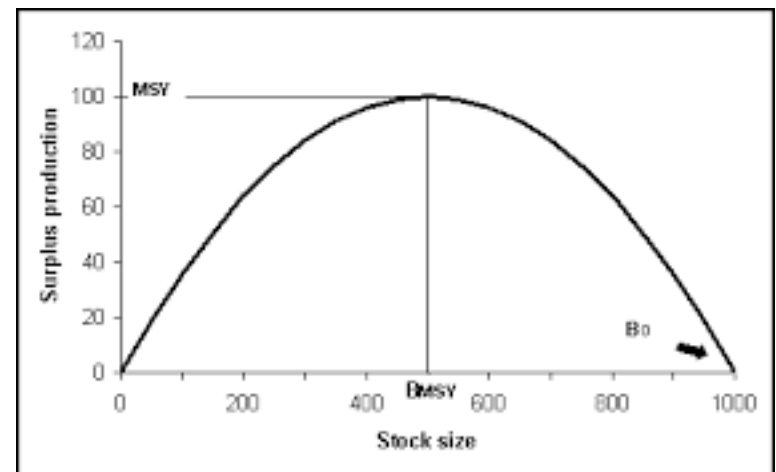
- Mature male abundance used as indicator/proxy for egg production since egg viability limited by male availability
- Harvest control rules “tuned” to mature males

Harvest (exploitation) rate

- Determined via harvest control (decision) rules
- Set of agreed upon calculations/equations to determine fishery removals
 - Total allowable catch (TAC)
- Fishery removals scaled to stock status
 - More aggressive exploitation at high stock status

- “Tuned” to MSY

Stock biomass needed to support maximum sustained yield



Male maturity

Snow and Tanner crab have a “terminal molt”

- Stop growing
- Morphological change: claws get proportionally bigger, used in competition for mates, food, etc
- Terminal molt occurs across a range of sizes

3 definitions of male maturity

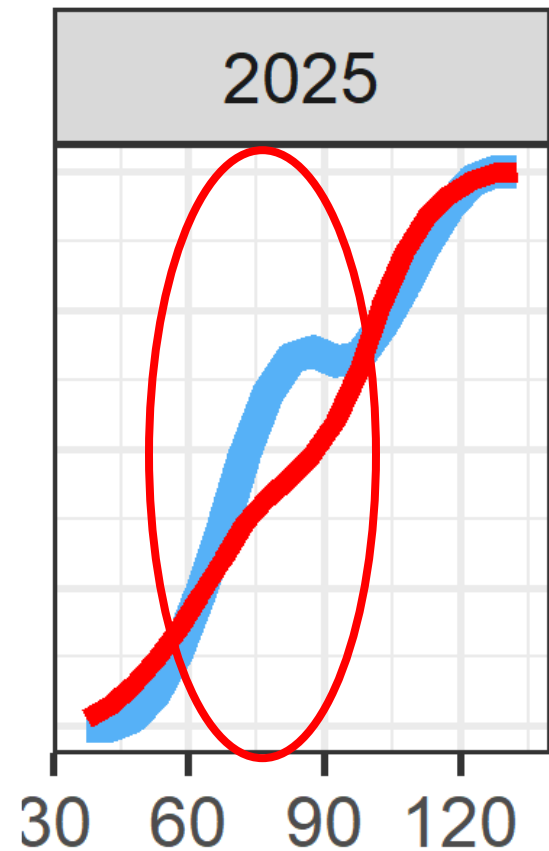
- ***Physiological maturity*** (adolescent): small claw but can produce sperm
- ***Morphological maturity***: large claw (terminally molted)
- ***Functional maturity***: individuals participating in population mating dynamics: likely large-claw, vigorous, competitively dominant (i.e., the “studs”)

The challenge with male maturity

- Terminal molt occurs across a range of sizes

So what's the problem?

- Assumes small mature males are equivalent to large mature males in reproduction
- Uncertainty if appropriate to do so because its unknown if those individuals are participating in mating (i.e. “functional maturity”)
- Results in aggressive harvest rates on large males
- Should our management be “tuned” to the portion of the population actually participating in mating?



C. Szuwalski presentation to CPT, Sept 2025

Male maturity

Past approach used morphometric (chela morphology) maturity as currency of management, but there is a recommendation to move toward functional maturity

- Likely better reflects the biology
- Uncertainty about how best to define

≥ 95 mm CW is likely a step closer to functional maturity

- Mostly based on Canadian literature:
 - Small (< 95 mm) are outcompeted for mating by large males
 - Only large males (≥ 95 mm) were observed participating in mating
- Little data to inform for EBS
- Implications for management outcomes (see next slide)

Other considerations

- Size at terminal molt is dependent on the density of large males
- Fishery interacts with larger males
- Long-term decline in EBS large male abundance

Consequences of maturity definition to management quantities in Tier 3 assessment

	Model 25.3	Model 25.3
	Morphometric	≥95 mm
MMB	349.33	65.98
B_{MSY}	396.96	206.18
stock status	0.88	0.32
OFL	97.64	7.19

Units for MMB, B_{MSY} , and OFL in million lb

2025 big-picture: management quantities

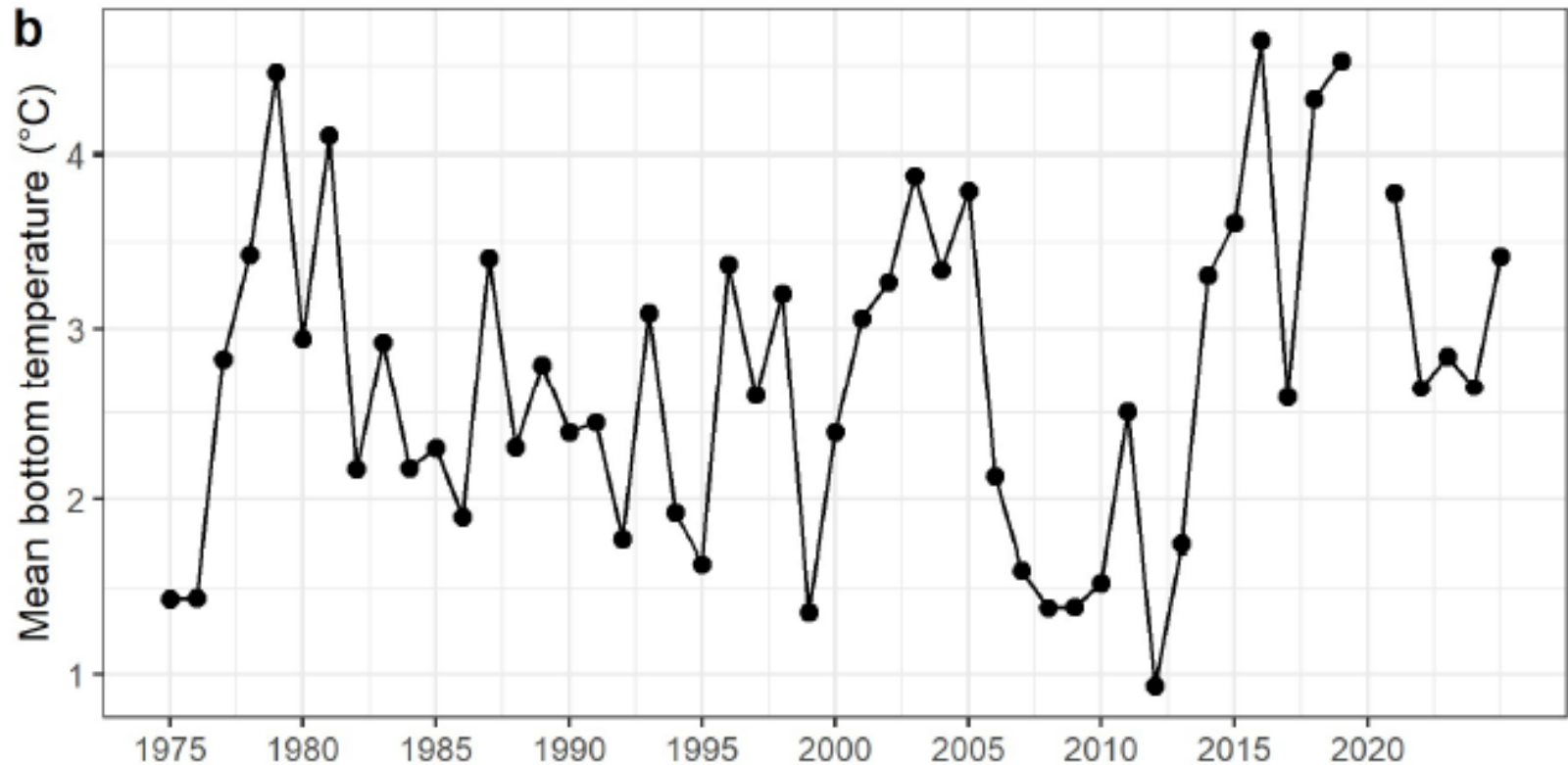
Tier 3 (Author and CPT recommended)

- Management quantities using **functional maturity (≥ 95 mm)** likely better reflect the biology of the population but results in very conservative management advice

Tier 4 (SSC/AP/Council recommended)

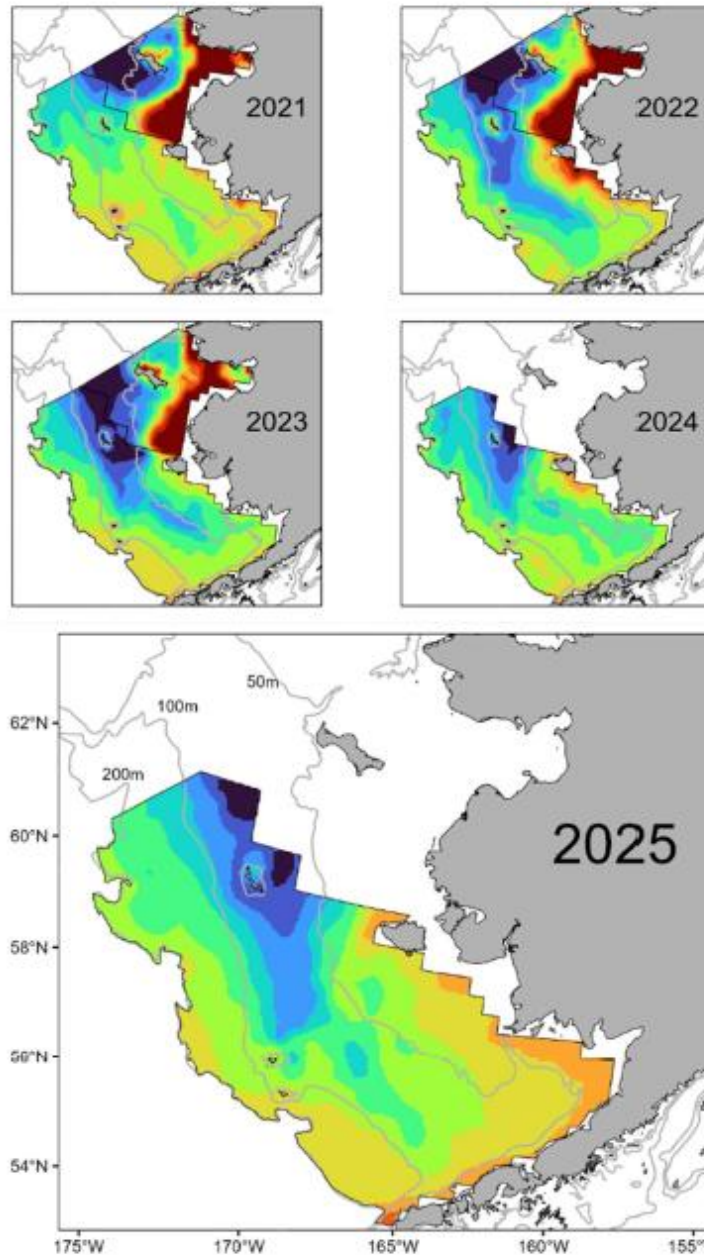
- Management quantities using **morphological maturity**
 - Region-specific information not sufficient to support a change in the maturity definition
- OFL= 44.33 million lbs
- **ABC= 26.60 million lbs**
 - 40% ABC buffer reflects concerns related to uncertainty in the appropriate definition of male maturity

Bottom temperature



Bottom temperature

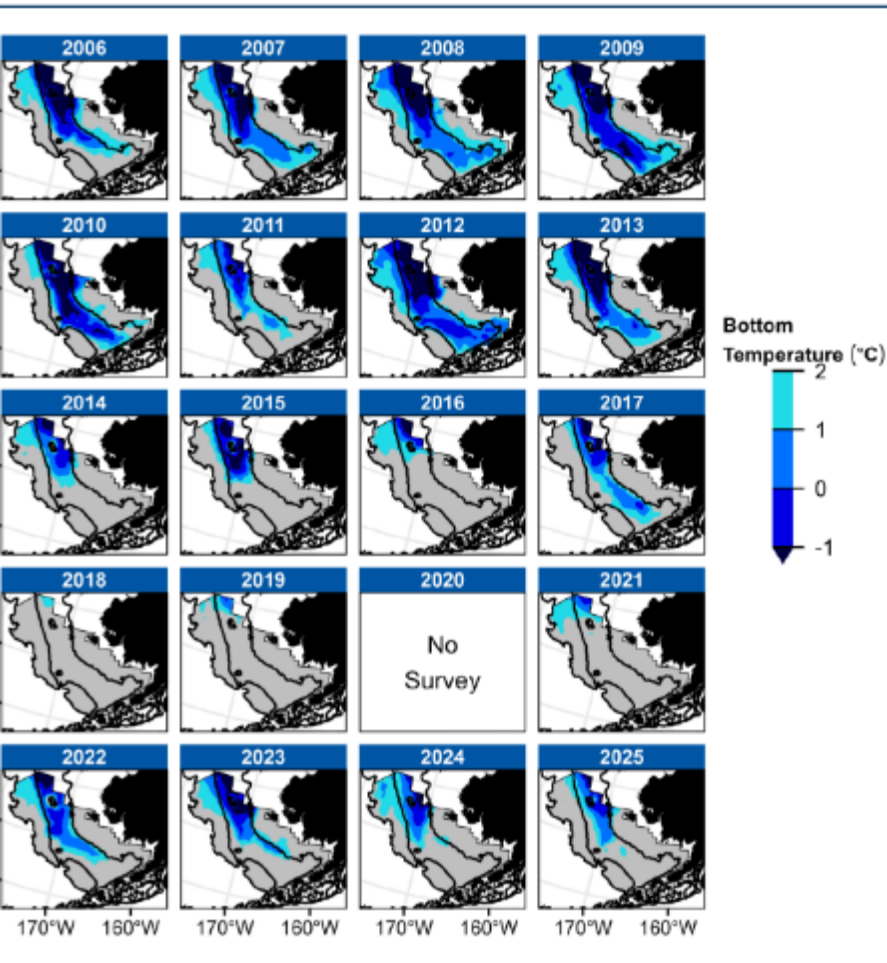
Intermediate cold pool compared to previous four surveys



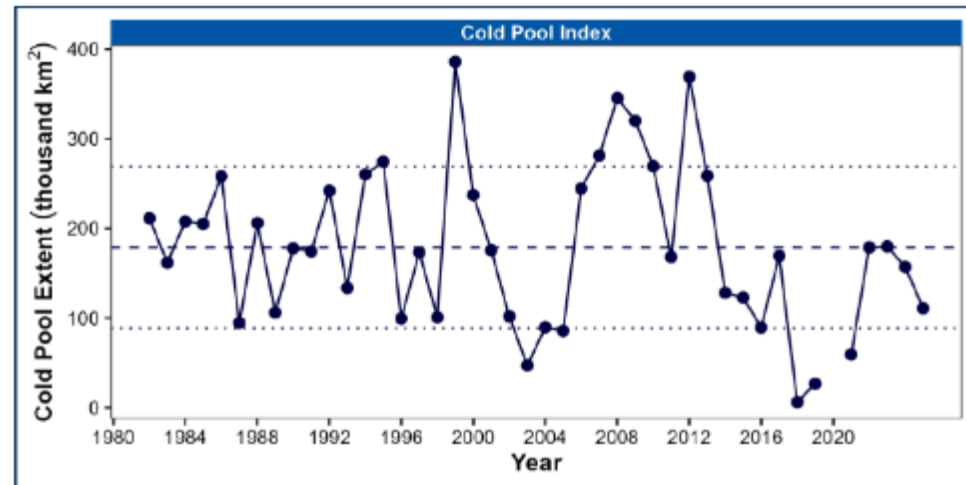
Bottom temperature (°C)

Bottom temperature

SEBS: cold pool extent was below average in 2025

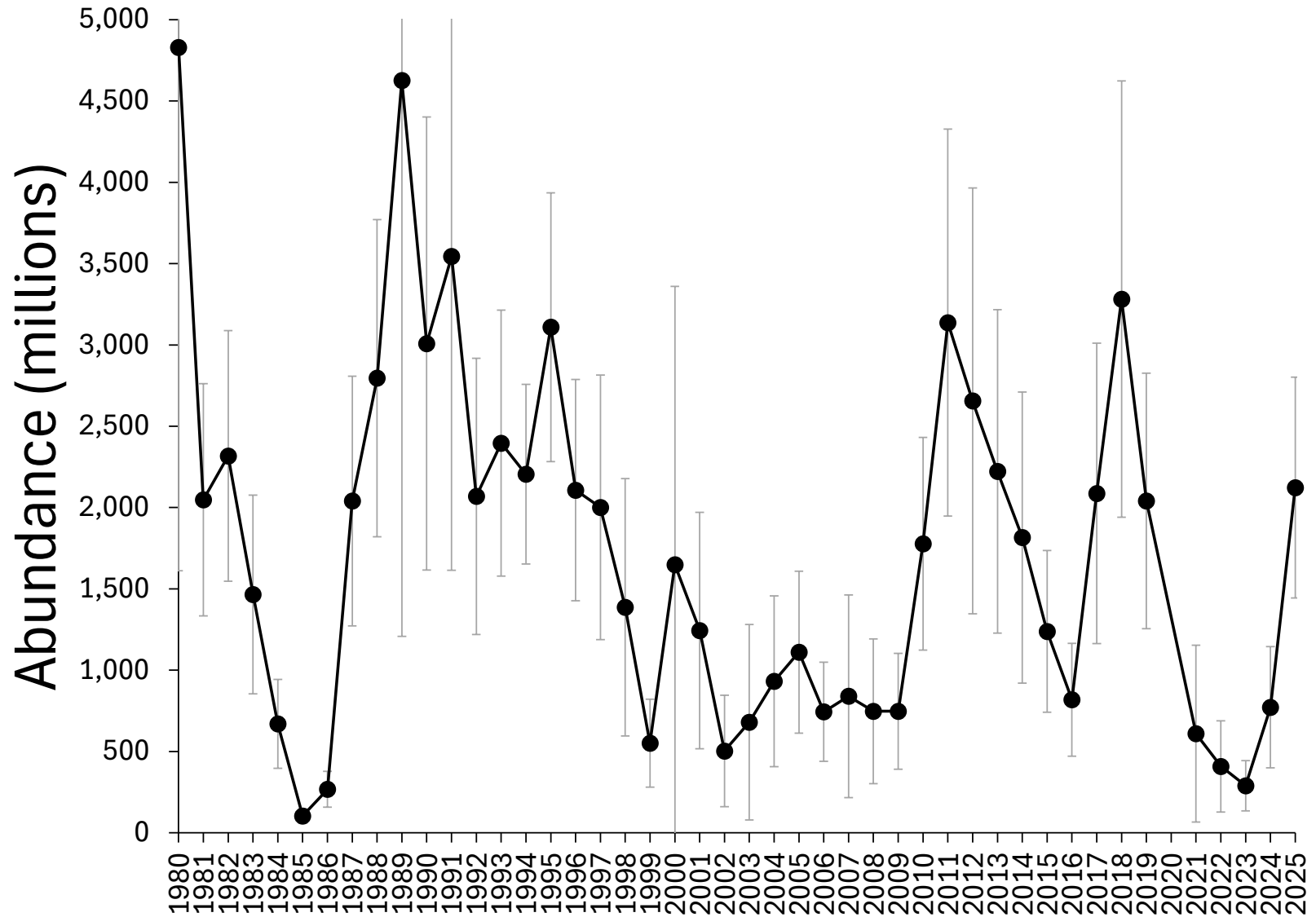


- Cold pool extent below average in 2025
- A 29% decrease from 2024
- Confined to the middle shelf of the SEBS

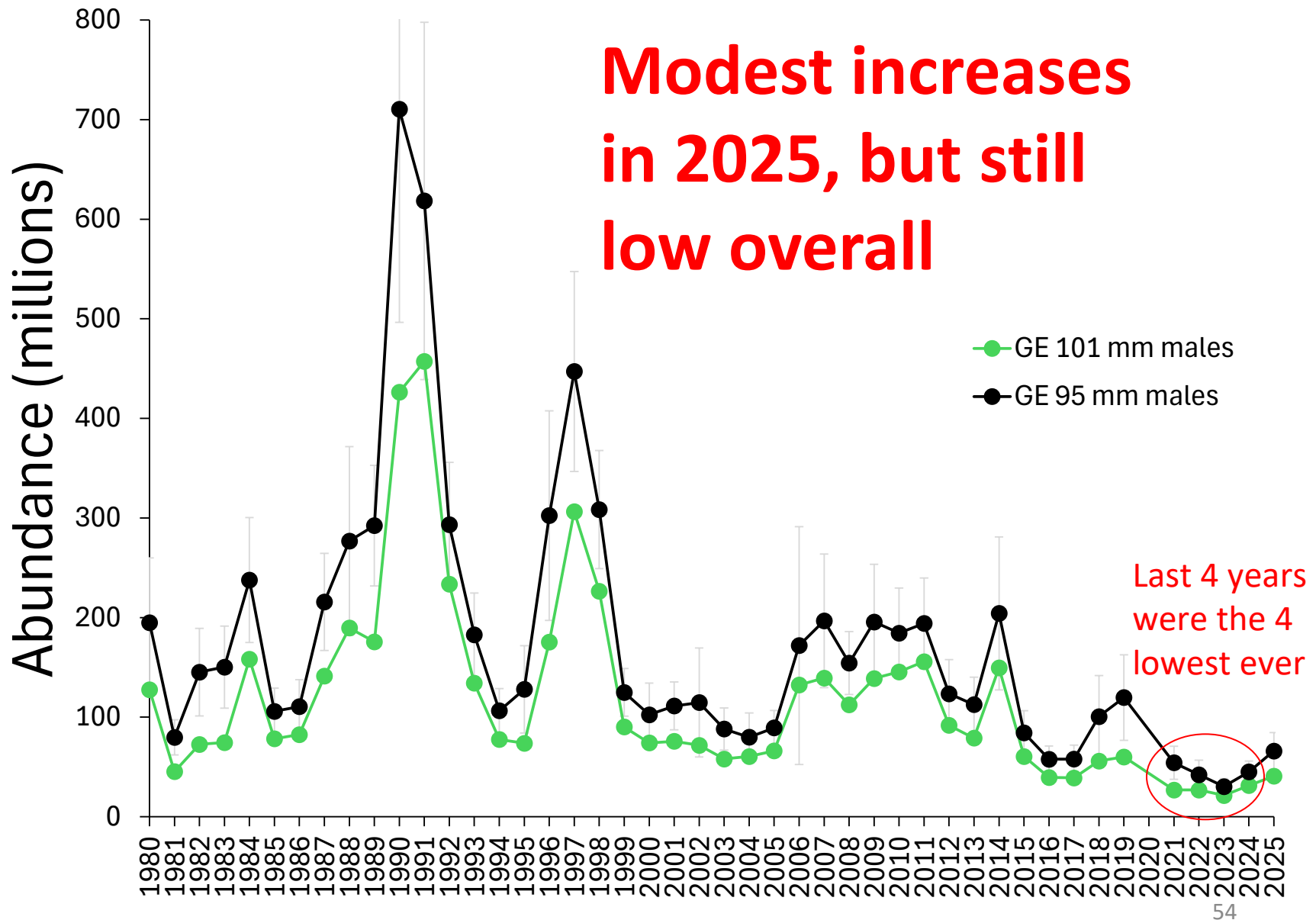


(Rohan)

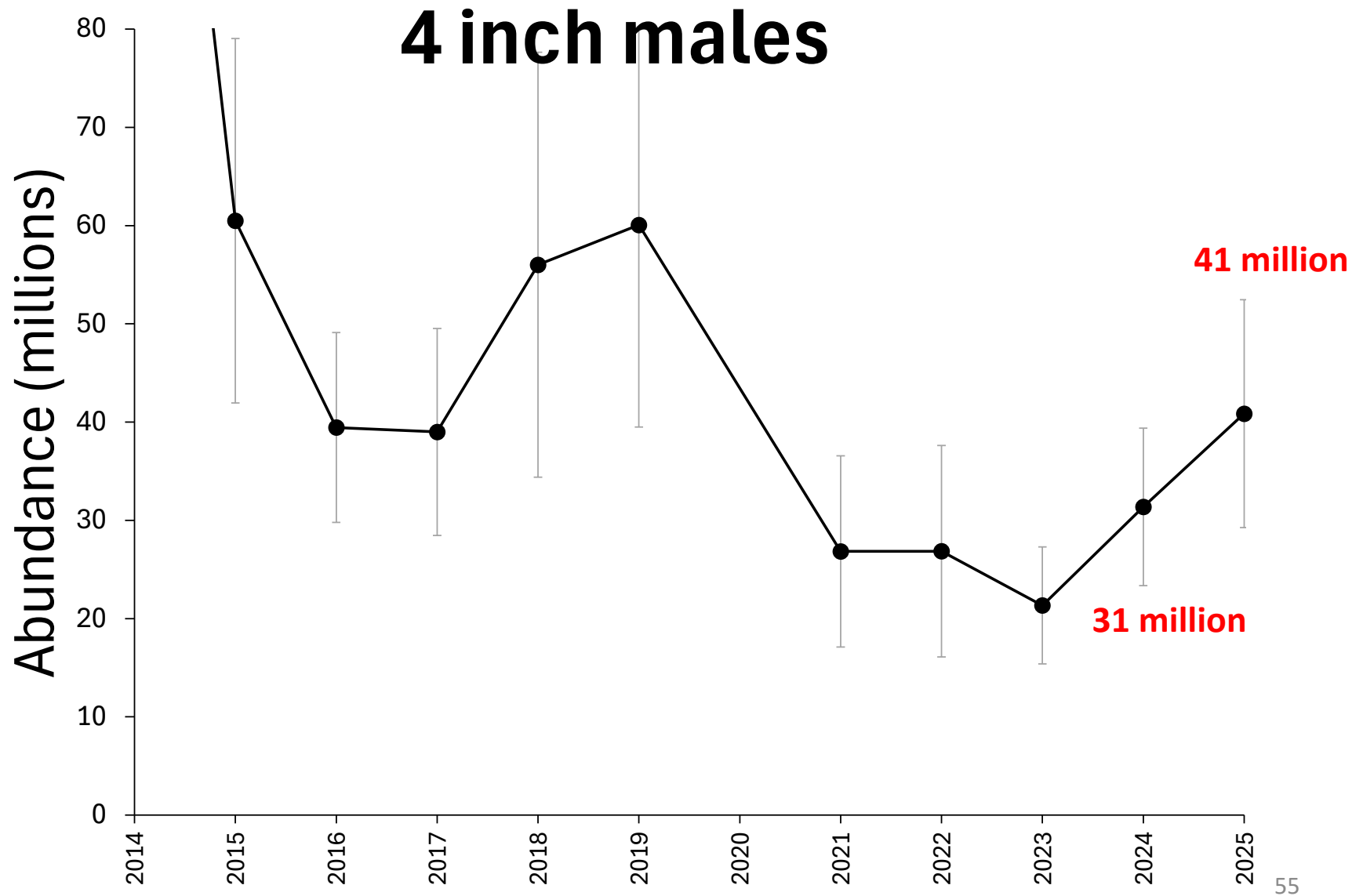
Survey data: mature females



Survey data – large males

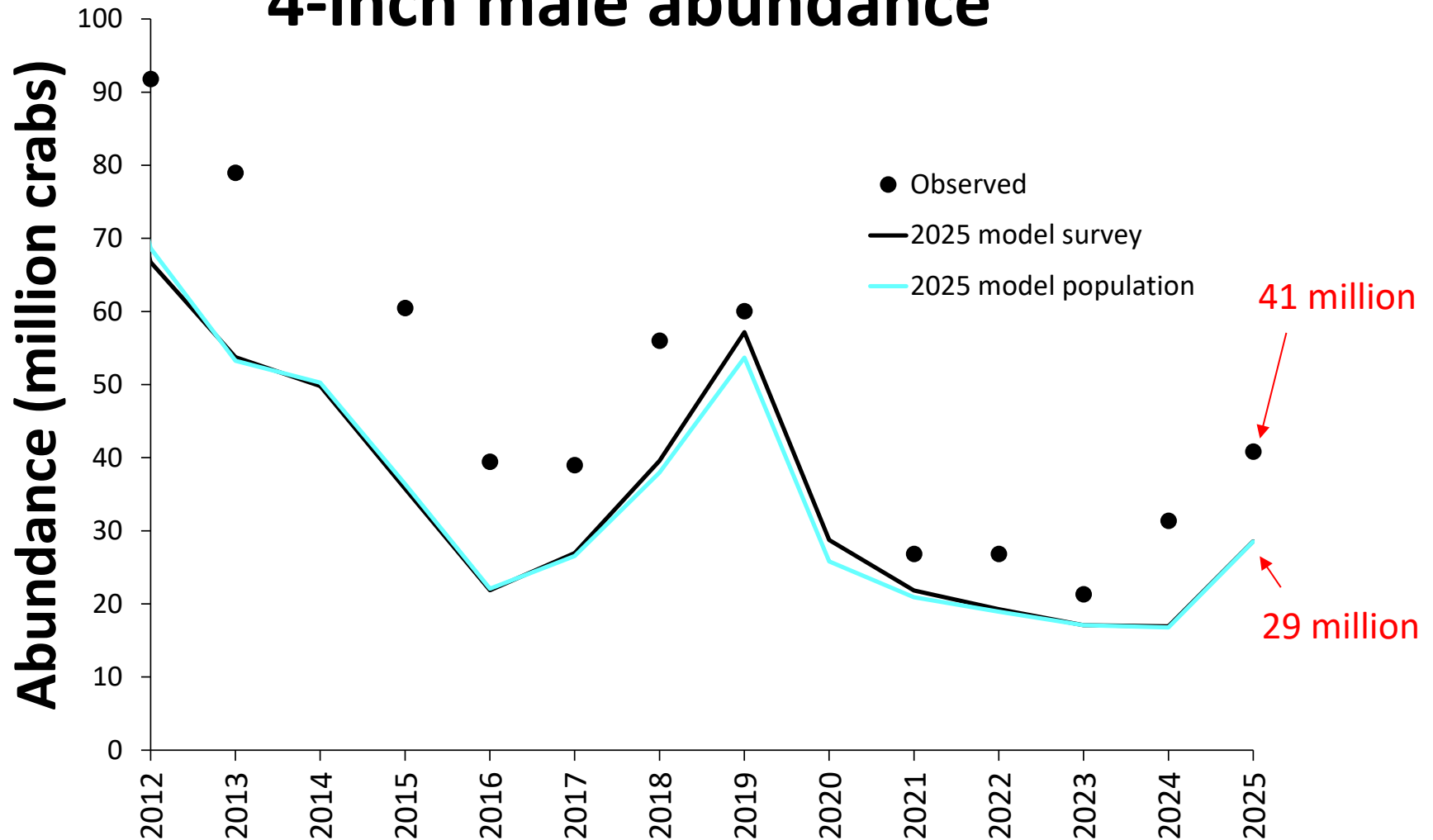


Survey data



Model estimates

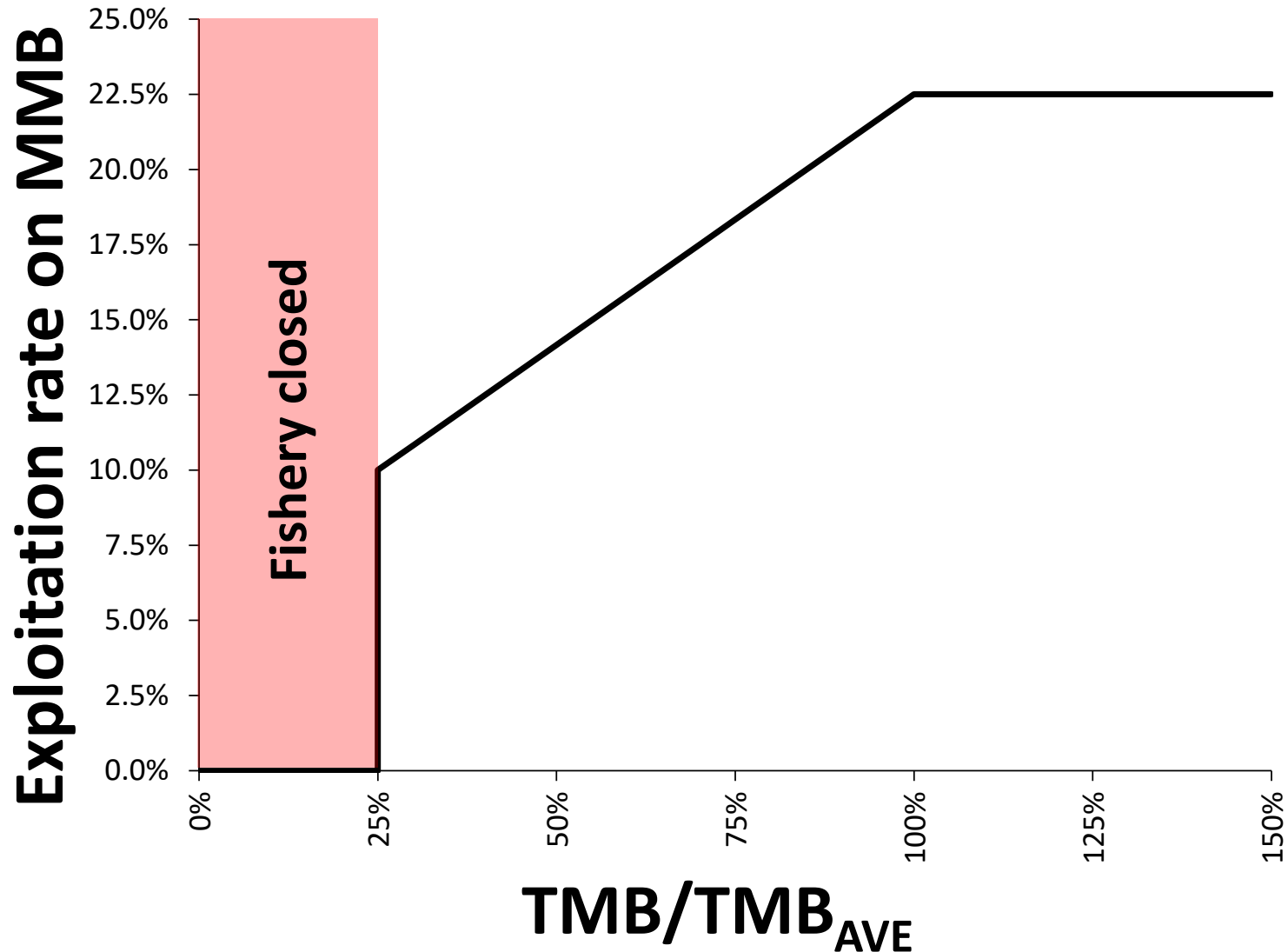
4-inch male abundance



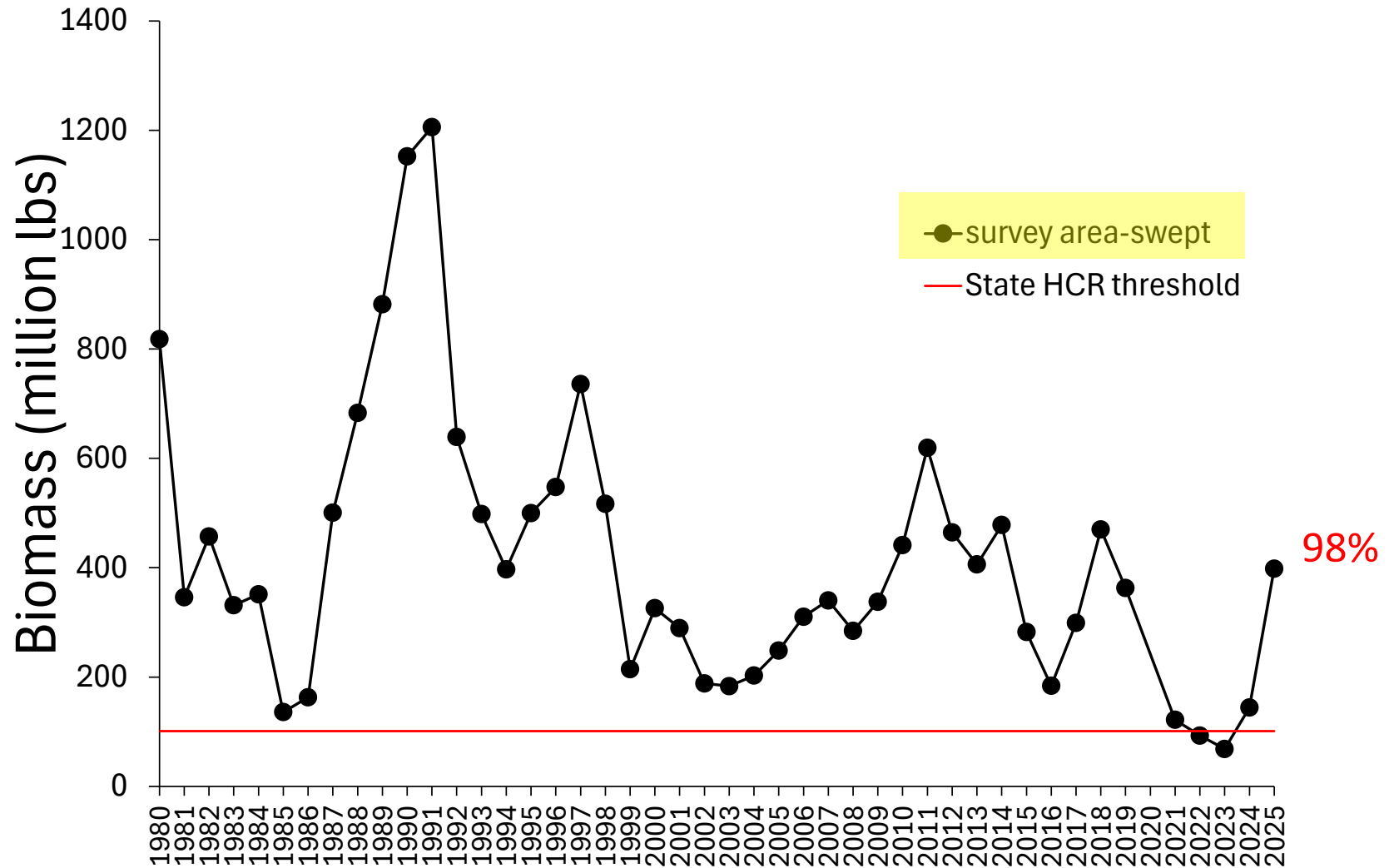
State Snow Crab Harvest Strategy

1. TMB threshold for opening fishery: $25\%B_{MSY}$
2. Exploitation on MMB:
 - $B < 25\% B_{MSY}$, = 0%
 - $0.25*B_{MSY} \leq B < B_{MSY}$, exploitation increases linearly from $1/3 F_{MSY}$ to $0.75*F_{MSY}$, by equation:
 $[F_{MSY}/3 + (B - 0.25*B_{MSY}) * 0.417 * F_{MSY} / (0.75*B_{MSY})] * 100\%$.
 - $B > B_{MSY}$, = 75% of $F_{MSY} = 0.75 * 0.3 = 22.5\%$
3. Max Cap: 58% harvest rate on exploitable legal males (4-inch males: 100% new shell + **25% (or other)** old shell)

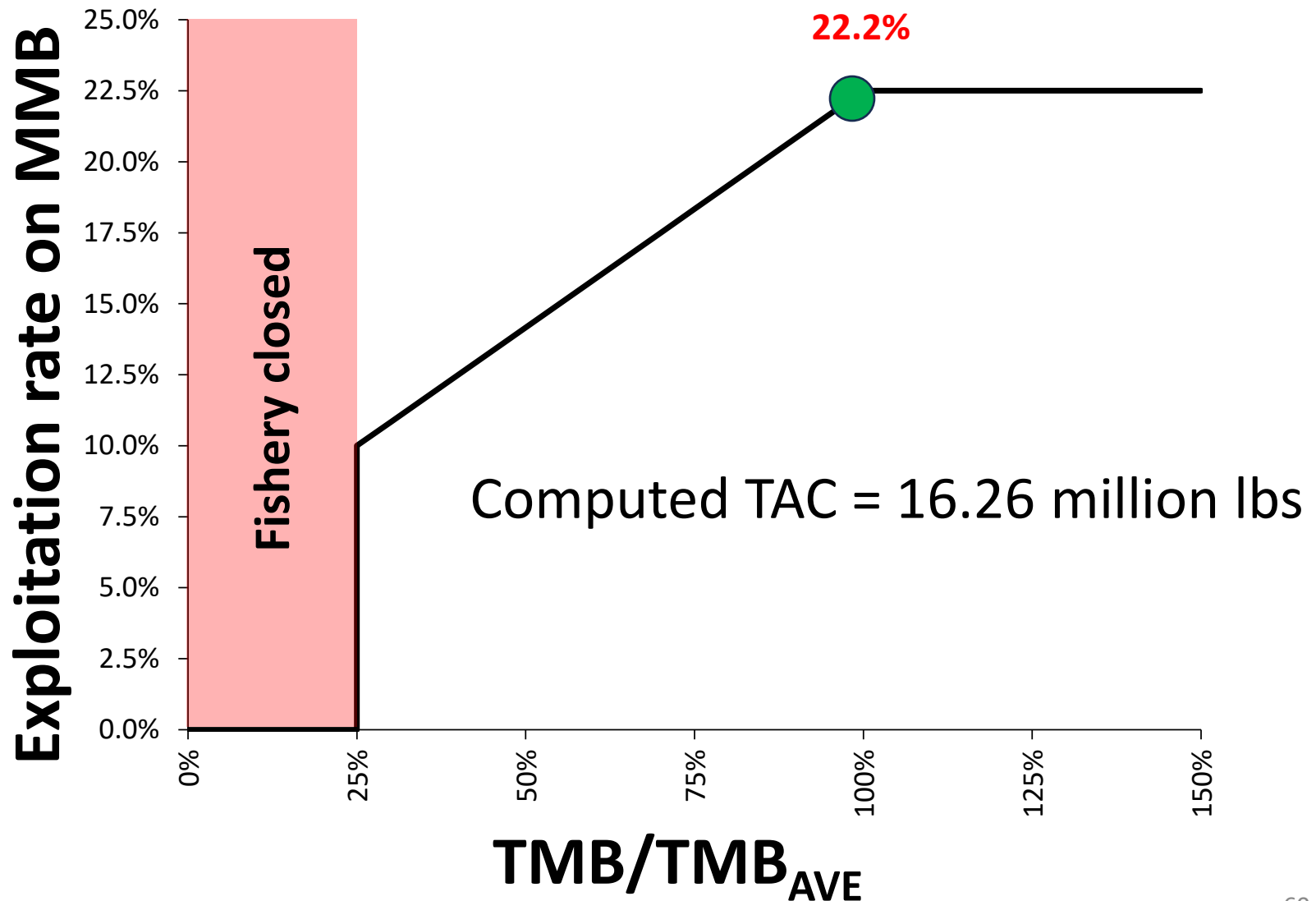
State harvest strategy



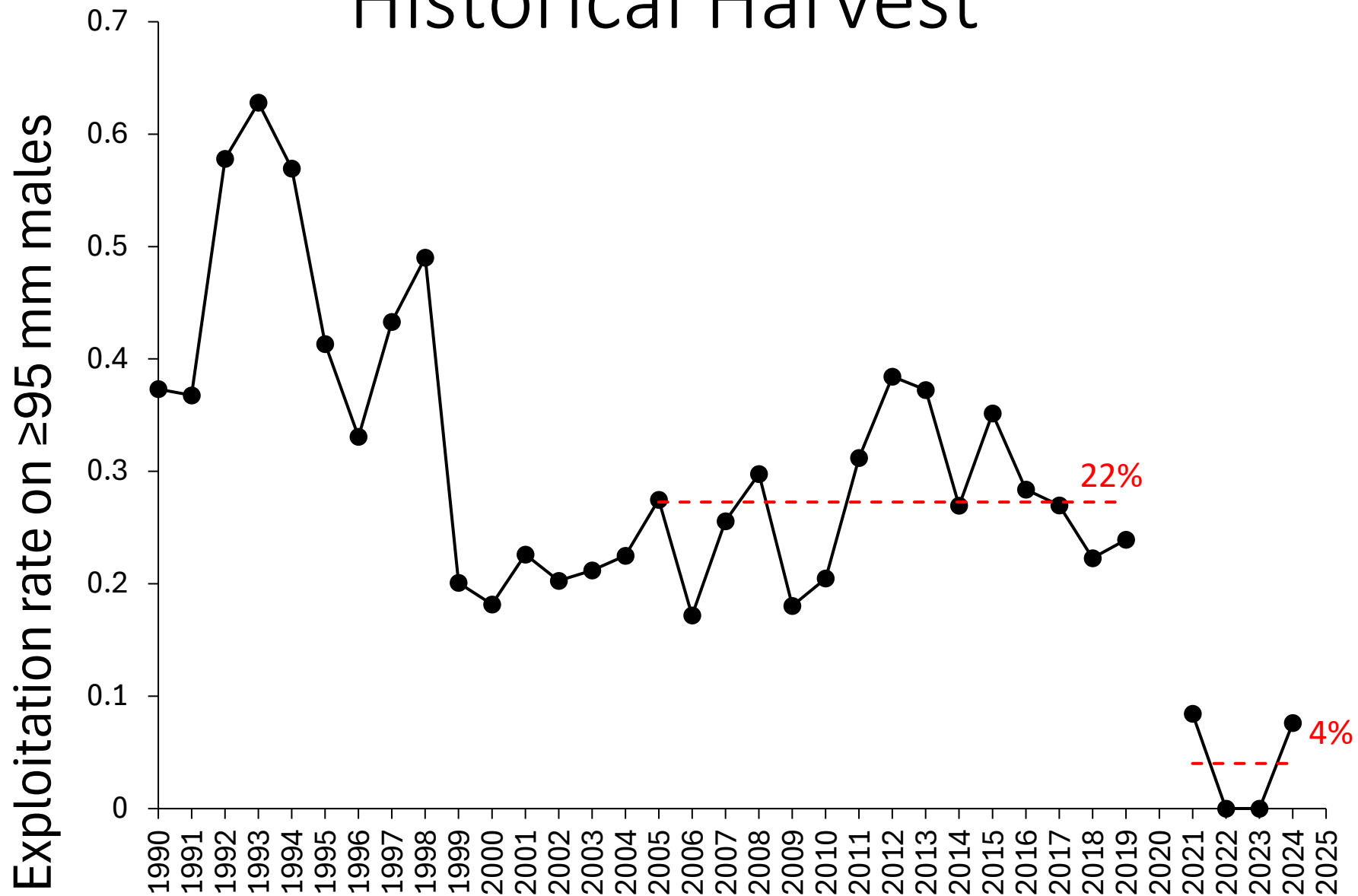
TMB: survey data, $\geq 95\text{mm}$ male maturity



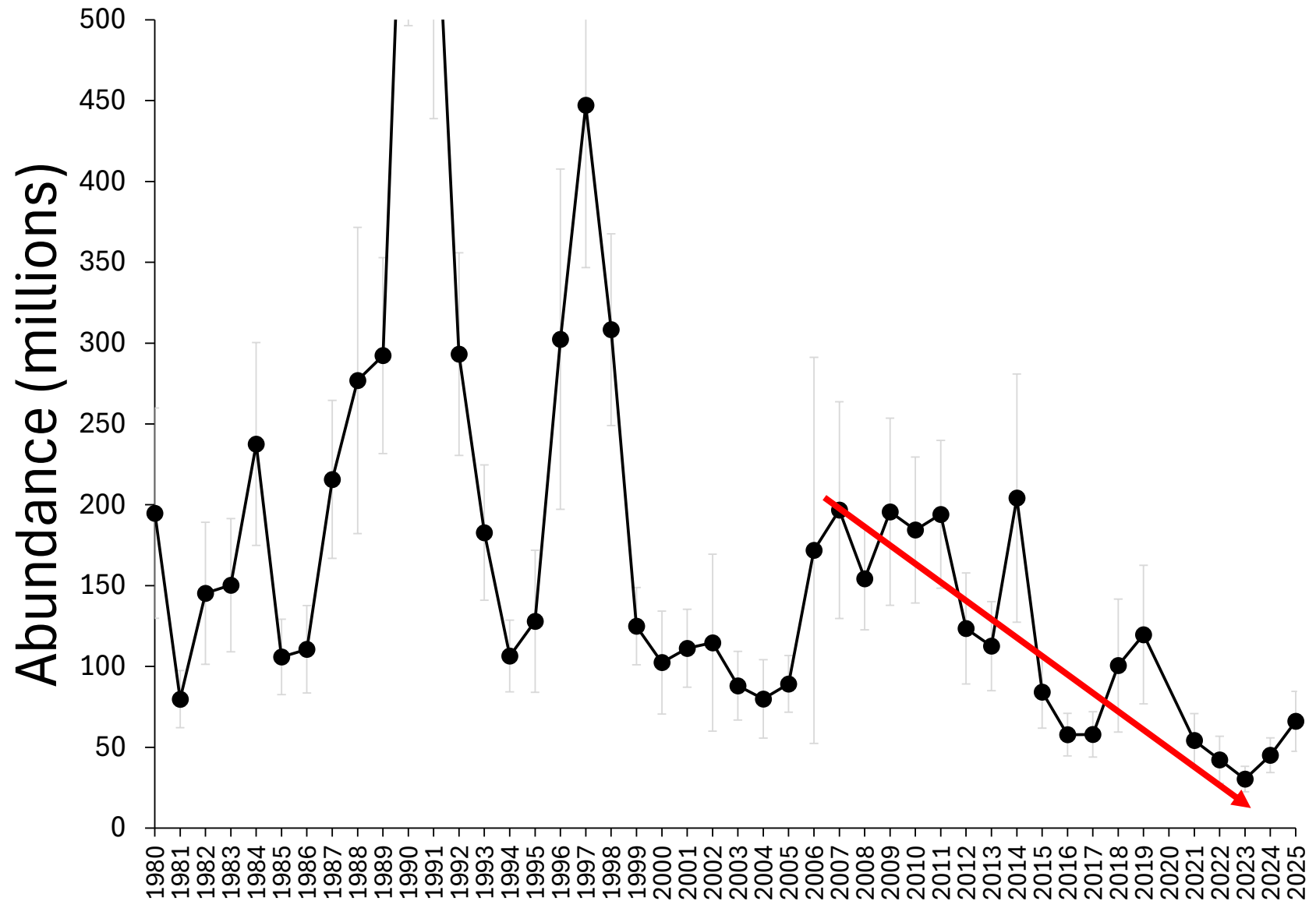
State harvest strategy



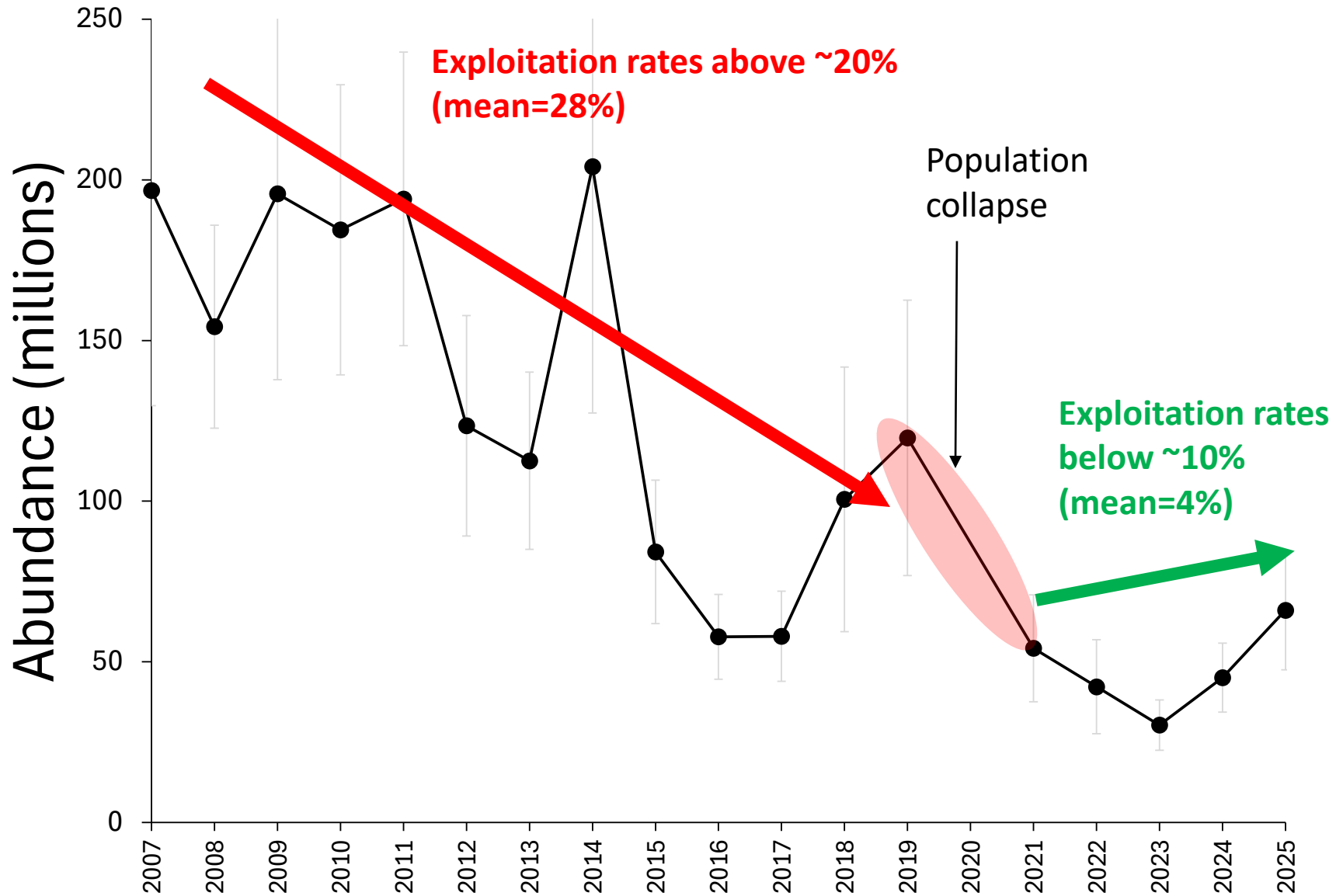
Historical Harvest



≥ 95 mm males



≥ 95 mm males



State Harvest Strategy

- Current iteration of the harvest strategy in place since 2002
- Increasing changes in EBS environmental conditions
 - Borealization: heat waves and associated ecosystem re-organization
- Snow crab is a cold-adapted species
 - BUT, has demonstrated high levels of resiliency
- Does the current harvest strategy provide adequate levels of conservation in times with large environmentally-driven population fluctuations?
- How do we build-in the adequate level of conservation while still allowing for maximum sustained yield?

State Harvest Strategy

- Uncertain future environmental conditions and a recovering population warrant a precautionary approach
- Past exploitation rates were likely too high
- **Medium to long-term:**
 - MSE needed for a fresh look at harvest control rules that balance conservation and economic priorities
 - Exploitation rates in sloping control rules will most likely need to be adjusted, particularly when populations are in low abundance
 - We need lower exploitation rate “floors” to allow adequate protection for population recovery

State Harvest Strategy

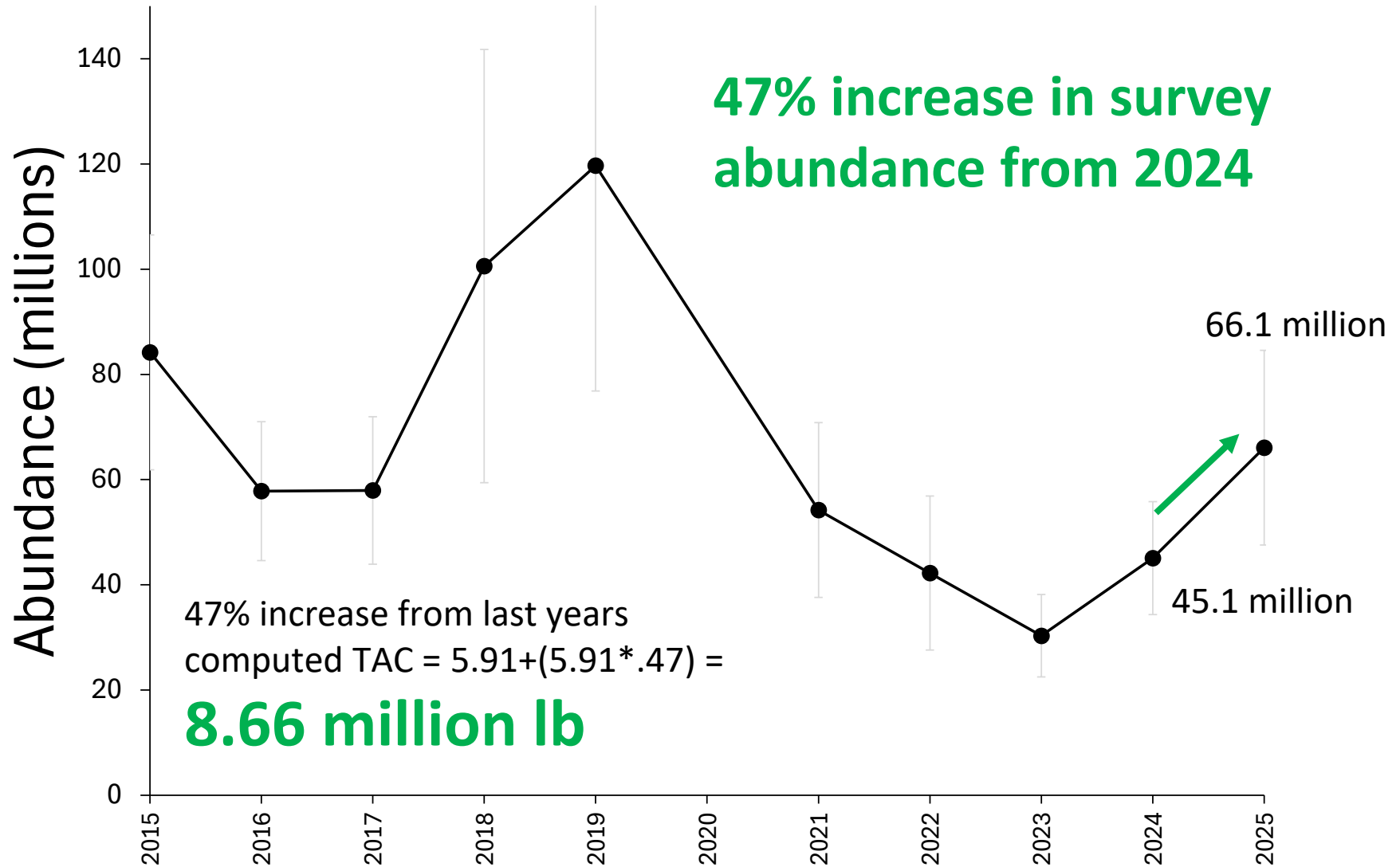
In the short-term:

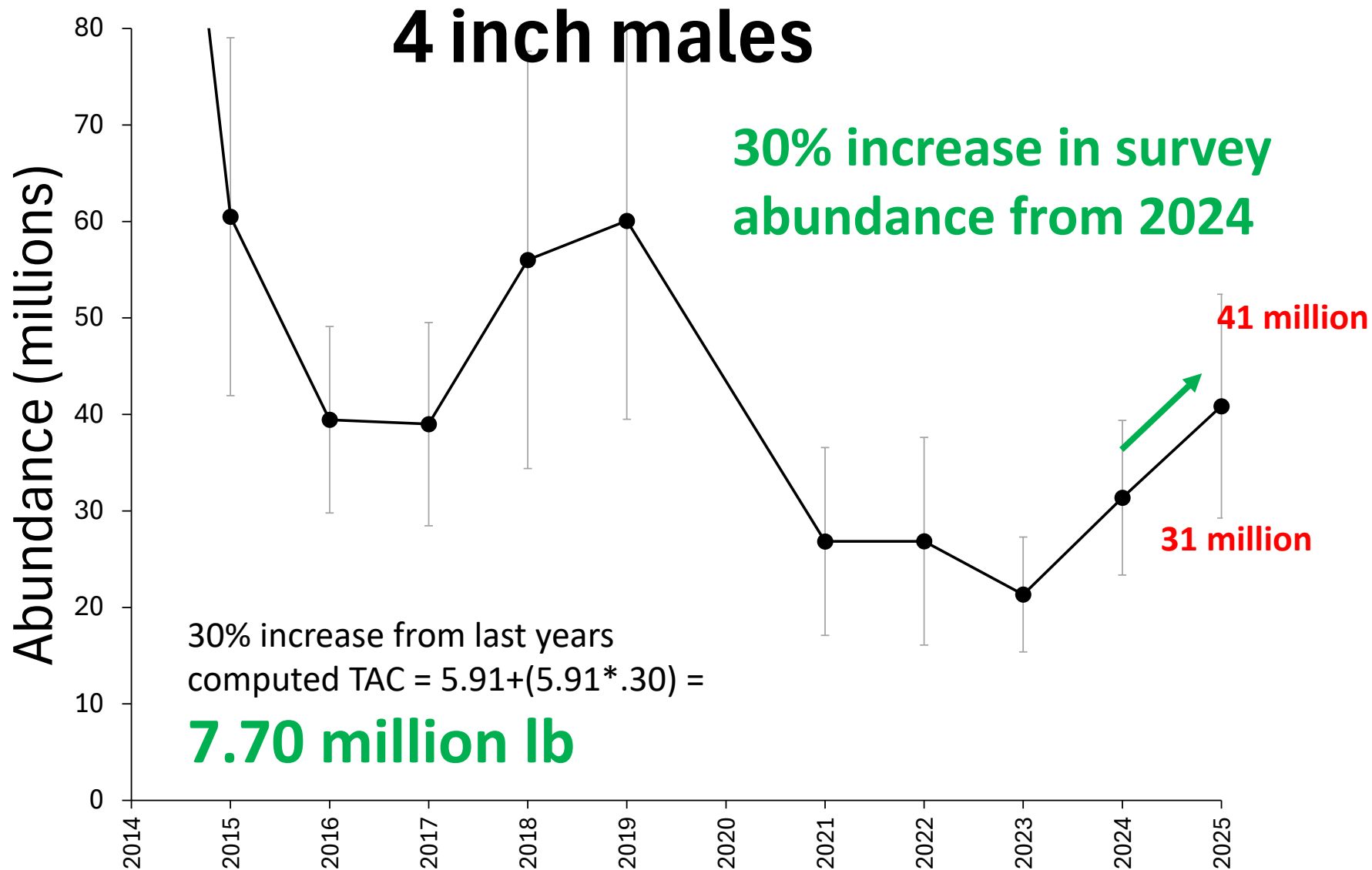
- ≥ 95 mm CW male maturity definition, survey area-swept
- minimum exploitation rate on mature males as dictated in state harvest strategy (10%)
 - Aligns with CPT recommendations on management currency and honors the spirit of the current state harvest strategy (10% within HCR range: 10-22.5%)
 - Aligns with calculated TAC using “model survey” and 95 mm (8.25 million lbs)
 - 10% is aggressive compared to past 4 seasons (mean = 4%)

$$\text{TAC} = \text{MMA}_{\text{GE95}} \times 10\% \times \text{Ave_wt}_{4\text{inchmale}}$$

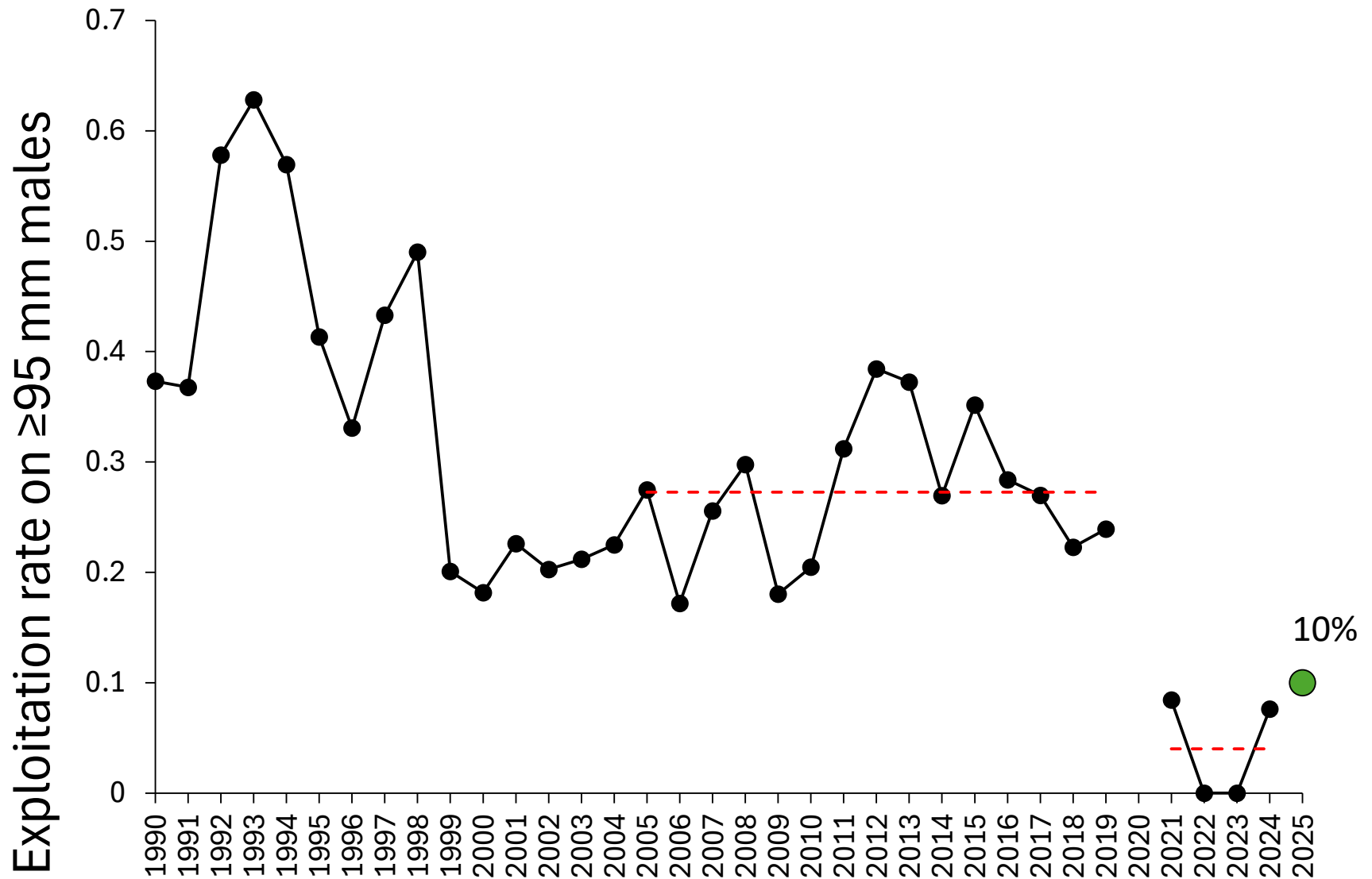
$$\text{TAC} = 66.1 \times 0.10 \times 1.26 = \mathbf{8.30 \text{ million lbs}}$$

≥ 95 mm males

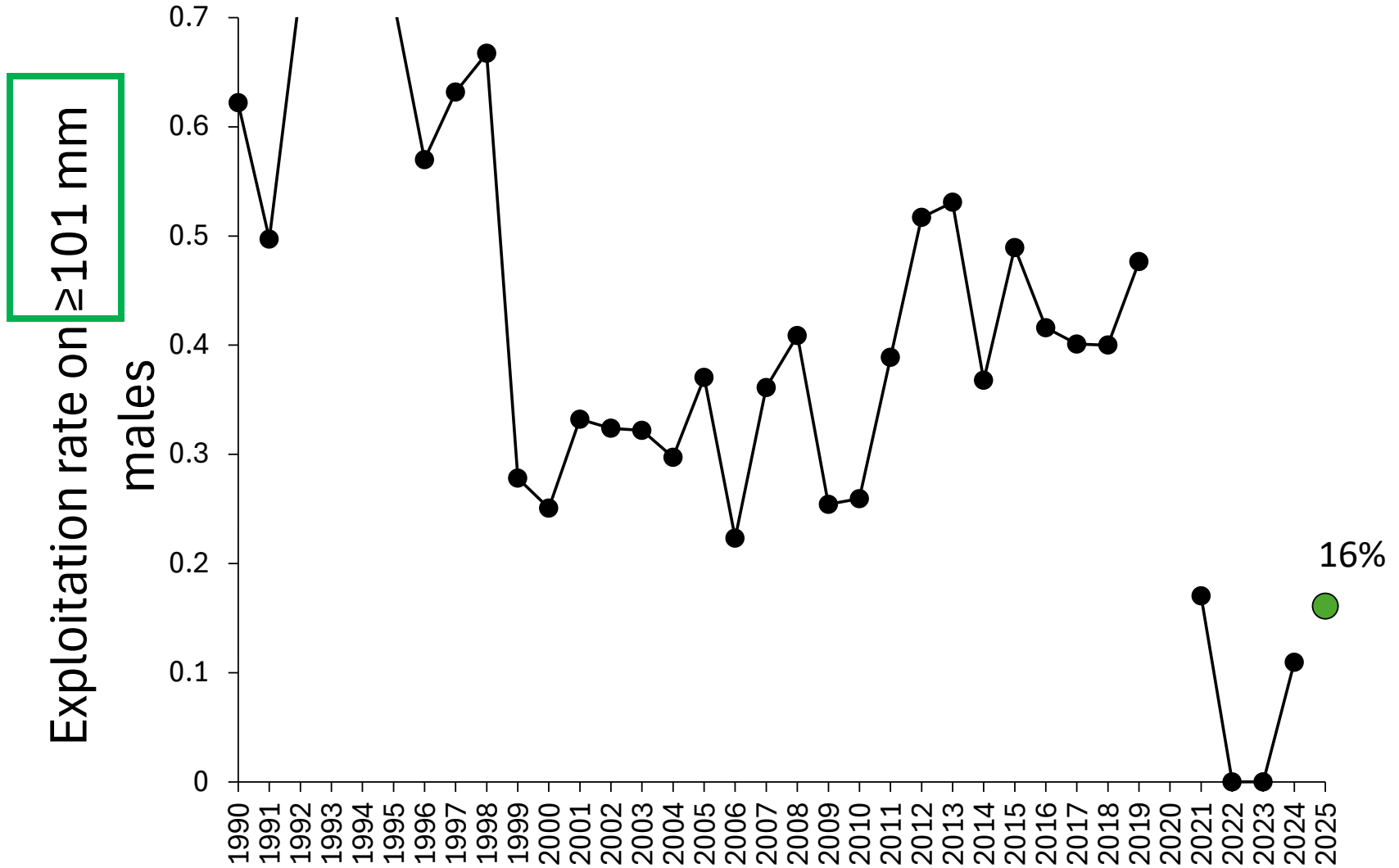




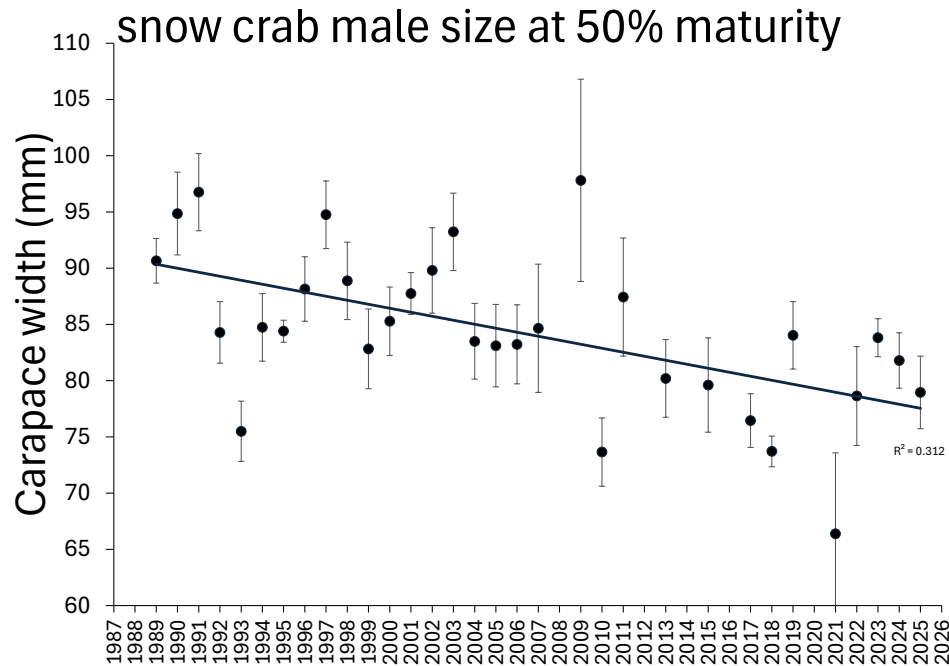
Historical Harvest



Historical Harvest

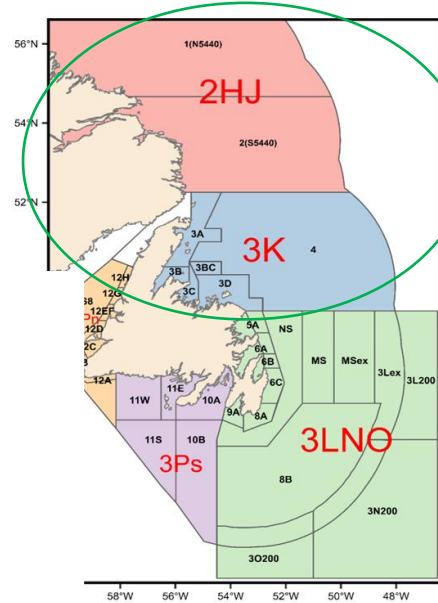
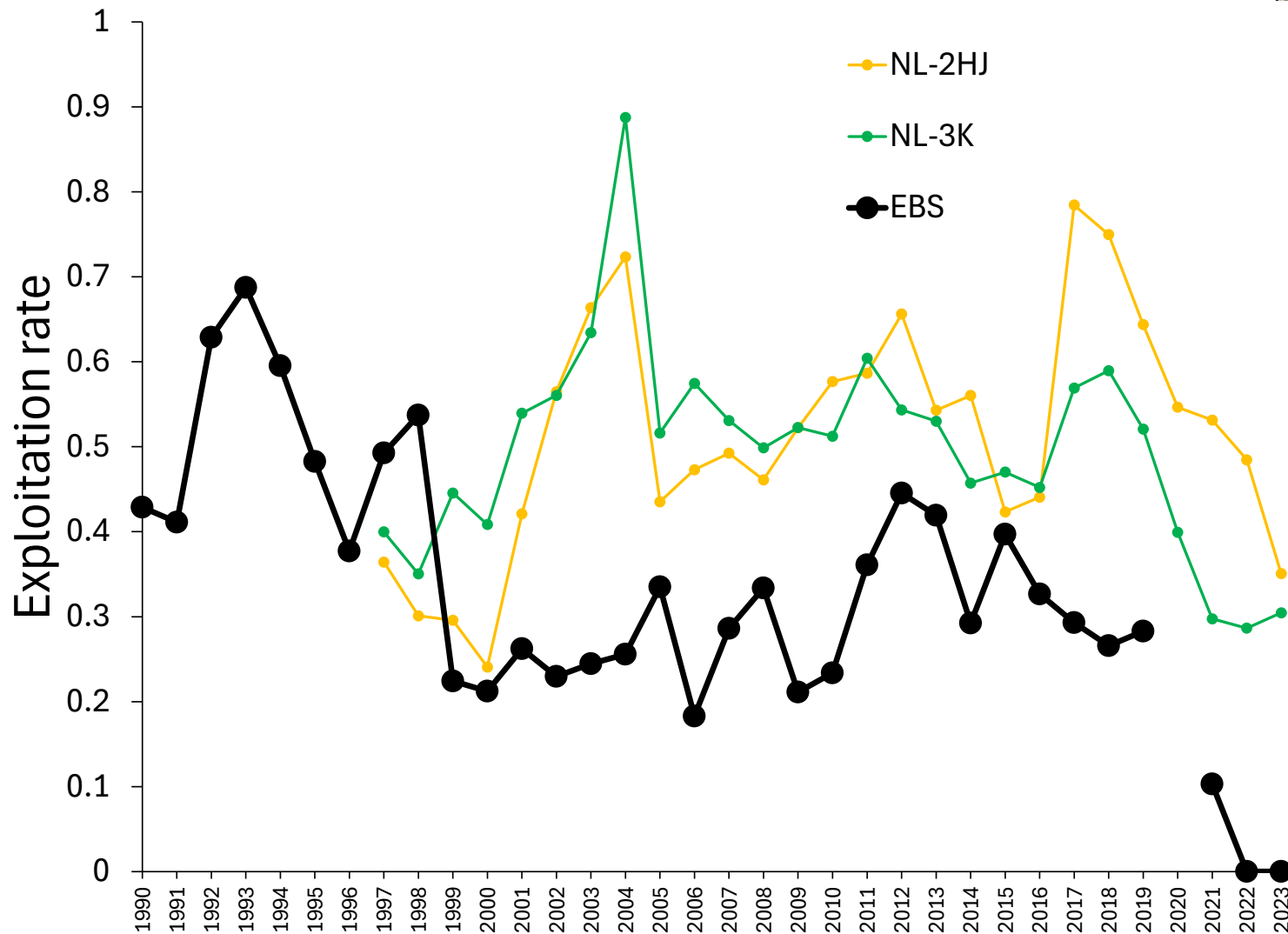


EBS size at maturity

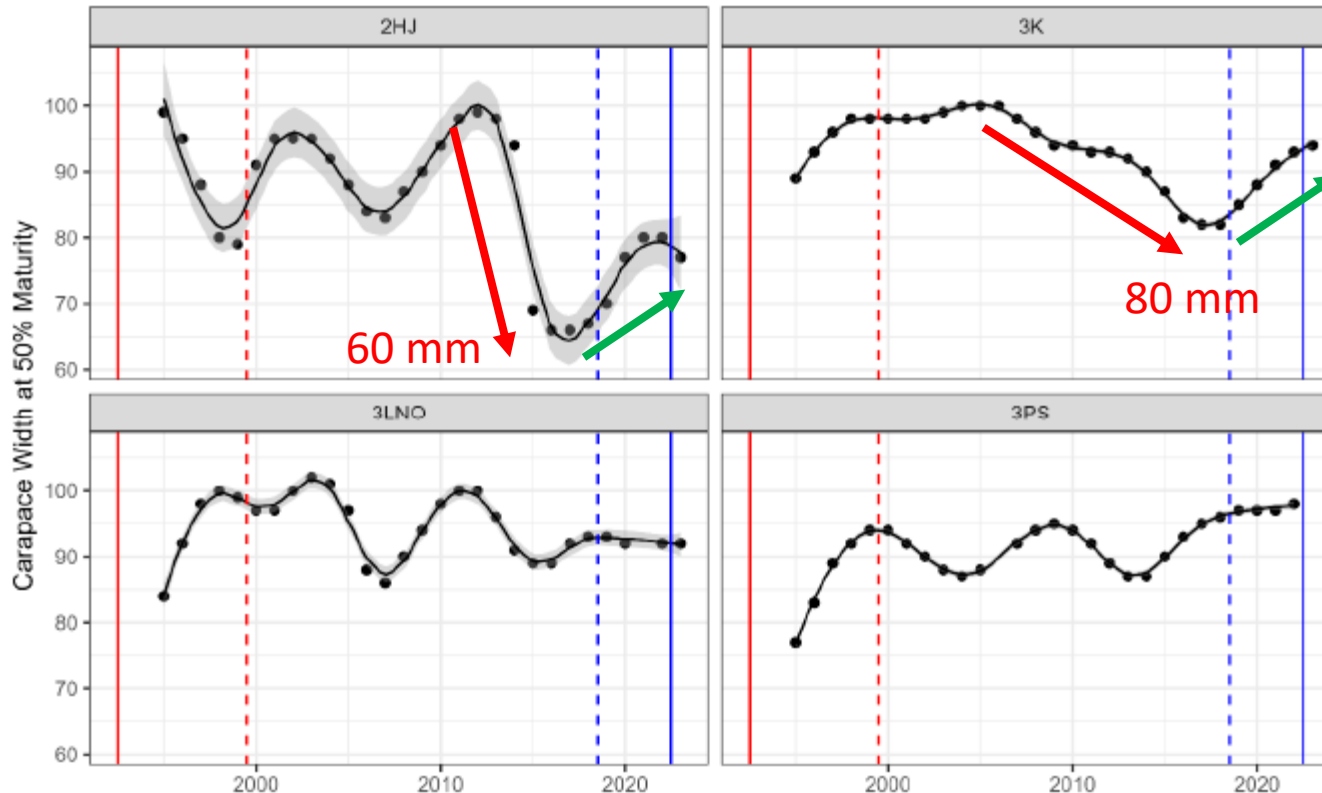


- Are we seeing a decreasing trend in size at maturity?
- Could this be density dependent?
- Could this be signal that historical exploitation rates were too high?

Comparison to Canadian stock



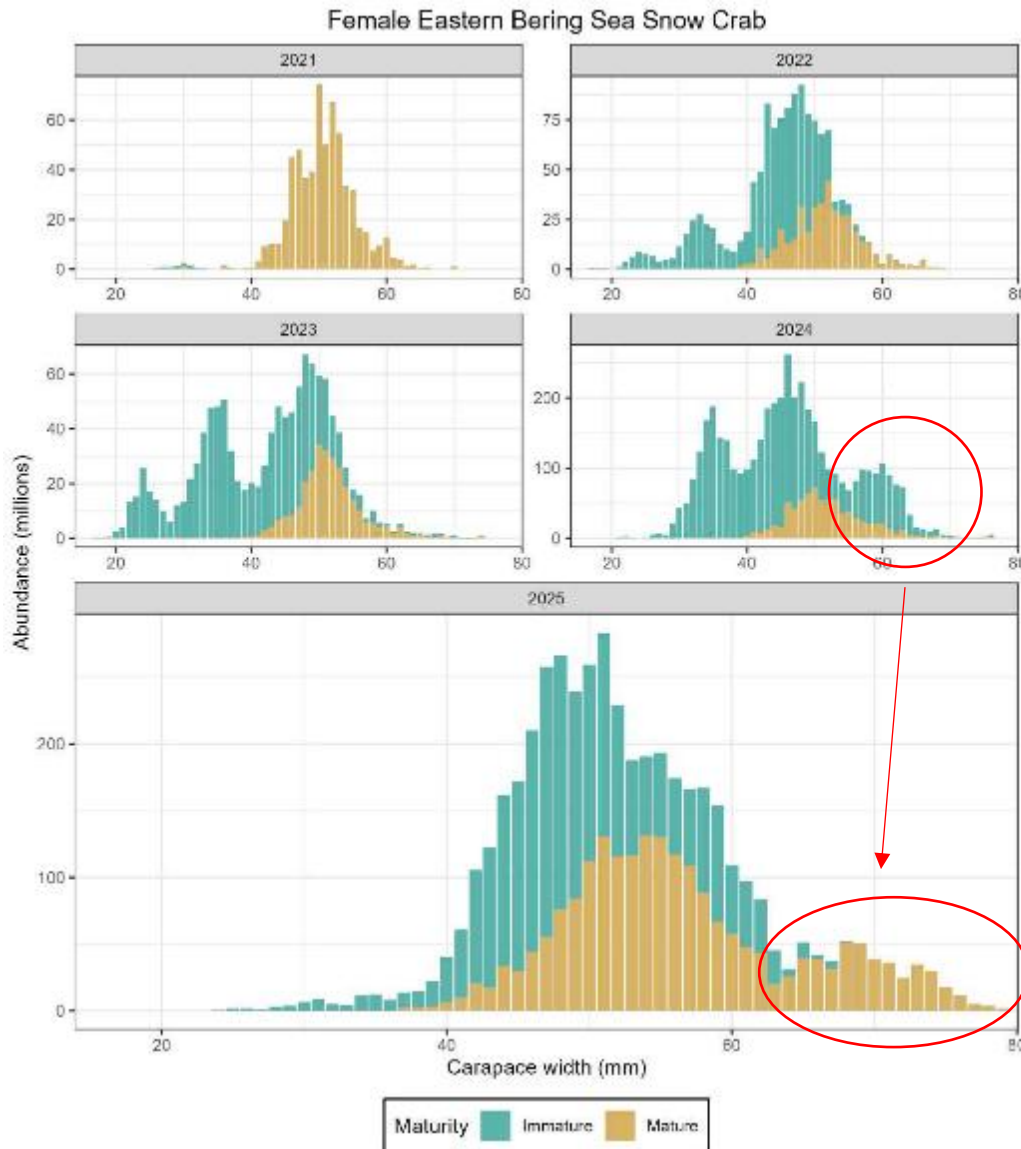
Canadian size at maturity



Mullowney, D.; Baker, K.; Pantin, J.; Coffey, W.; Lefort, K.; Morrissey, K. Merits of Multi-Indicator Precautionary Approach Management in a Male-Only Crab Fishery. *Preprints* **2024**, 2024041582.

- Reductions in mat50 generally attributed to overfishing
- Signals that exploitation rates too high
- Improvements attributed to reduced exploitation rate
- Shows us the potential for corrections through reduced fishing pressure

Density dependent size at maturity?



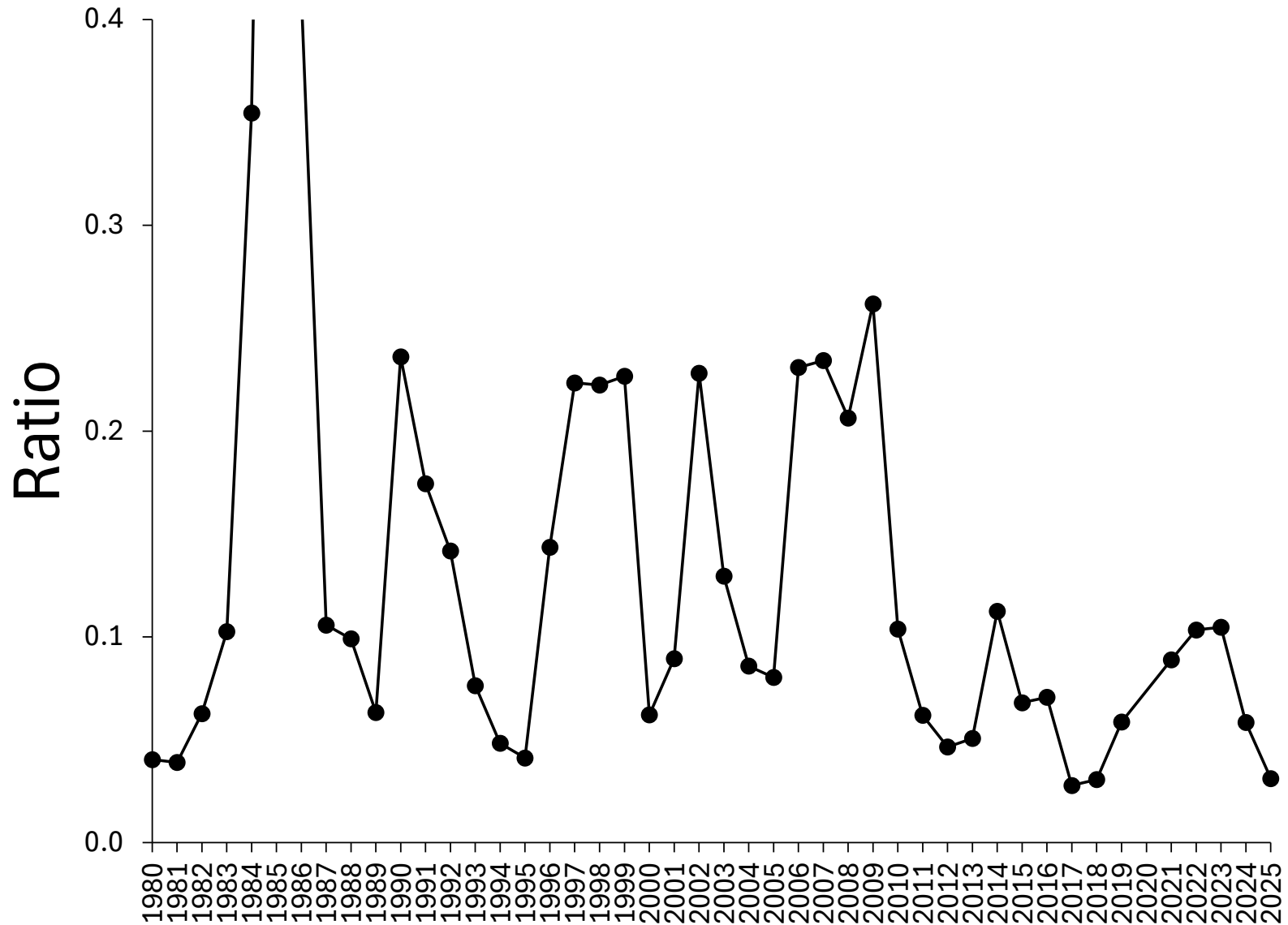
Large immature females in 2024

Has not been previously observed on the survey

Low male density causing a delay in terminal molt?

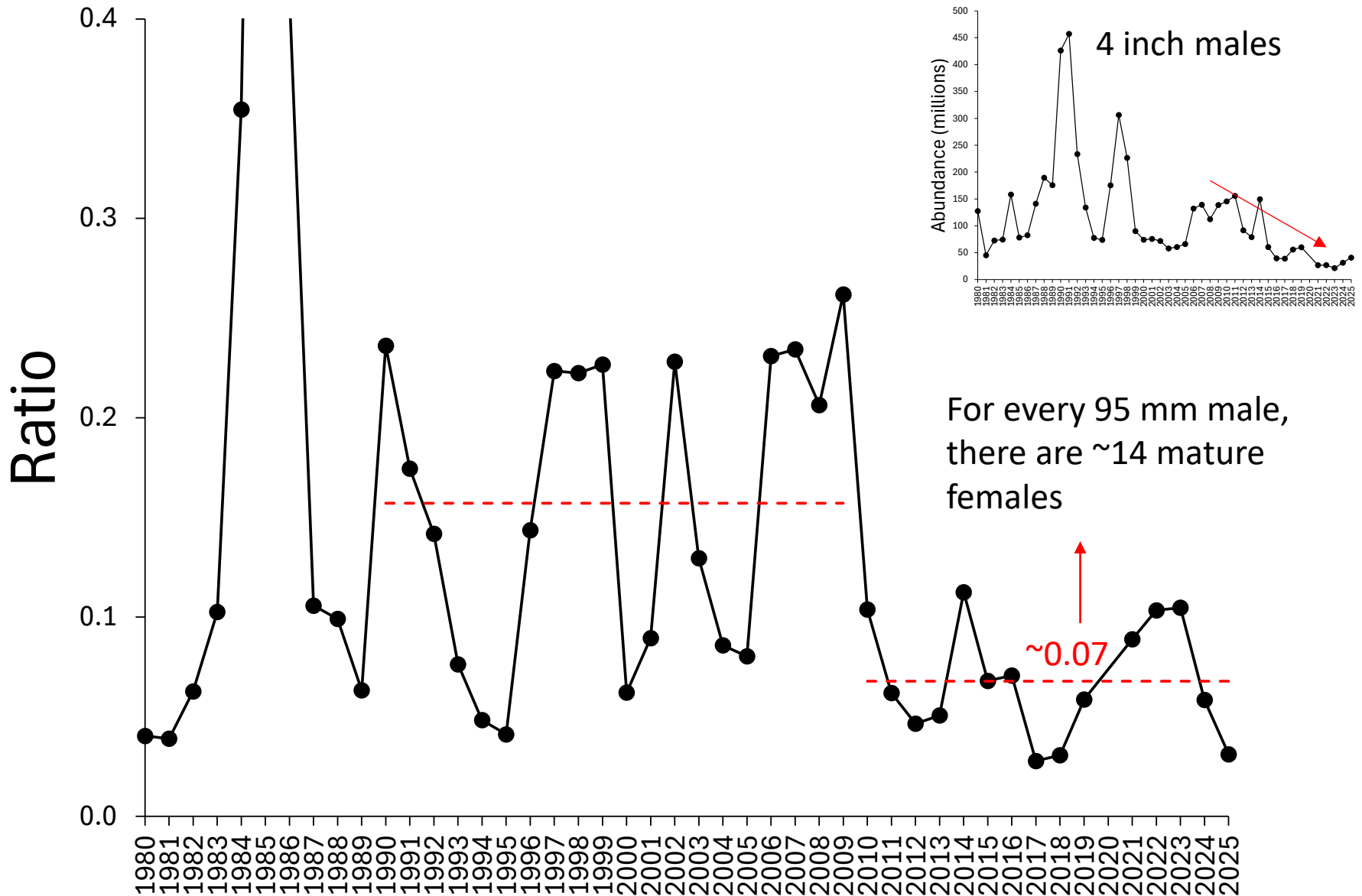
Consequences for reproductive potential?

Sex ratio: male ≥ 95 : mature female

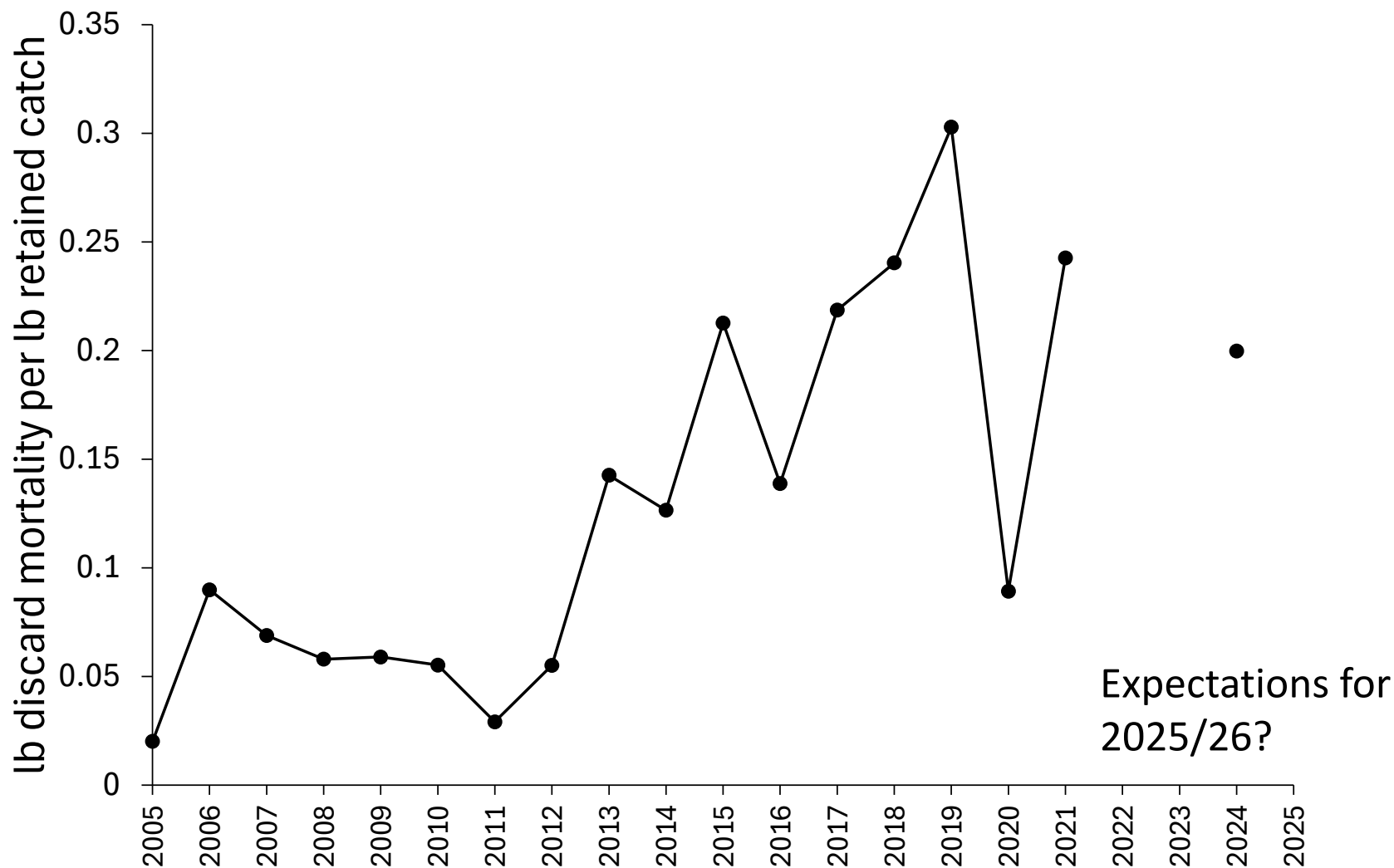


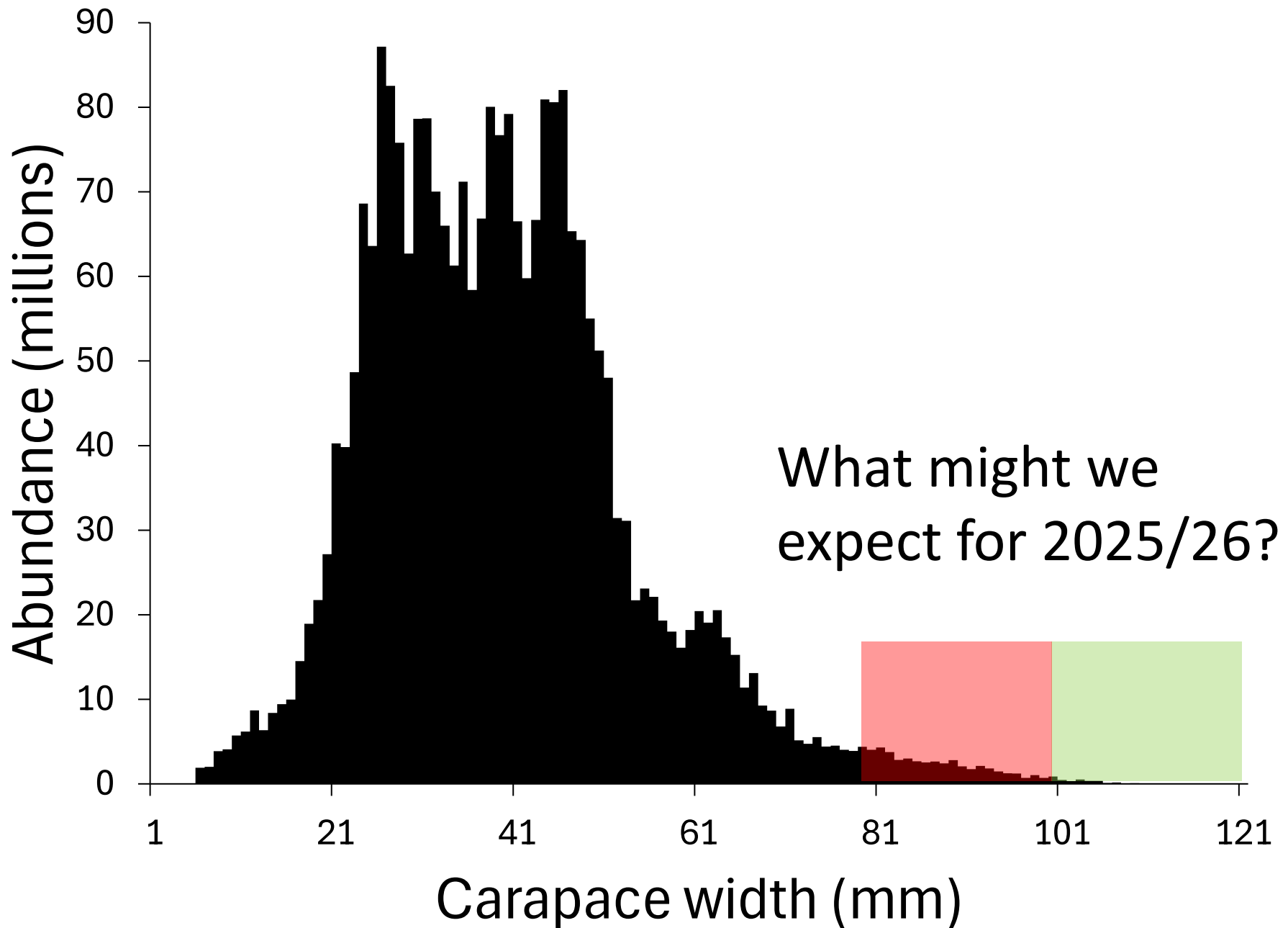
Calculated via NOAA survey area-swept estimates

Sex ratio: male ≥ 95 : mature female



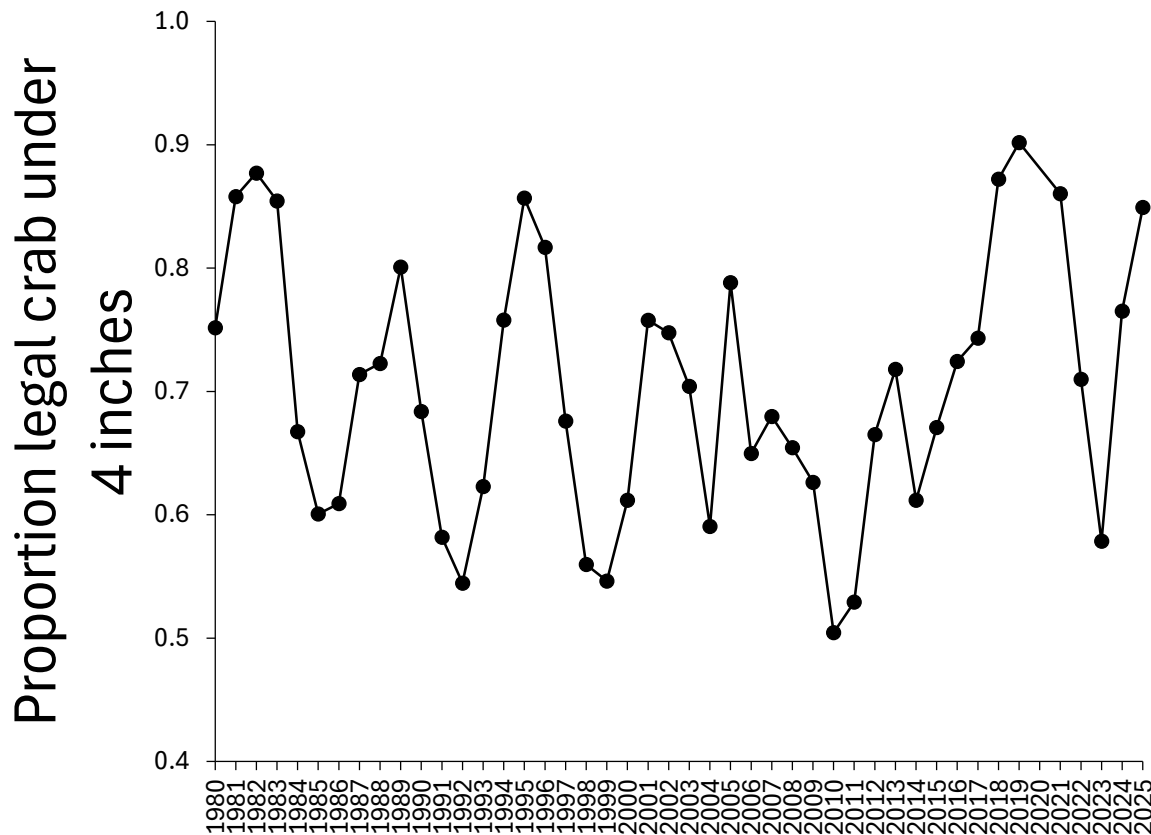
Directed fishery discard mortality rate





2025 survey data

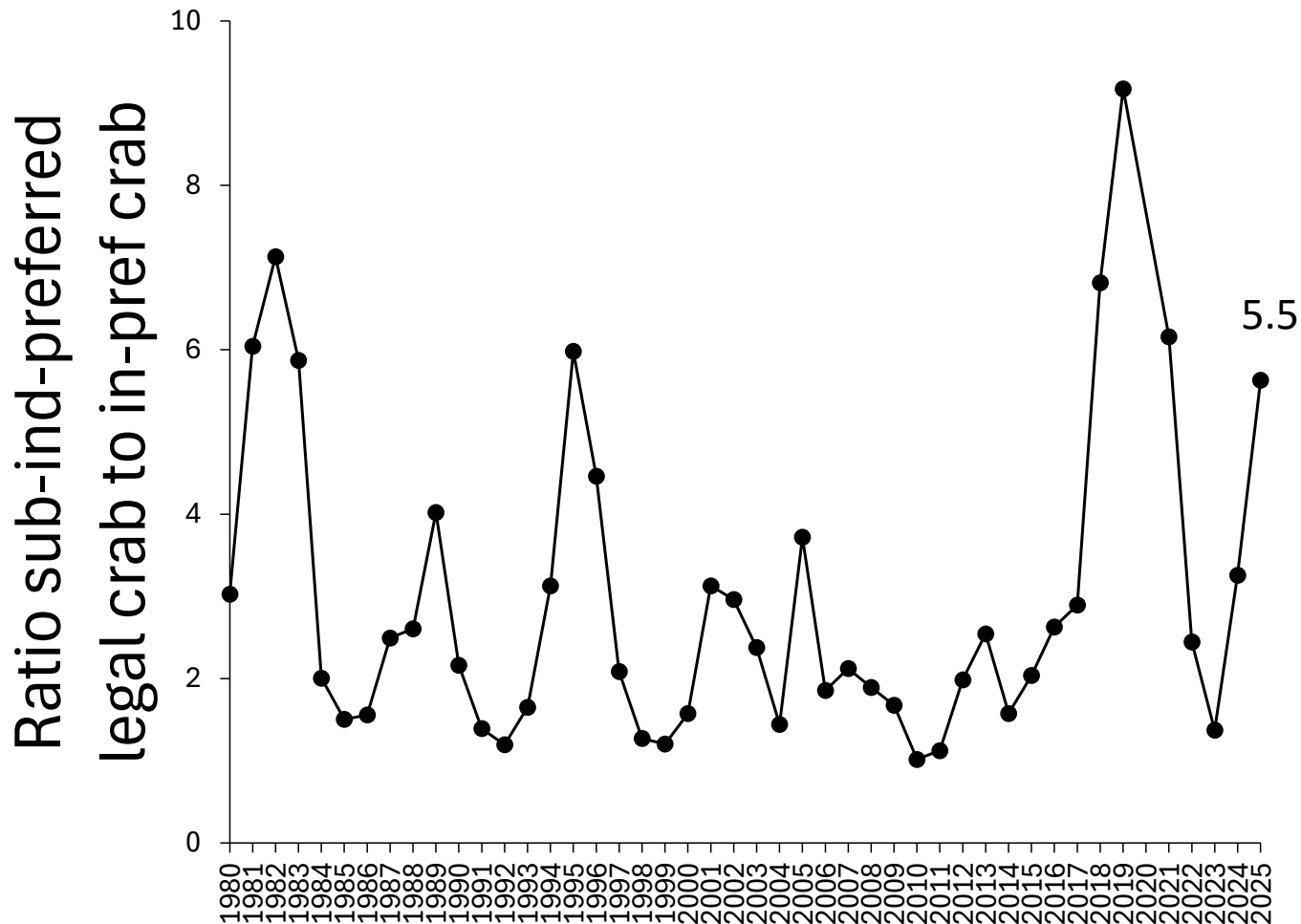
Population size distribution



Of the male crab greater than 3.1 inches (≥ 78 mm), ~85% are less than 4.0 inches (101 mm)

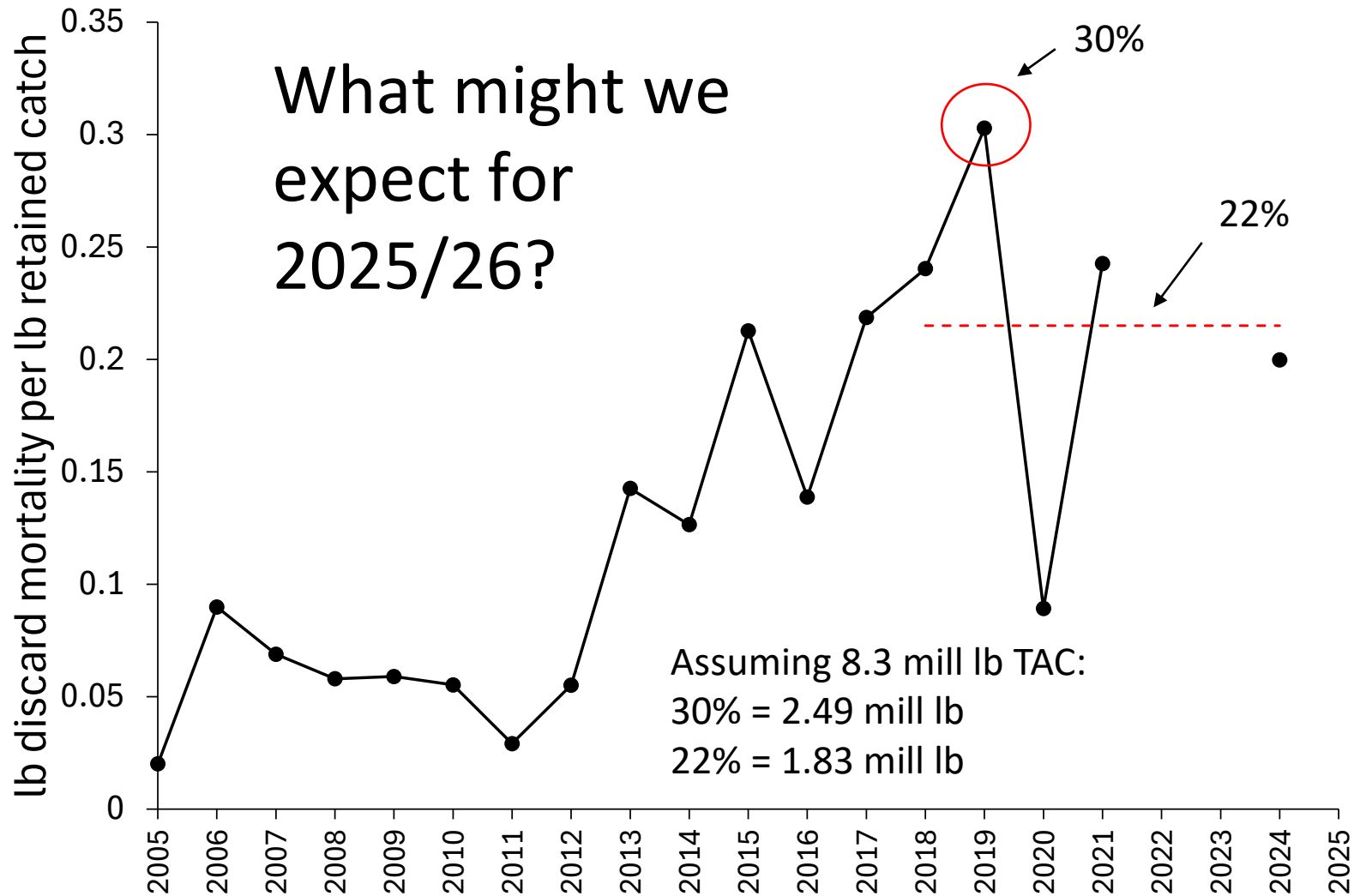
Potential high encounter rate of sub industry preferred crab?

Population size distribution

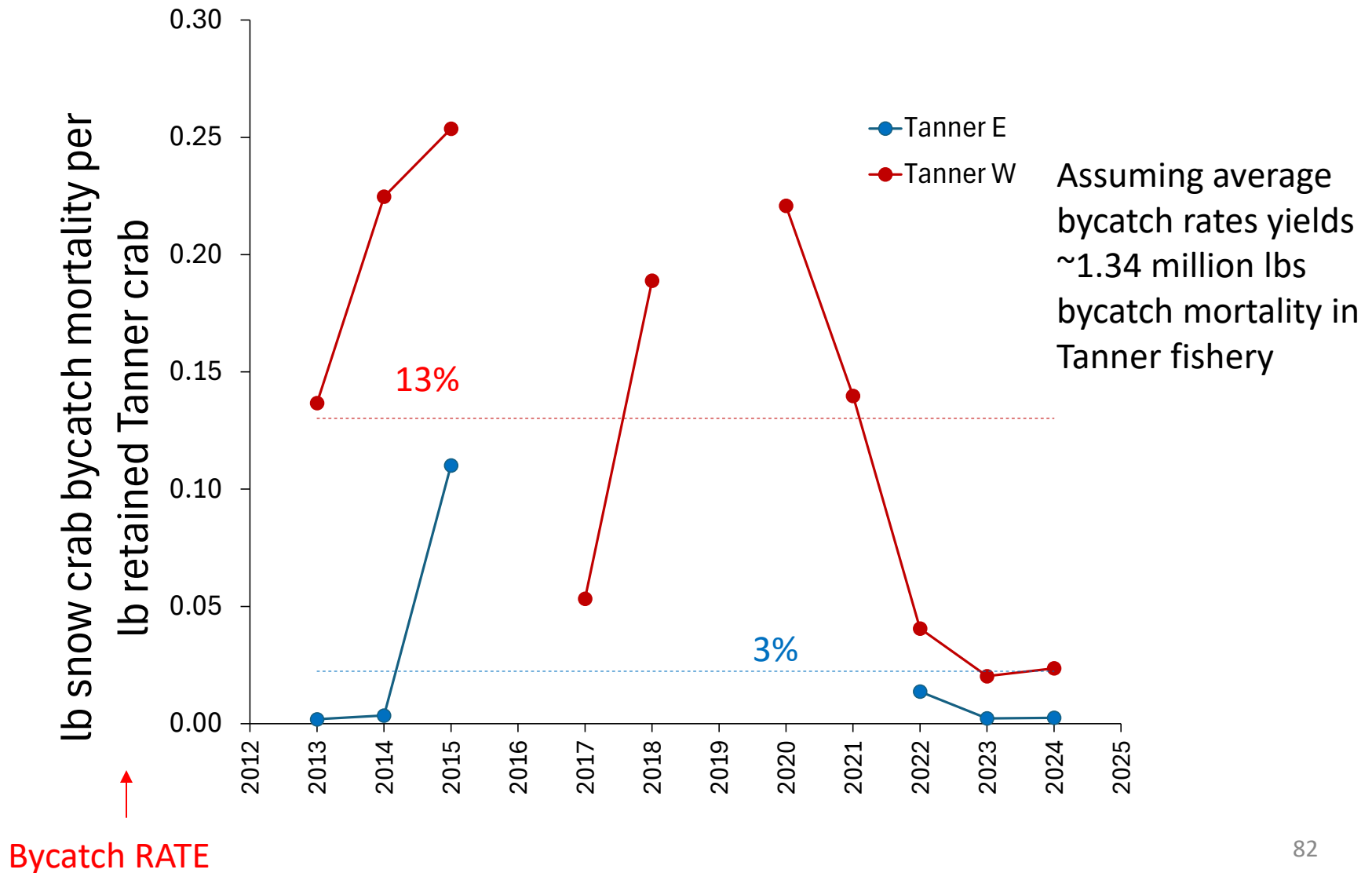


Suggests that, for every 4 inch male crab, 5.5 sub industry preferred legal crab will be encountered

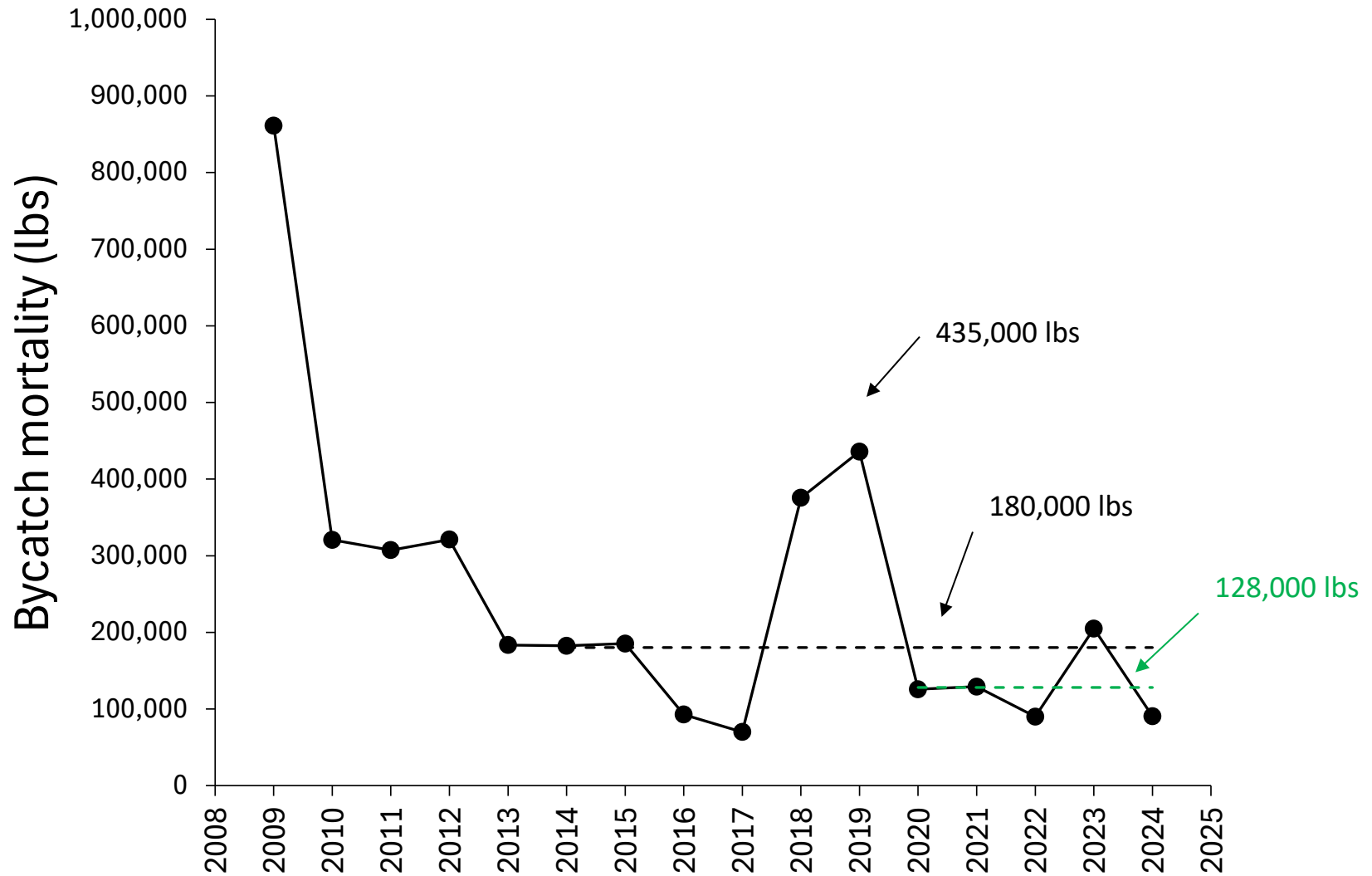
Directed fishery discard mortality rate



Snow crab bycatch mortality in Tanner fisheries



Snow crab bycatch mortality in groundfish fisheries



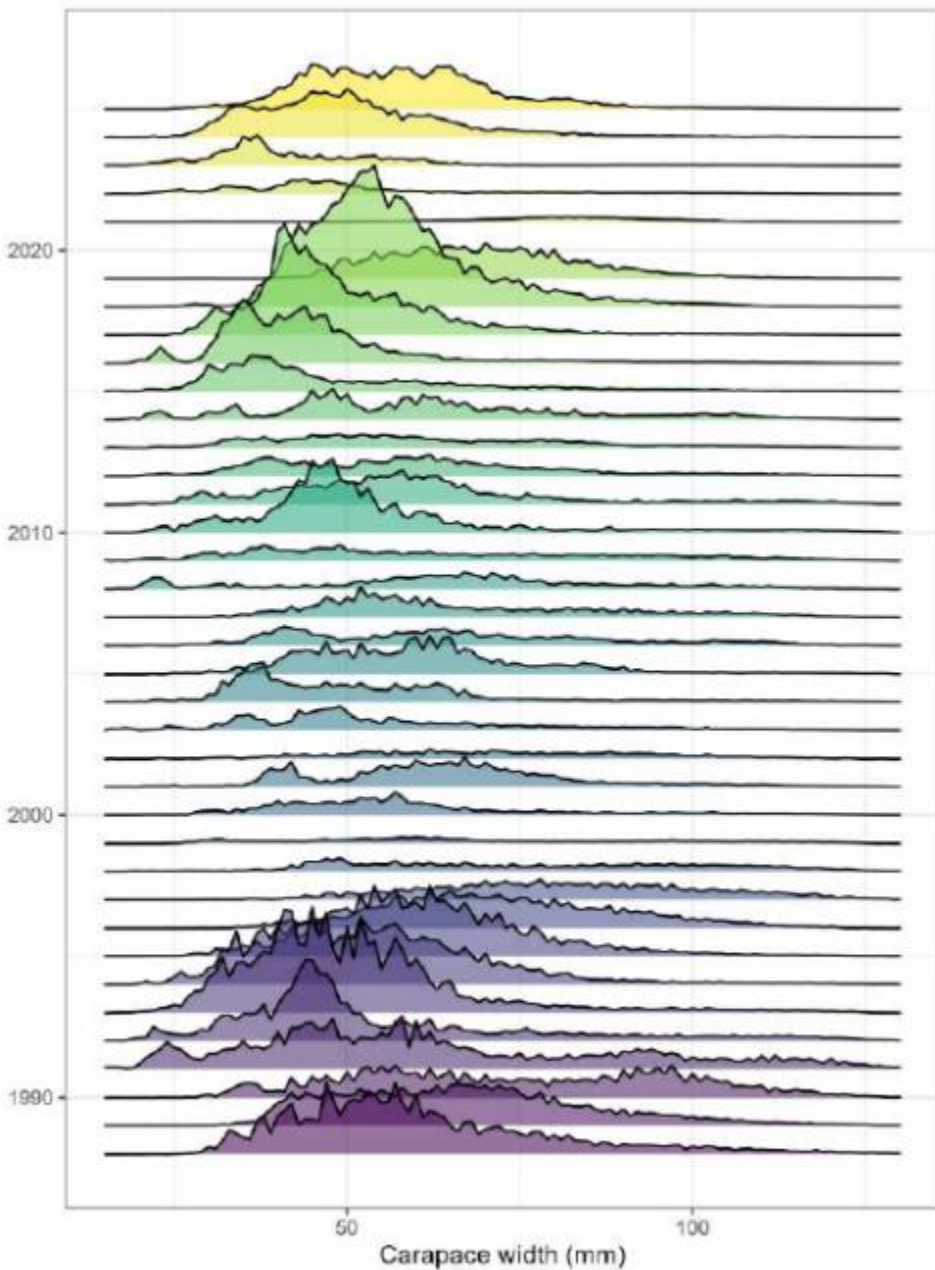
Precaution is warranted

- Large males are important for population dynamics
- Large males are still near timeseries lows
 - The stock remains in overfished status
- Seeing possible warning signals: density dependence in size at maturity?
- Need to make sure we are not impeding population growth
- How we define MMB as “currency of management” is an ongoing challenge
 - Morphological vs functional maturity results in very different management advice, largely due to the lots of small mature males in system
- TAC = 8.3 million lbs
 - 10% exploitation on mature males, defined as ≥ 95 mm

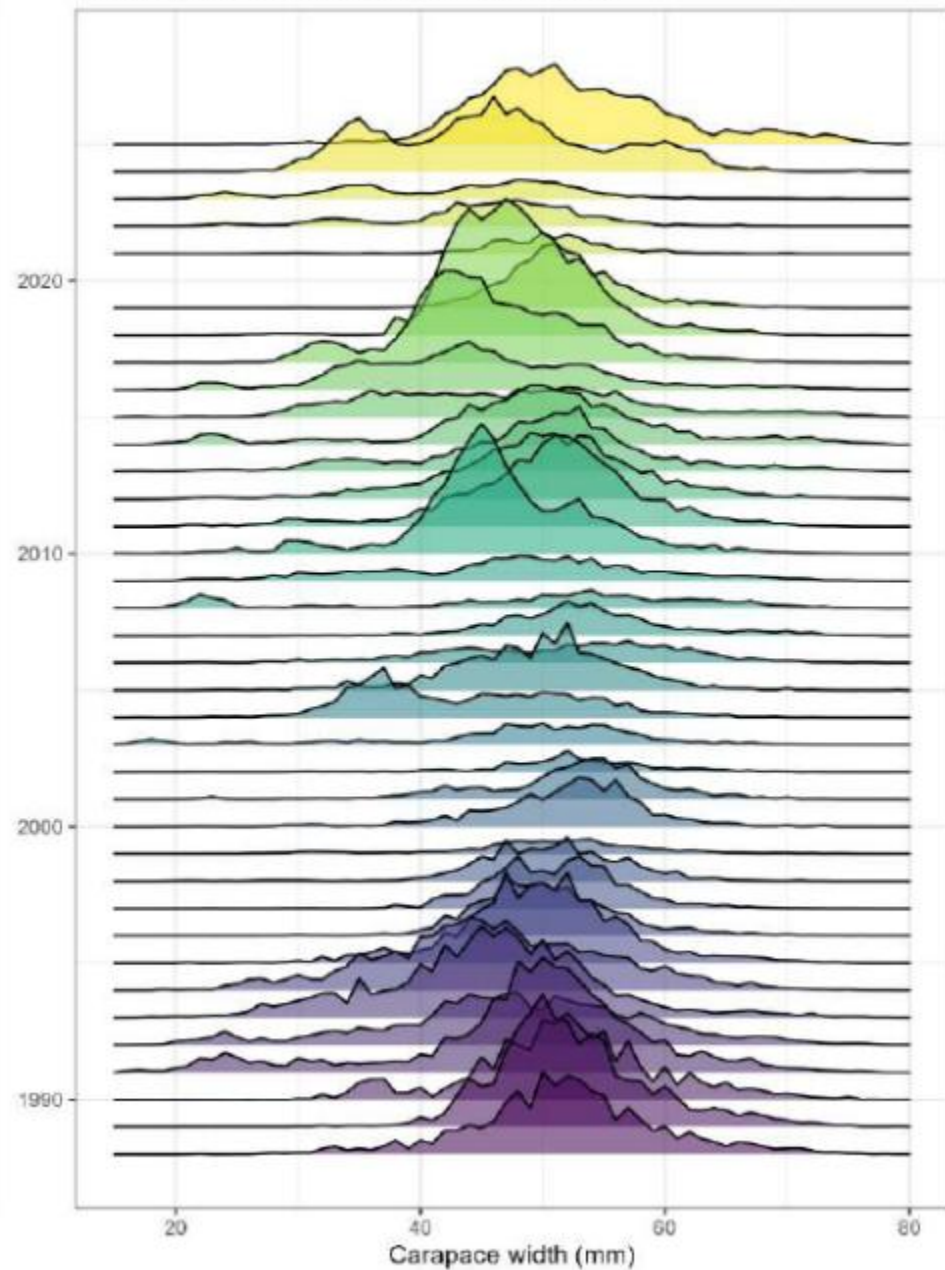
.....But,

there's reason for optimism

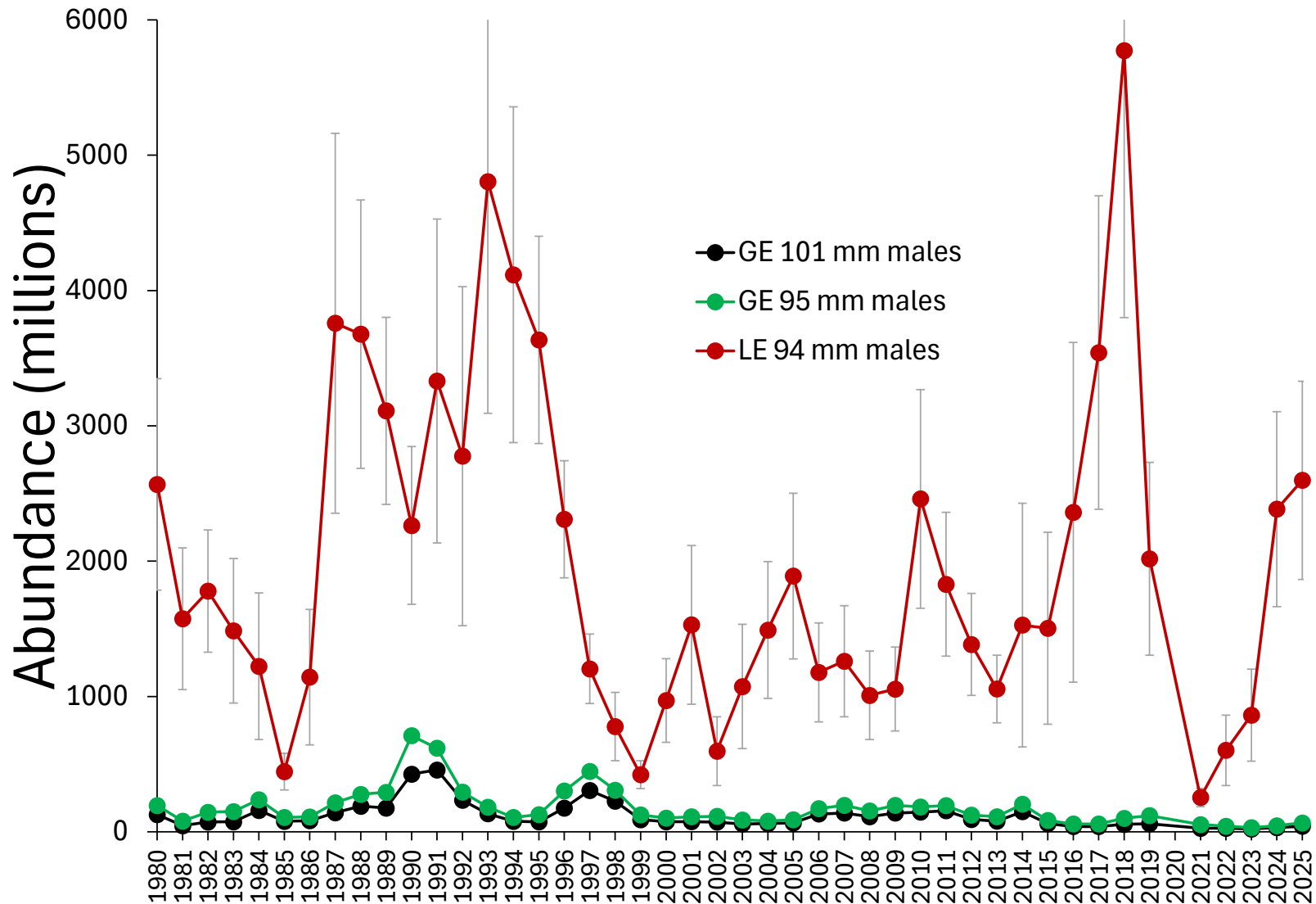
Male Eastern Bering Sea Snow Crab



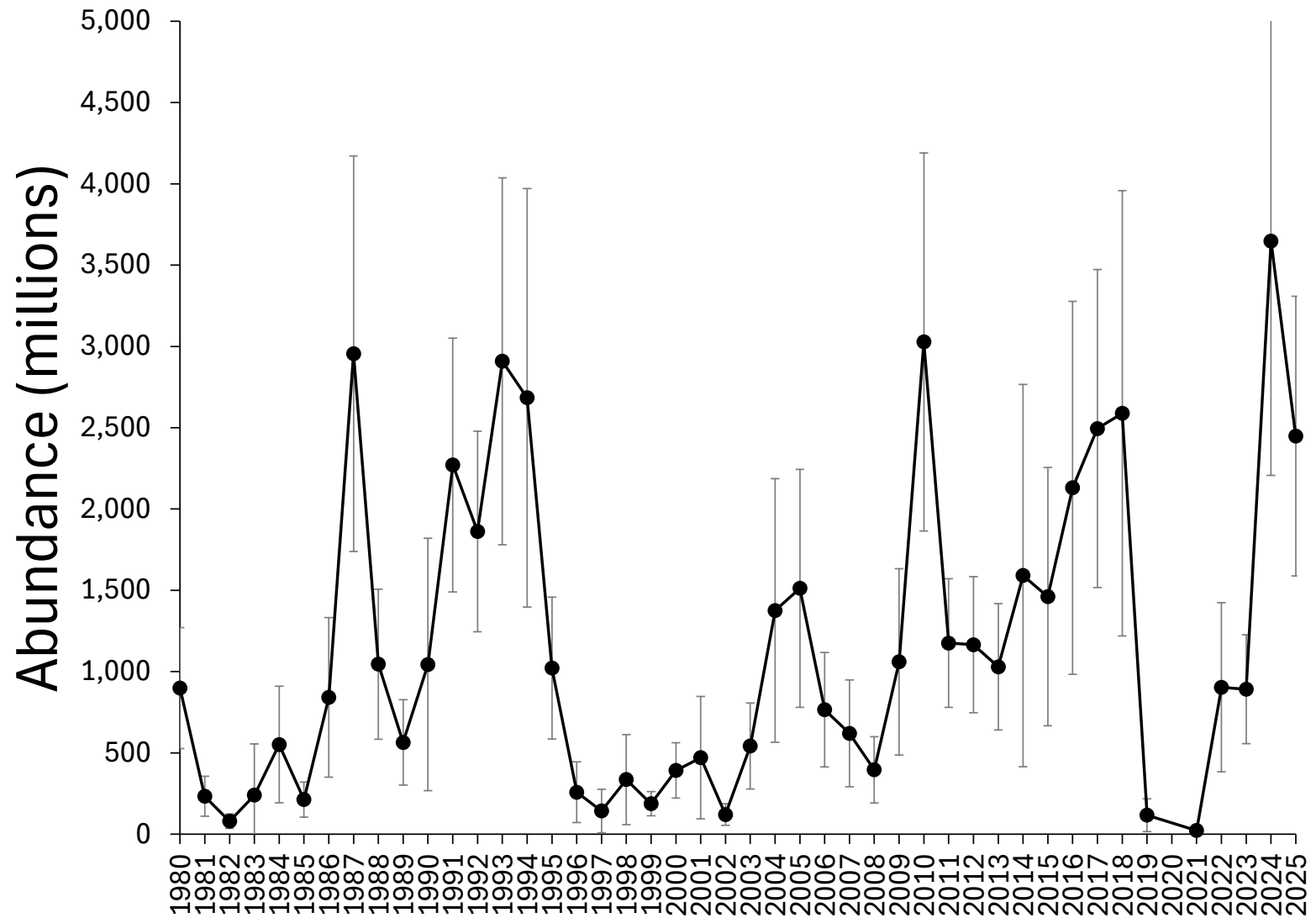
Female Eastern Bering Sea Snow Crab



Survey data: <95 mm males



Survey data: immature females



Chionoecetes Hybrids

Review: legal vs biological definitions

- **Legally**, hybrids do not exist: *Chionoetetes* crab are either *bairdi* or *opilio*
 - 2 red eyes and an “M” shaped mouth = *bairdi*
 - Everything else is an *opilio*
- **Biologically**, hybrids exist, and physical traits occur across a spectrum
 - Variations in “mouth” shape, eye color, carapace morphology, spination
 - “bairdi-like” vs “opilio-like” hybrids

Epistome (“mouth”) shape



Bairdi



Opilio

Epistome (“mouth”) shape



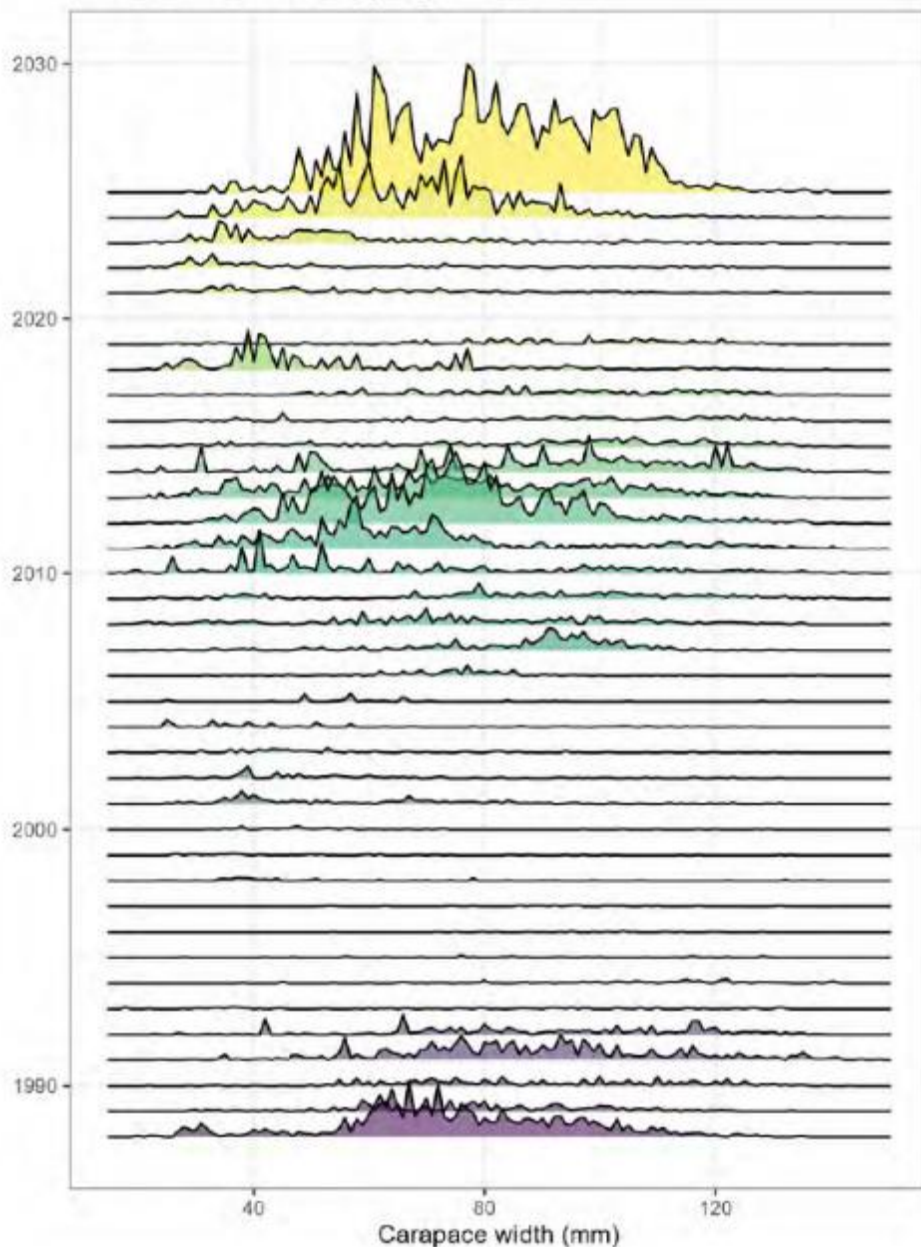
Bairdi



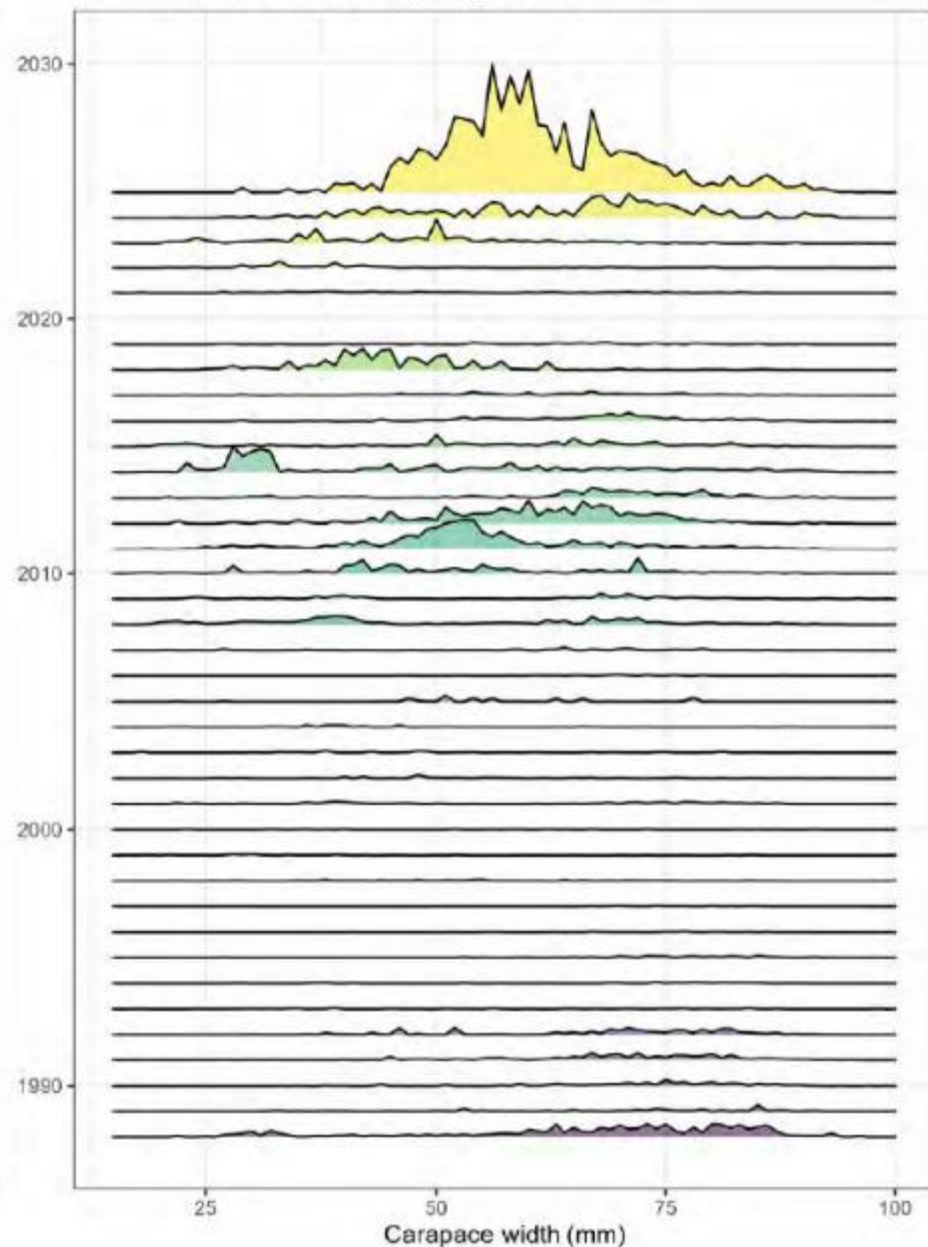
Opilio



Male *Chionoecetes* spp. Hybrid Crab

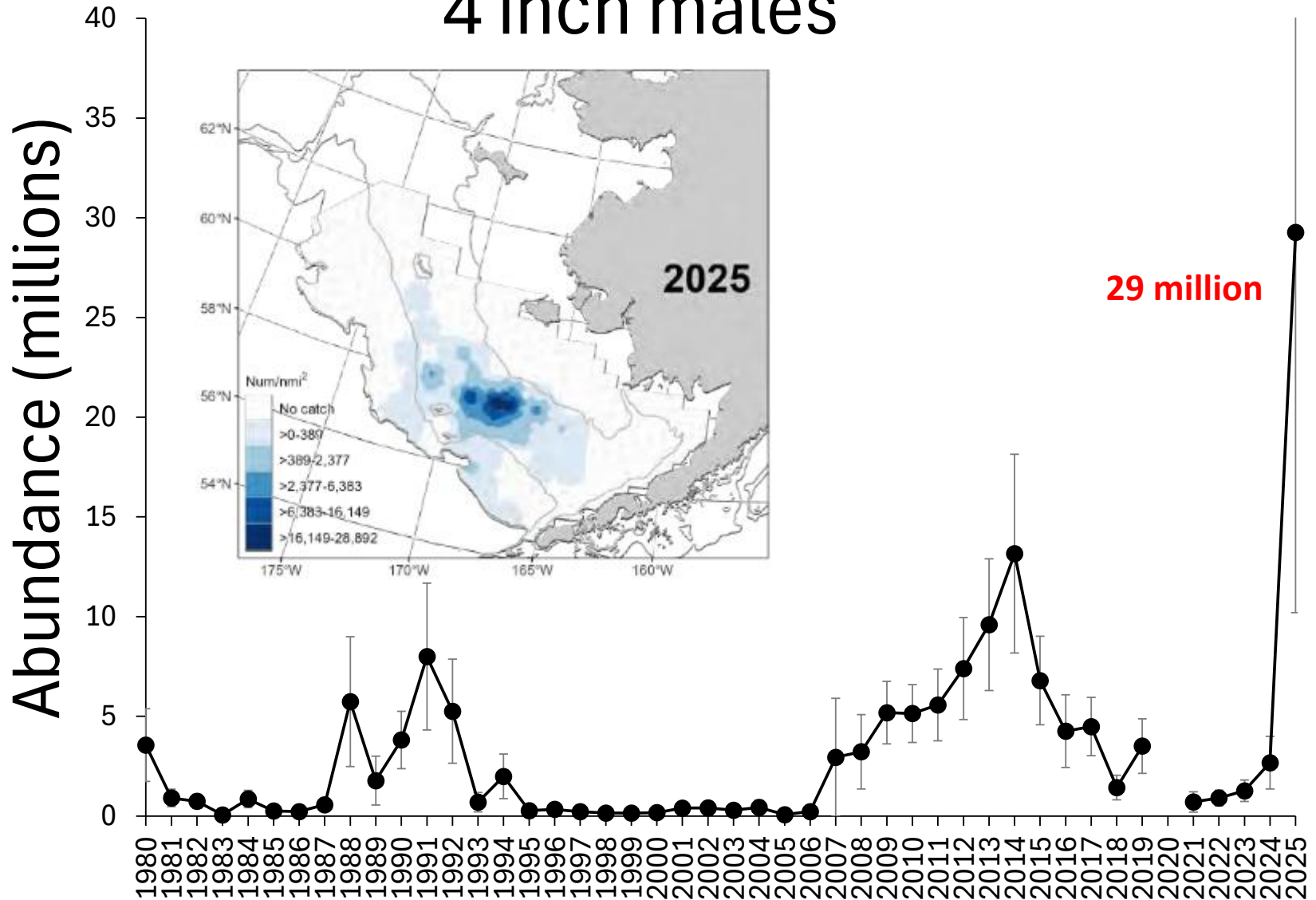


Female *Chionoecetes* spp. Hybrid Crab

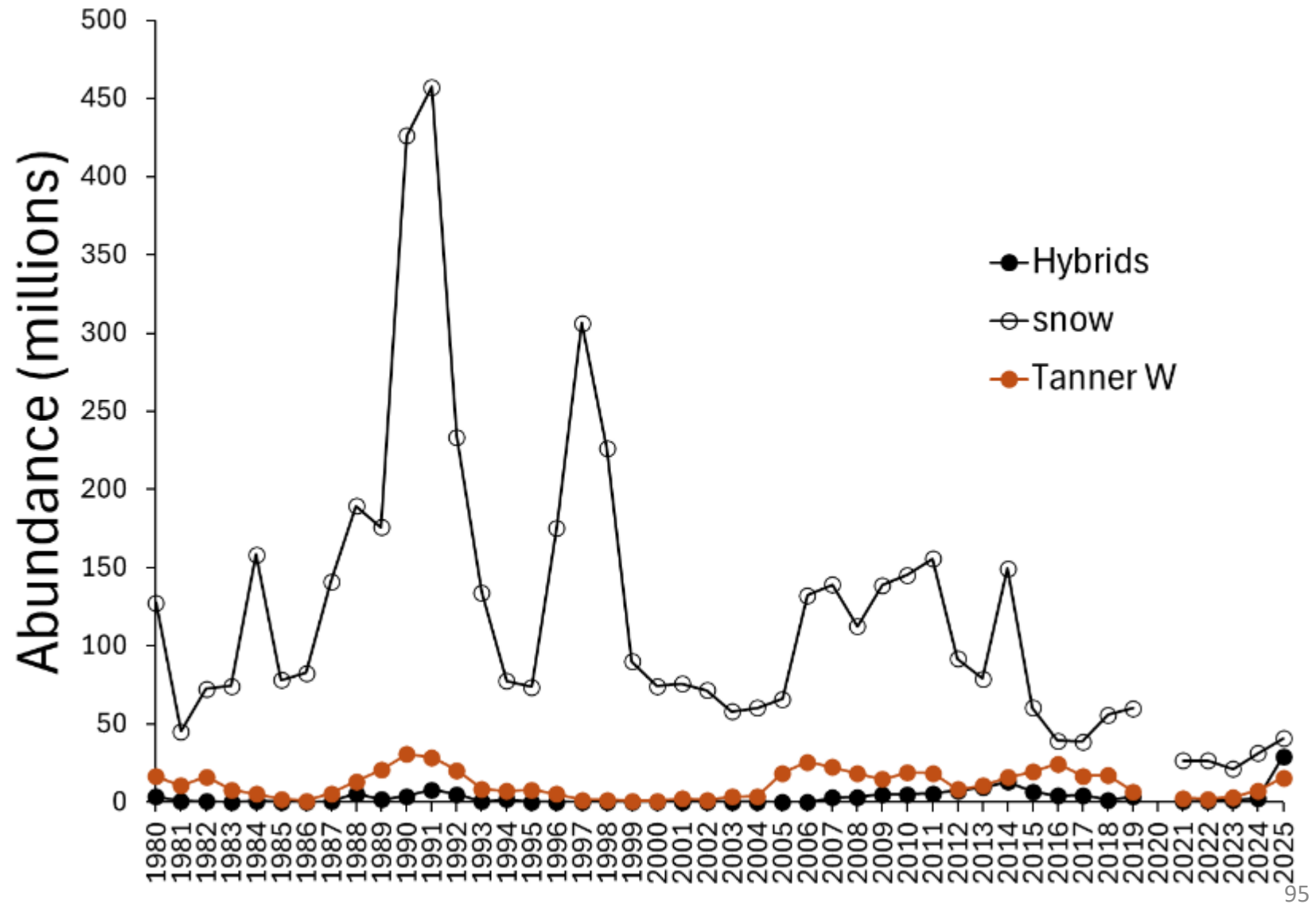


Survey data: large males

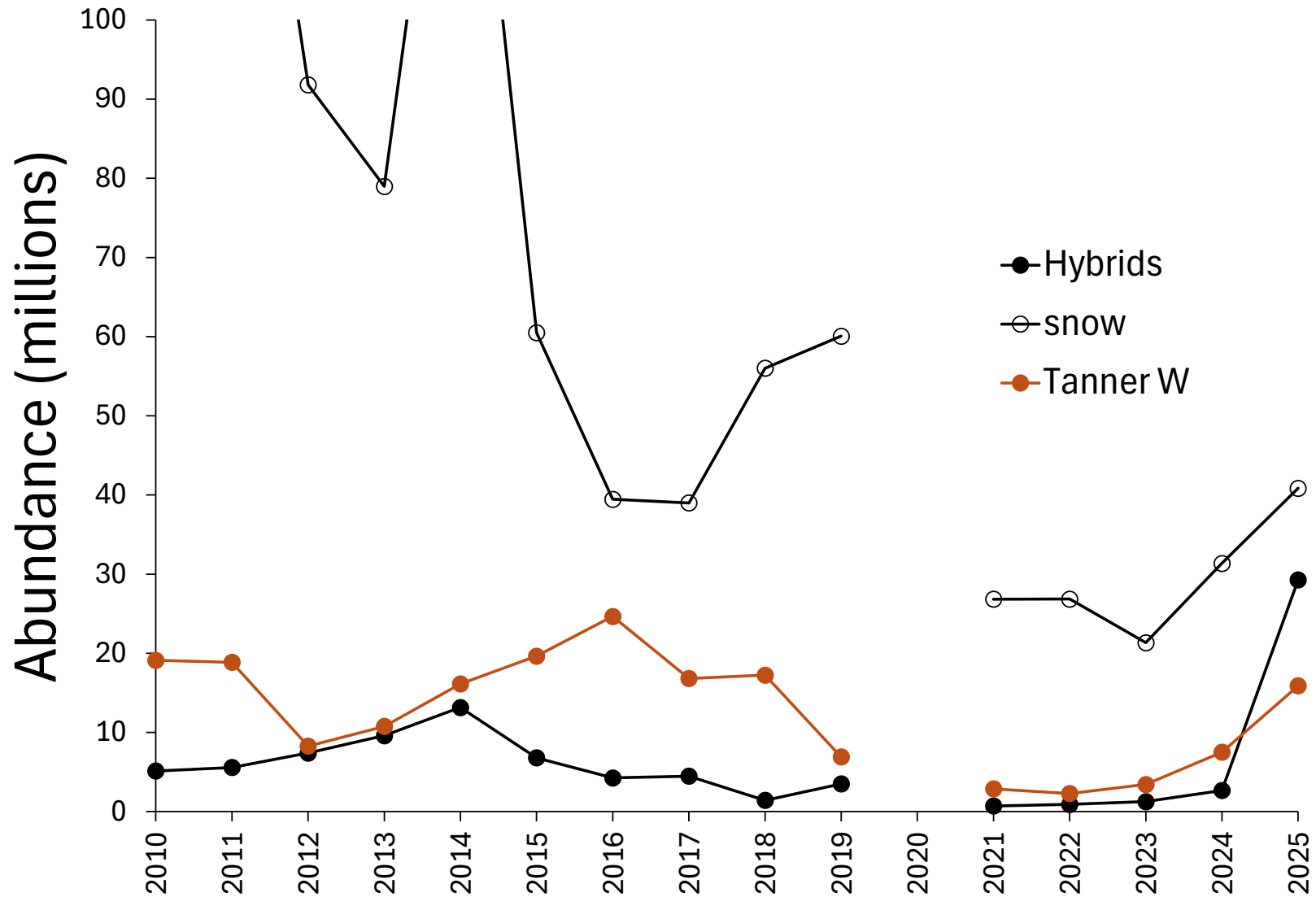
4 inch males



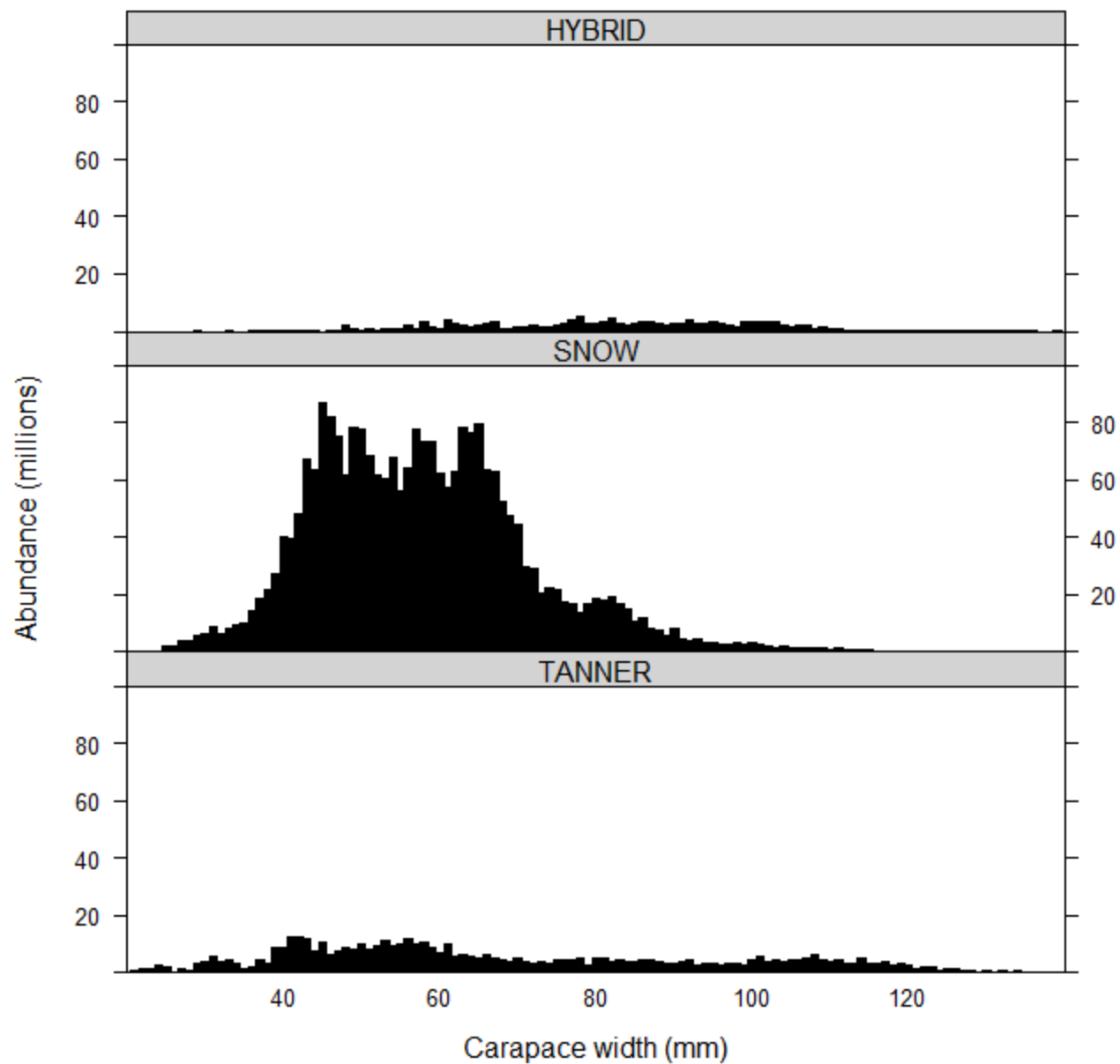
Industry-preferred



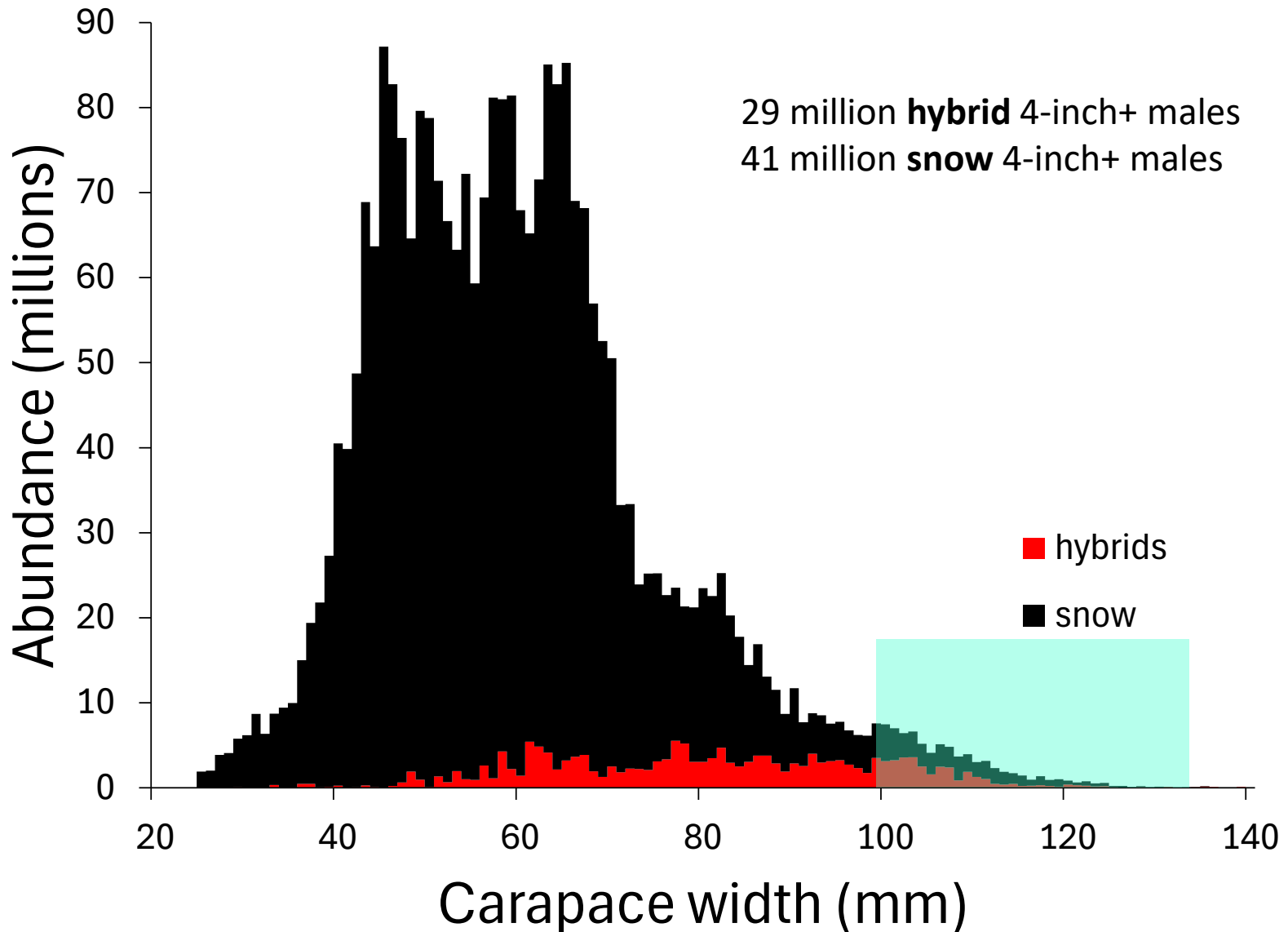
Industry-preferred



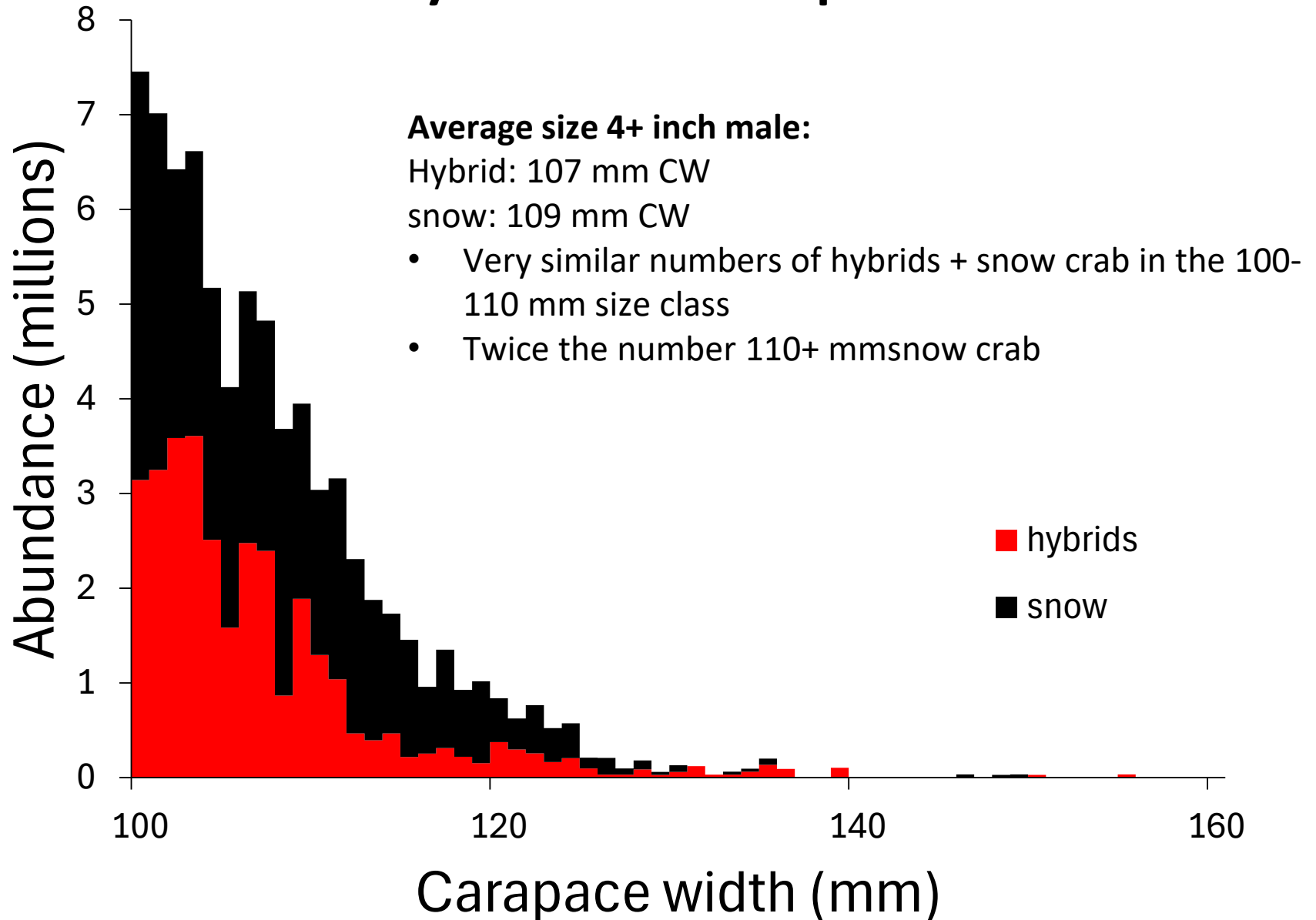
Male Chionoecetes crab 2025



2025 survey area-swept

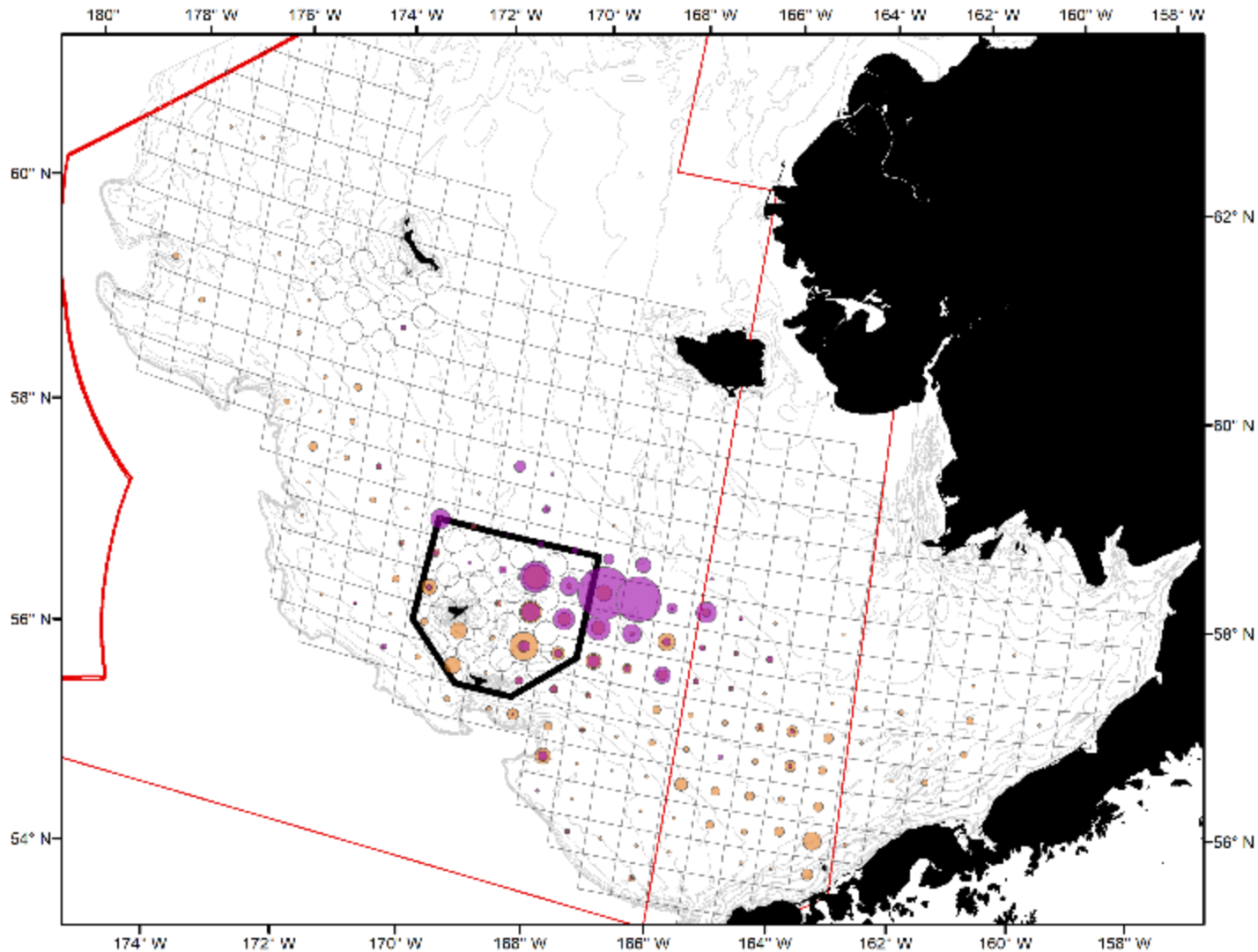


2025 survey area-swept



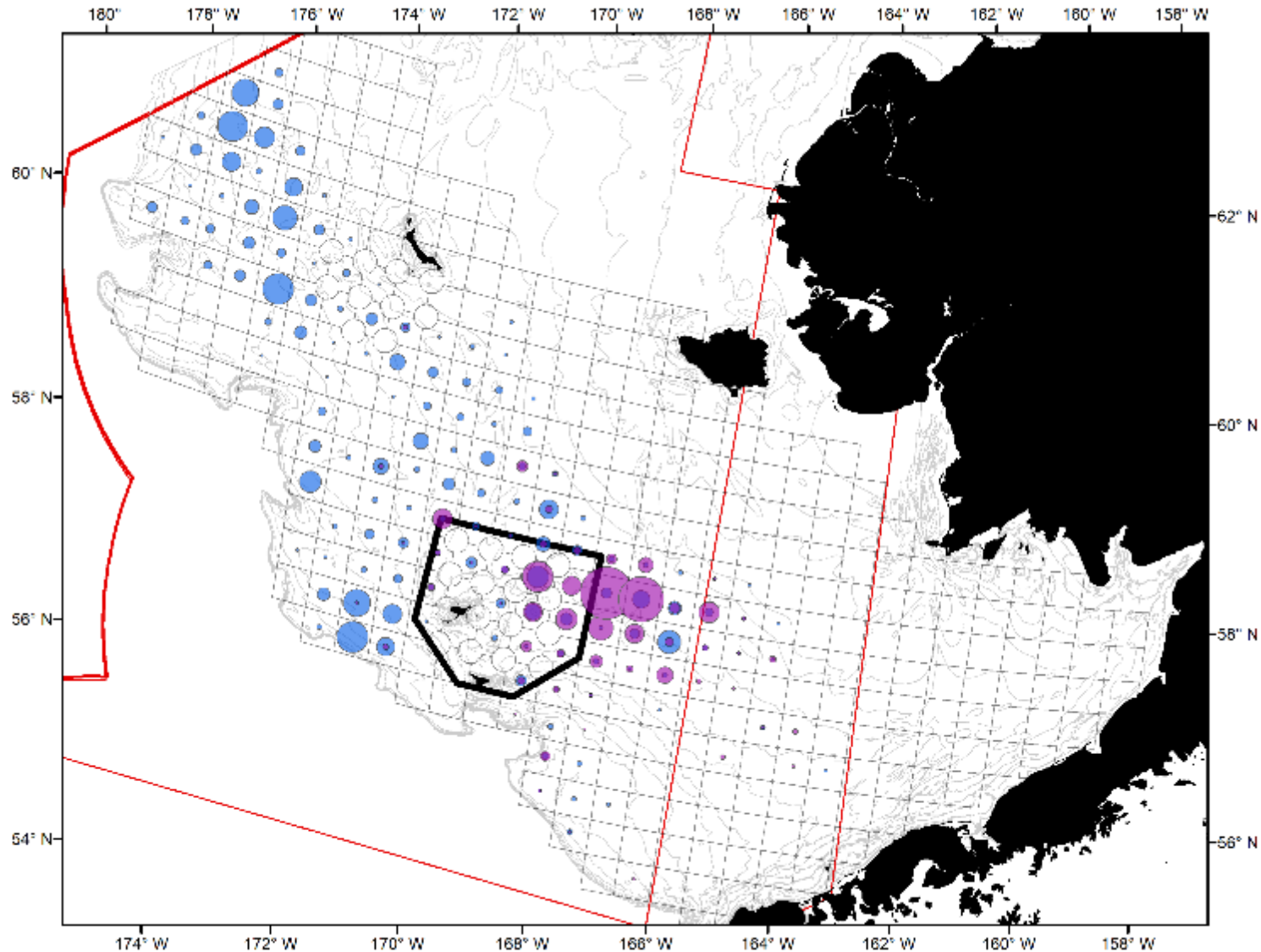
Orange: 5 inch male Tanner
Purple: 4 inch male hybrid

2025 survey data



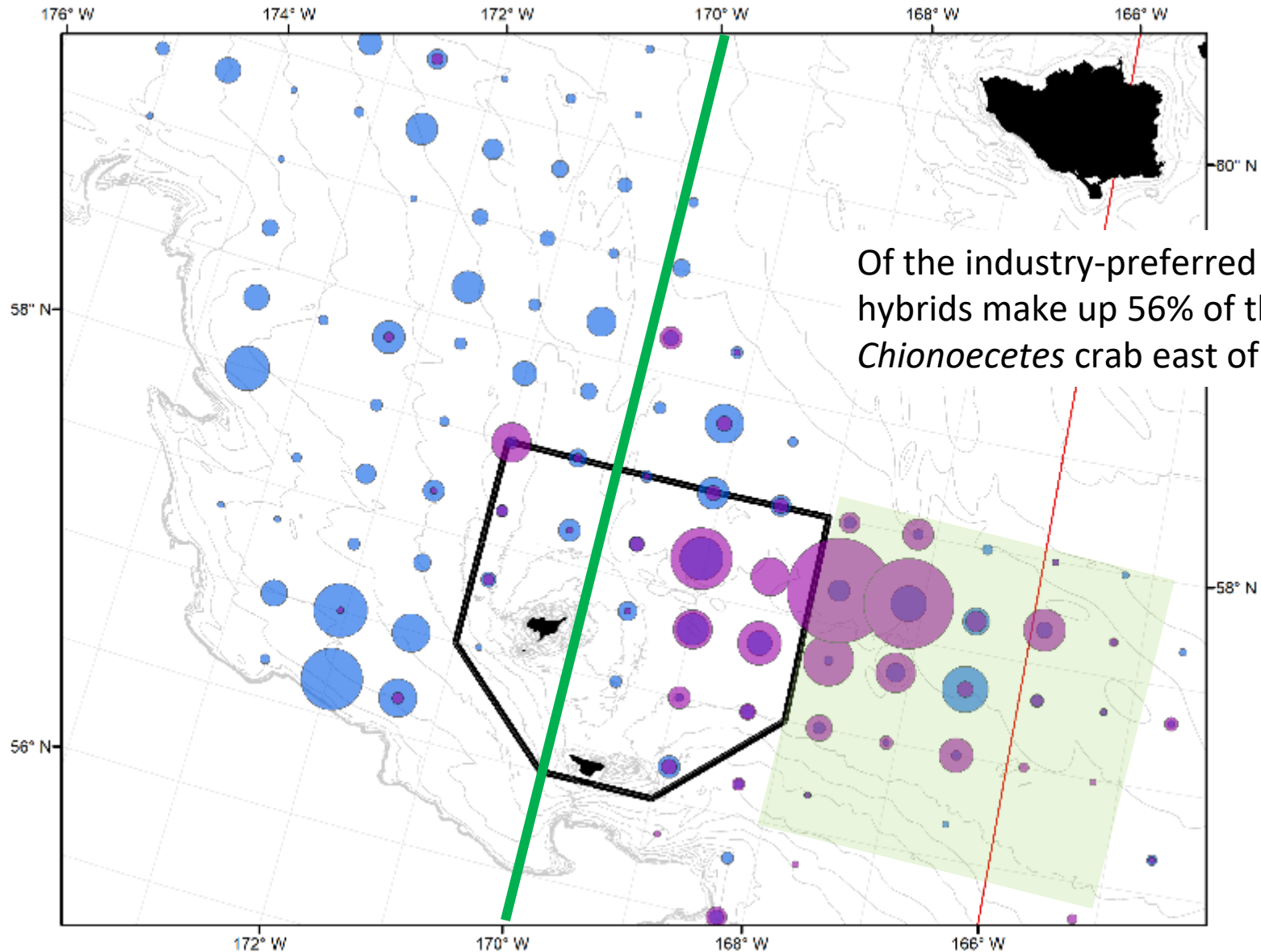
Blue: 4 inch male snow
Purple: 4 inch male hybrid

2025 survey data



Blue: 4 inch male snow
Purple: 4 inch male hybrid

2025 survey data



Of the industry-preferred size males, hybrids make up 56% of the *Chionoecetes* crab east of 170 W long

Biological and ecological considerations

- Hybrids result from bidirectional parental crosses
 - No reproductive barriers between species
- Interspecies mating likely depends on relative abundance of each species by sex and size, which can vary greatly over time and space
- Further work is needed to determine whether hybrids are reproductively viable
 - Some suggestion of introgression of genetic material between the species
 - Hybrid fecundity unknown

Biological and ecological considerations

Genetic variation important for adaptation during climate change

- Species with reduced genetic variation are more vulnerable
- Hybrid populations exhibit reduced vulnerability to projected climates compared to pure narrow endemics

Possible conservation value of hybrids

- *“Adaptive introgression may contribute to evolutionary rescue of species with narrow environmental ranges.”*
 - **Adaptive introgression:** the process where genetic variations beneficial to survival and reproduction are transferred from one species or population to another through hybridization and backcrossing, enhancing the recipient's fitness
- *“...managers must be cautious in how they interpret invasiveness and the threat of hybridization.”*

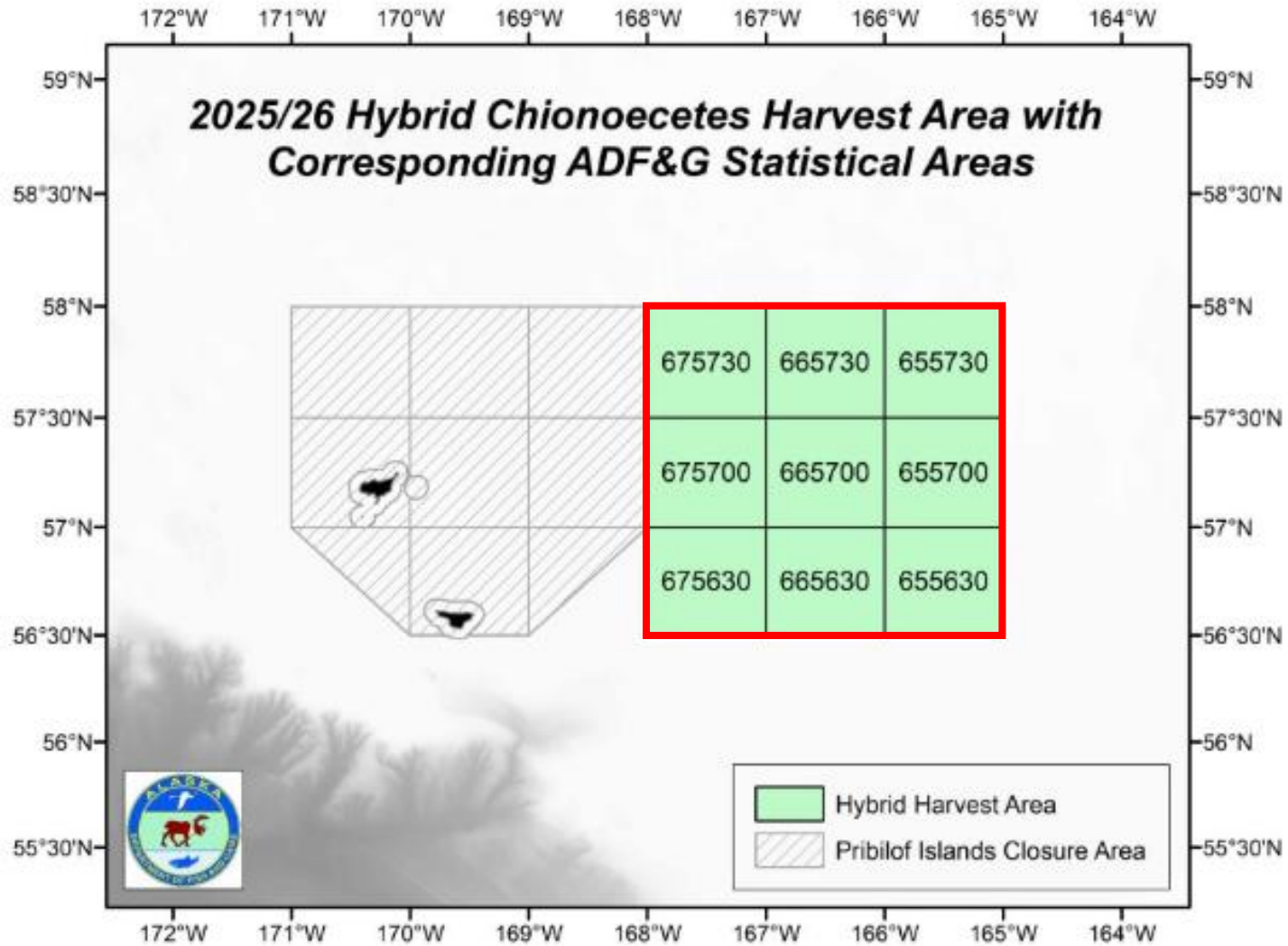
Hybrid Summary

- Substantial increase in hybrid abundance
- Very few 5 inch+ hybrids
- Most “preferred” hybrids are between 4.0 to 4.5 inches
- Greater spatial overlap with Tanner than snow crab fishing
- Unknown ecological value
 - Opposing viewpoints: “Fish ‘em out” to protect the pure stocks vs adaptive introgression
- 1.00 million lb “hybrid add-on”
 - Precautionary exploitation rate to account for uncertainty related to: ecological role, 2025 point estimates, spatial aggregation, and fishing behavior

Hybrid Spatial Management

- The intent of the 1 million lb “hybrid add-on” is an acknowledgement about the industries interest to take advantage of the unprecedented high hybrid abundance
- Risk: Harvesting 9.3 million lbs of pure snow crab inflates the exploitation rate on large snow crab males at a time when snow crab large males are in recovery would be a concern
- There is a spatial mis-match of industry preferred snow and hybrid crab, thus encounter rates of hybrid crab during the snow crab fishery may be low
 - Likely greater hybrid encounter rates in the Tanner W fishery
- To encourage retention of biological hybrids, ADFG is encouraging the fleet to harvest 1 million lbs of biological hybrids from the area of high hybrid abundance identified in the 2025 survey
 - **Hybrid Opportunity Trial Zone: HOT-Zone**

HOT-Zone

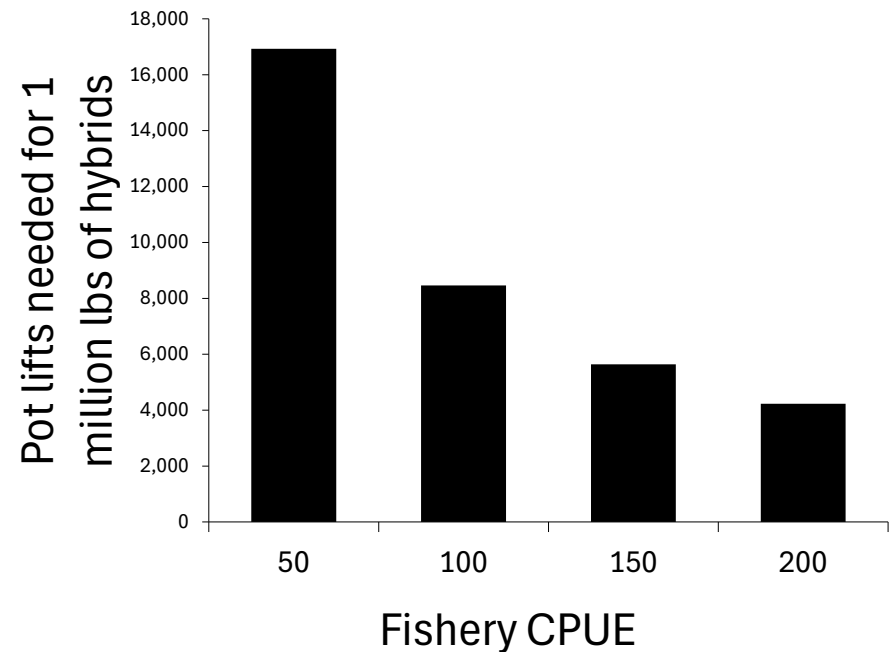
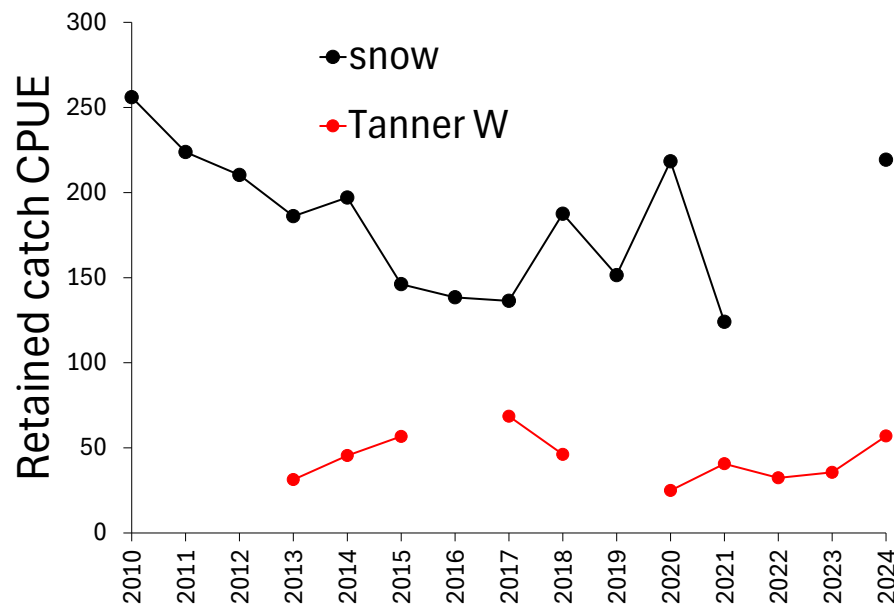


HOT-Zone

- The hybrid add-on and HOT Zone is a step to evaluate the capacity of the fleet to target hybrid crab without compromising the ability for the snow crab population to recover
- Post-season catch evaluation to verify fleet behavior:
 - Retained crab by stat area
 - Daily Fishing Logbooks (DFLs)
 - VMS
 - Observer and dockside data

Hybrid Fishing

1.00 million lbs represents approximately 850,000 4-inch male hybrids, assuming average weight = 1.18 lbs per crab



Tanner crab

2025 Assessment: Scenario 22.03d5

- SSC + Council adopted CPT recommendations
- Stock status
 - Current: 230% of B_{MSY}
 - Projected: 176% of B_{MSY}
- OFL: 112.47 million pounds
- ABC: 89.98 million pounds
 - Total fishery mortality of males and females
 - Based on a 20% buffer on OFL

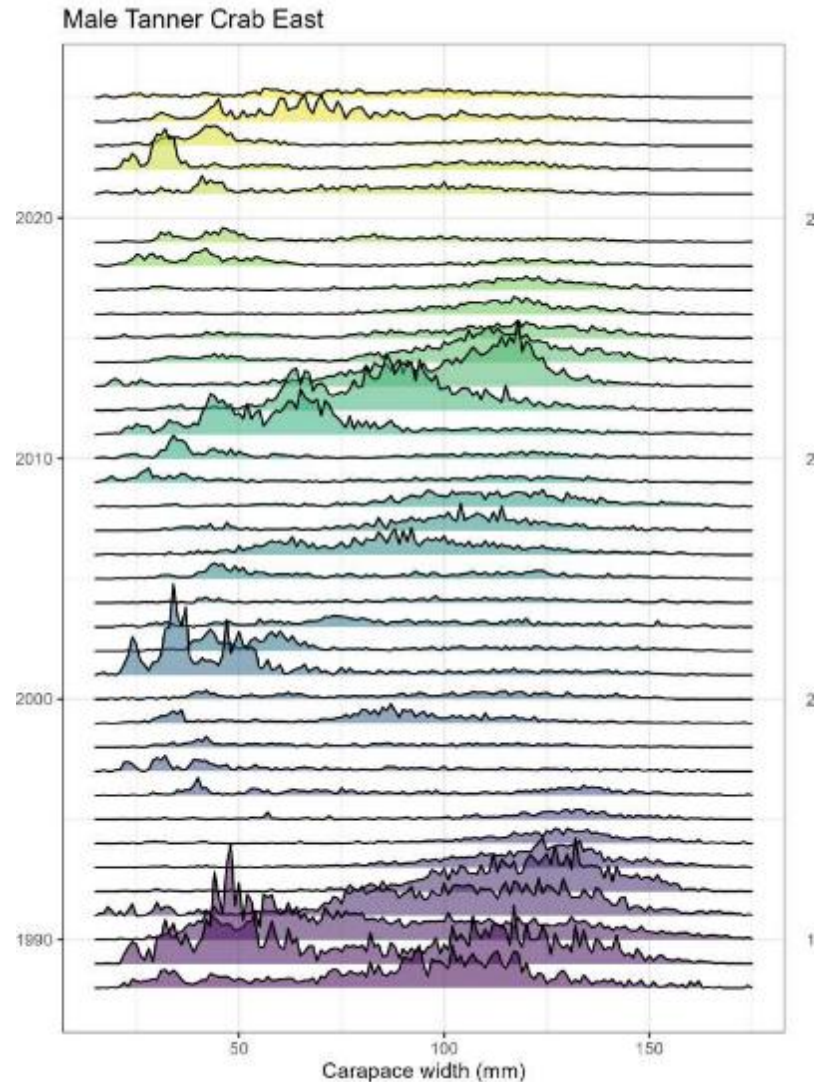
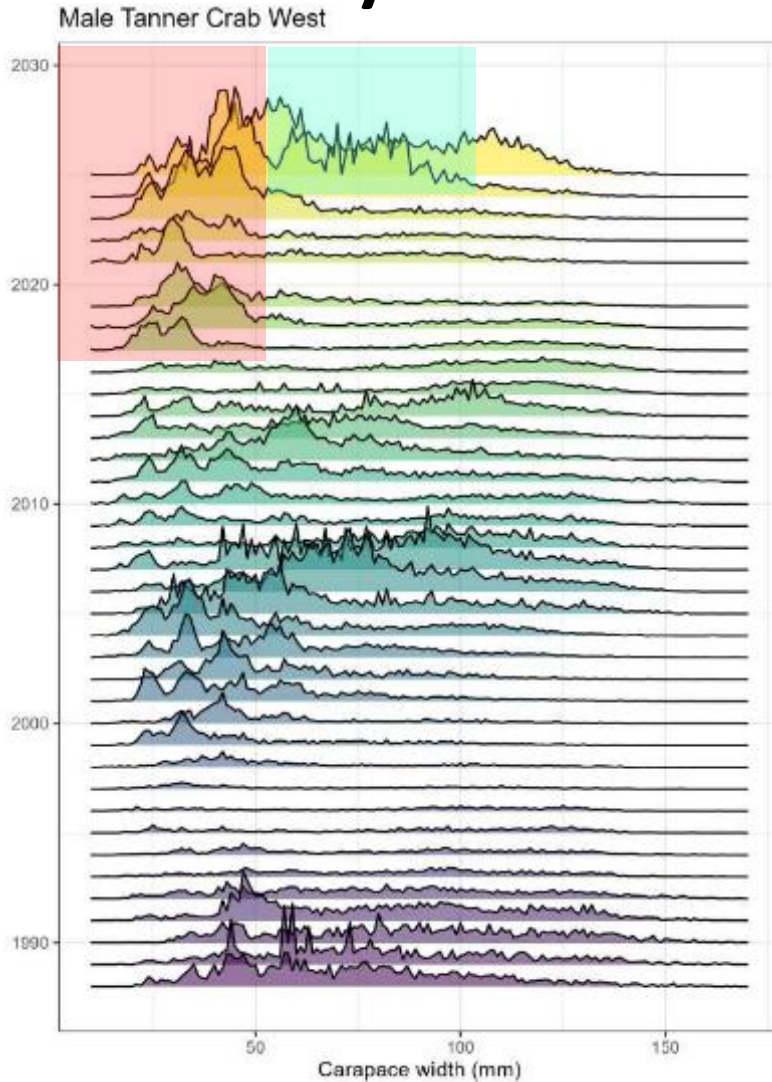
2025 Assessment model

- Same mode as last year (22.03d5) with updated data
- Good convergence
- No parameters hitting bounds
- Retrospective pattern for MMB is small
- Similar fits as 2024 assessment
- Overly optimistic
 - Growth overprediction at larger sizes

But...

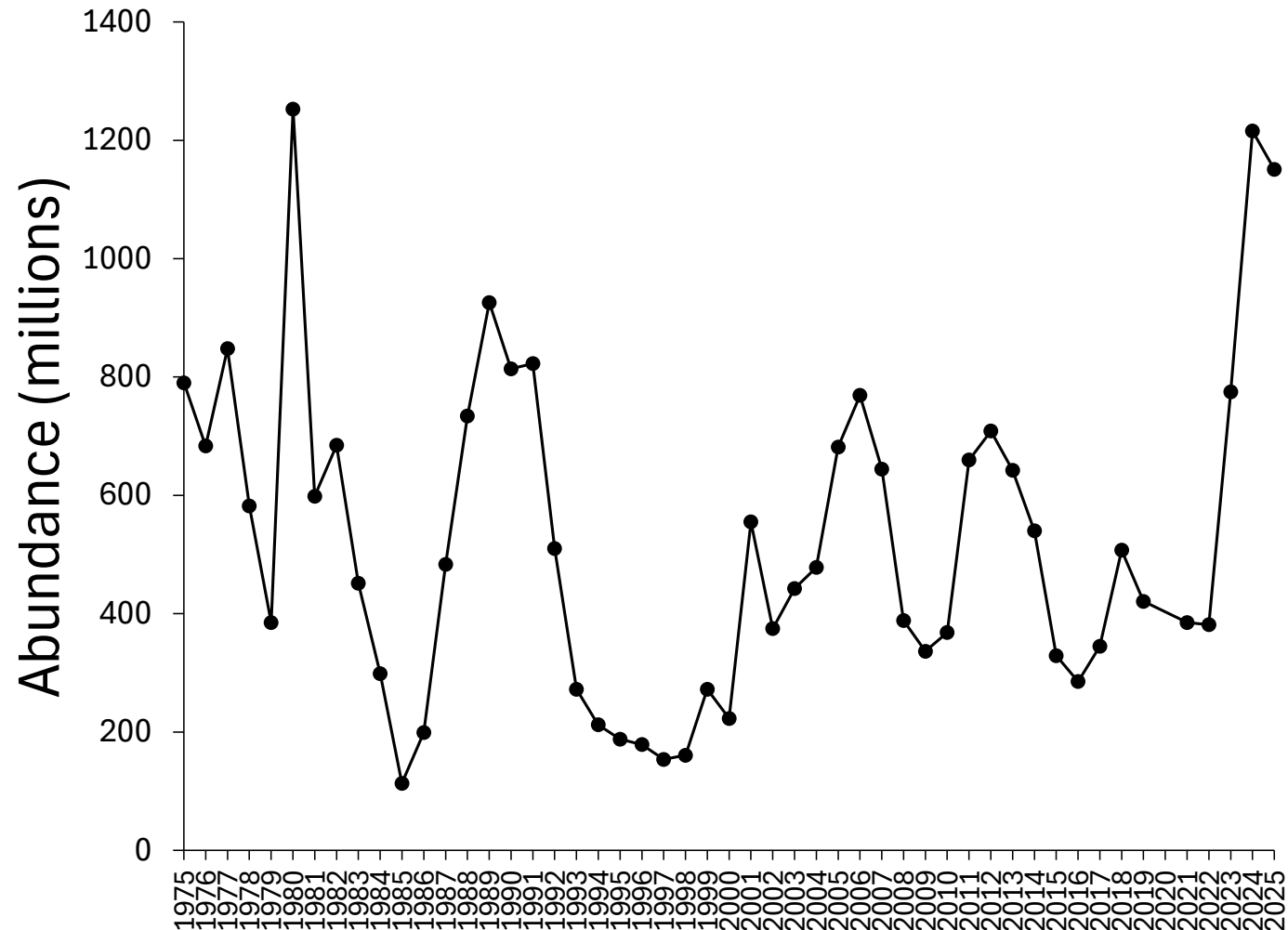
- Poor fit to terminal year biomass
- Poor fit for large crab
- Overly optimistic OFL
- Management currency issue the same as with snow crab, but less of a concern for Tanner crab, mainly because there is a smaller difference between mature size and industry-preferred size

Survey size composition

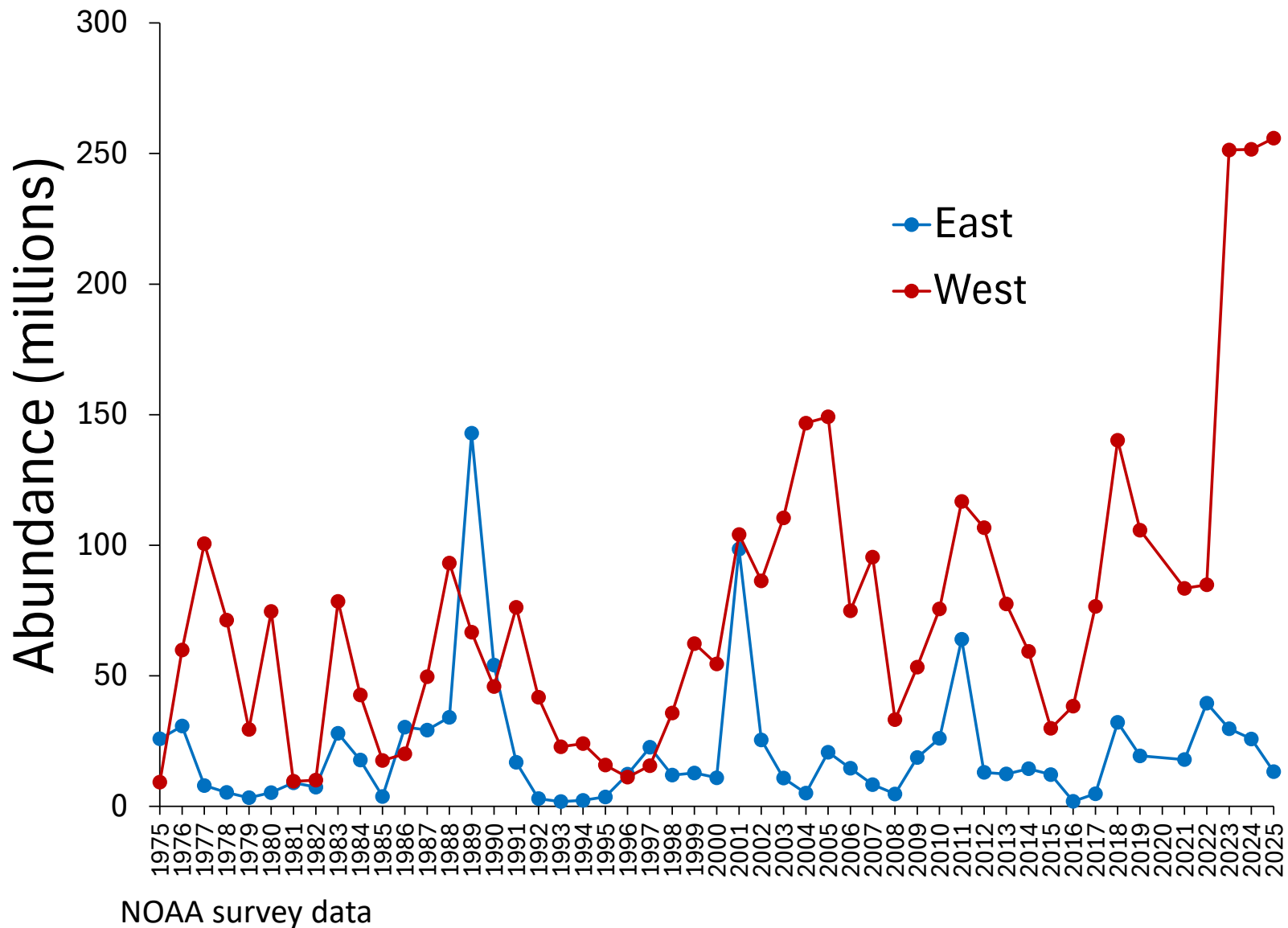


Finally, strong juvenile cohorts propagated to industry preferred size

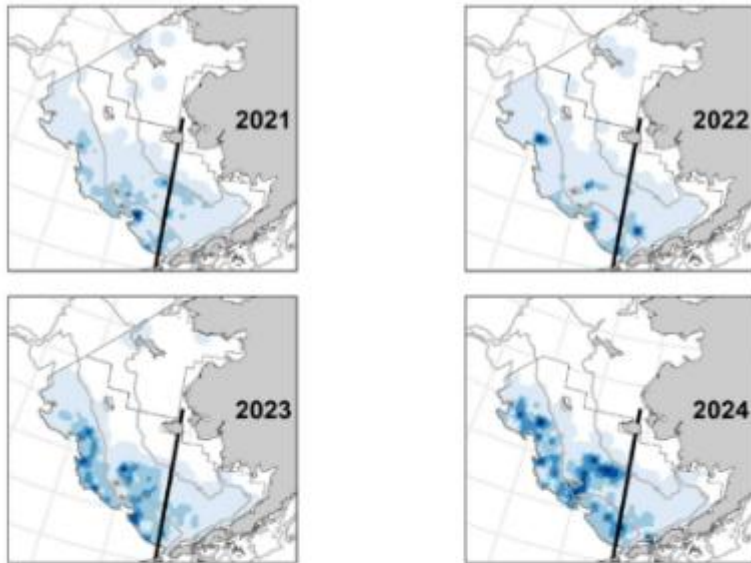
Total crab (both sexes, all sizes)



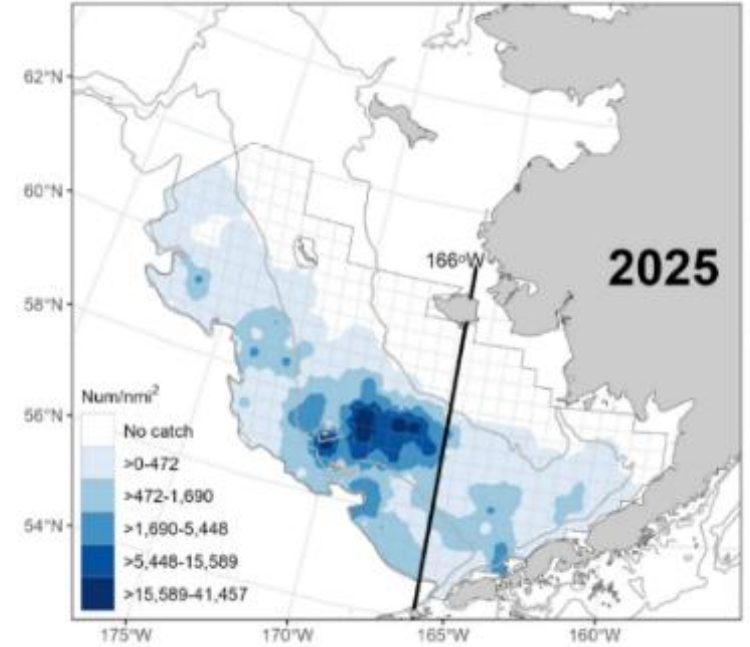
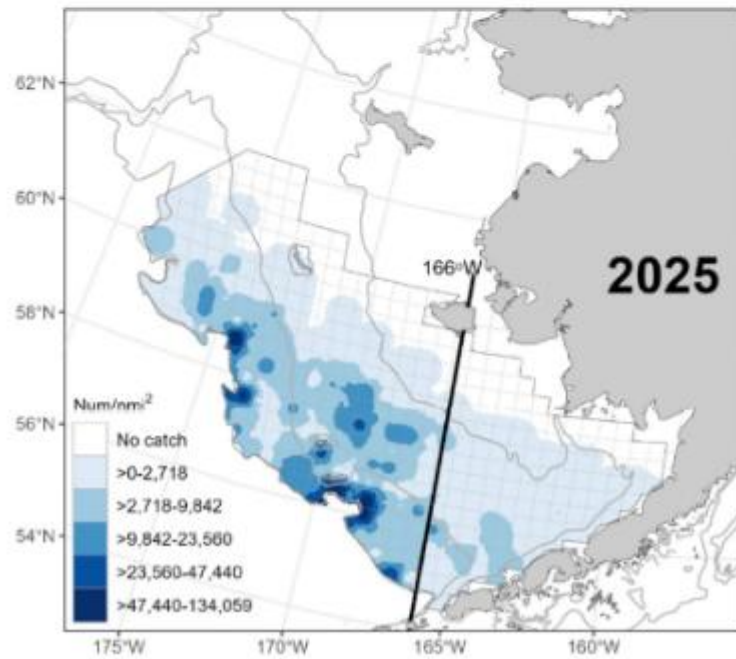
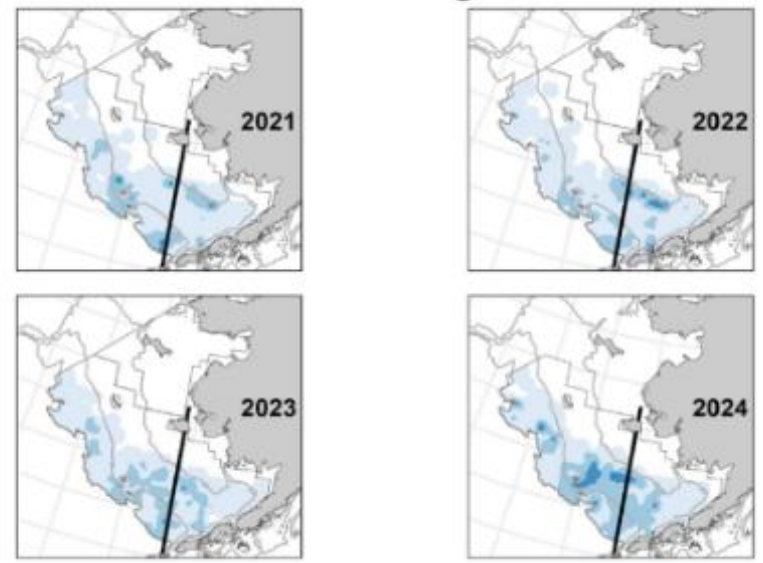
Small (<60 mm) males



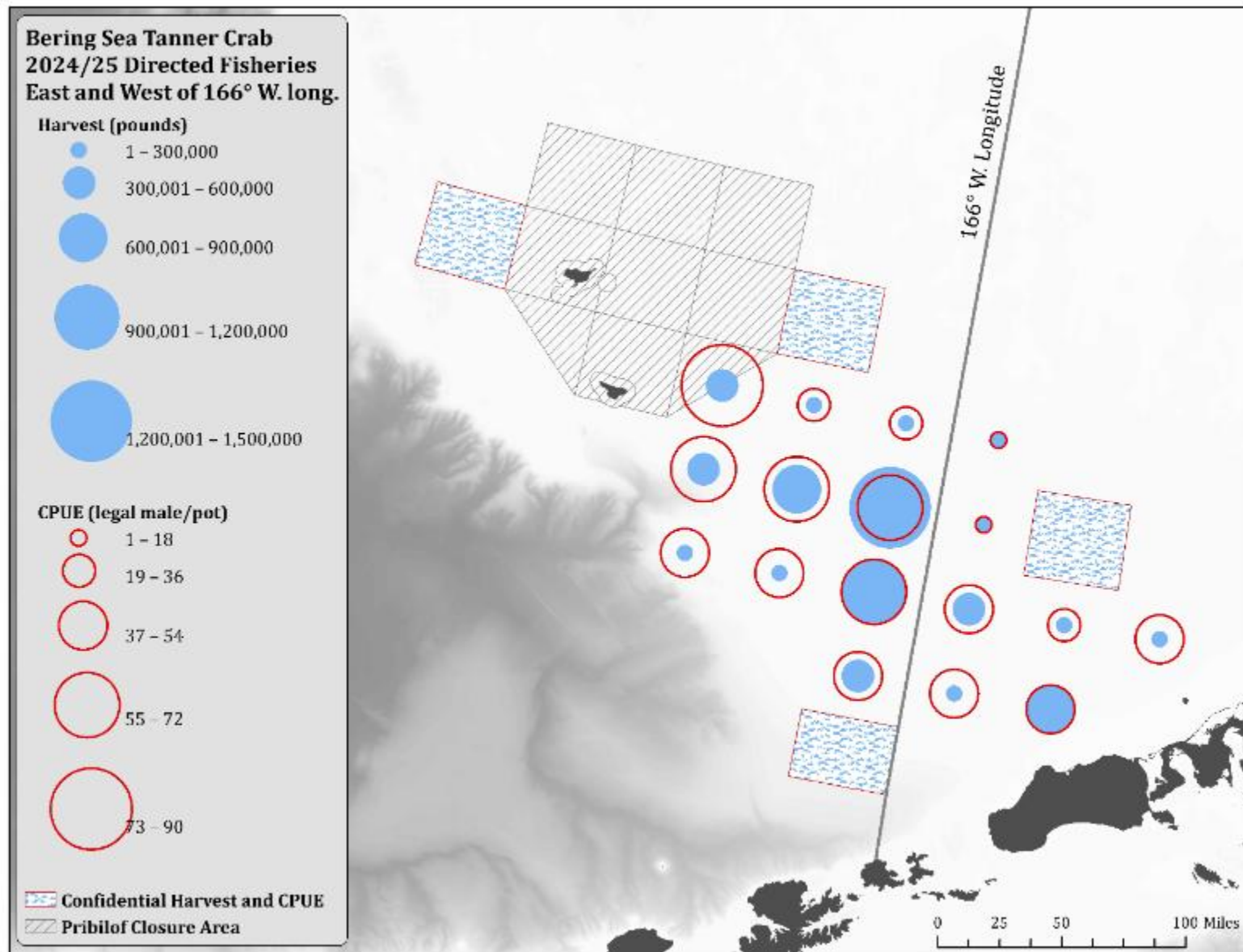
Tanner Crab Small Male



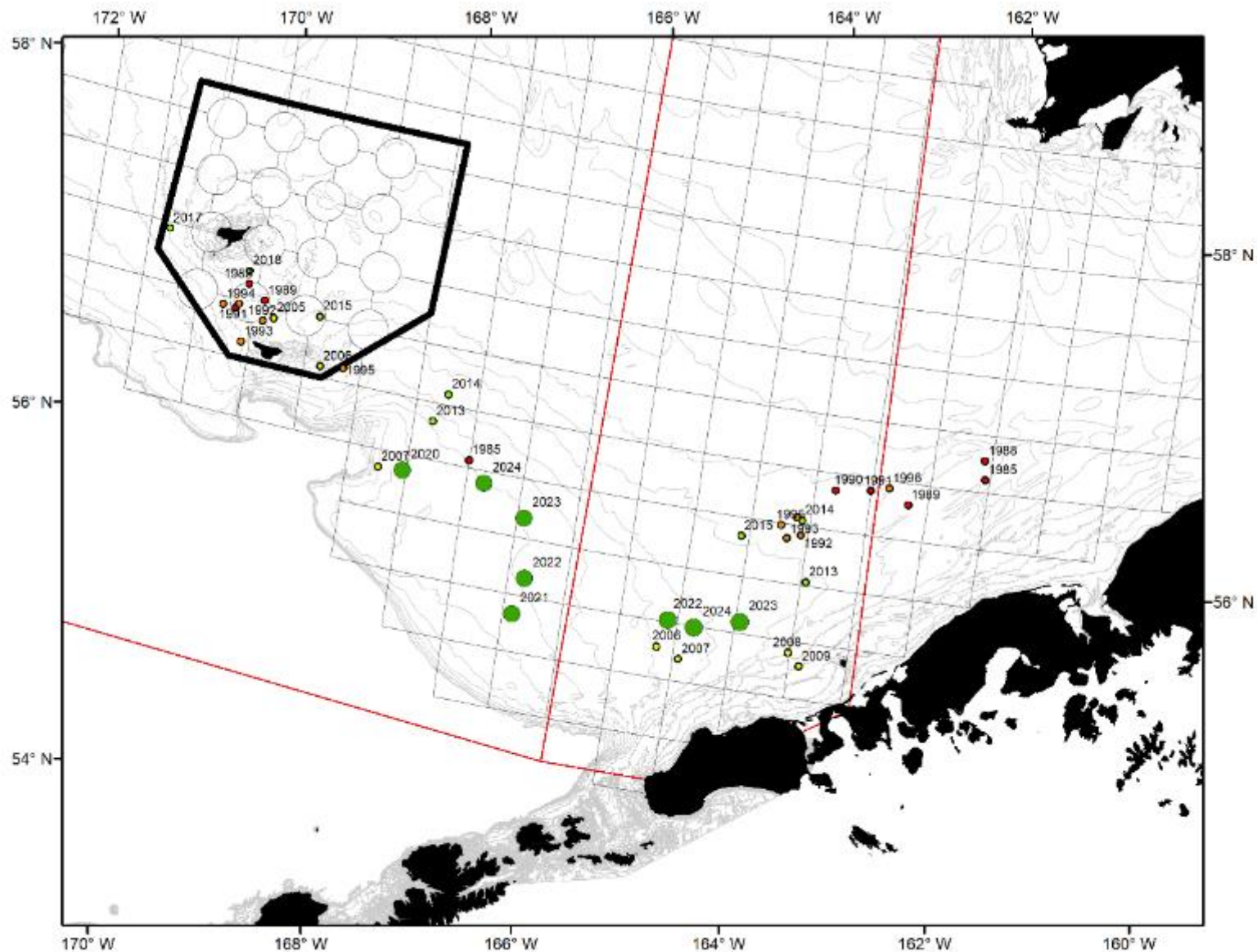
Tanner Crab Large Male



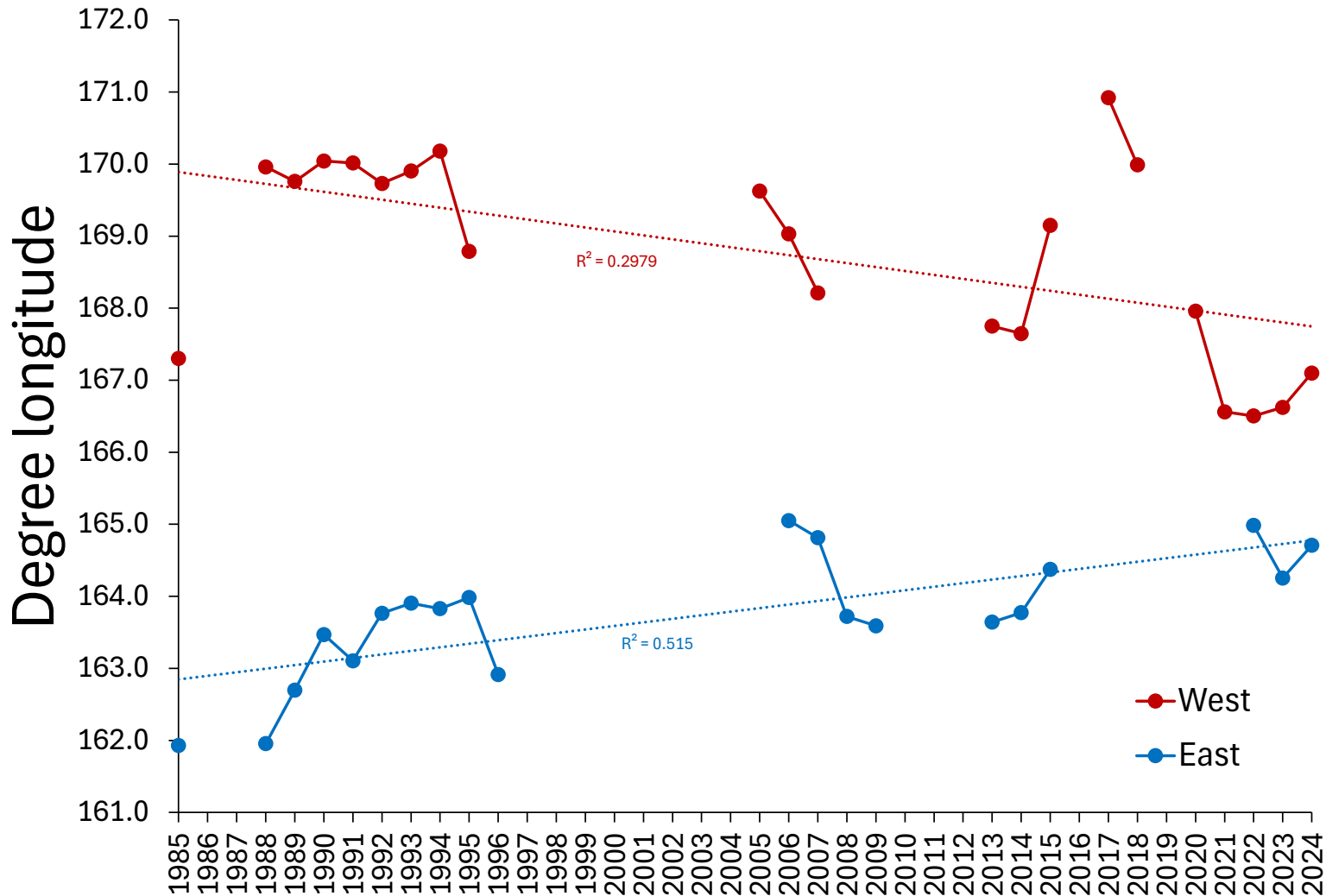
2024/25 Tanner crab fishery retained catch



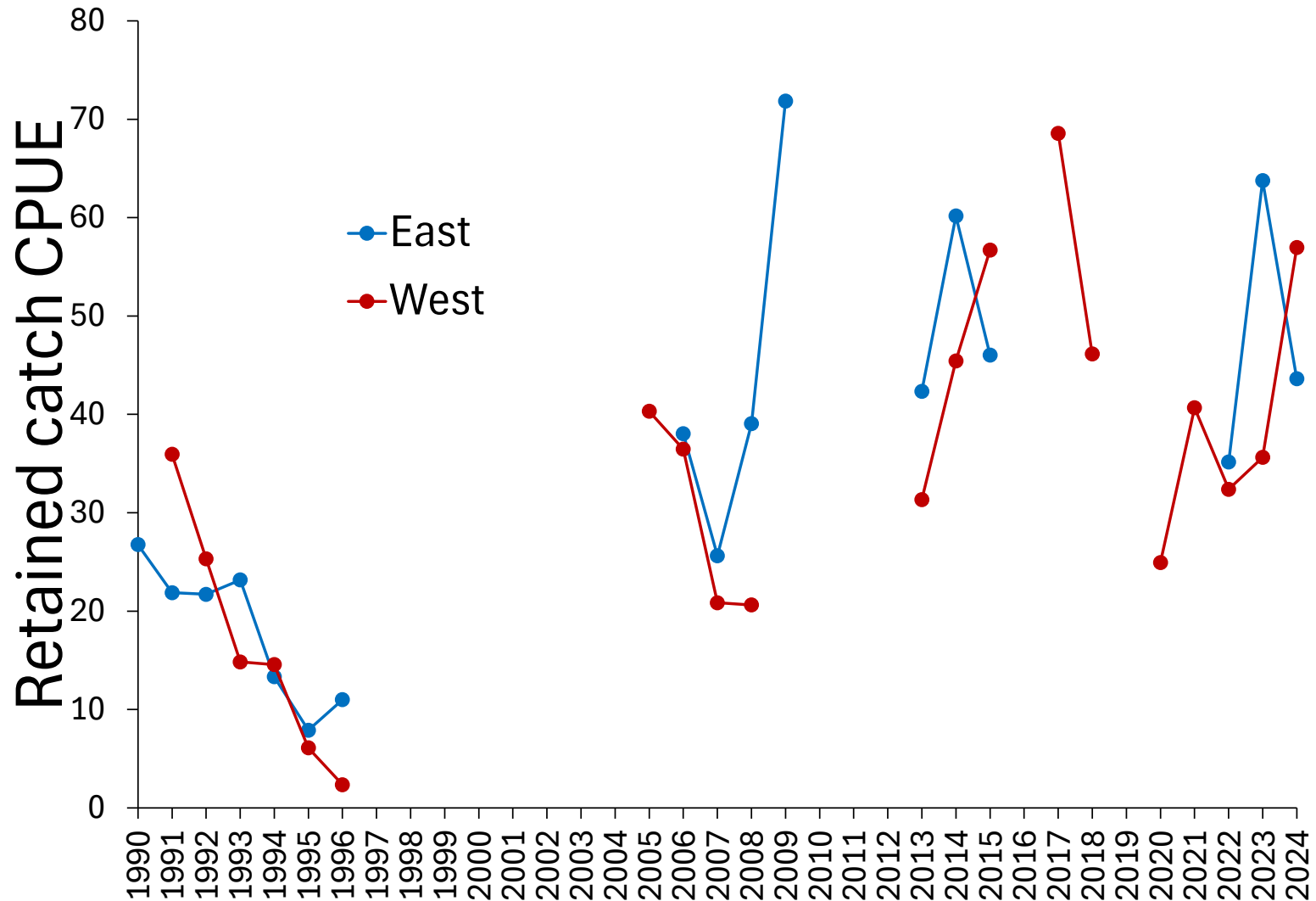
Weighted catch centers



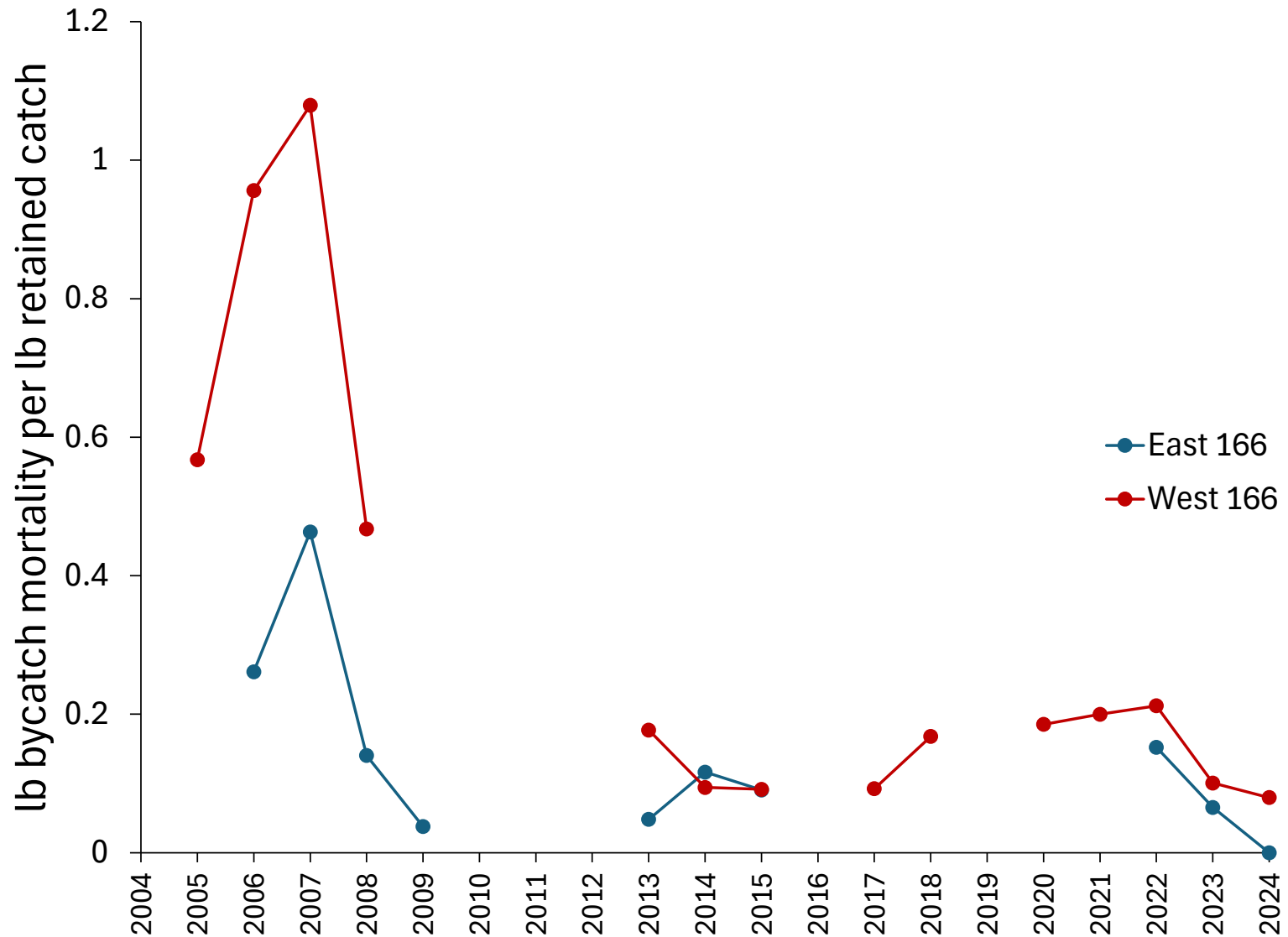
Weighted catch centers



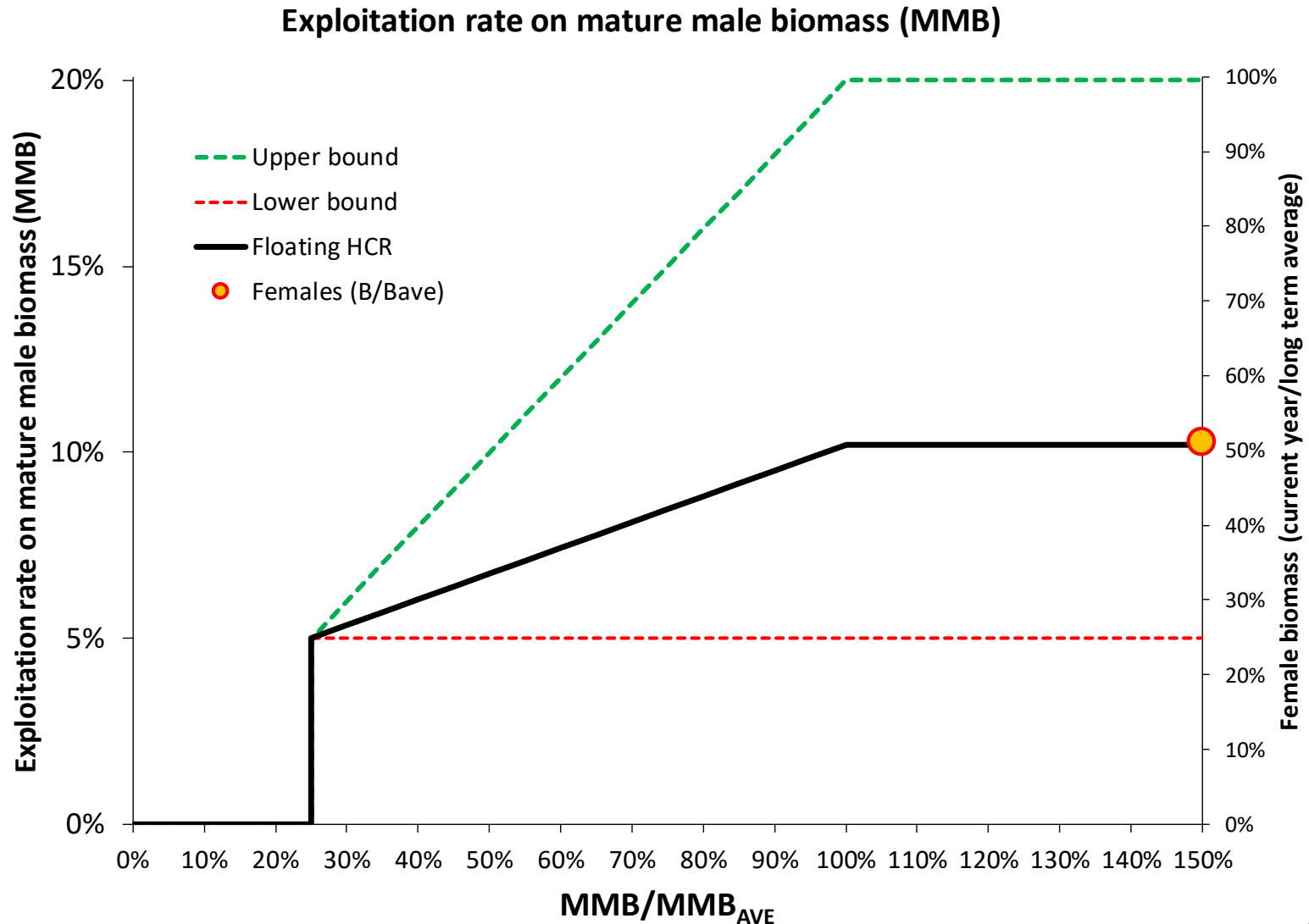
Tanner crab retained catch CPUE



Tanner crab discard mortality rate



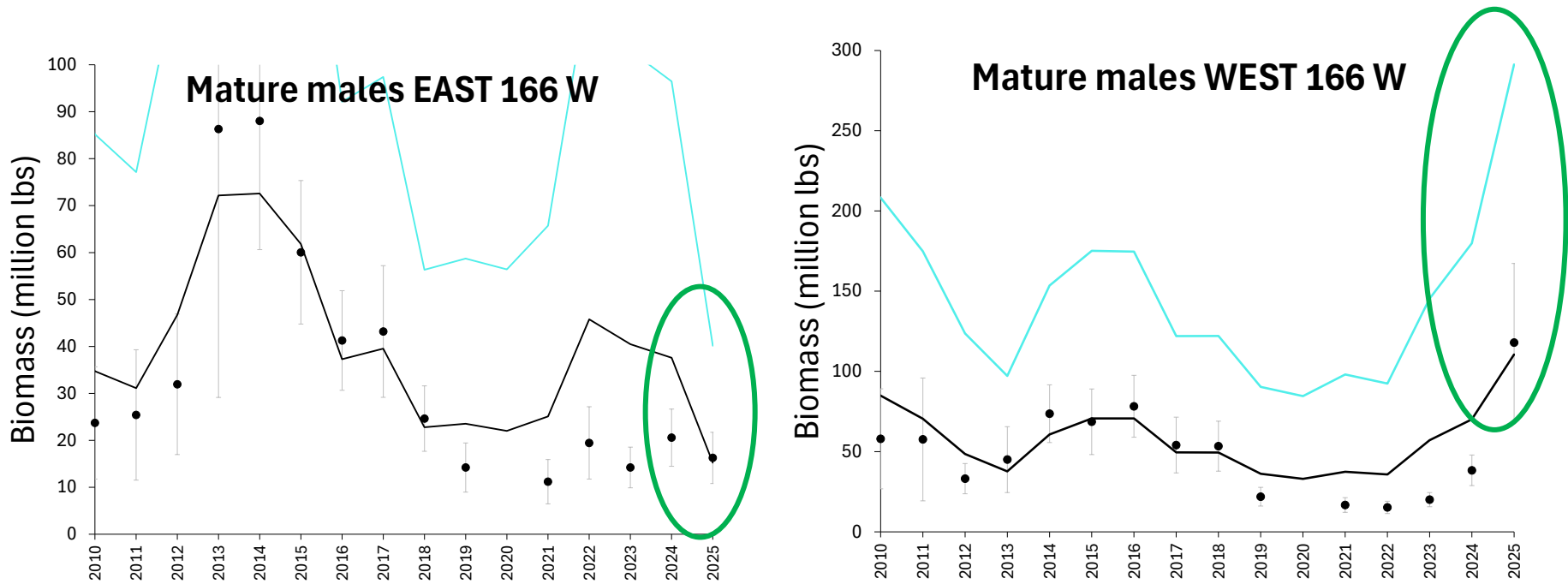
Harvest Strategy - Female Dimmer



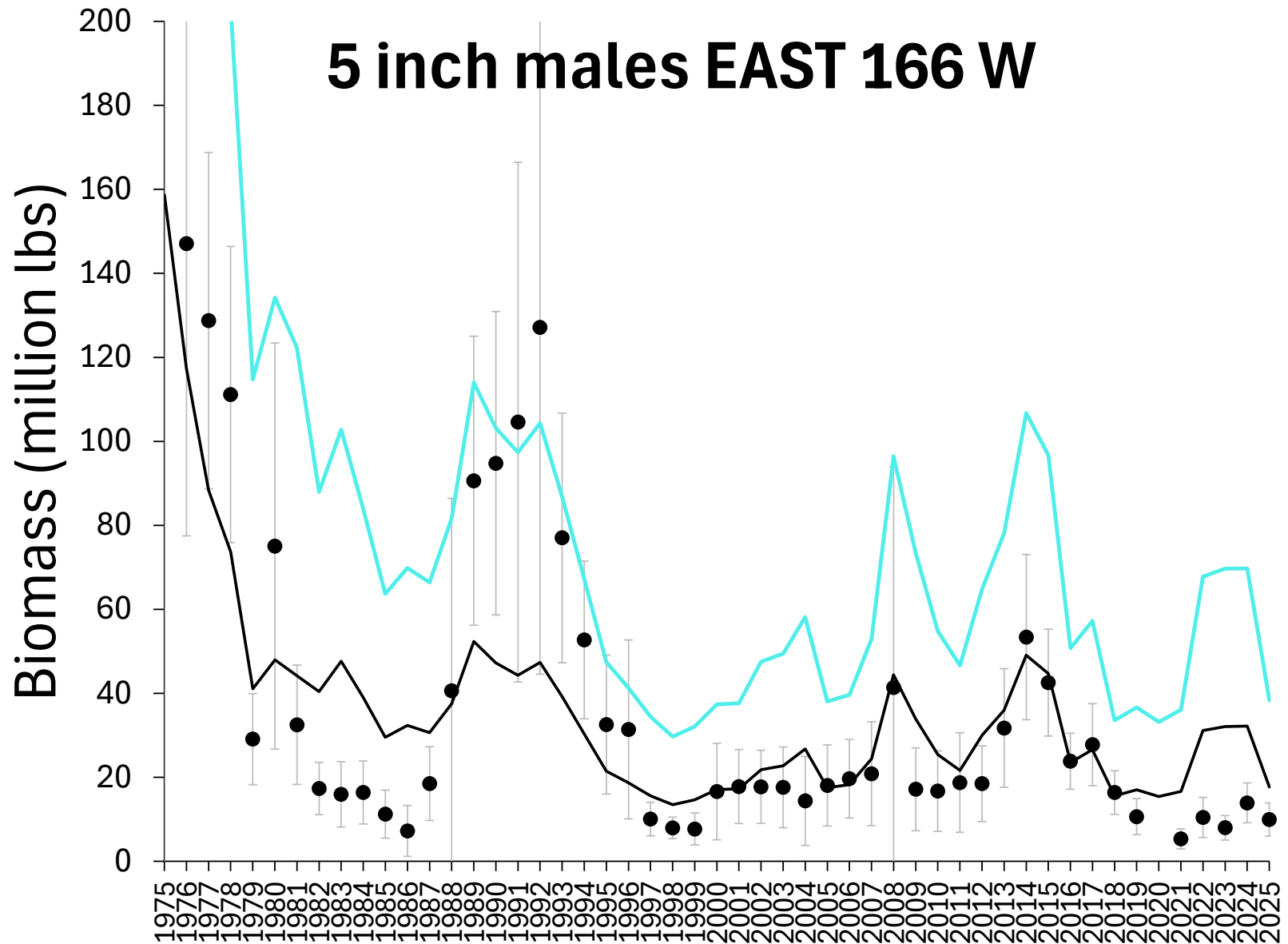
Harvest Strategy 50% ELM Cap

- Prevents overexploitation of large newshell males when small mature male (<5-inch) biomass is high
- ELM= exploitable legal males
 - 5 inch males: 100% newshell + 40% oldshell
 - Considers selectivity of oldshell crabs: industry generally prefers “clean” crab (i.e., mostly newshell)
 - Mean OS selectivity = ~40%
- Sensitive to industry preferred size
- TAC capped at 50% of ELM: **$0.5 * \text{ELM} * \text{ave wt}$**

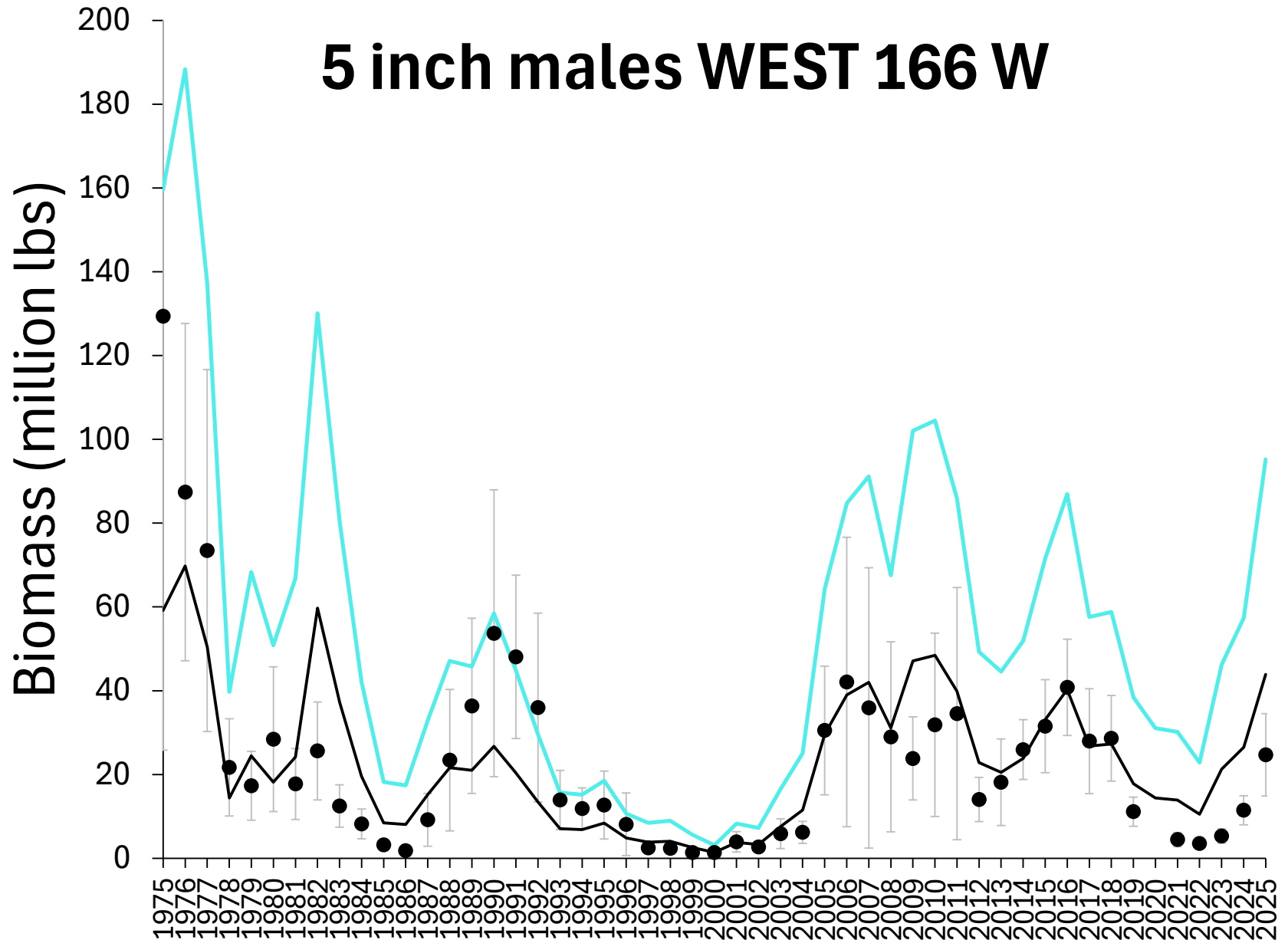
Model MMB fits

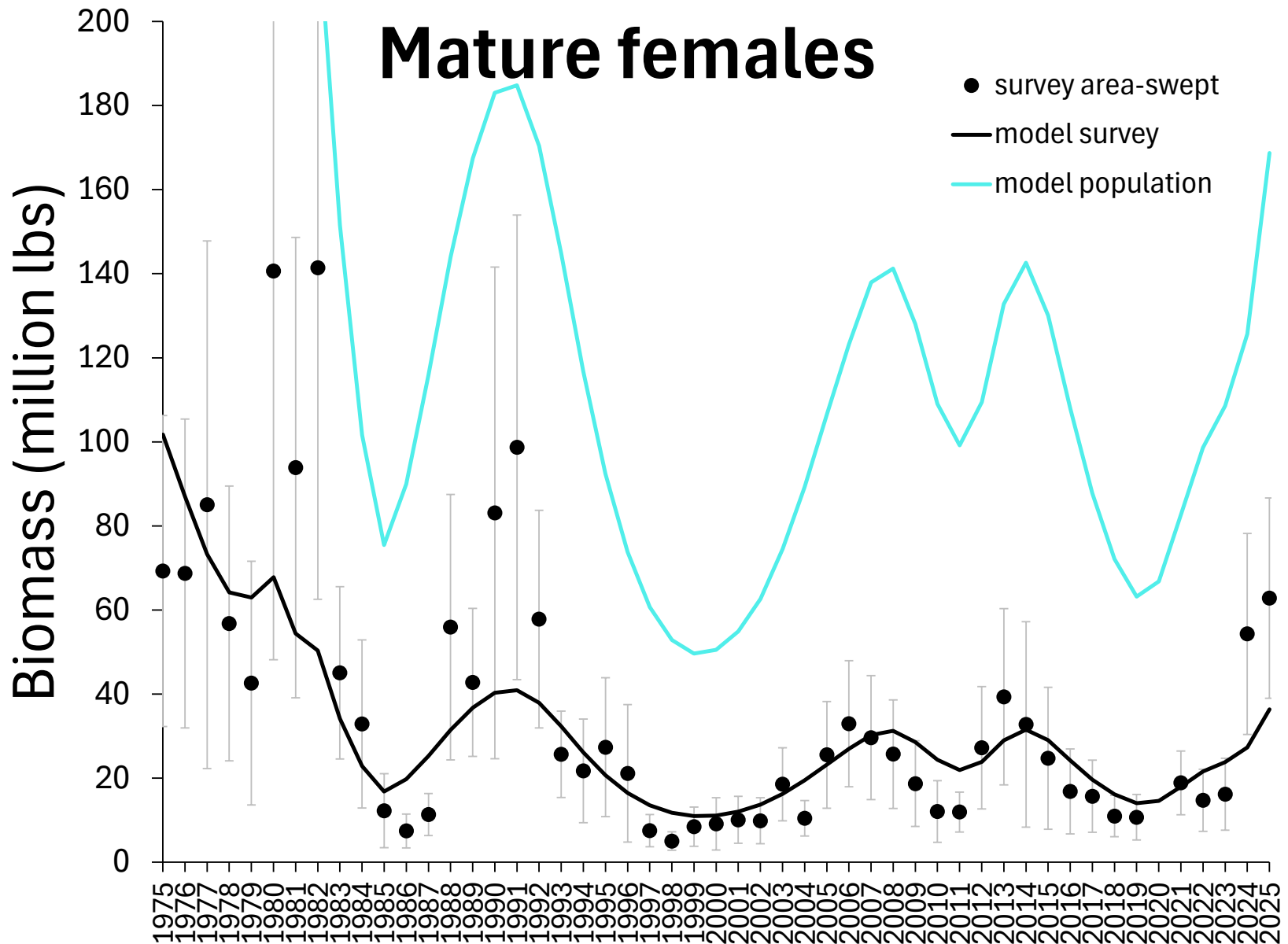


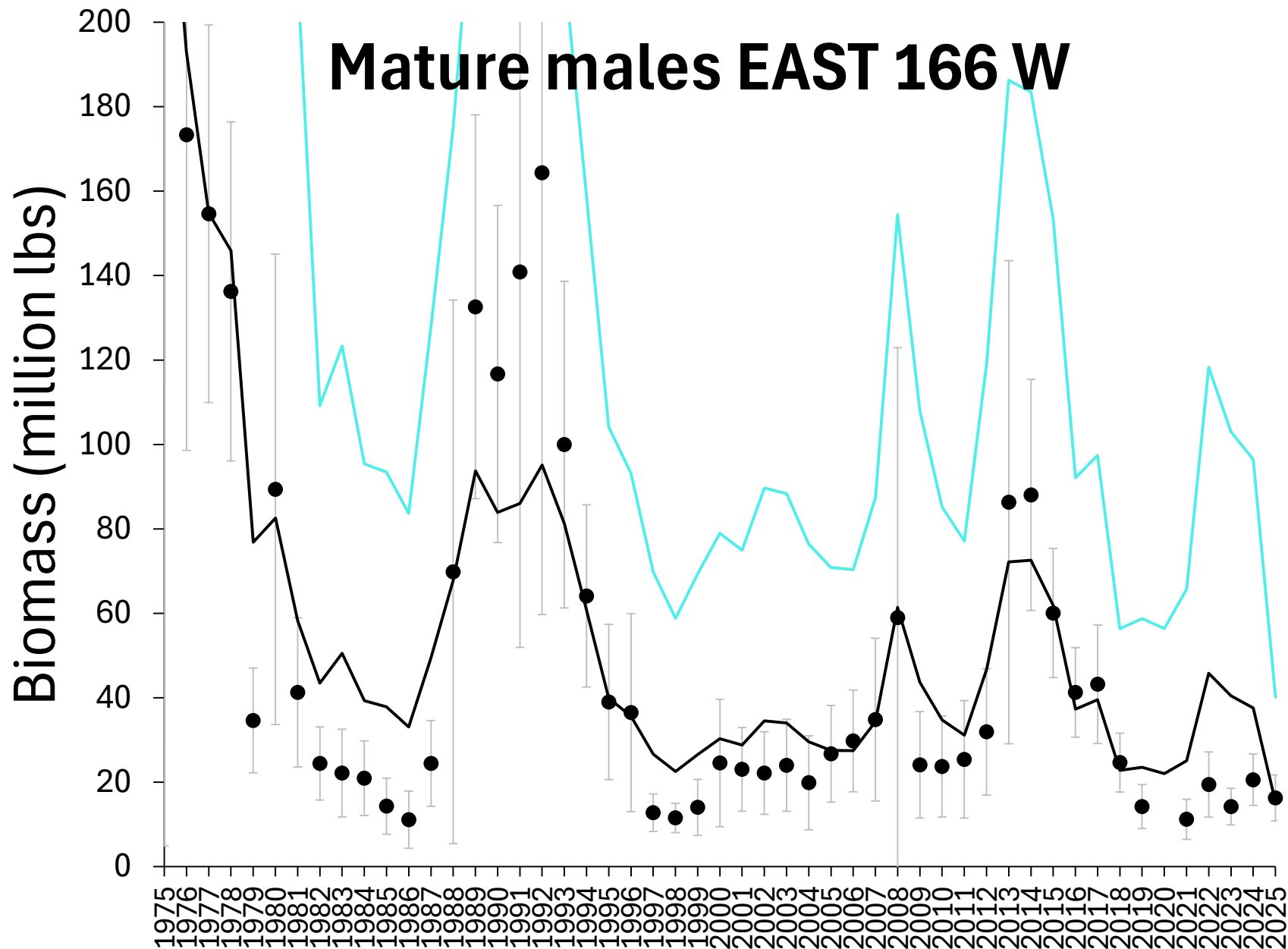
- Area-swept and model survey estimates similar for 2025
- Model population estimates ~3x survey estimates

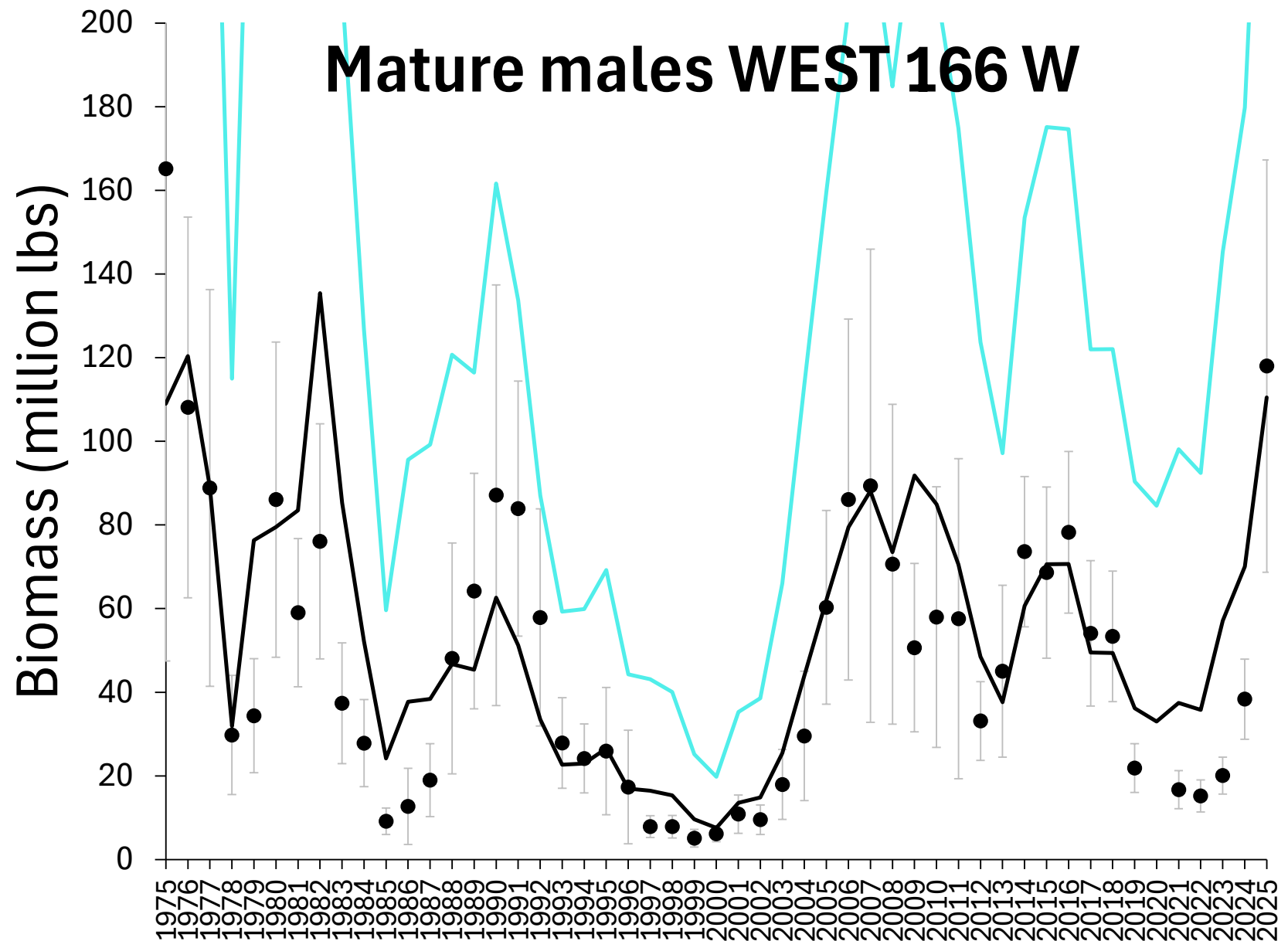


5 inch males WEST 166 W







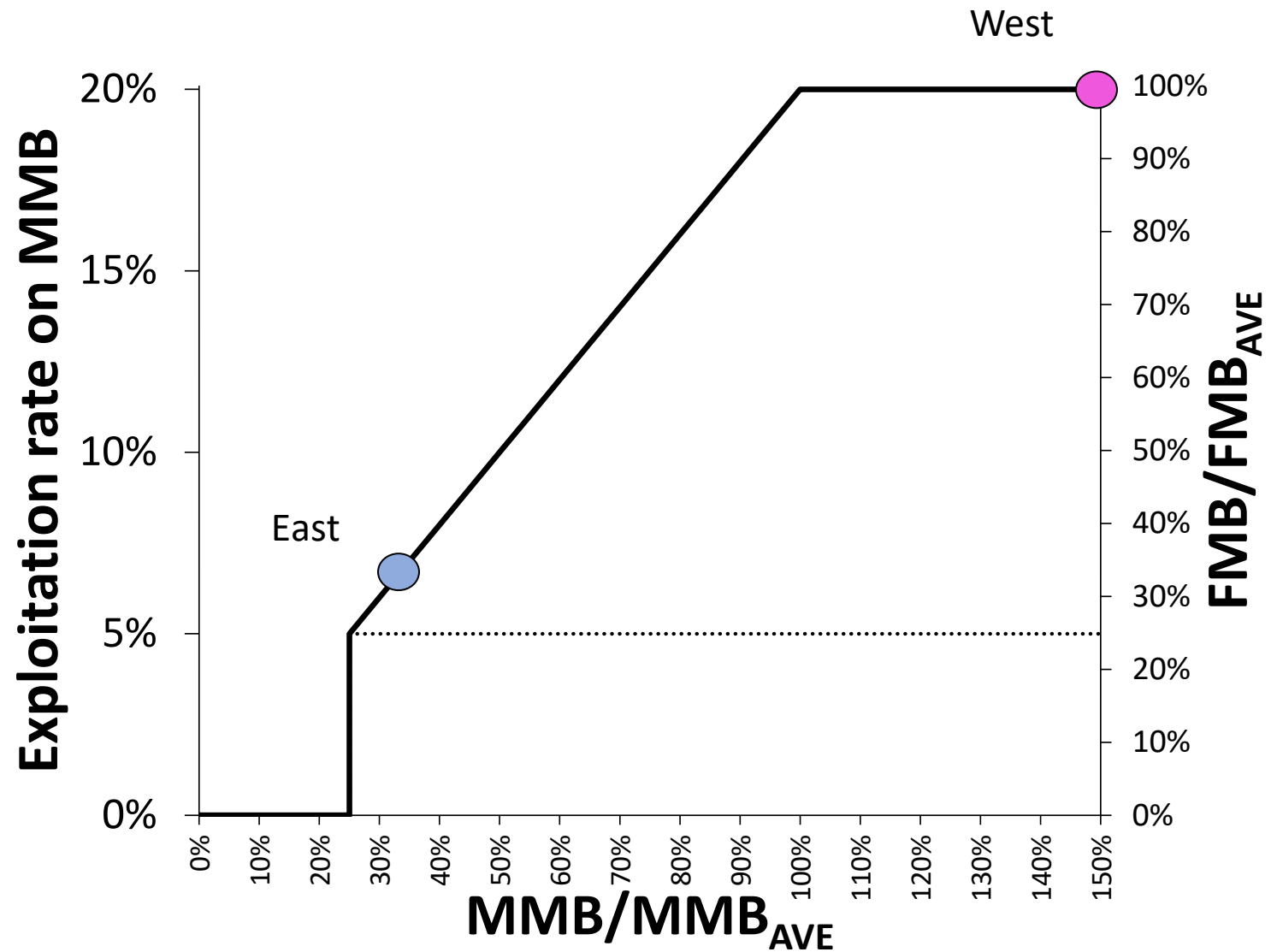


Application of State Harvest Strategy

Three sets of inputs for comparison

- 1. Survey area-swept:** survey area-swept, size cut for male maturity
- 2. Model survey:** model estimates of survey, estimated maturity
- 3. Model population:** accounts for survey selectivity

Survey



TAC Calculations

	EAST		WEST	
	Raw area-swept (size cut)		Raw area-swept (size cut)	
	MFB	MMB	MFB	MMB
1982-2018 Average (millions lb)	29.4	46.8	29.4	43.0
2025 Estimate (millions lb)	62.8	16.3	62.8	118.0
(2025 Est)/(1982-2018 Avg)	214%	35%	214%	274%
Exploitation Rate on MMB		0.069		0.200
Computed TAC = Exp Rate X MMB (millions lb)		1.13		23.60
Max TAC (50% cap on exploited legal males (million lb)		3.35		10.12
TAC		1.130		10.119

EAST TAC = 1.13 million pounds

WEST TAC = 10.12 million pounds

- Ongoing concerns about model overestimation
 - Model MMB + 5-inch males ~2x survey
 - Use of survey data consistent with past practices
- East: *moderate decrease in mature and 5 inch males* from 2024, MMB 35% of long-term average
- West: *substantial increase in mature and 5 inch males* from 2024

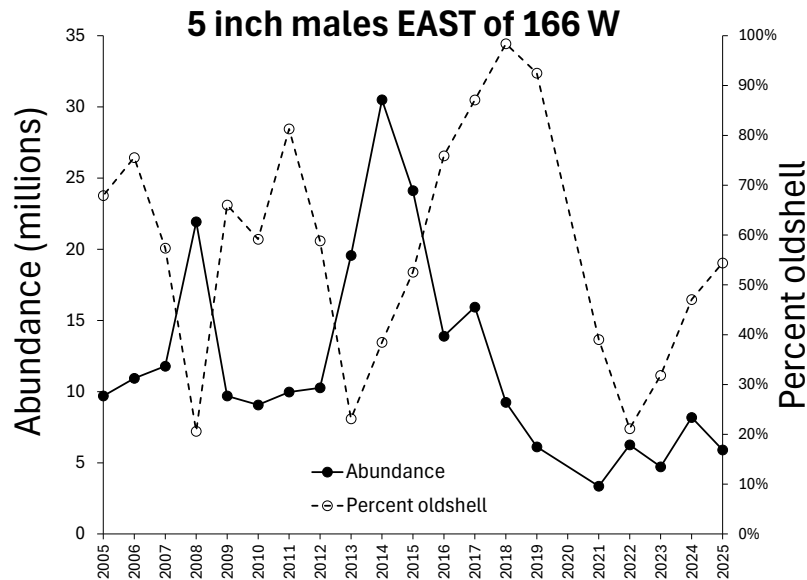
Tier 4 OFL calculations

- Not recommended for 2025/26 assessment
- Requested by CPT/SSC at simpler modelling workshop as “fallback” option
- Uses M and MMB_{AVE} as proxies for F_{MSY} and B_{MSY}
- **OFL = 27.55 million lbs**
- **ABC = 23.58 million lbs**
- **Combined TACs = 11.15 million lbs**
 - 48% of Tier 4 ABC (last year was 67%)

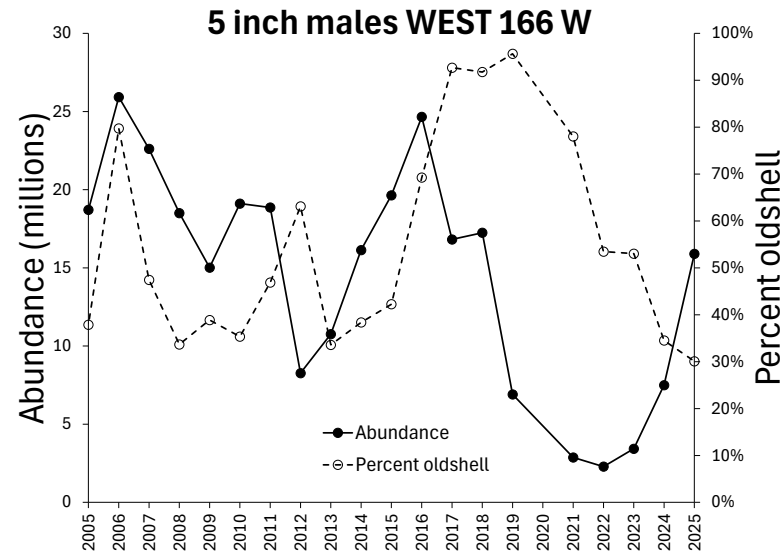
Summary

- Recommended combined TACs **11.25 million lbs** via survey data
 - Highest TACs since 2015, reflects 2025 increases in abundance in west
 - Same logic as in the past
 - Closer alignment to Tier 4 OFL/ABC
- Good signs of recruitment, AND strong increases in larger size classes
 - ~timeseries high for total number of crabs in the population

2025/26 Fishery Expectations



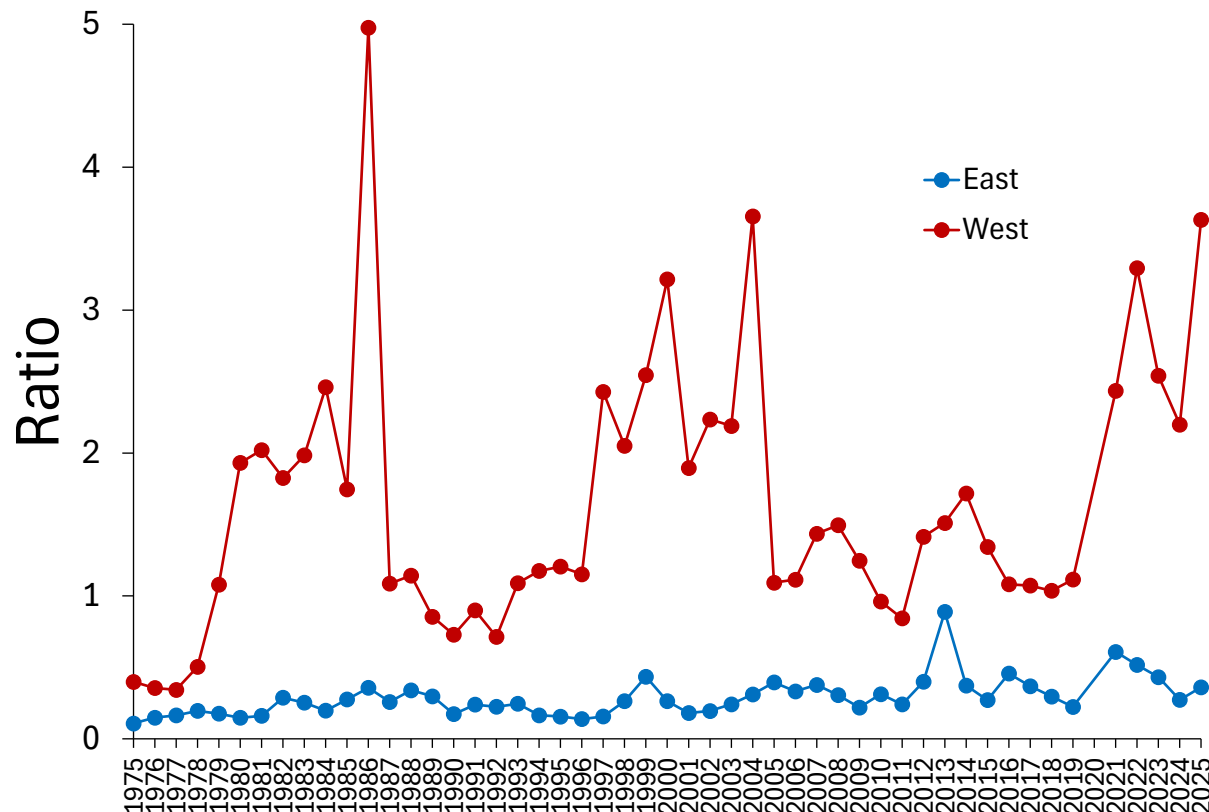
2025 survey: 54% oldshell 5-inch males



2025 survey: 30% oldshell 5-inch males

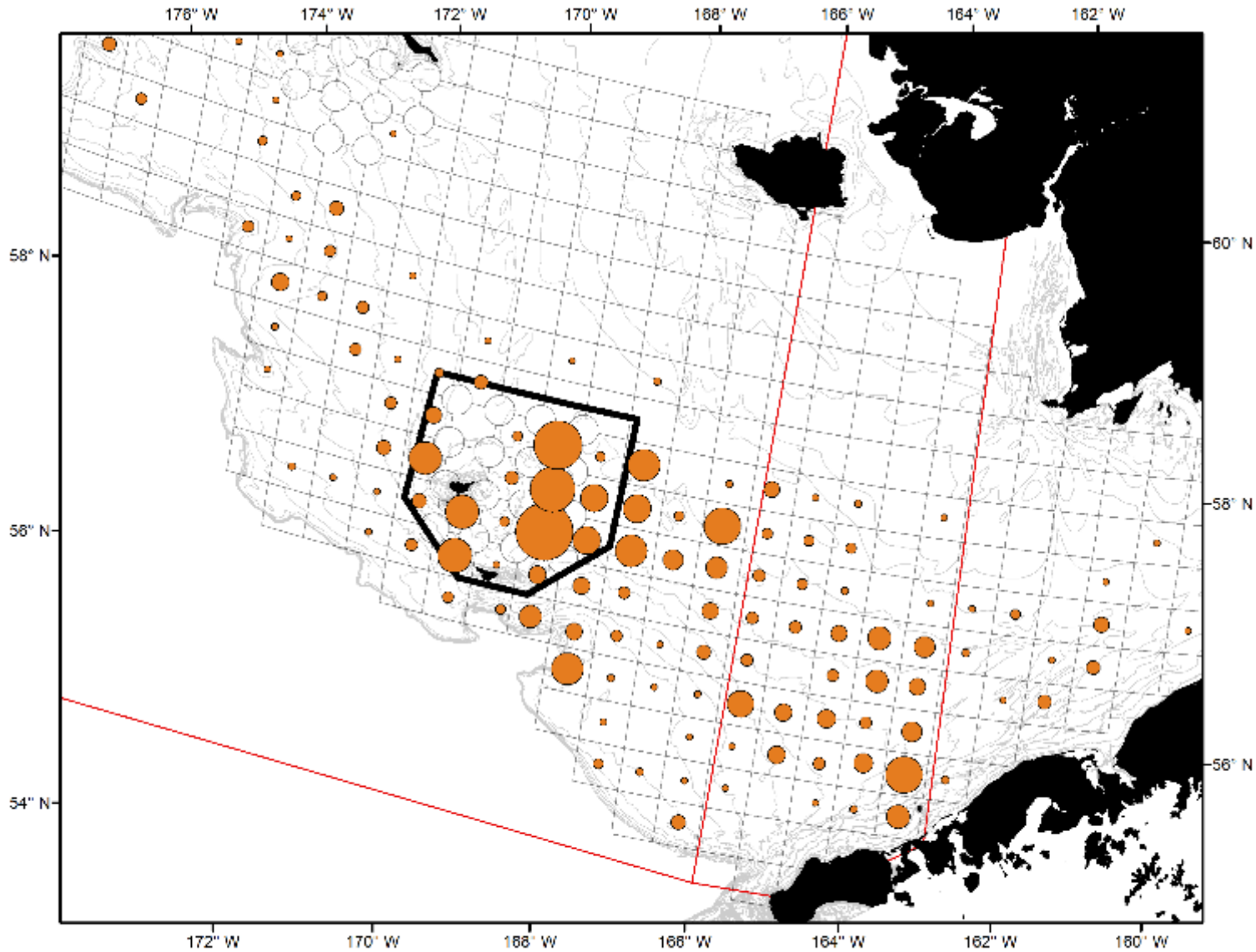
2025/26 Fishery Expectations

Ratio sub-industry-preferred crab to industry preferred crab



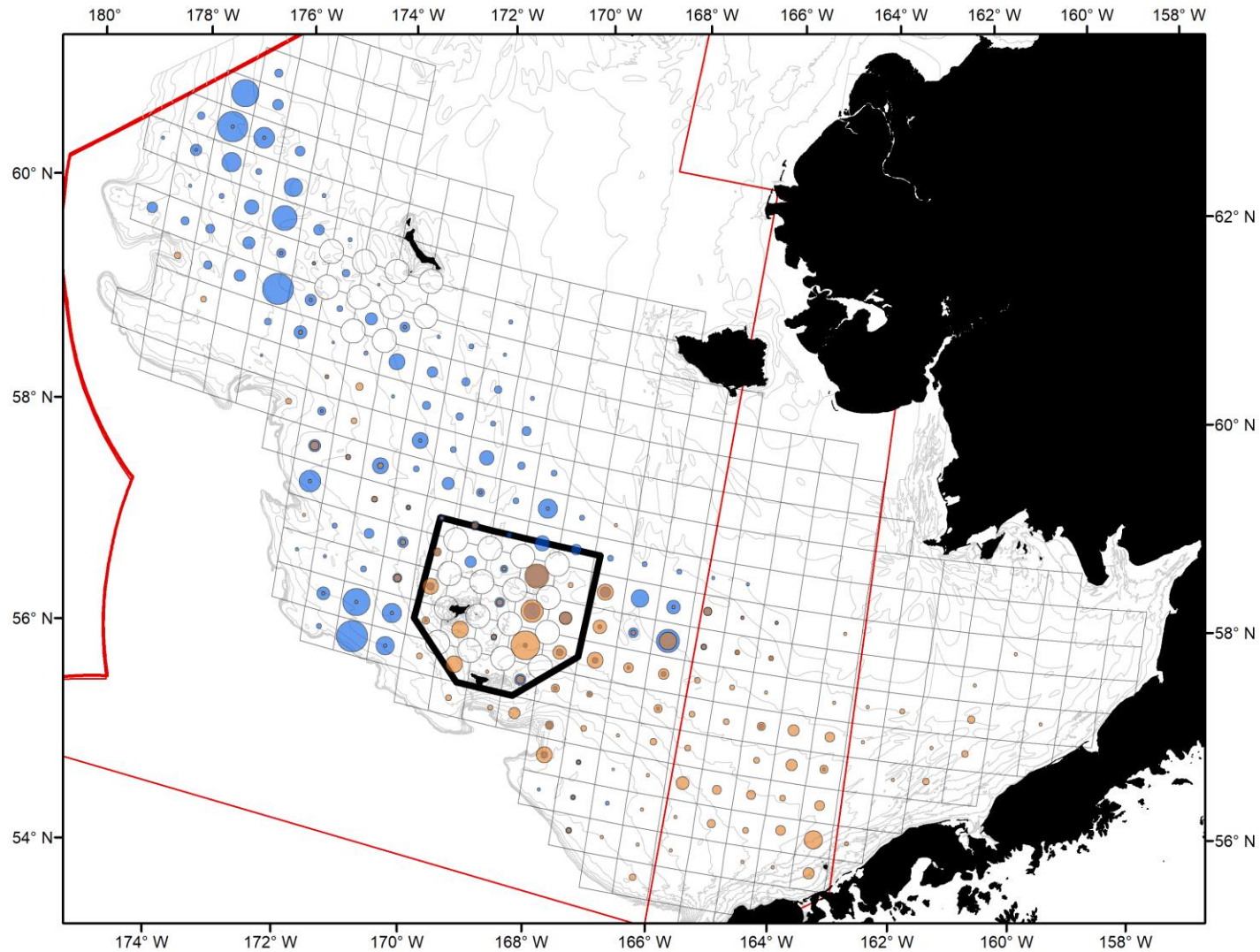
West: Could expect to encounter ~3.6 subindustry-preferred-legal (4.4-5.0 size range) crab for every 5 inch crab

2025/26 Fishery Expectations



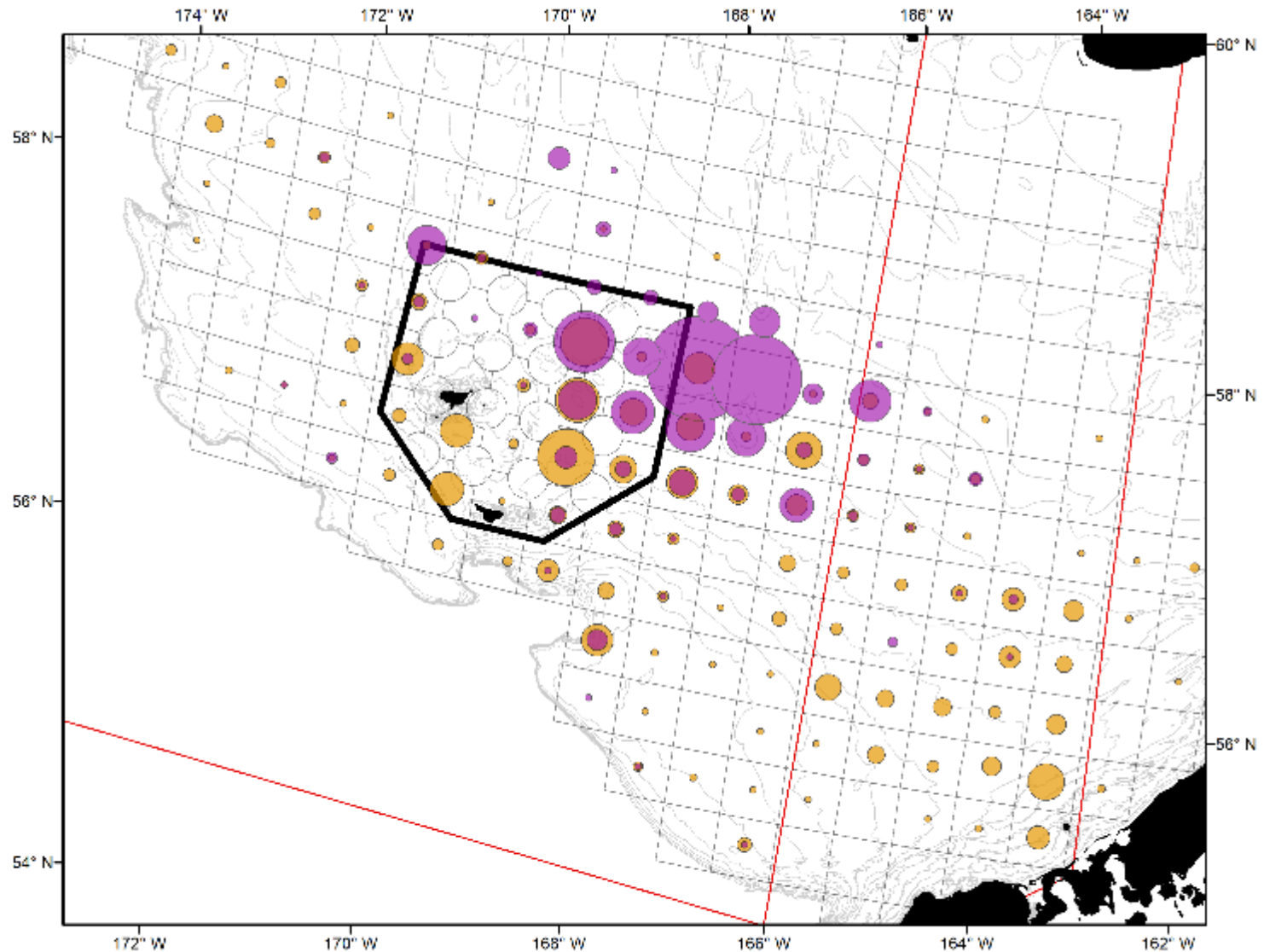
2025 **Tanner** industry preferred distribution

2025/26 Fishery Expectations



2025 **Tanner** + **snow** industry preferred distribution

2025/26 Fishery Expectations



2025 **Tanner** + **hybrid** industry preferred distribution

Management Reminders

Pre- and Inseason Management Reminders

Bering Sea Tanner and Snow Crab Boundaries

- Eastern and western bairdi crab fisheries are separated at 166° W long
- The easternmost boundary for the eastern bairdi crab fishery is 163° W long
- The easternmost boundary for the snow crab fishery is 165° W long

Season Dates

- Tanner crab: March 31
- Snow crab: May 15 (east of 173° W long) or May 31 (west of 173° W long)
- Season extension requests unlikely to be accommodated

Vessel Registration

- Preseason registration is used for observer planning only and is not valid for fishing
- **All vessels must be final registered for each fishery:** (BBRKC/EBT/WBT/Snow)
- In person @ ADF&G offices in Dutch Harbor or Kodiak
- Electronically: email/WhatsApp/Fax
 - Phone: (907) 581-1239
 - Email: dfg.dutchharbor@alaska.gov
 - WhatsApp: (907) 512-5458

Transitioning Between Rationalized Fisheries

1. For the fishery in which you are registered, all crab must be onboard the vessel and pot gear must be in storage condition or out of the water (stacked on deck is acceptable)
2. Call (907-581-1239) or email (dfg.dutchharbor@alaska.gov) the Dutch Harbor ADF&G office and **check out** of the fishery that you are currently registered for. Inform Dutch Harbor ADF&G staff of your intent to transition fisheries
3. After checking out, you may re-rig, bait, and set pots for the next fishery. Proceed to port and offload
4. Before pot gear can be operated in the next fishery, contact the Dutch Harbor ADF&G office to register

Gear Sharing

Please be mindful of gear sharing volume for snow crab in particular – don't waste crab by excess rail dumping. Remember to submit ADF&G gear sharing form

Personal-Use Crab

Permit card holders are responsible for ensuring all crab retained for personal use is accurately recorded on the fish ticket at completion of the offload

Incidental Retention Rates

Retention rates for incidentally caught legal male crab are expressed as a percentage of the weight of the target crab onboard the vessel

- 5% retention of eastern bairdi crab during Bristol Bay red king crab fishery
- 5% retention of eastern bairdi crab during snow crab fishery east of 166° W long
- 5% retention of western bairdi crab during snow crab fishery west of 166° W long
- ***35% retention of snow/hybrid crab during eastern bairdi crab fishery east of 166° W long***
- ***35% retention of snow/hybrid crab during western bairdi crab fishery west of 166° W long***

		Target Fishery			
		BBRKC	EBT	WBT	Snow
Bycatch Allowance	BBRKC		NR	NR	NR
	EBT	5%		NR	5%
	WBT	NR	NR		5%
	Snow	NR	35%*	35%**	

NR = No Retention

* east of 166° W long

** west of 166° W long

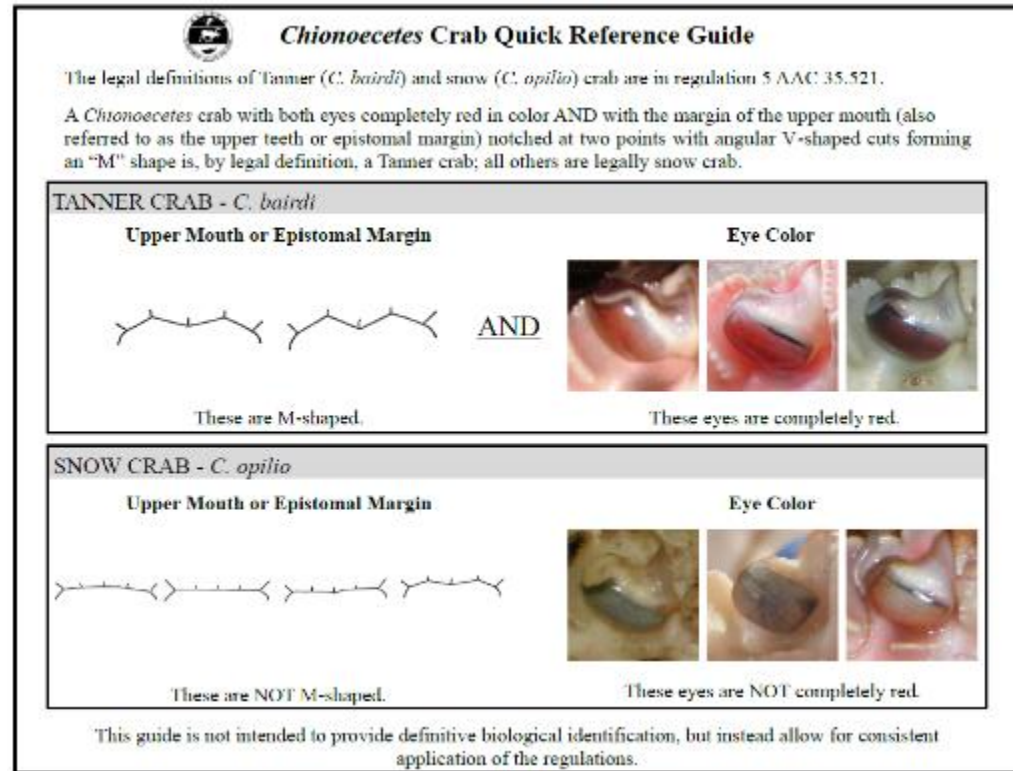
Observer Reminders

1. All catcher vessels **must contact Saltwater directly** to request an observer at least 10 days prior to start of fishing
 - If you contact ADF&G we will redirect you to Saltwater
2. Saltwater will determine if observer placement is possible, taking the 10-day minimum notification period into consideration
3. If an observer is not available for placement, **Saltwater will initiate** the waiver process.
 - ADF&G will not accept waiver requests that have not come from Saltwater
 - Once Saltwater submits the request to ADF&G, vessels are considered waived and free to depart
 - You will receive the waiver via email and ADF&G will keep a copy on file
 - ADF&G role = trust but verify. When a final waiver request is submitted to ADF&G from Saltwater, the presumption is that both the vessel and Saltwater have performed their due diligence

Saltwater Inc: (907) 539-2548

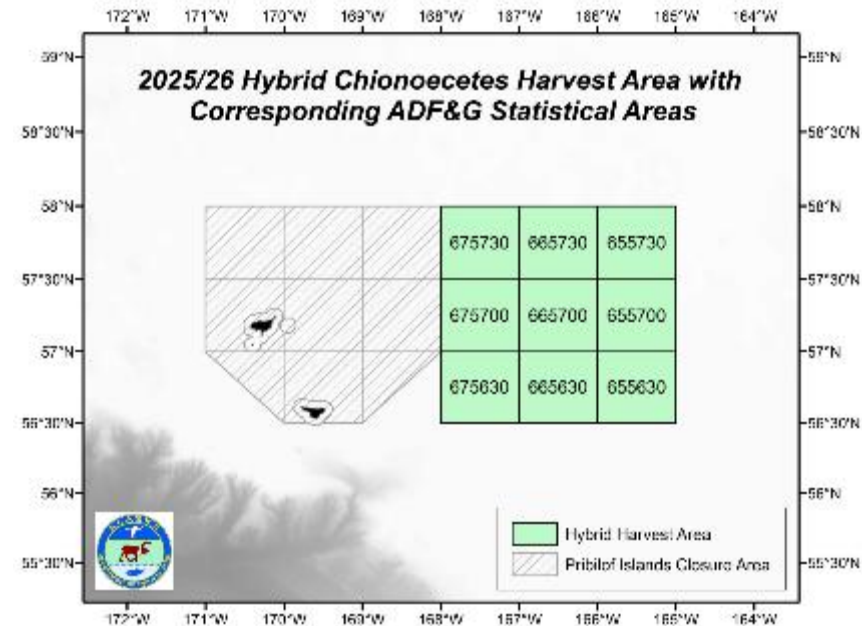
Tanner/Snow/Hybrid Crab Species ID

- No unique definition for hybrid crab
- During rationalized fisheries crab can only be landed as snow or bairdi crab and all crab must count against your IFQ/CDQ
- ADF&G regulation provides a legal definition for bairdi. If not a bairdi, then everything else is a snow crab
 - Hybrids will fall under legal definition for snow crab
- Observers cannot provide legal advice on crab identification as it relates to what crab you choose to retain



2025/26 Fishery Hybrid Retention Plan

- ADF&G does not consider the 2025 increase in hybrid abundance as good/bad/otherwise. We do not know their role
- 1 million pounds of catch (~11% of TAC) expected from stat areas with highest survey abundance of hybrid crab
 - Logbooks/fish tickets/observer and dockside data
 - Some inseason reporting from ADF&G but success/failure mostly determined post season
- Hybrids can be retained as incidental catch (up to 35%) during EBT or WBT prior to March 31 or while registered for snow crab prior to May 15
- During WBT - Be mindful of 166° W long and understand the 35% retention rate for hybrids/snow crab is fixed in regulation and cannot be changed pre- or inseason. Hybrids accrue to your snow crab IFQ/CDQ
- No requirement to separate hybrid catch but useful if you can. Please be diligent with logbooks while targeting hybrids and communicate fishing plans with ADF&G Dutch Harbor



Other Reminders

1. All vessels participating in the BSAI rationalized crab fisheries must notify the United States Coast Guard (USCG) at least 24 hours before departing port when carrying crab pot gear (5 AAC 39.670(c)(7)).
- USCG Dutch Harbor has a **new phone number** ((907)-581-3466 will be disconnected).

USCG Dutch Harbor: (206) 815-6842

Observer Reminder

- Observer labor pool has diversified and cultural and political divides widening
- Reports of poor behavior have increased since fisheries have reopened
- Conflict and harassment is a choice and tolerance for accommodating bad behavior is low
- Please contact ADF&G before there's a problem





Thanks!