



# ***Atlantic Mackerel Rebuilding 2.0***

***June 2022: Final action***

***Jason Didden  
jdidden@mafmc.org  
302-526-5254***

# Purposes

## Final Action

- Atlantic Mackerel rebuilding
  - 2023 Specifications
  - River Herring & Shad Cap
  - Management measures

# Organization

- Assessments
- Context with past
- General rebuilding and uncertainty
- Comments – Public/AP
- Committee recommendations and Council decisions regarding re-building

# Assessments

- 2018 “Benchmark”
  - Overfished/overfishing in 2016
  - 1997 quota could have been about TEN times higher what we now think the SSB was that year
  - Projected near 160,000 MT biomass in 2019
- 2021 Management Track Assessment (MTA)
  - Still overfished/overfishing through 2019
  - Only about 40,000 MT biomass in 2019
  - Trend: up \*2.8 since 2014, but only ¼ rebuilt
  - Projections inherently uncertain!

# Context w/past

- 1<sup>st</sup> rebuilding plan decisions had minimal overlap with 2021 MTA data:
  - 2021 MTA data through 2019 - 1<sup>st</sup> rebuilding plan only in affect late 2019
  - 2019+ catches below every alternative from first rebuilding plan

# Context w/past

- Stock almost tripled (\*2.8) from 2014 to 2019 with 2014-2019 averages of:
  - 17,838 MT Catch
  - 155 million Recruits
    - (168 mil. is the 1975+ median, 128 mil. 2009+)
- In new rebuilding plans...
  - 2020-2022 catch average = 14,096 MT\*
  - 2020-2022 Recruits around 132 million (2-5)
    - Lower than 2014-2019 average

# General Rebuilding and Uncertainty

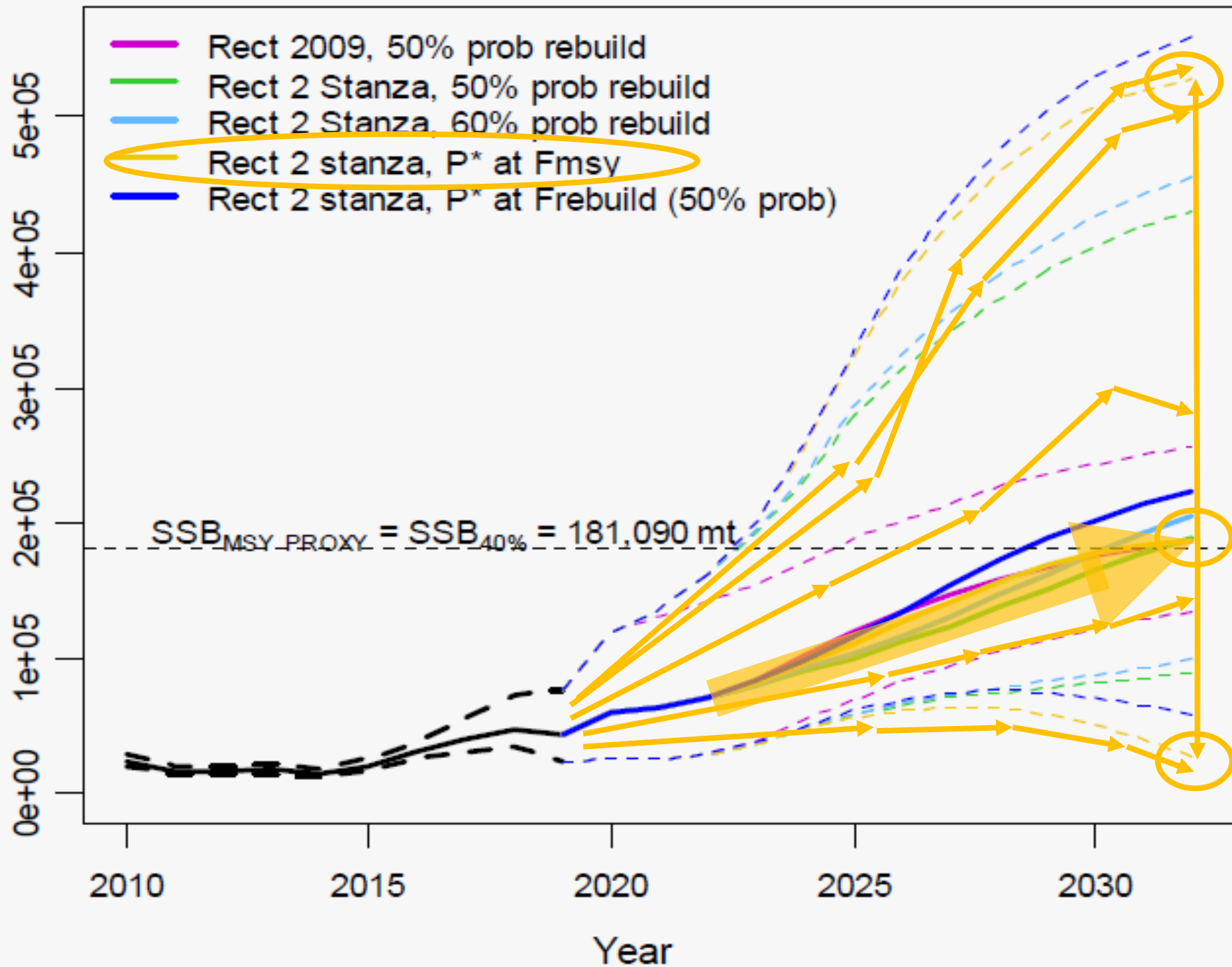
- 10-year rebuilding
  - Scientific and Statistical Committee (SSC) advised long-term approach
  - Typical rebuilding dependent on typical recruitment
  
- Just set for 2023 now
  - New assessment in 2023

# General Rebuilding and Uncertainty

- 5 general options – all rebuild in 10 years if expected recruitment occurs
  - Policy choices – all represent best available science, ABCs recommended by SSC (TOR1)
- 1 uses low recruitment throughout
  - “Low R”
- 4 start with low recruitment then increase toward typical recruitment
  - “R+”



Spawning stock biomass (mt)



Spawning stock biomass (mt)

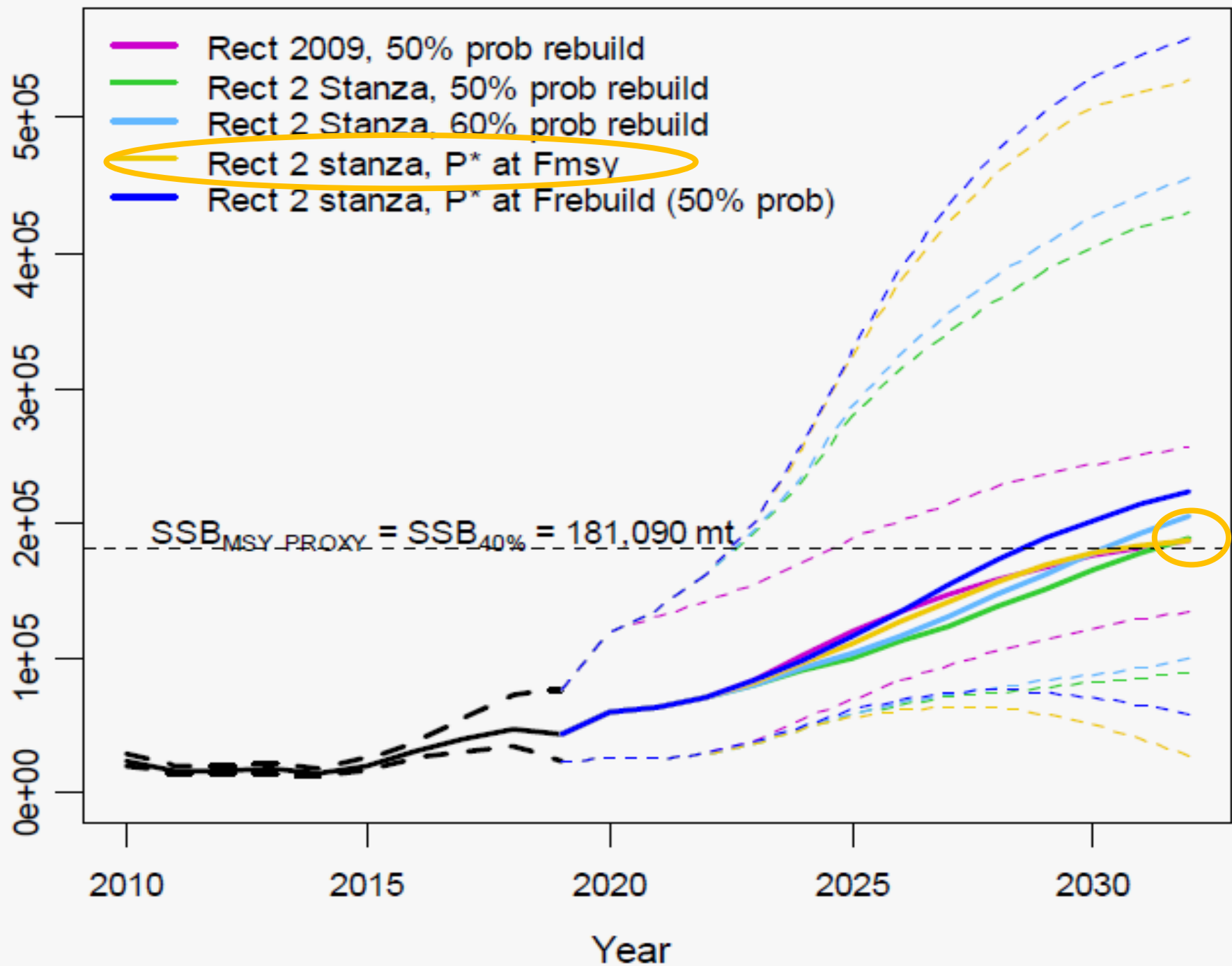
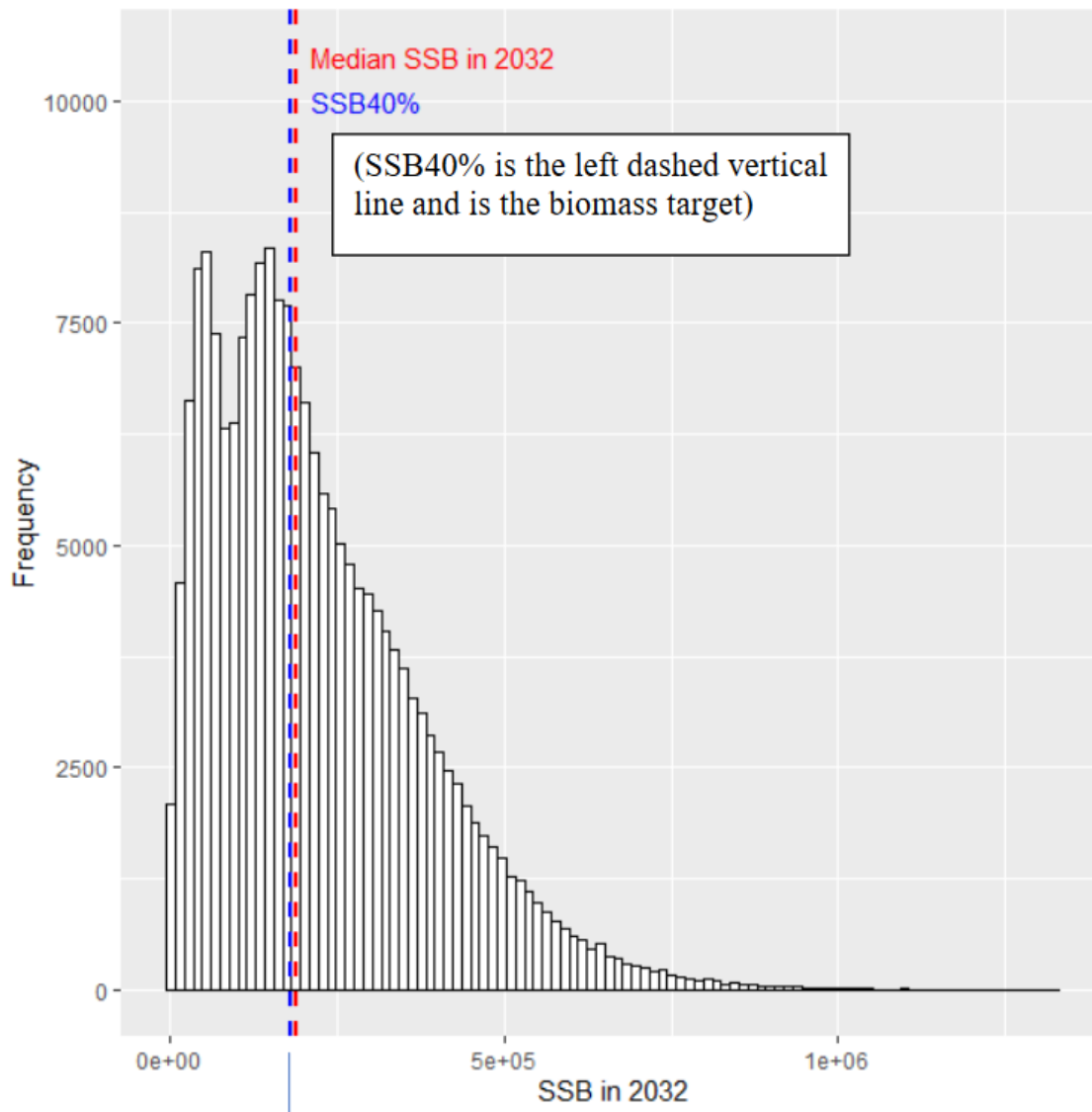


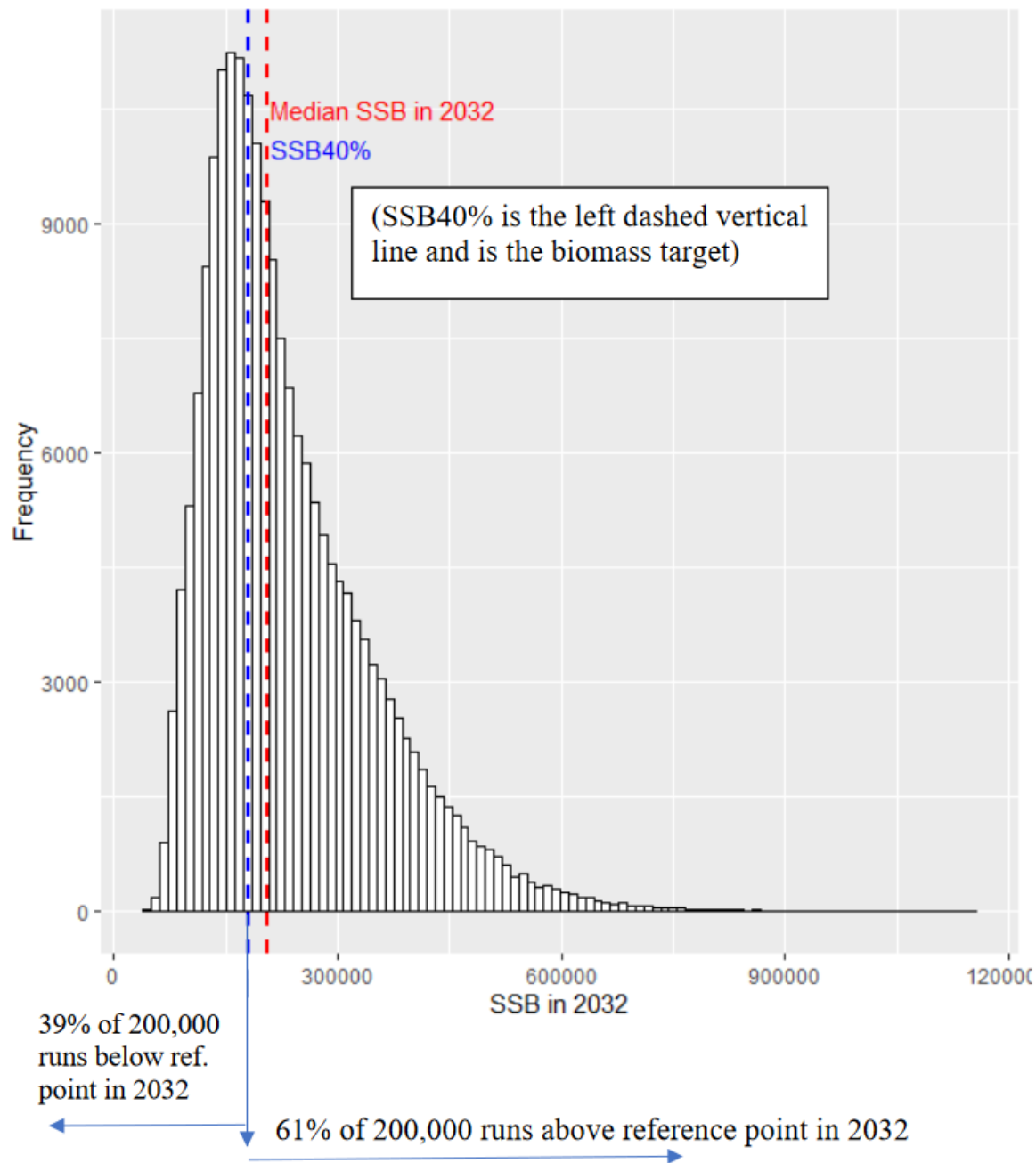
Figure 1. Projected 2032 Biomass distribution based on P\* at Fmsy, 150% CV (Alternative 3)



48% of 200,000 runs below ref. point in 2032

52% of 200,000 runs above reference point in 2032

Figure 2. Projected 2032 Biomass distribution based on 61% rebuilding scenario (F=0.12) (Alternative 4)



# General Rebuilding and Uncertainty

- SSC March 2022 TOR1
  - “Provide acceptable biological catch (ABC) recommendations, in weight, for the Council’s rebuilding alternatives...” PROVIDED
- SSC March 2022 TOR2
  - “Provide any guidance regarding the relative risks associated with the different rebuilding alternatives...” Recommended P\* approach

# Scientific and Statistical Committee Advice

- Higher catches dependent on higher recruitment
  - High uncertainty about if/when/how that occurs
- Accounting for small catches
  - Limited fishery-dependent data
  - Discards
- Fleet survival
- Uncertainty in small amplitude changes in SSB
- Uncertainty in long projections
- Higher than 50% chance more likely to succeed

# Scientific and Statistical Committee Advice

- P\* Recommended
  - (1) fulfills rebuilding requirements;
  - (2) responsive to new information
  - (3) highest 10-year catch yield;
  - (4) consistent with existing risk policy;
  - (5) reduce year-to-year changes in the ABC

# Public Comment Overview

- Wide range – from “Huh? We’ve never seen so many mackerel” to “moratorium.”
- Concern about recreational/tuna impacts: high socioeconomic vs low biological, especially at low possession limits
- Concern about ecosystem effects
- River Herring/Shad Cap: Concern about monitorability versus maintaining incentive to avoid RH/S



# AP Input

- Wide range in terms of rebuilding
- Similar range of concerns about RH/S cap
- Mesh issue not ripe

# Mackerel Decision Sequence

- Canadian set aside?
- Rebuilding approach/alternative?
- Recreational measures?
- Recreational deduction?
- Confirm discard set aside?
- Confirm closure approach?
- RH/S Cap?
- Mesh?
- Permit regulation clarification?

# Mackerel Decision Sequence

- Committee Motions...
- Quota outcome interlinked with multiple decisions – staff may need a few minutes to recalculate #s if the Council proceeds differently from Committee...

# Committee Motions Overview

- Alternative 4 – 61% Rebuilding
  - 2023 ABC = 8,094 MT
- Set aside 2,197 MT for Canadian catch
- U.S. ABC = 5,897 MT
- Minus 2,143 MT for recreational catch (20-fish possession limit: -17% from recent catch)
- Minus 115 MT for discards
- 2023 Commercial Quota: 3,639 MT (DAH)
- Stepped closure

# Committee Motions Overview

- 129 MT River Herring and Shad Cap
- No action on mesh requirement
- Outreach on permitting and reporting with clarification

# Any questions before...

- Committee Motions...

# Extra Slides

# Measures - 2023

- Lower commercial quotas
  - River Herring and Shad (RH/S) Cap
- 10 or 15 (?) fish recreational possession limit
- Commercial minimum mesh
- Permitting clarification: Commercial or for-hire possession of Atlantic mackerel in EEZ requires federal permit & reporting
  - Including bait



# Mackerel Decision Sequence

- Canadian set aside?
- Rebuilding option?
- Recreational measures?
- Recreational deduction?
- Confirm discard set aside?
- Confirm closure approach?
- RH/S Cap?
- Mesh?
- Permit regulation clarification?

# Mackerel Decision Sequence

- Canadian set aside?
- Public Comment
- AP Input

# Mackerel Decision Sequence

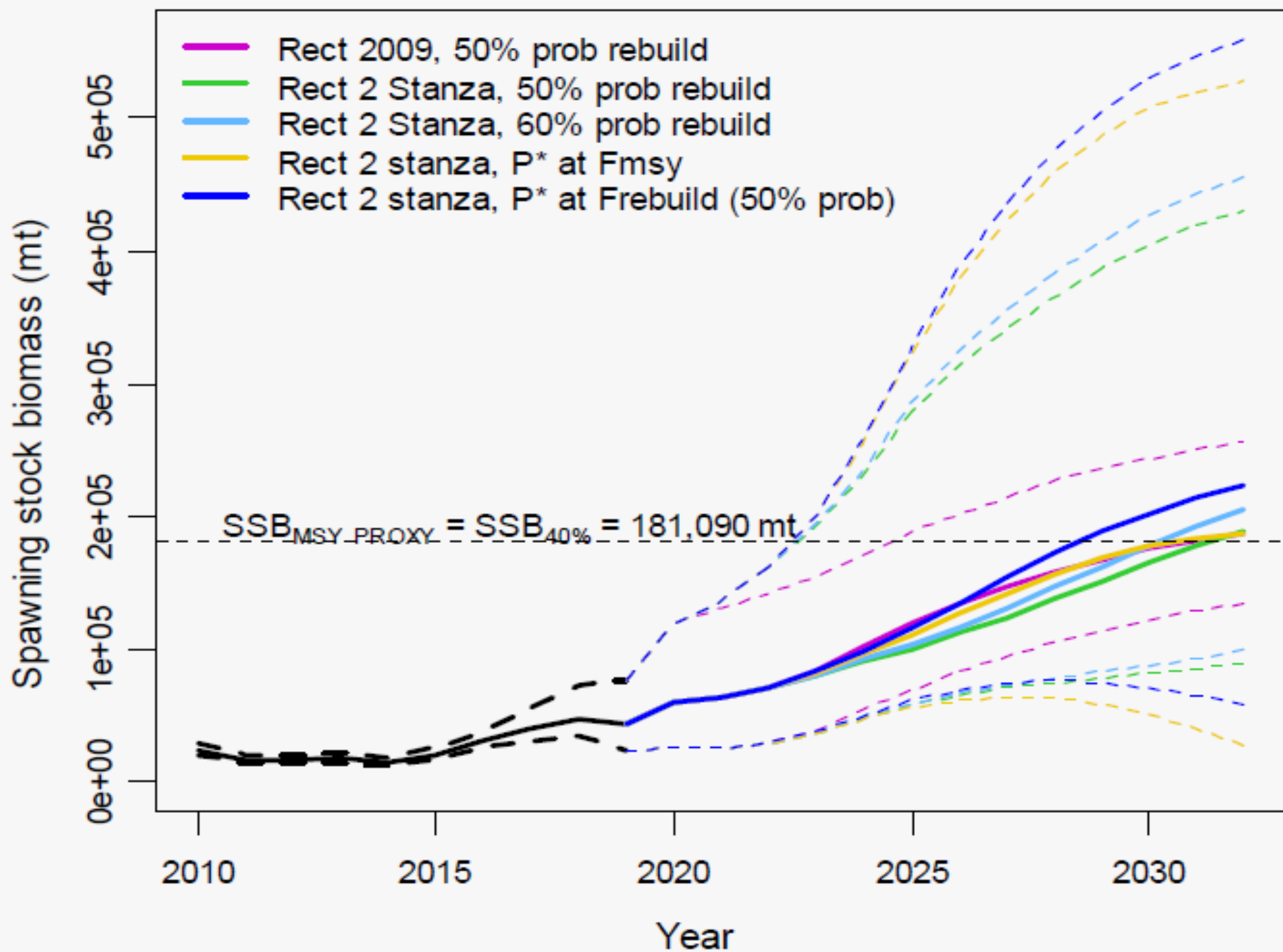
- Canadian set aside?
- 4,395 MT or 2,197 MT
- 2021 catch or half?
- 2022 closed for Canada commercially
- 2023 = ? Based on next assessment
- Appear to be taking more precautionary approach...

# Mackerel Decision Sequence

- Canadian set aside?
- Rebuilding option?
- Recreational measures?
- Recreational deduction?
- Confirm discard set aside?
- Confirm closure approach?
- RH/S Cap?
- Mesh?
- Permit regulation clarification?

# Mackerel Decision Sequence

- Rebuilding Option?
- Public Comment
- AP Input
- SSC Input



# Rebuilding v 2

- 1 Low  $R$ , minimal catch to rebuild  
2023 catch = 703 MT
- 2  $R+$ , rebuild  $F$  minus  $P^*$  buffer  
2023 catch = 2,976 MT
- 3  $R+$ , just normal  $P^*$  buffer  
2023 catch = 4,539 MT
- 4  $R+$ ,  $F$  rebuild = 0.12  
2023 catch = 8,094 MT
- 5  $R+$ ,  $F$  rebuild = 0.14  
2023 catch = 9,371 MT

3.5

# Rebuilding

- "3.5"
- Still rebuilds in 2031 like complete P\*

Year	Catch	SSB	B/Bmsy
2020	18014	60294	0.33
2021	12220	63619	0.35
2022	12055	70768	0.39
2023	6316	81483	0.45
2024	6316	94578	0.52
2025	8142	109538	0.60
2026	10854	124851	0.69
2027	14106	140308	0.77
2028	17903	154786	0.85
2029	21859	167027	0.92
2030	25571	176543	0.97
2031	28679	182780	1.01
2032	30466	186393	1.03



# Rebuilding

- "3.5"
- Split 3 and 4 for 2023 ABC: 6,316 MT
- Use for 2023 and 2024
- Move to P\* for 2025: 8,142 MT

Alternative 3.5 - 2023 Specifications (MT)						
ABC	6,316					
Canadian Catch Options	2,197			4,395		
Rec Catch Options (10, 15, na)	2,195	2,298	2,582	2,195	2,298	2,582
Commercial Discards	115	115	115	115	115	115
<b>Commercial Quota</b>	<b>1,809</b>	<b>1,706</b>	<b>1,422</b>	<b>-389</b>	<b>-492</b>	<b>-776</b>
Before May 1 First Closure Threshold (-886 MT)	923	820	536	Not viable if expected Canadian Catch = 4,395 MT		
May 1/after First Closure Threshold (-443 MT)	1,366	1,263	979			
Final Closure Threshold (-100 MT)	1,709	1,606	1,322			

# Mackerel Decision Sequence

- Canadian set aside?
- Rebuilding option?
- Recreational measures?
- Recreational deduction?
- Confirm discard set aside?
- Confirm closure approach?
- RH/S Cap?
- Mesh?
- Permit regulation clarification?

# Mackerel Decision Sequence

- Canadian set aside?
- Rebuilding option?
- Recreational measures?
- Recreational deduction?
- Confirm discard set aside?
- Confirm closure approach?
- RH/S Cap?
- Mesh?
- Permit regulation clarification?

# Recreational measures?

- No action
  - 10 fish
  - 15 fish
  - 20 fish (?)
- 
- Public/AP Comment
    - Bait accommodations (Charter)
    - “Shared” bait pens
    - Purchased bait

# Recreational measures/deduction?

- Assume recent average catch? (2,582 MT)
- Take partial paper deduction?
  - 10 = 15.5% reduction
  - 15 = 11% reduction
  - 20 = 8.5% reduction
- Take full paper deduction?
  - 10 = 31% reduction
  - 15 = 22% reduction
  - 20 = 17% reduction

# Mackerel Decision Sequence

- Canadian set aside?
- Rebuilding option?
- Recreational measures?
- Recreational deduction?
- Confirm discard set aside?
- Confirm closure approach?
- RH/S Cap?
- Mesh?
- Permit regulation clarification?

# Mackerel Decision Sequence

- Confirm discard set aside?
  - 115 MT
  
- Confirm closure approach?
  - Slowdown based on recent landings after primary directed fishery (40k/5k)
    - 886 MT 1<sup>st</sup> buffer before May 1
    - 443 MT 1<sup>st</sup> buffer after May 1
    - 100 MT final buffer (5k/5k)

# Mackerel Decision Sequence

- Canadian set aside?
- Rebuilding option?
- Recreational measures?
- Recreational deduction?
- Confirm discard set aside?
- Confirm closure approach?
- RH/S Cap?
- Mesh?
- Permit regulation clarification?



# RH/S - Context

- 129 Currently – 17,371 MT Quota
- Was 82 MT in 2018-2019
  - 9,200 MT Quota
  - 2018: 7,500 MT @ closure
  - 2019: 3,800 MT @ closure

# RH/S - Context

- Public Comment...

# Mackerel Decision Sequence

- Canadian set aside?
- Rebuilding option?
- Recreational measures?
- Recreational deduction?
- Confirm discard set aside?
- Confirm closure approach?
- RH/S Cap?
- Mesh?
- Permit regulation clarification?

# Backup Slides

# Summary

- Stock declined – lots of overfishing
- Recovery depends on recruitment
- Lower recruitment means:
  - Lower catches to rebuild
  - Longer to rebuild

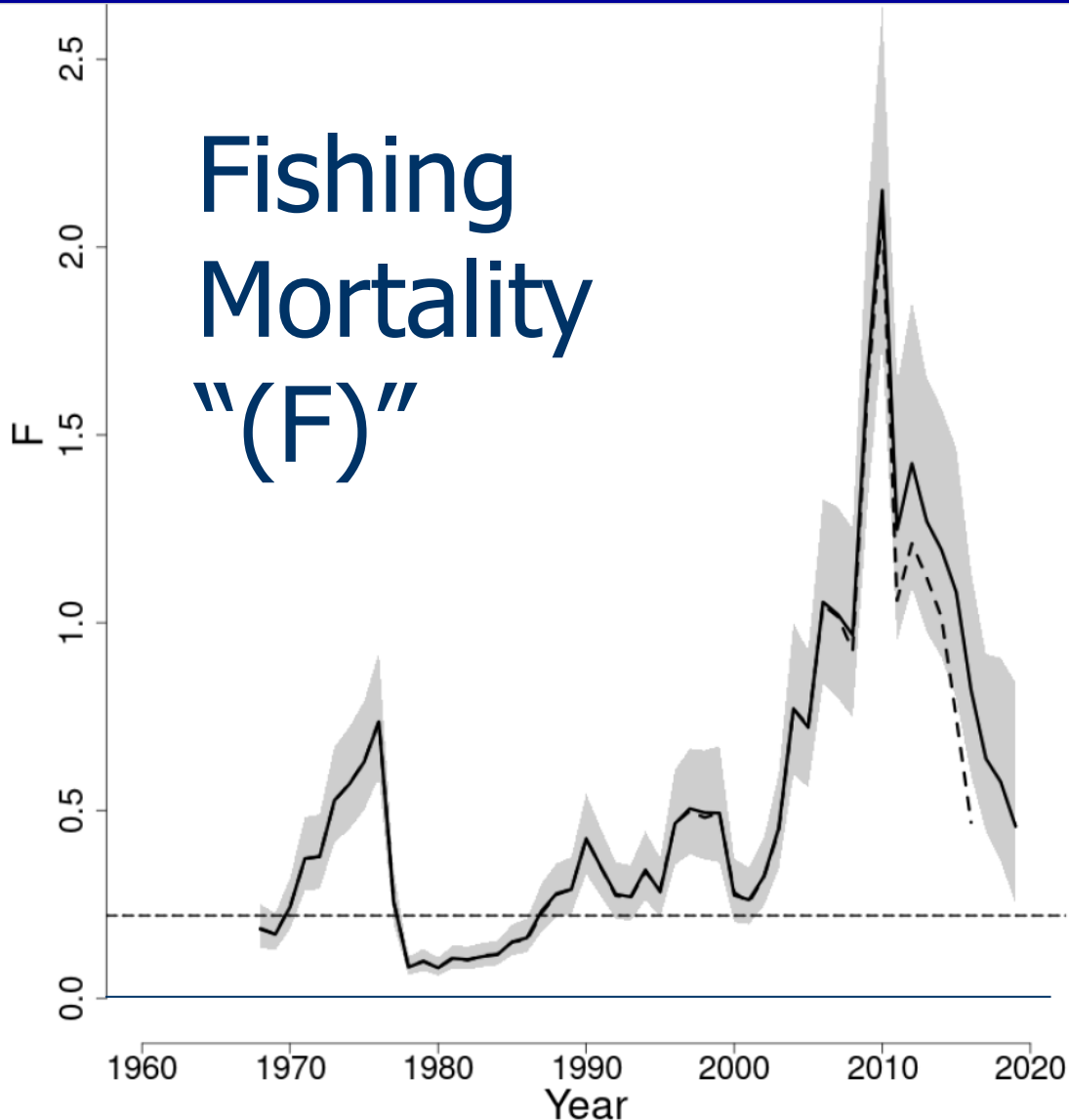
# Next Steps

- Committee Meeting Monday
- Council action in June 2022

# P\* Risk Policy Deduction

- Lower biomass = greater certainty about not overfishing = lower catch
- Normally applied to mortality rate ("F") that creates overfishing = buffer
- Can similarly apply to a rebuilding F
  - Lower biomass = greater certainty about not exceeding F = lower catch (e.g. bluefish)

# 2021 Assessment - Overfishing



Trends in fishing mortality (F) 1968 to 2019

Most recent assessment = solid line

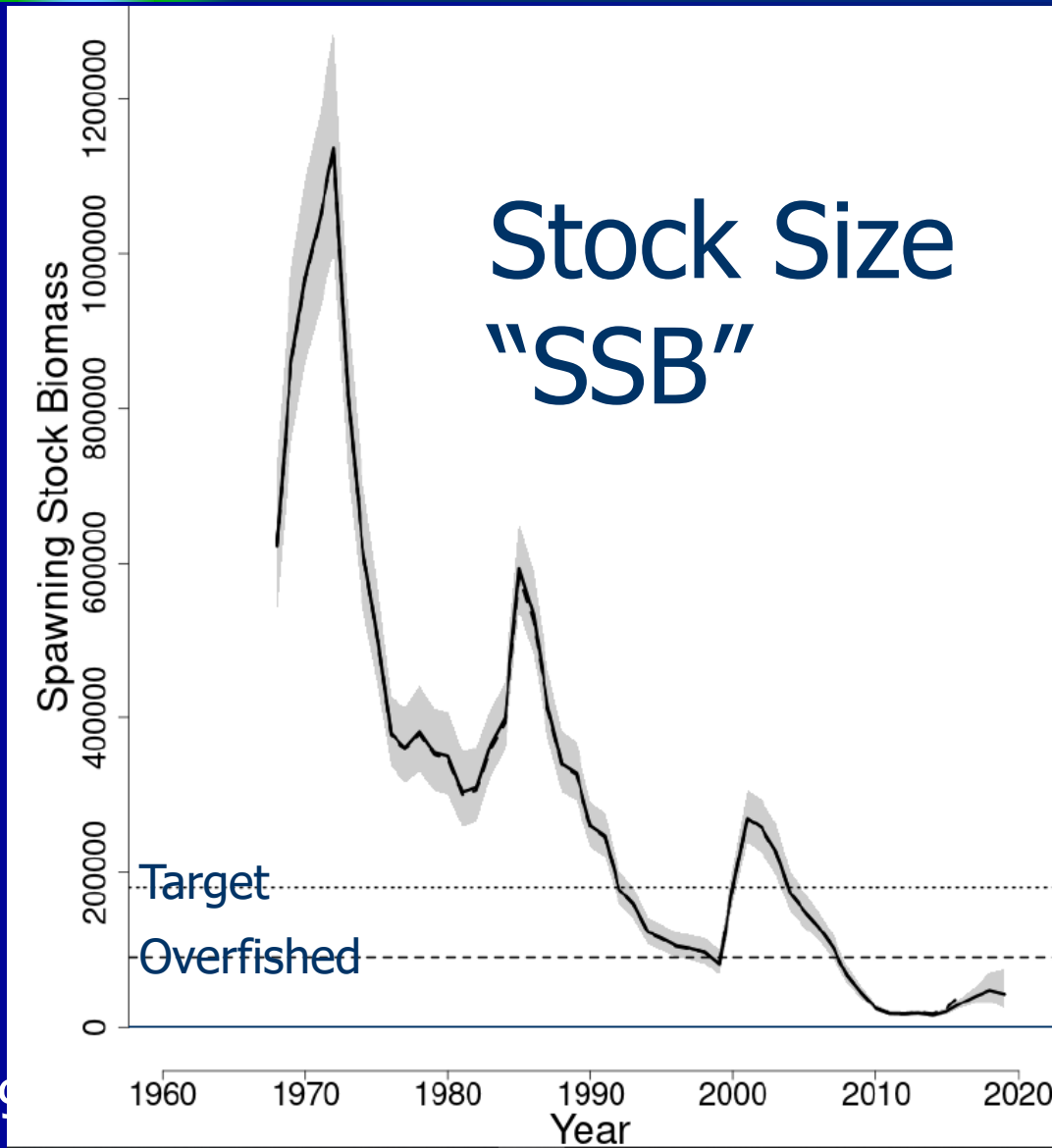
Previous assessment = dashed line

Overfishing threshold = horizontal dashed line (0.22)

Shading = 90% lognormal confidence intervals



# 2021 Assessment - Overfished



Trends in spawning stock biomass (SSB) 1968 to 2019

Target = higher horizontal dotted line

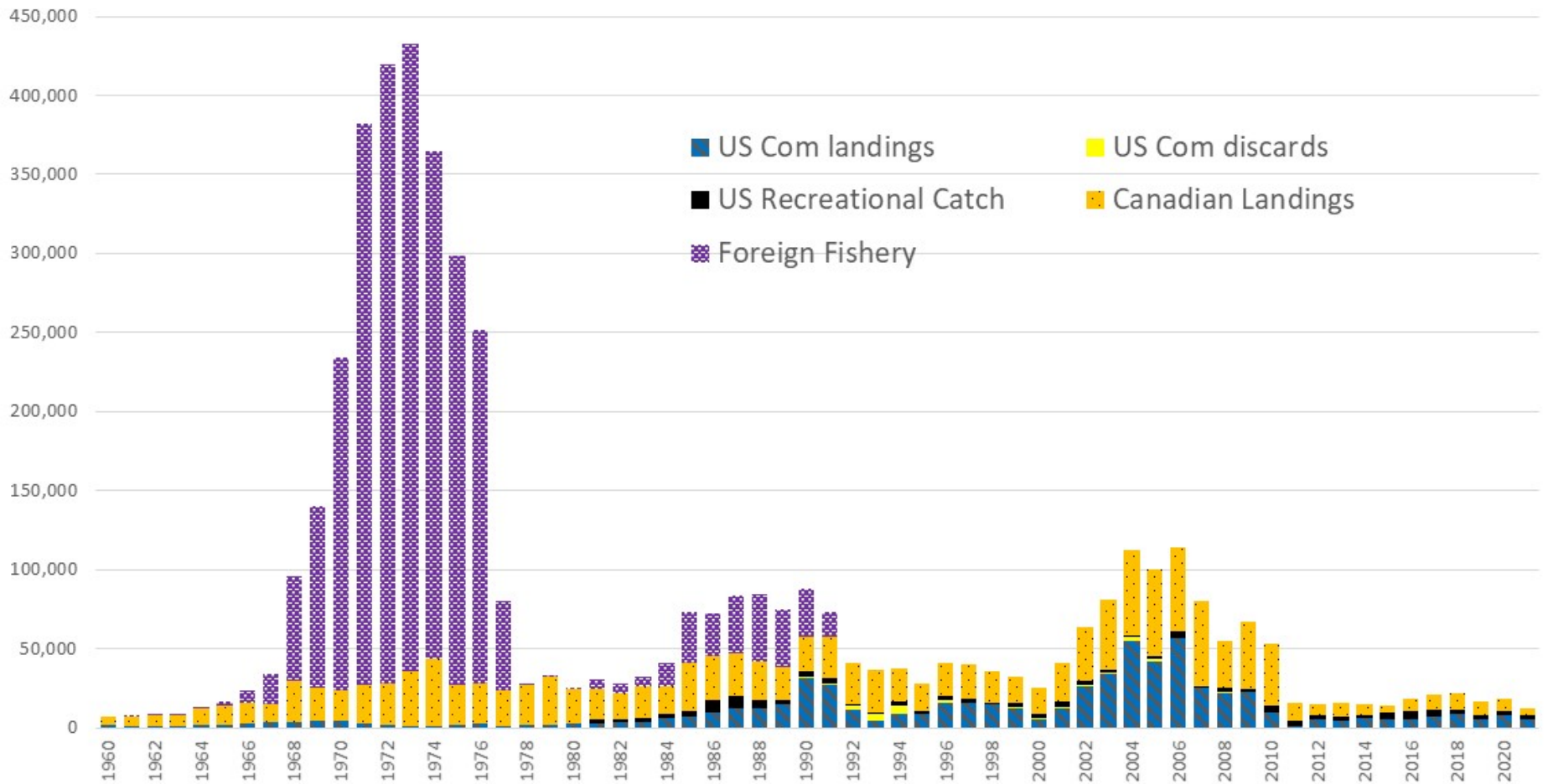
Overfished threshold = lower horizontal dashed line

Shading = 90% lognormal confidence intervals

Once below overfished, have to rebuild to Target in 10 years or less (law)

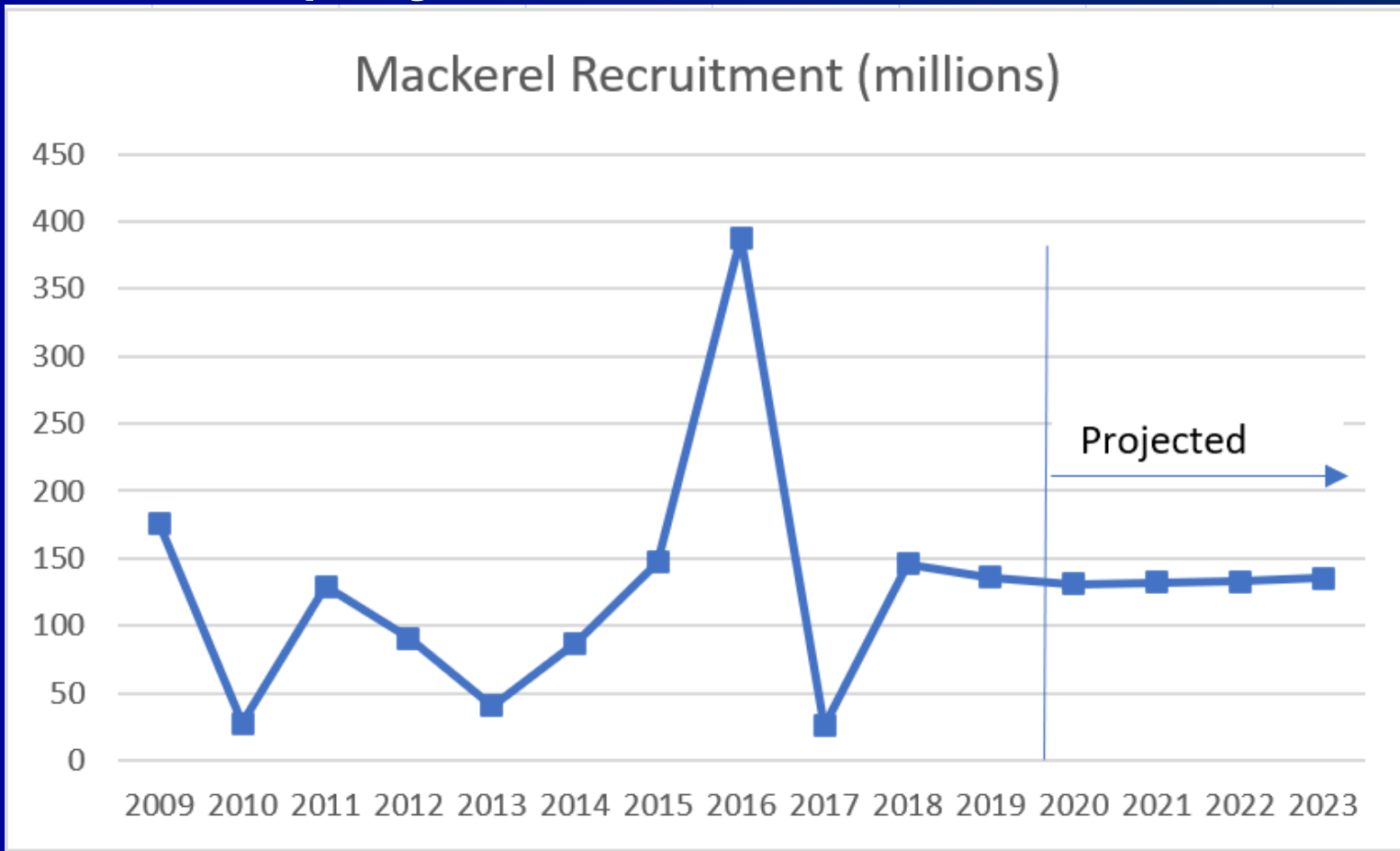
# Catch History

Mackerel Catch 1960-2021



# Context w/past

## ■ Recent/projected recruitment



# Context w/past

- \*2022 Catch
  - Projections include about 12,000 MT
  - Actual catch likely less than 6,000 MT
  - Should add about 2,400 MT to projected biomass in 2023