



# *Spotted Seatrout Fishery Management Plan Update*

*Department of Environmental Quality  
Marine Fisheries*

N.C. Marine Fisheries Commission  
M. Lambert and L. Pensinger | Aug 24, 2023



## *Outline*

- Overview of Fishery Management Plan Progress

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- Sustainable Harvest

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- Life History

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- Overview of Fishery Management Plan Progress
- Sustainable Harvest
- Life History
- Projections

## Next Steps

Aug-Dec  
2023

- Division drafts FMP



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Early 2024

- Division holds FMP workshop to further develop draft with advisory committee



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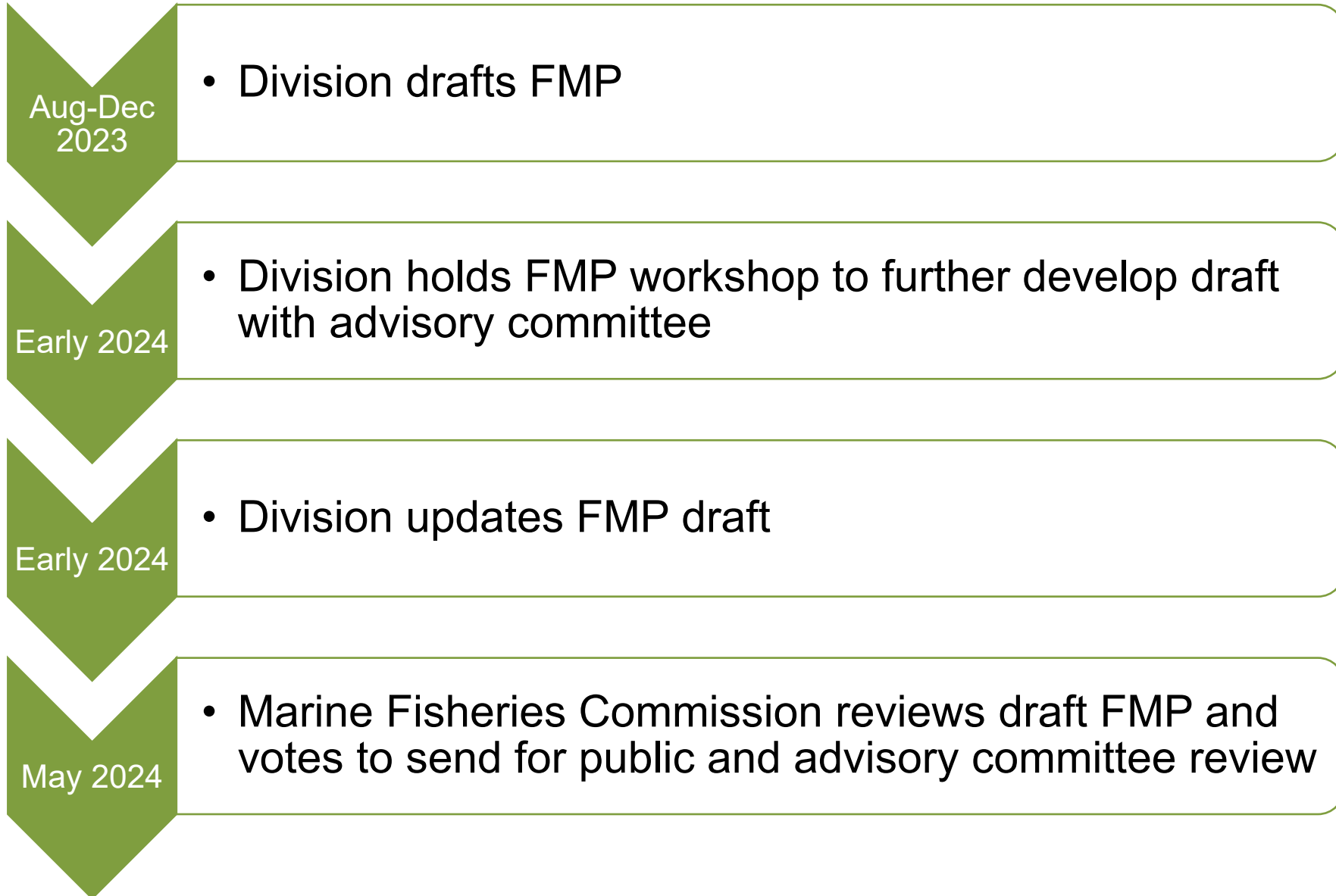
Early 2024

- Division updates FMP draft





## Next Steps



# Fishery Management Plan Overview

## Sustainable Harvest

Example options: seasons, changes to bag limit, trip limit, or size limit.

## Recreational Management

Example options: limiting RCGL use, ending captain/crew limits, and regional management.

## Commercial Management

Example Options: hook and line fishery, regional management, and limited entry.

## Spawning Stock Protection

Example options: slot limit, size limit, bag limit, and additional cold stun management.

# *Spotted Seatrout Life History*



## *Spotted Seatrout Life History*

- Grow fast





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- Mature early



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- Mature early
- High fecundity
- Susceptible to cold stuns
  - No major cold stun since 2018



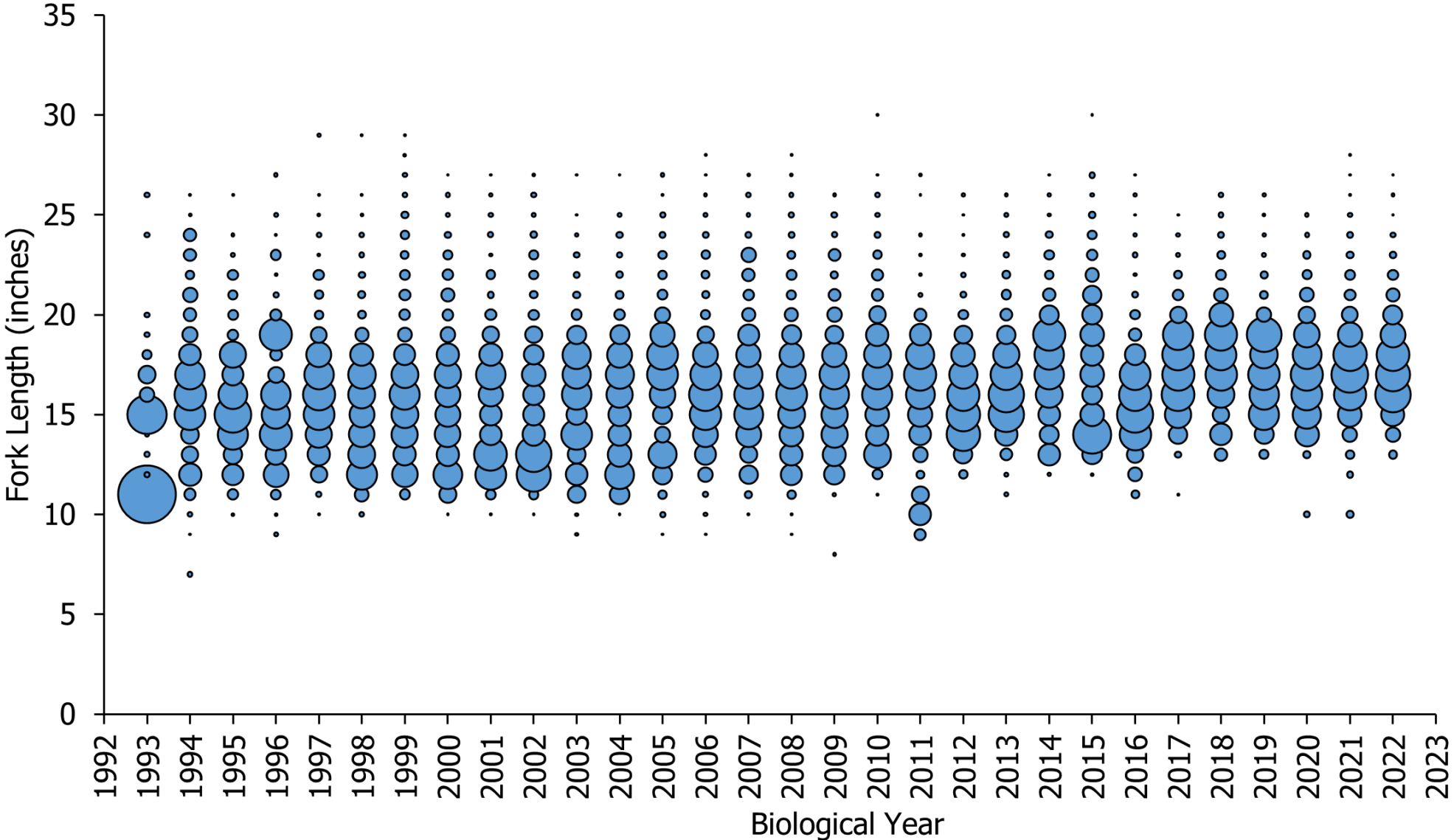


## *Spotted Seatrout Life History*

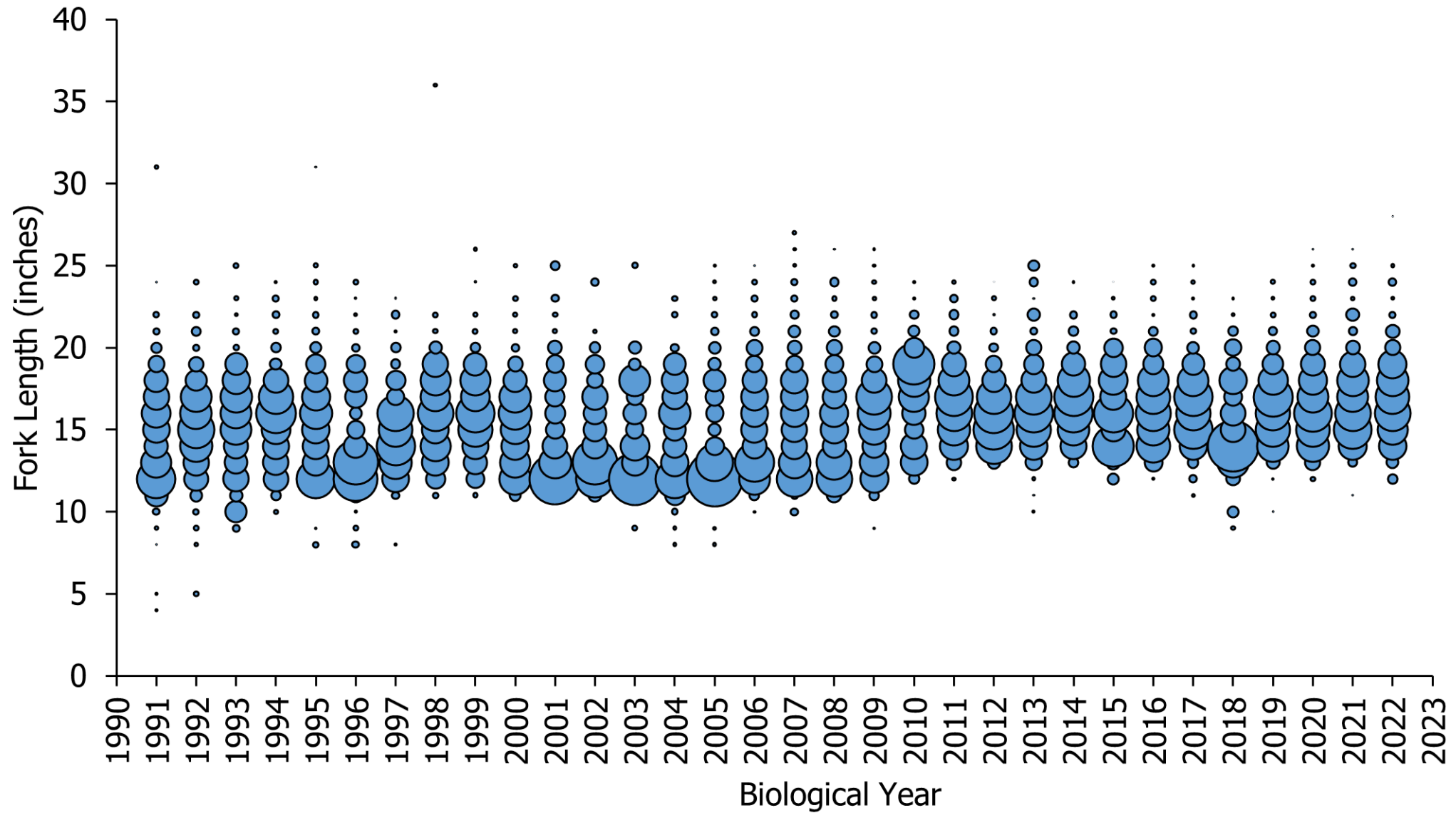
- Grow fast
- Mature early
- High fecundity
- Susceptible to cold stuns
  - No major cold stun since 2018
  - High spawning stock biomass



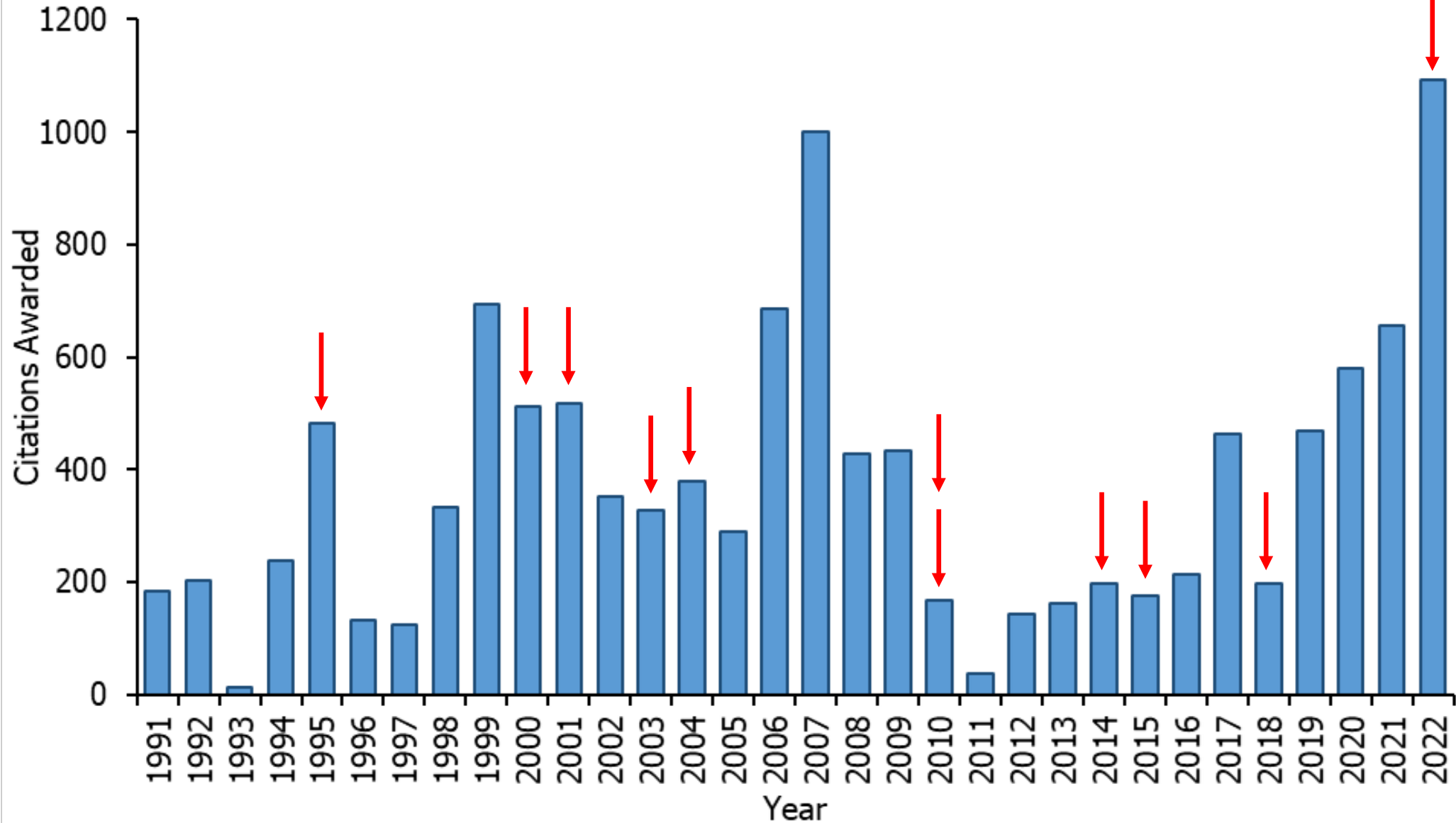
# Spotted Seatrout Life History – Commercial Length Frequency



# *Spotted Seatrout Life History – Recreational Length Frequency*



## *Spotted Seatrout Life History – Recreational Citations*



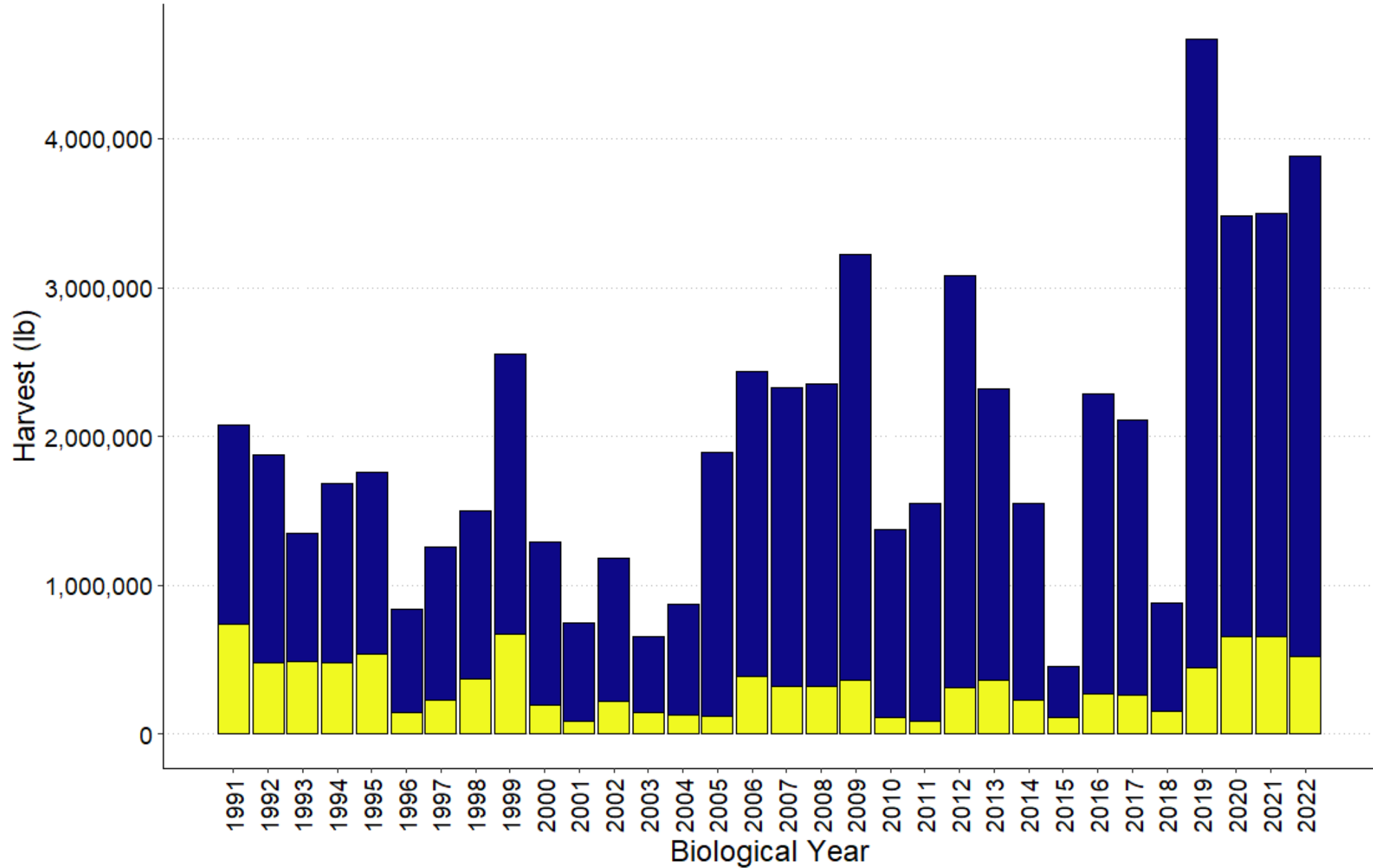


## *Sustainable Harvest*



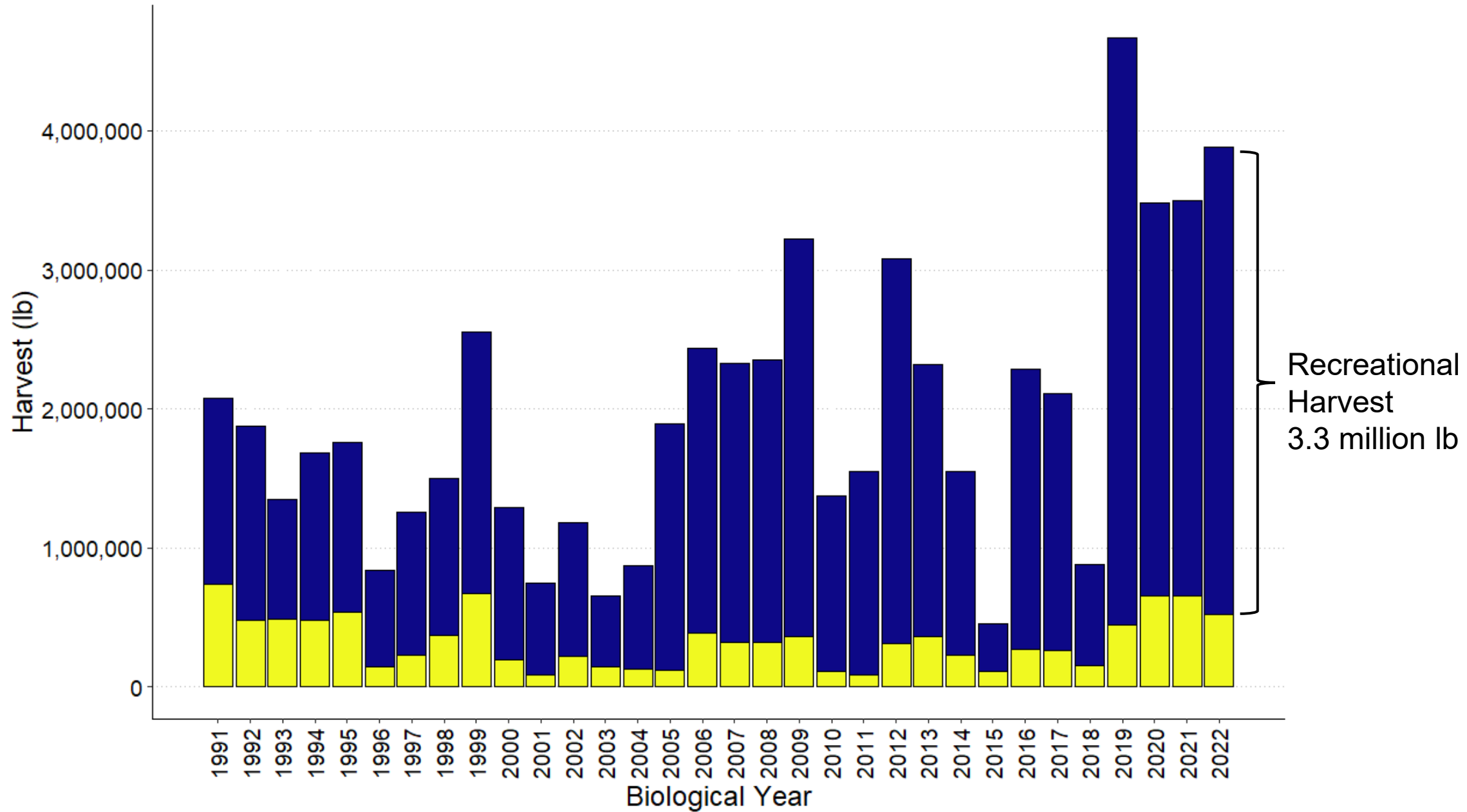
# Annual harvest by sector

Sector Com Rec



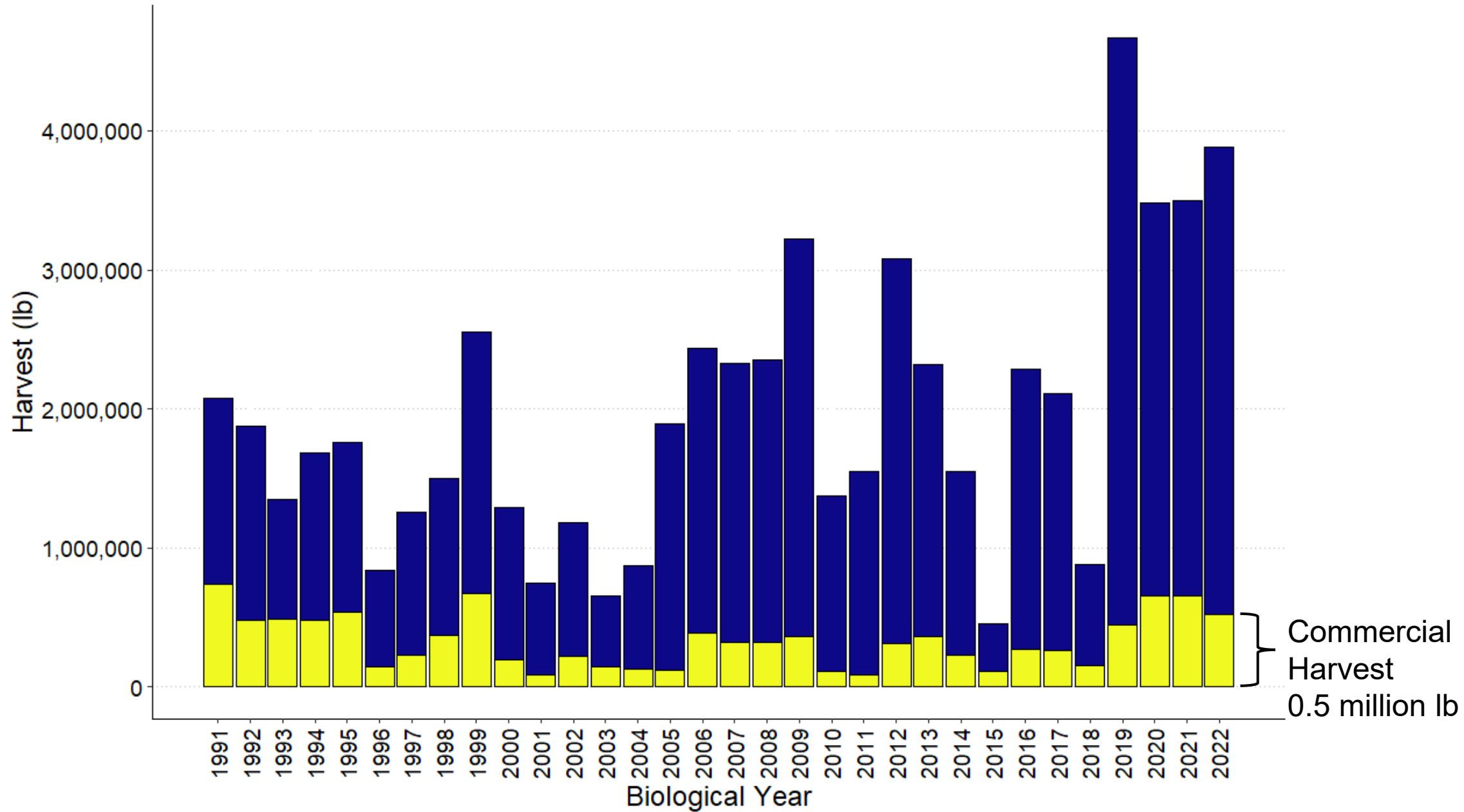
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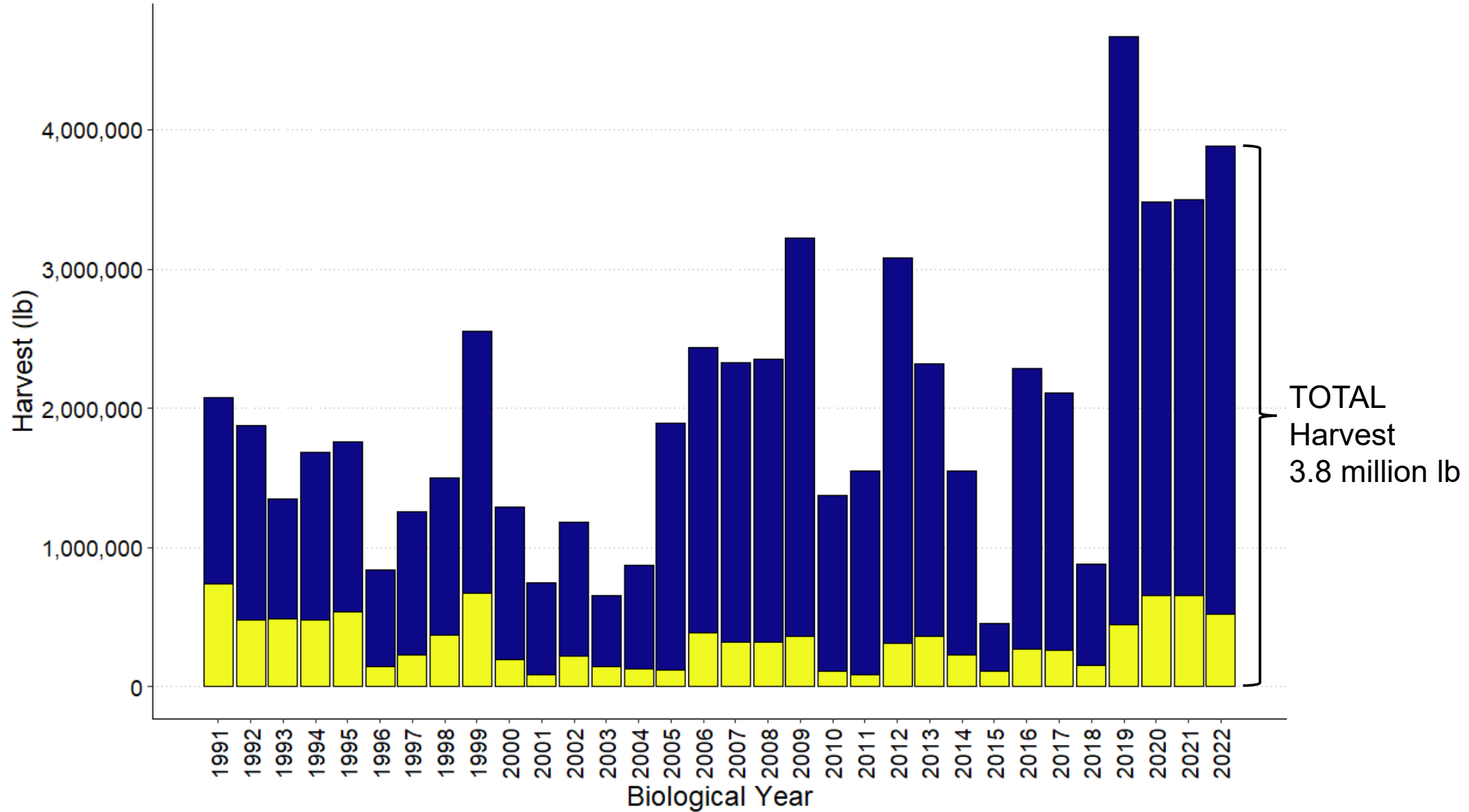
Sector Com Rec





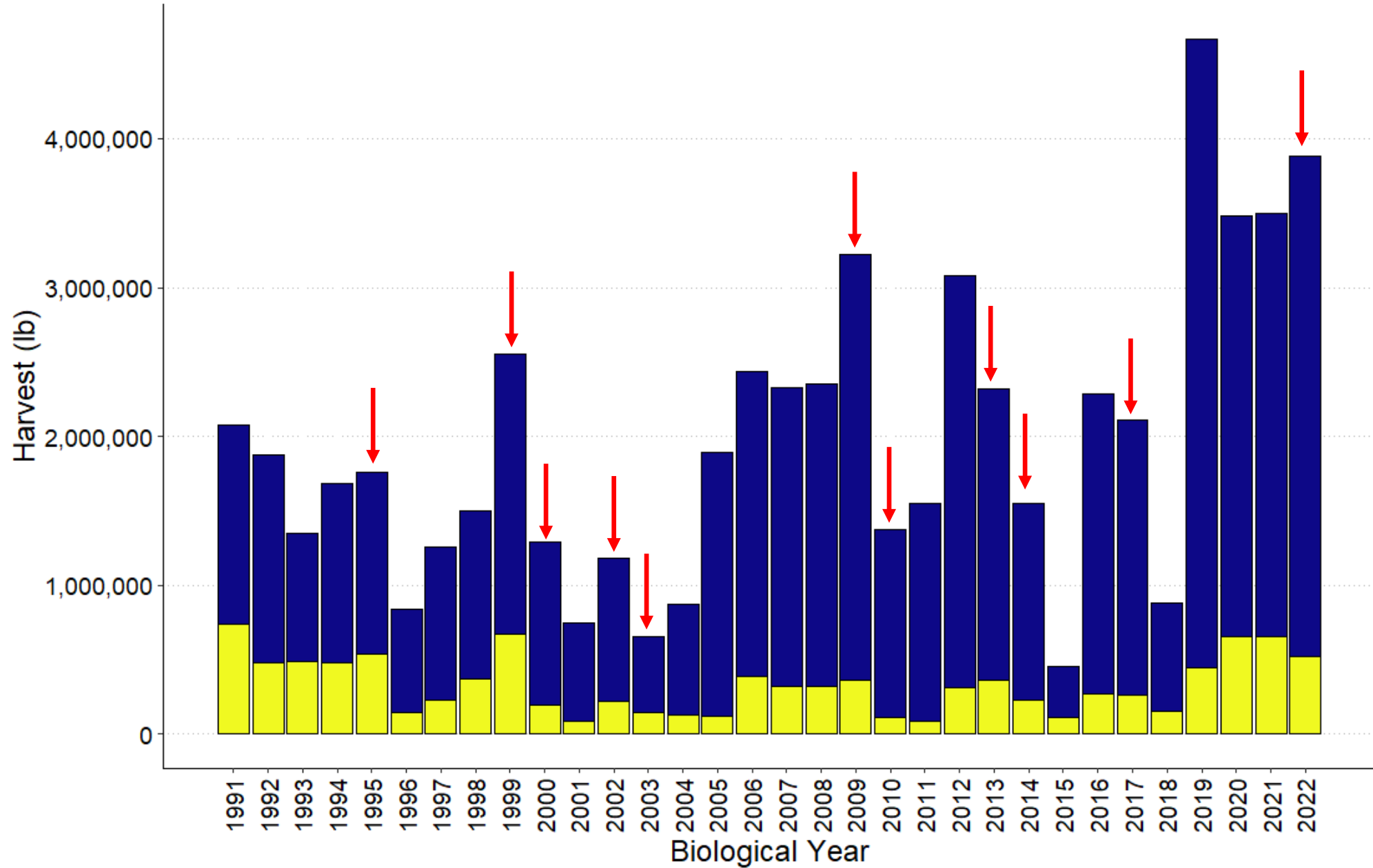
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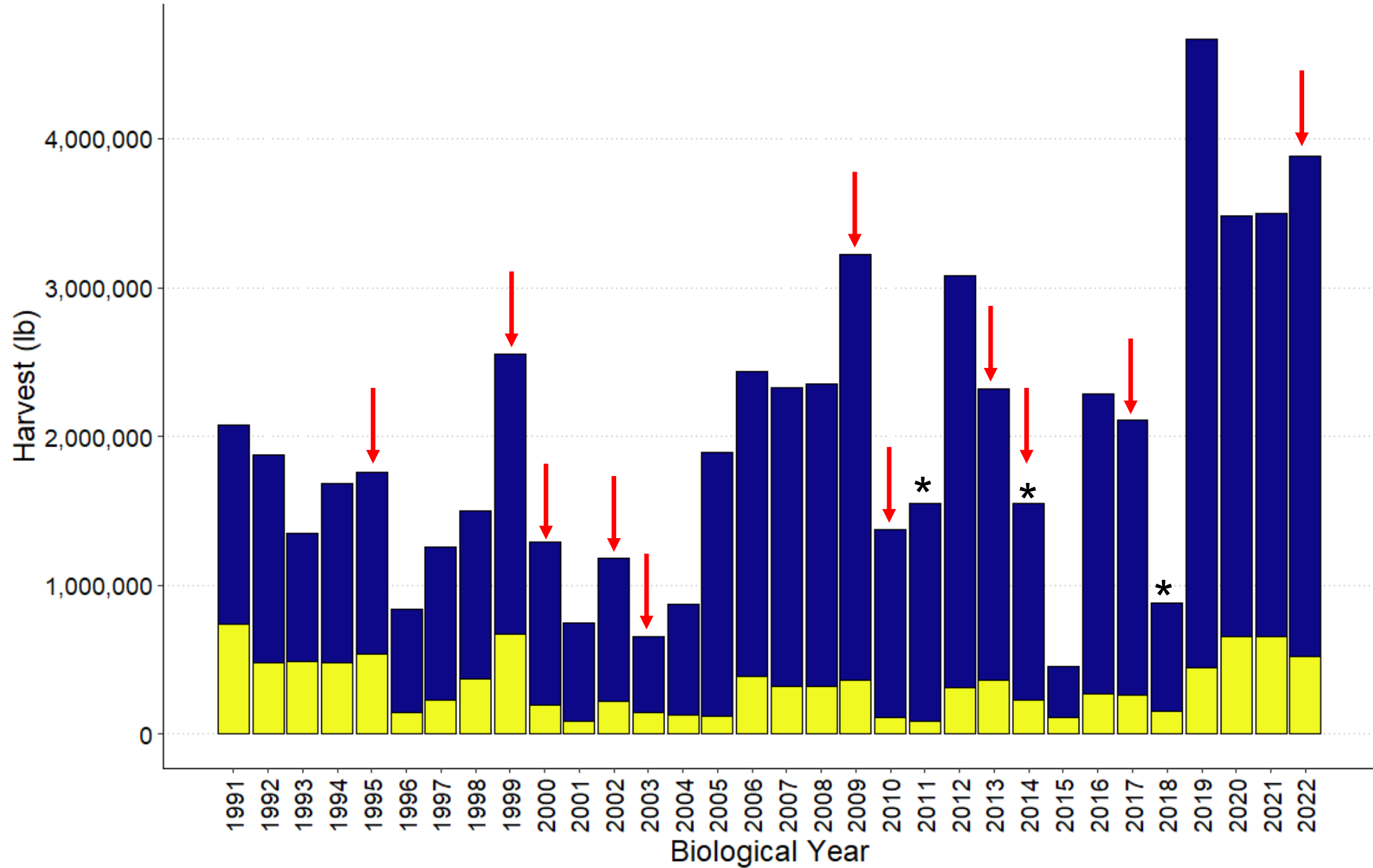
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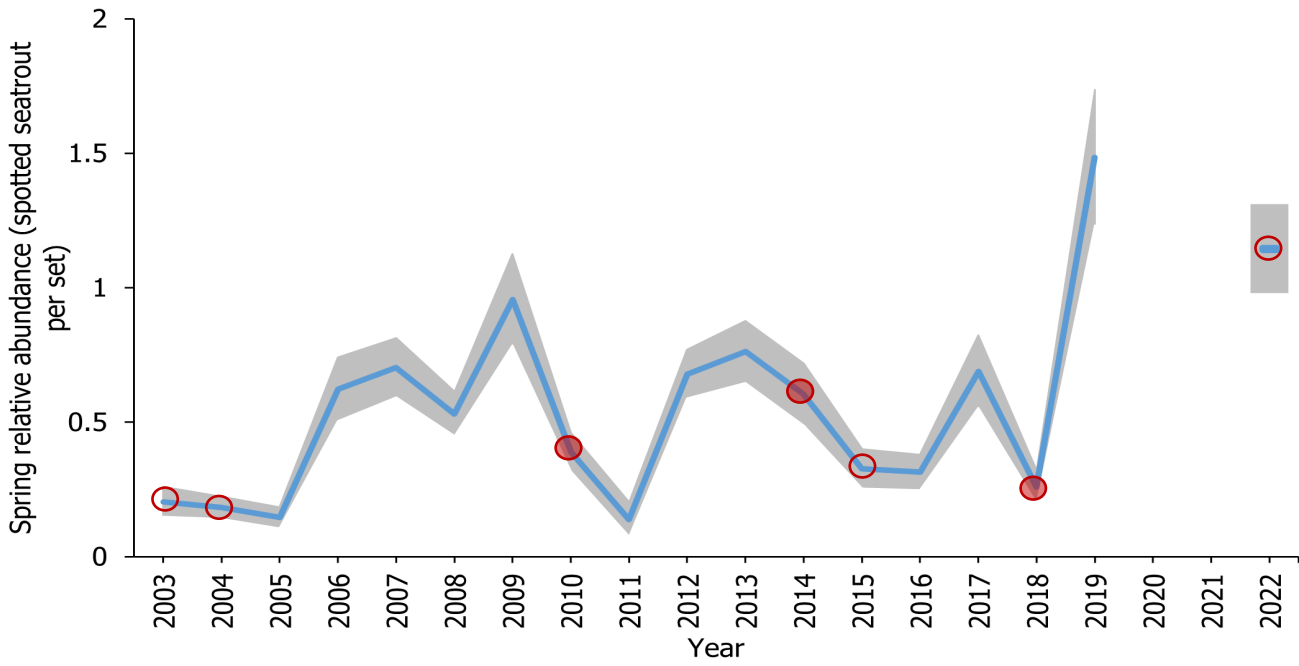
Sector Com Rec



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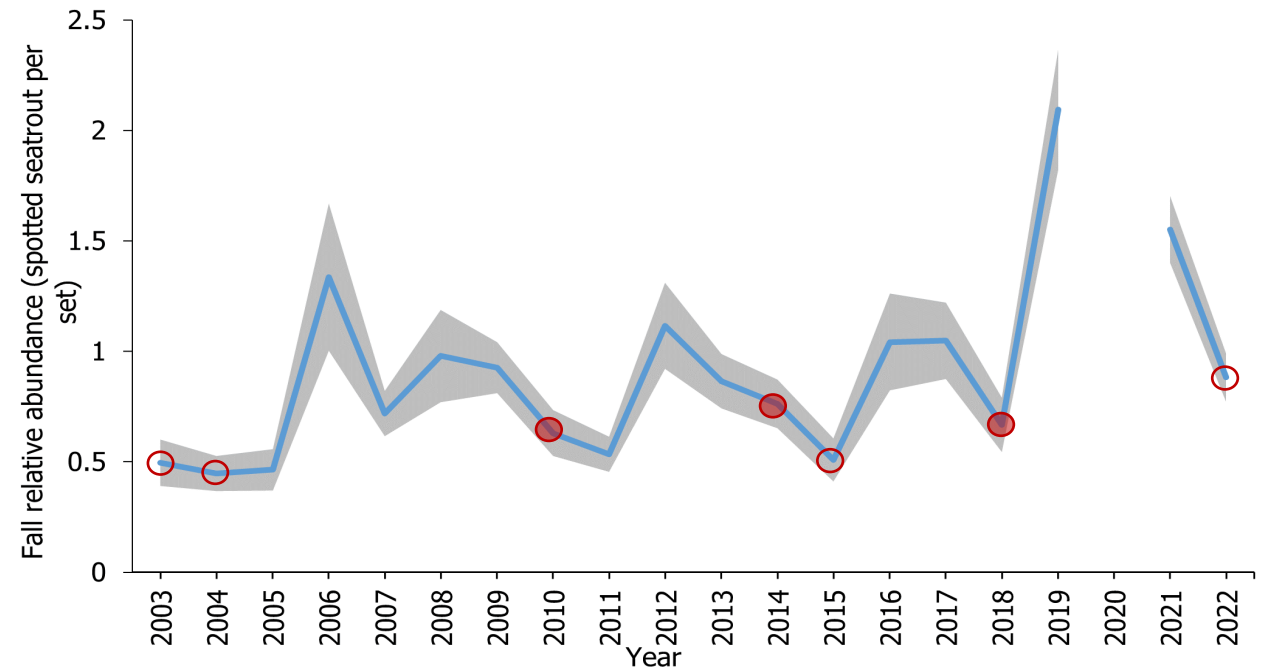
Sector Com Rec





Spring Index  
April - June

Fall Index  
September - November

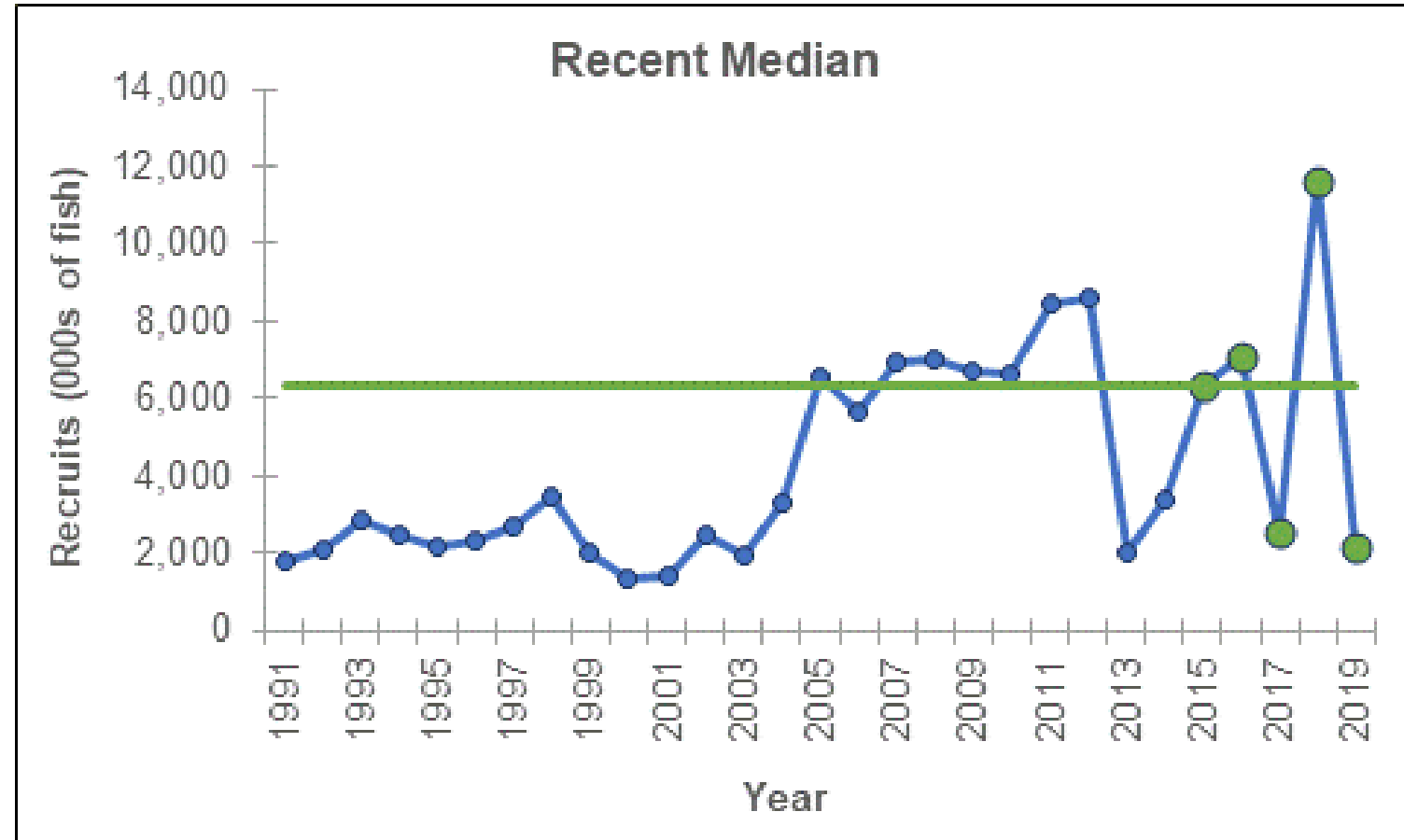


# *Projections*



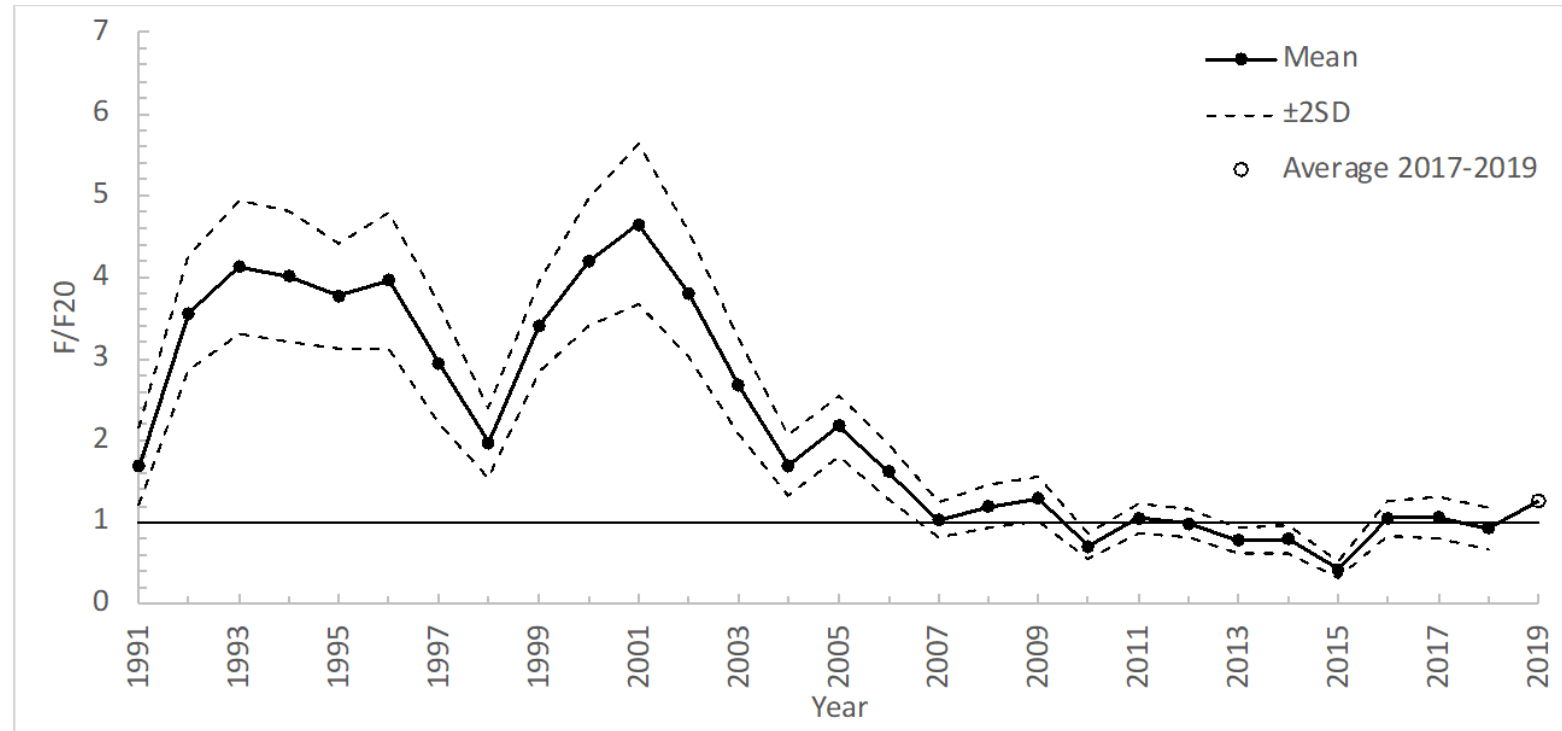
## Projections – Recruitment

- Focus on recent recruitment
  - Median of recent years



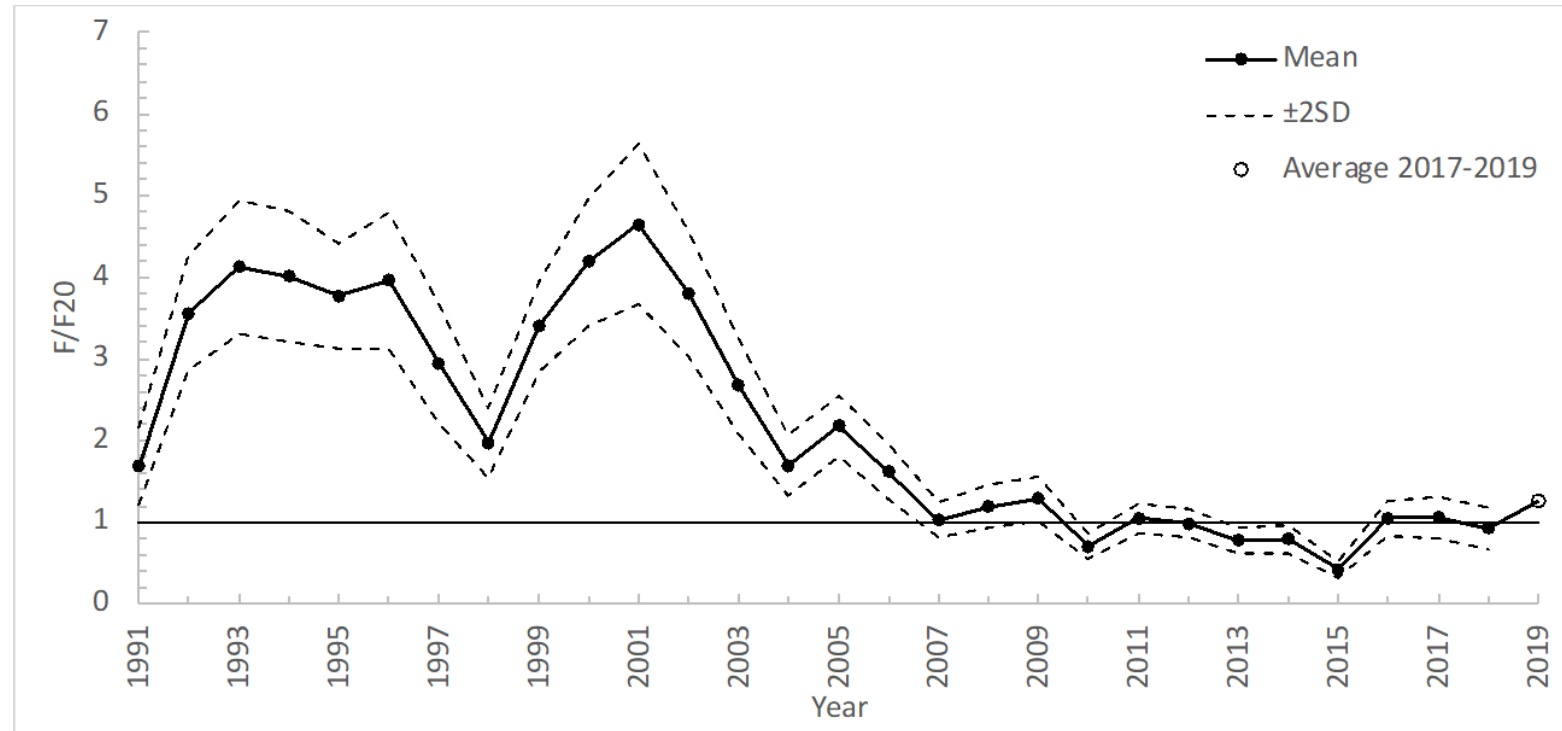
## Projections – Fishing Mortality

- Focus on recent recruitment
  - Median of recent years
- Fishing mortality
  - $F_{2017-2019}$  (0.75)



## Projections – Fishing Mortality

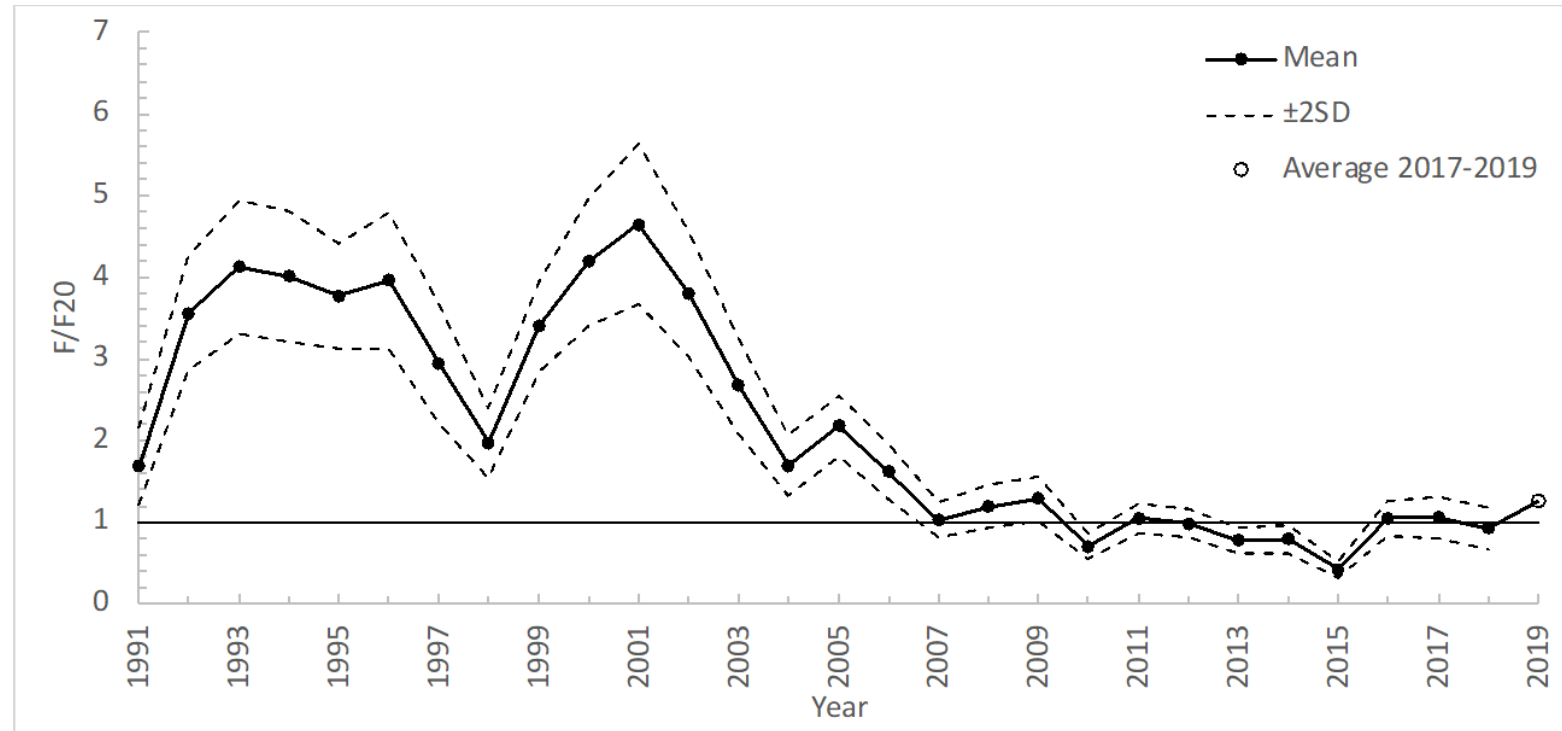
- Focus on recent recruitment
  - Median of recent years
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  - $F_{2017-2019}$  (0.75)
  - $F_{\text{Threshold}}$  (0.60)





## Projections – Fishing Mortality

- Focus on recent recruitment
  - Median of recent years
- Fishing mortality
  - $F_{2017-2019}$  (0.75)
  - $F_{\text{Threshold}}$  (0.60)
  - $F_{\text{Target}}$  (0.38)

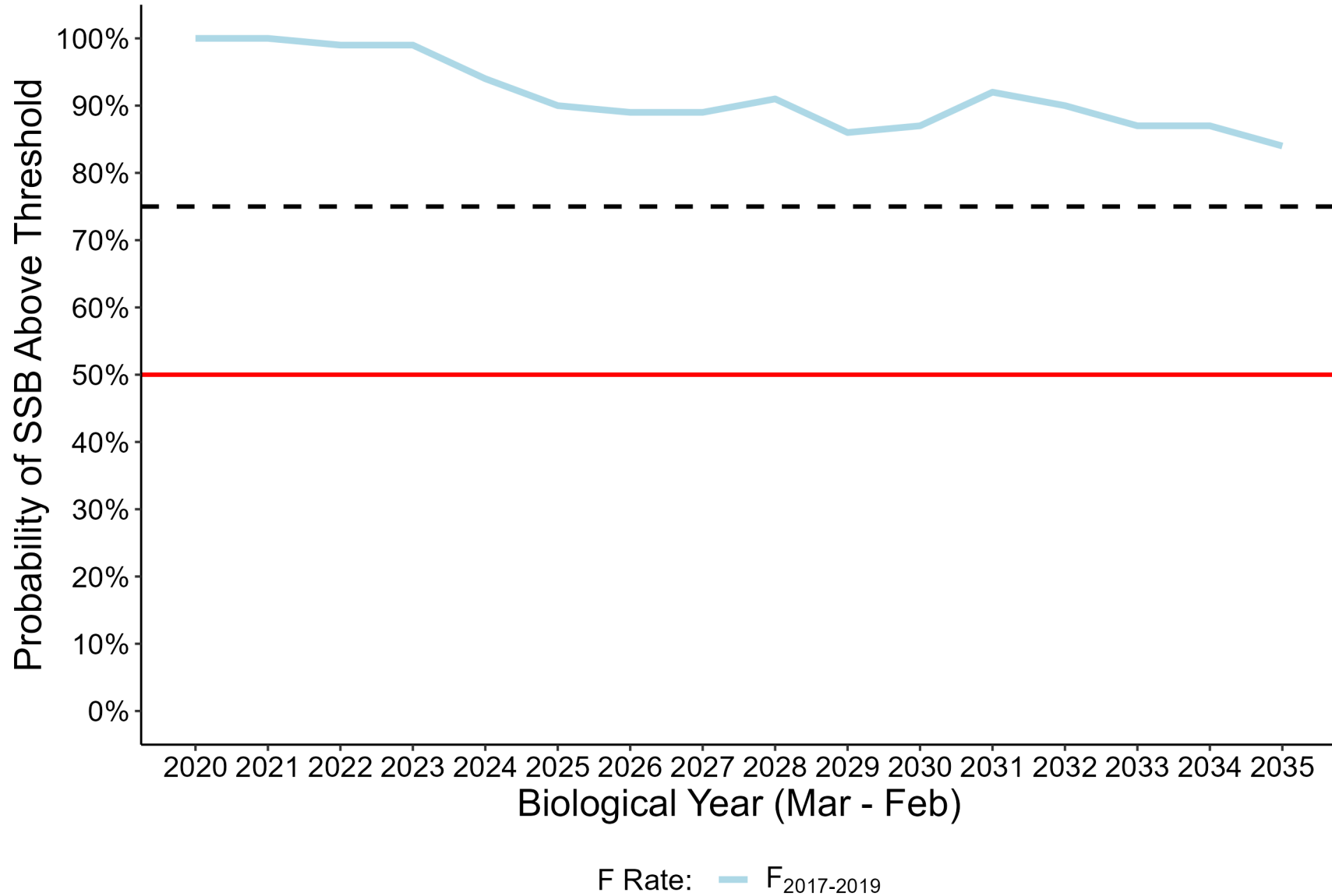


## *Projections – Cold Stun Scenarios*

- Two cold stun scenarios
  - No cold stuns

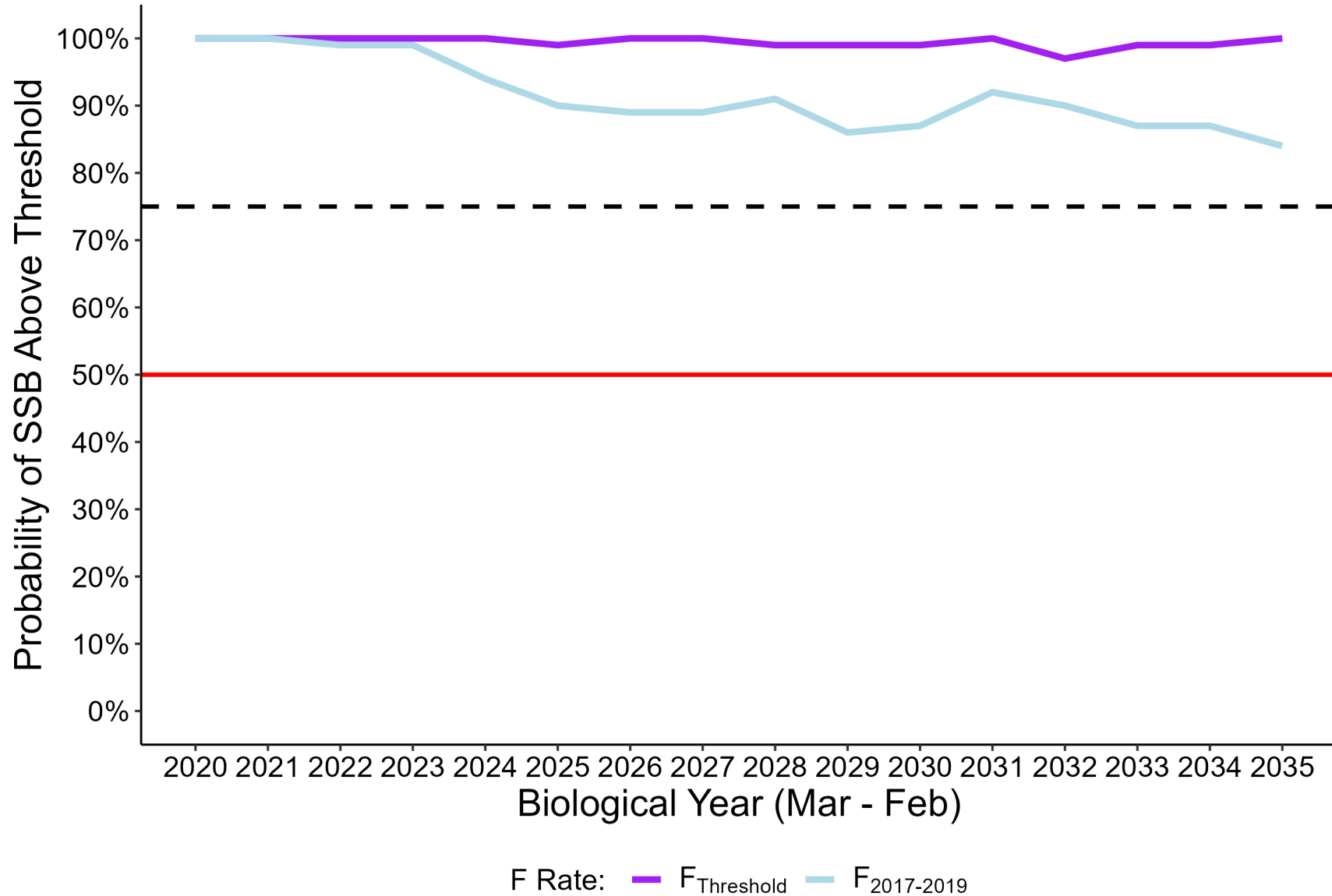
# *Projections – No Cold Stuns*

Probability of SSB Above Threshold, No Cold Stun



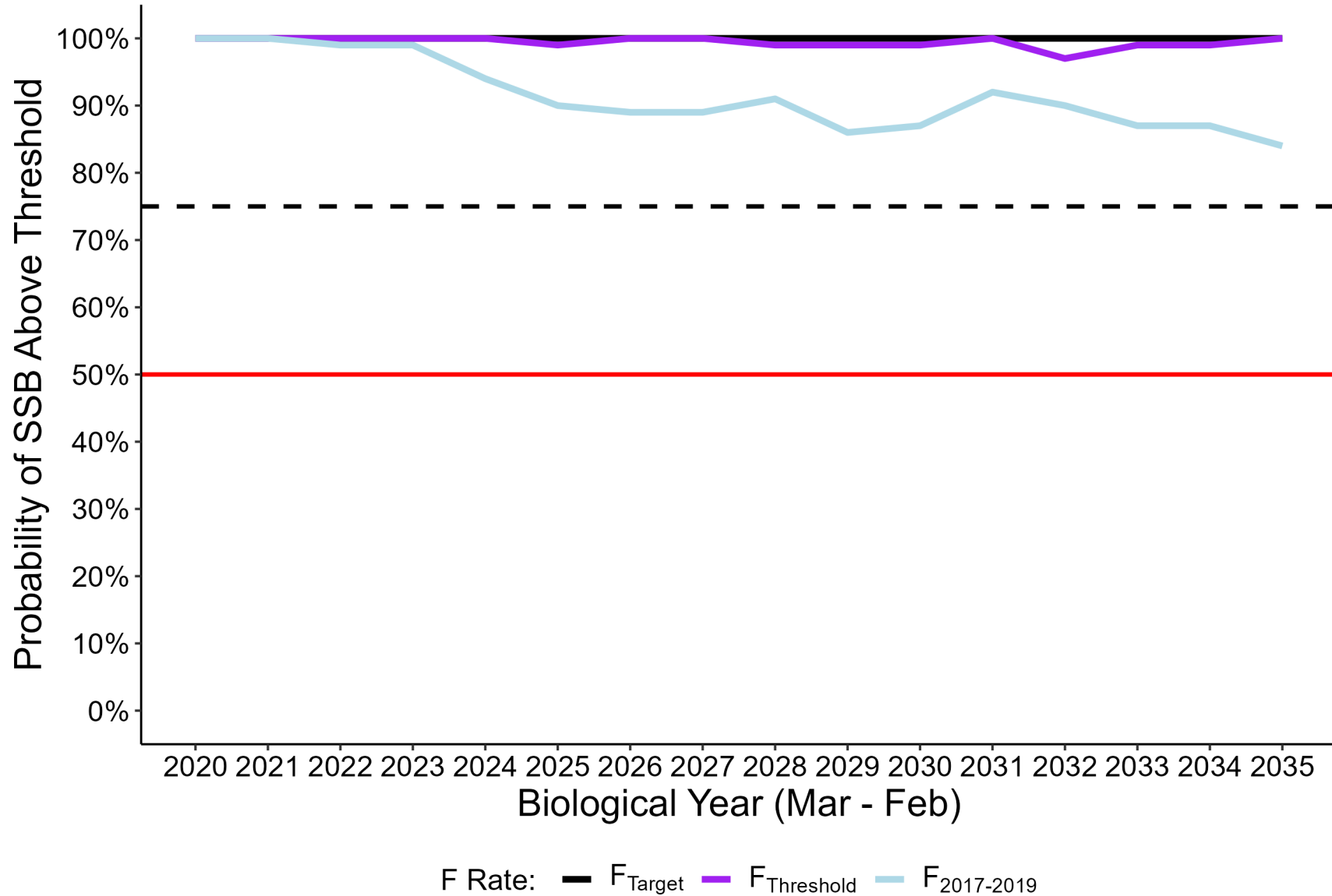
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## Probability of SSB Above Threshold, No Cold Stun



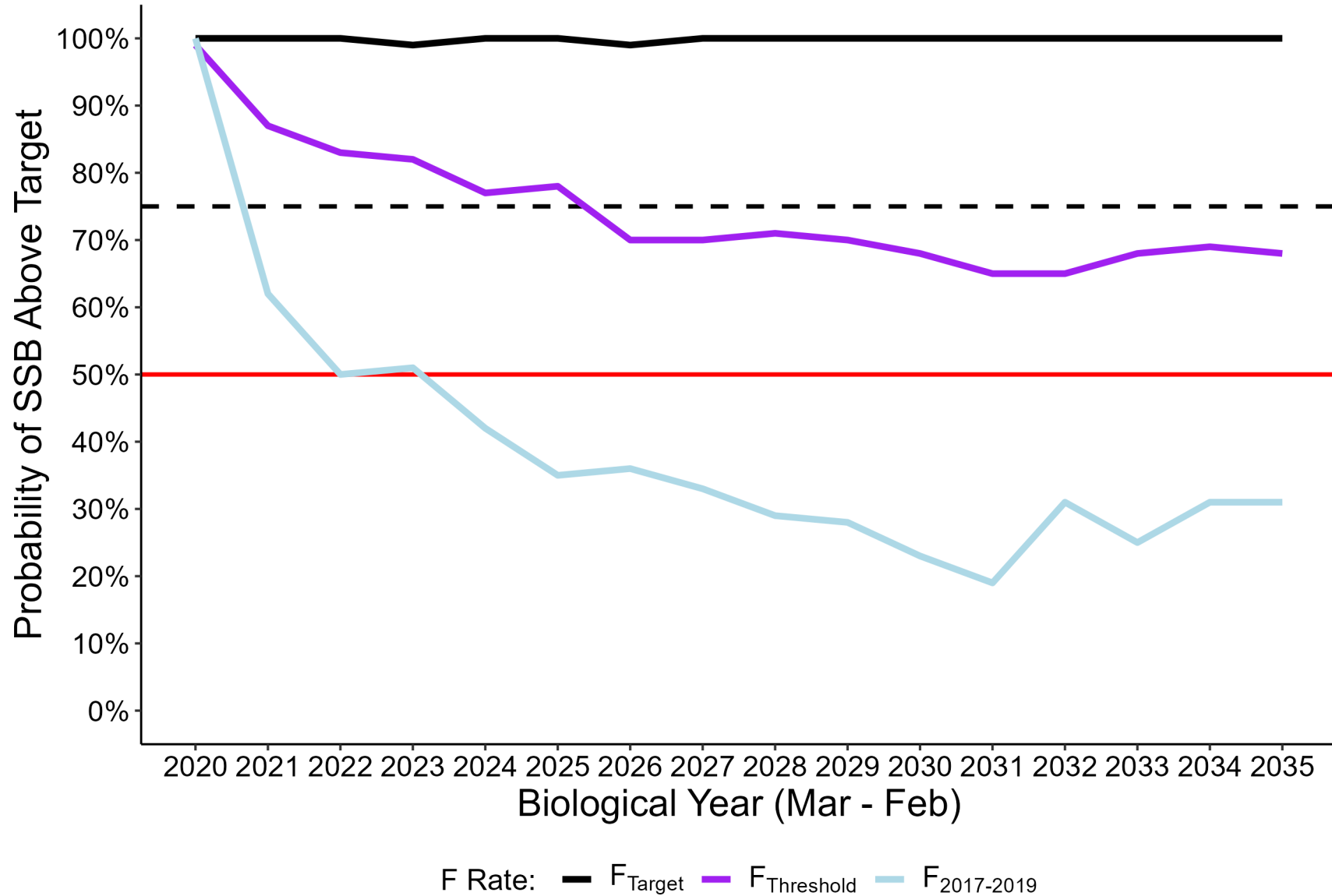
# Projections – No Cold Stuns

## Probability of SSB Above Threshold, No Cold Stun



# Projections – No Cold Stuns

Probability of SSB Above Target, No Cold Stun



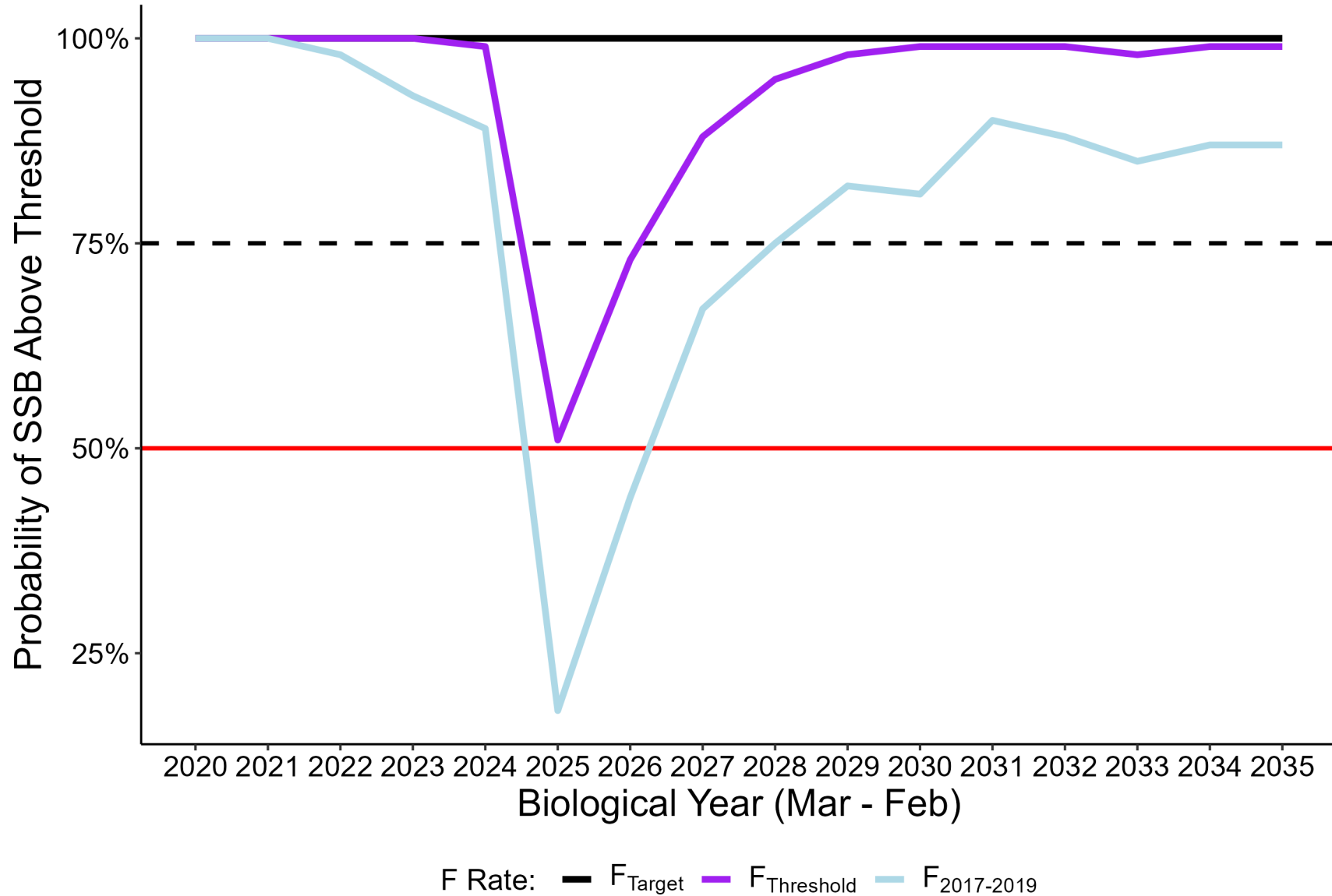
## *Projections – Cold Stun Scenarios*

- Two cold stun scenarios
  - No cold stuns
  - One large cold stun



# Projections – No Cold Stuns

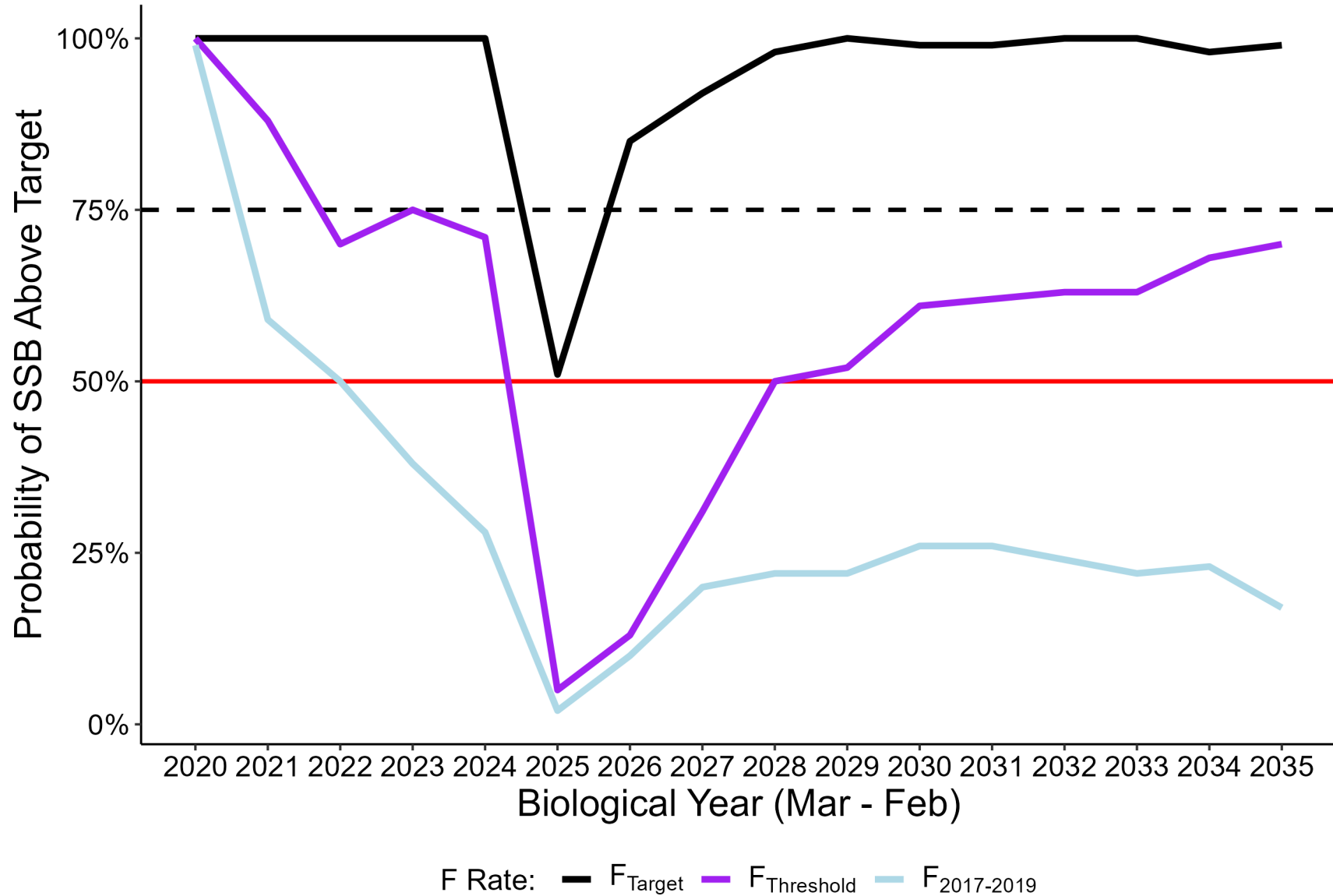
## Probability of SSB Above Threshold, Large Cold Stun





# Projections – No Cold Stuns

## Probability of SSB Above Target, Large Cold Stun



## *Projections – Conclusion*

- Stock is resilient to cold stuns IF



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  - Fishing mortality is not excessive



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## *Projections – Conclusion*

- Stock is resilient to cold stuns IF
  - Fishing mortality is not excessive
  - Recruitment remains sufficient
- High Spawning Stock Biomass

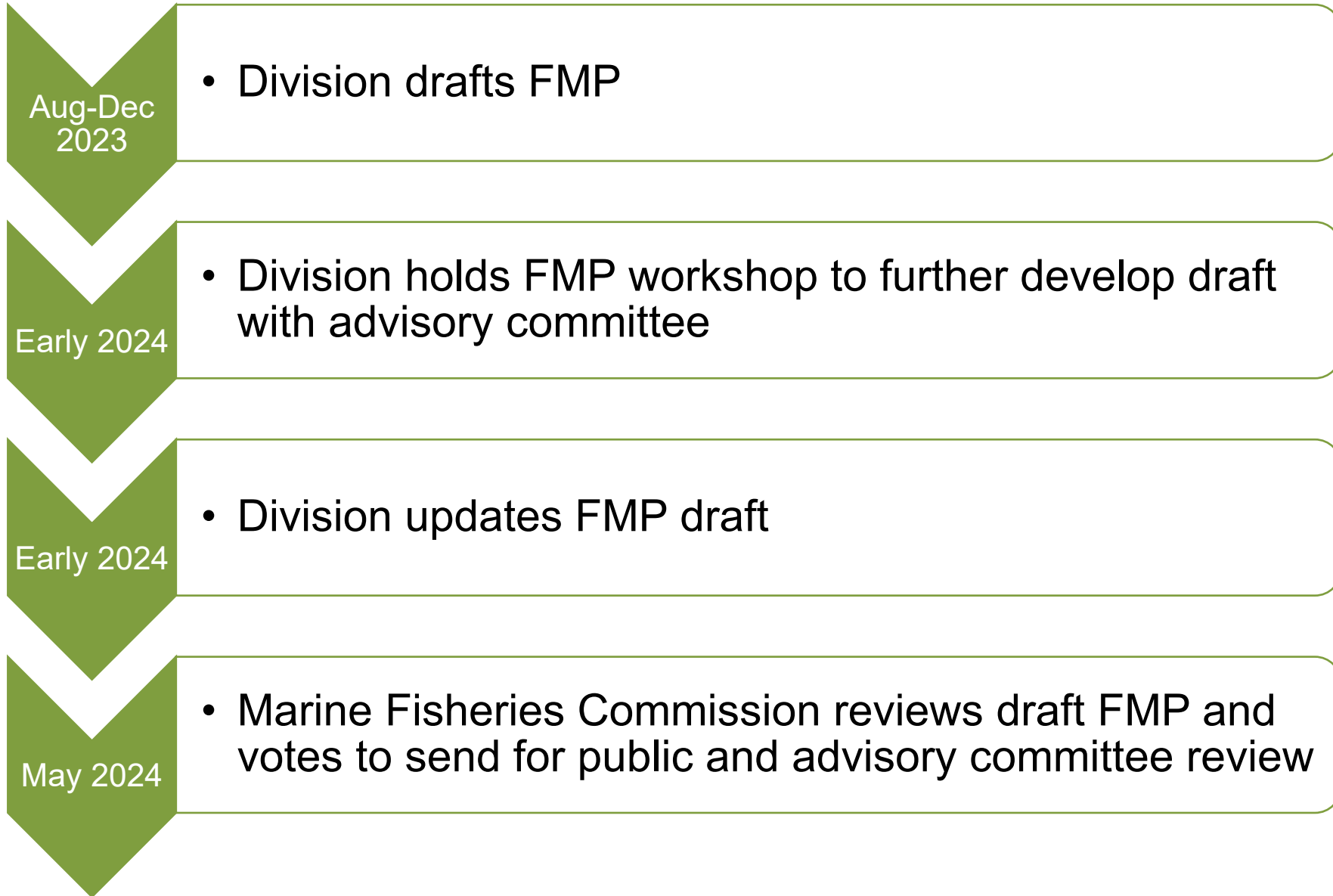


## *Projections – Conclusion*

- Stock is resilient to cold stuns IF
  - Fishing mortality is not excessive
  - Recruitment remains sufficient
- High Spawning Stock Biomass
  - $F_{2017-2019}$  highest in 10 years



## Next Steps



# Questions?

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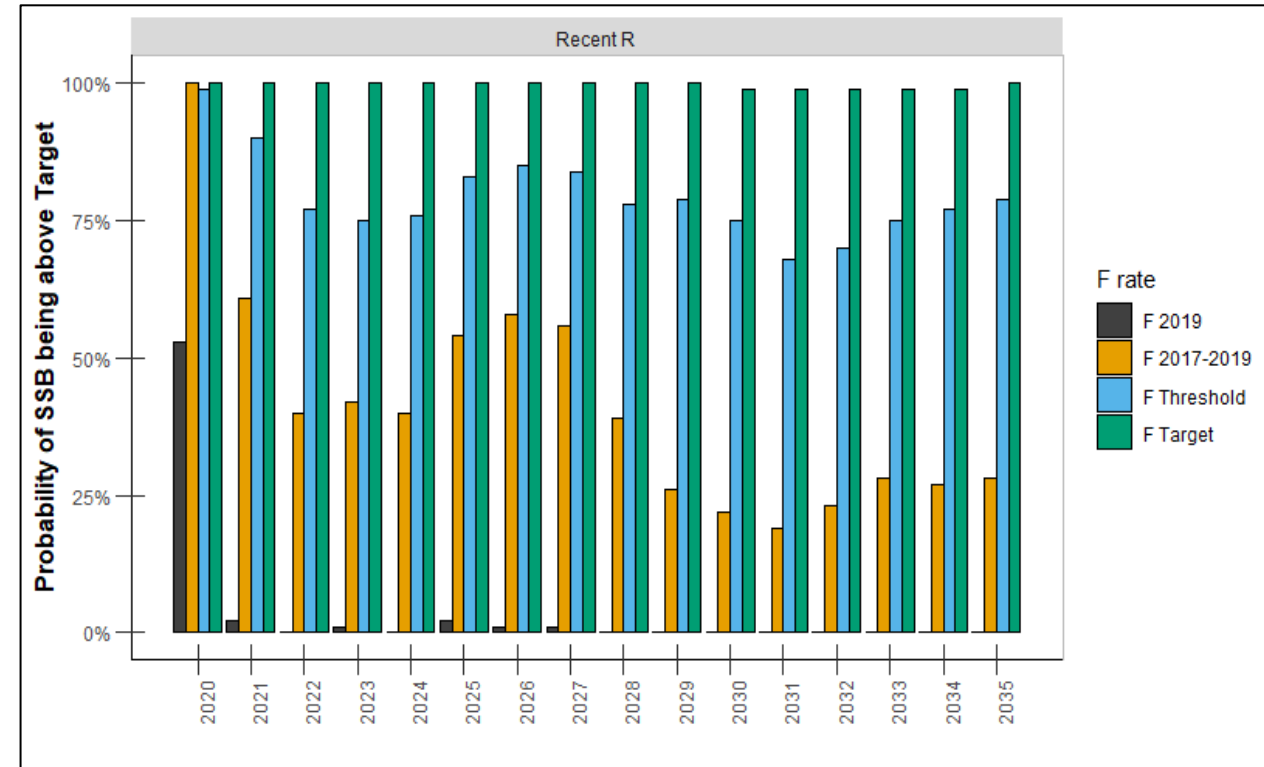
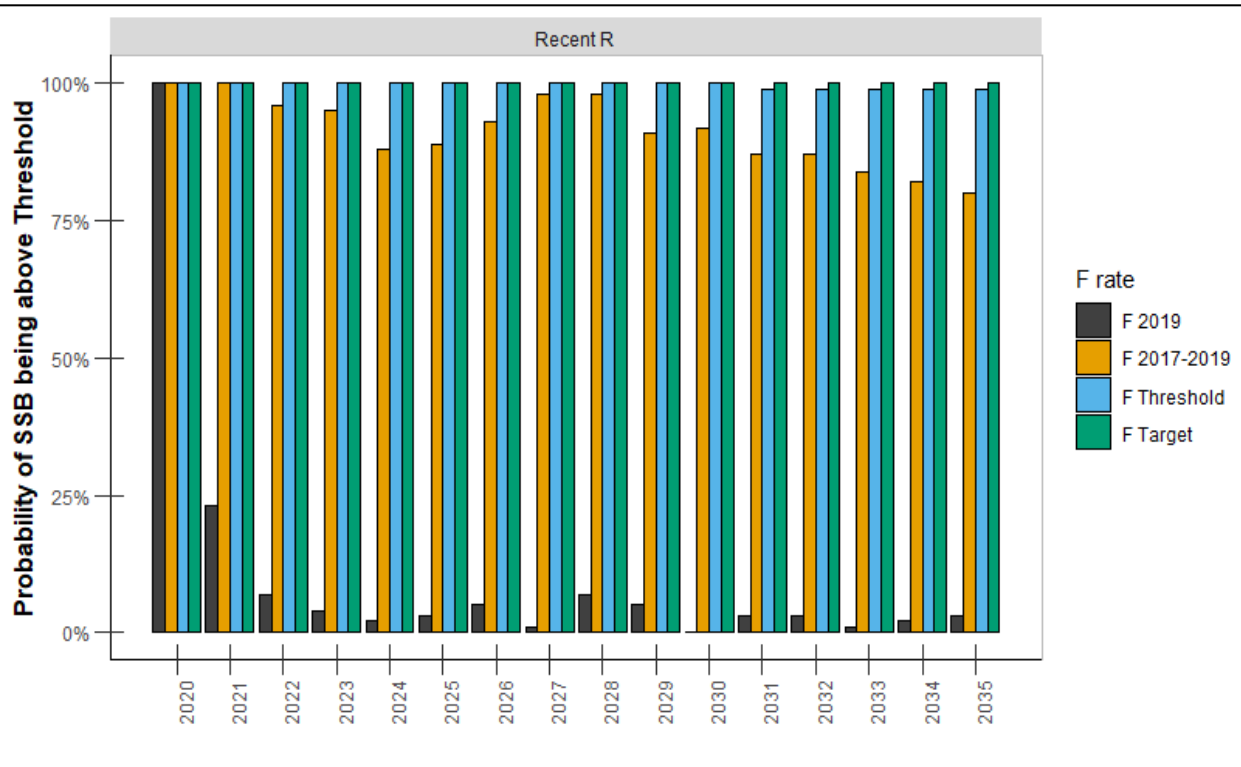
# *EXTRA SLIDES*

## *Projections – Cold Stun Scenarios*

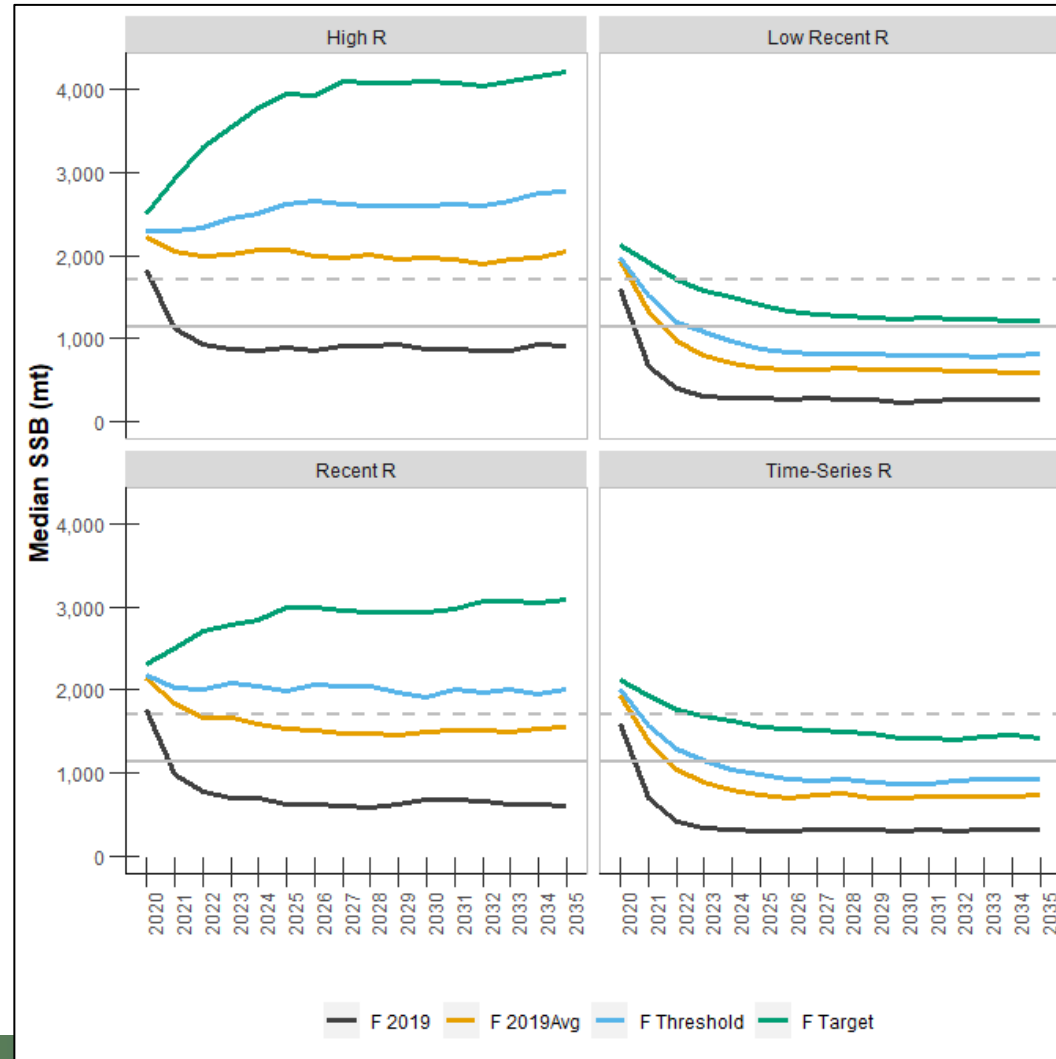
- Three cold stun scenarios
  - No cold stuns
  - One large cold stun
  - Two smaller cold stuns



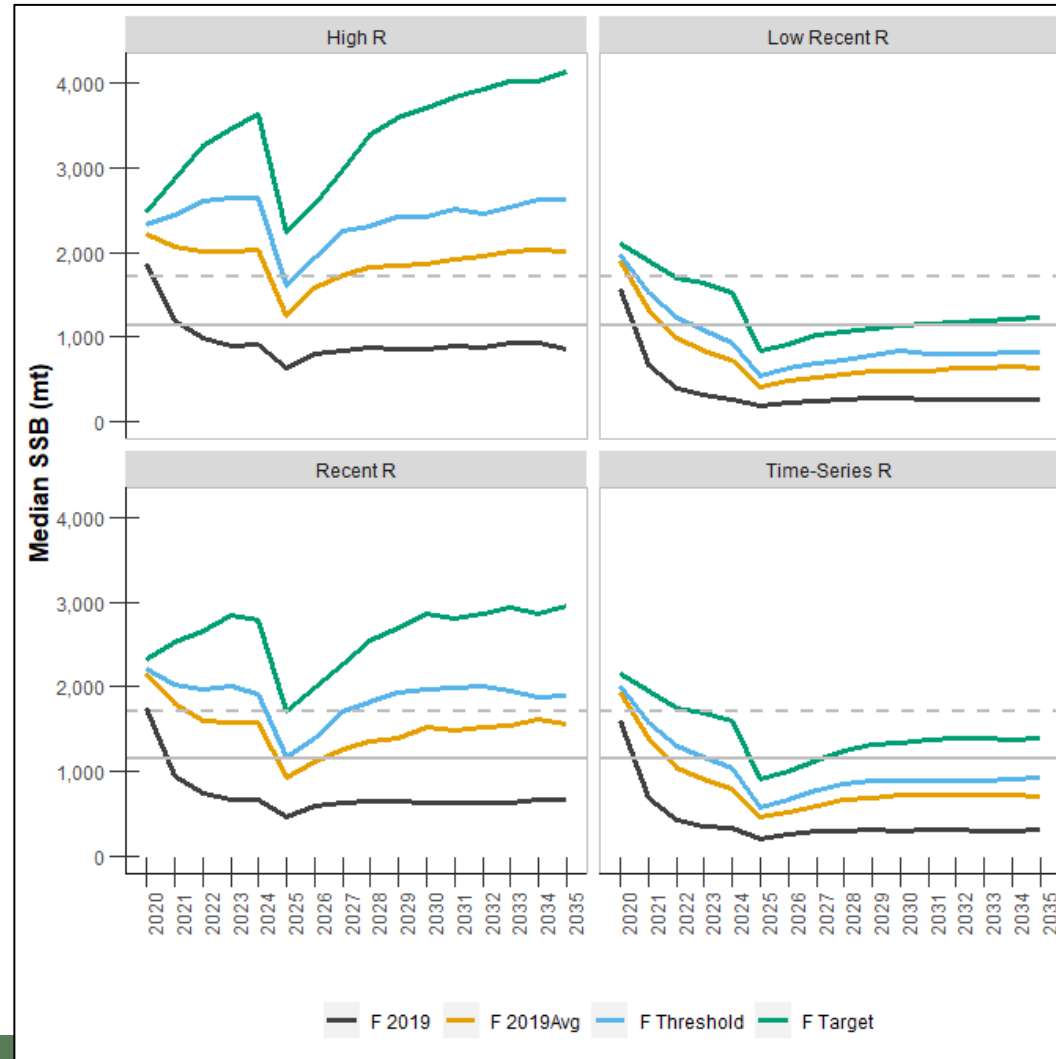
# Projections – Two Smaller Cold Stuns



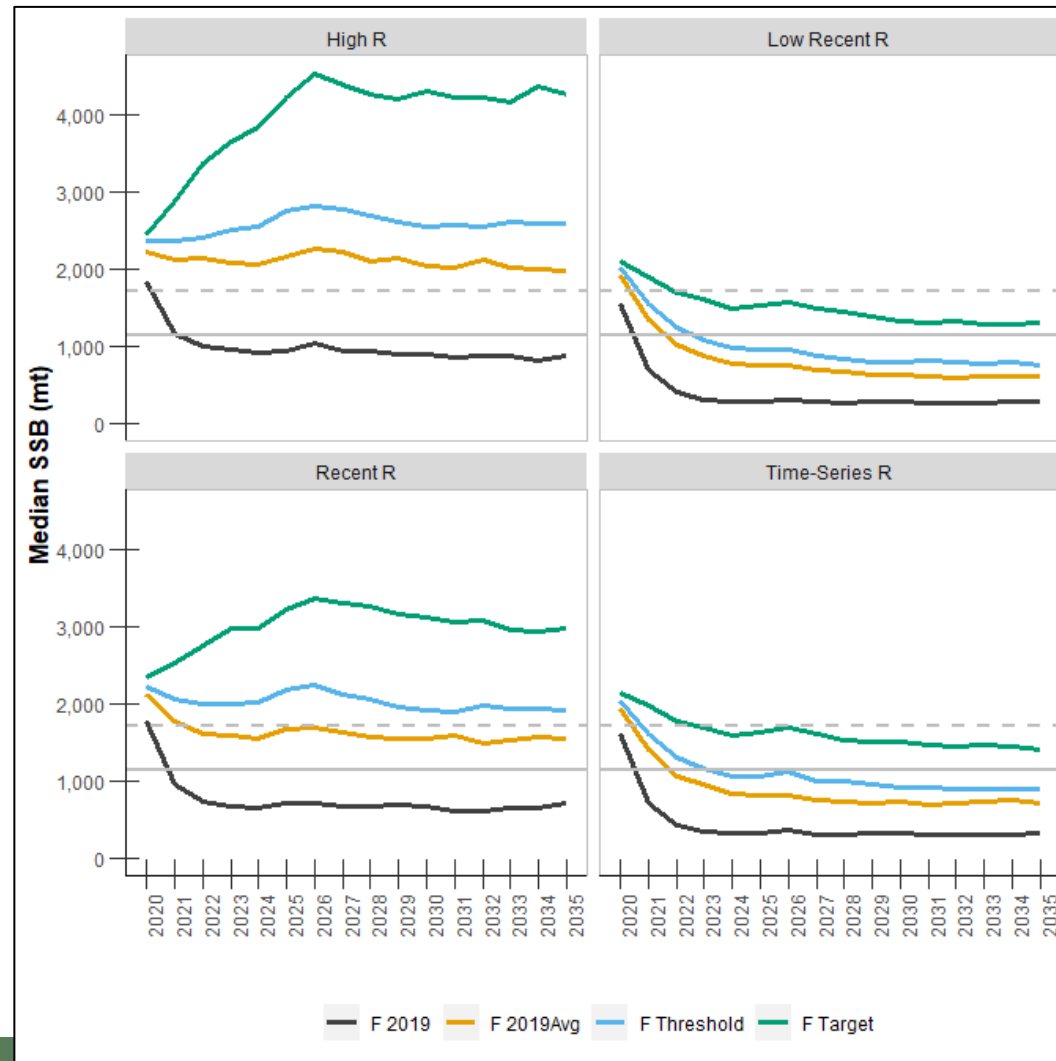
# No Cold Stuns Projection Summary



# Large Cold Stun Projection Summary



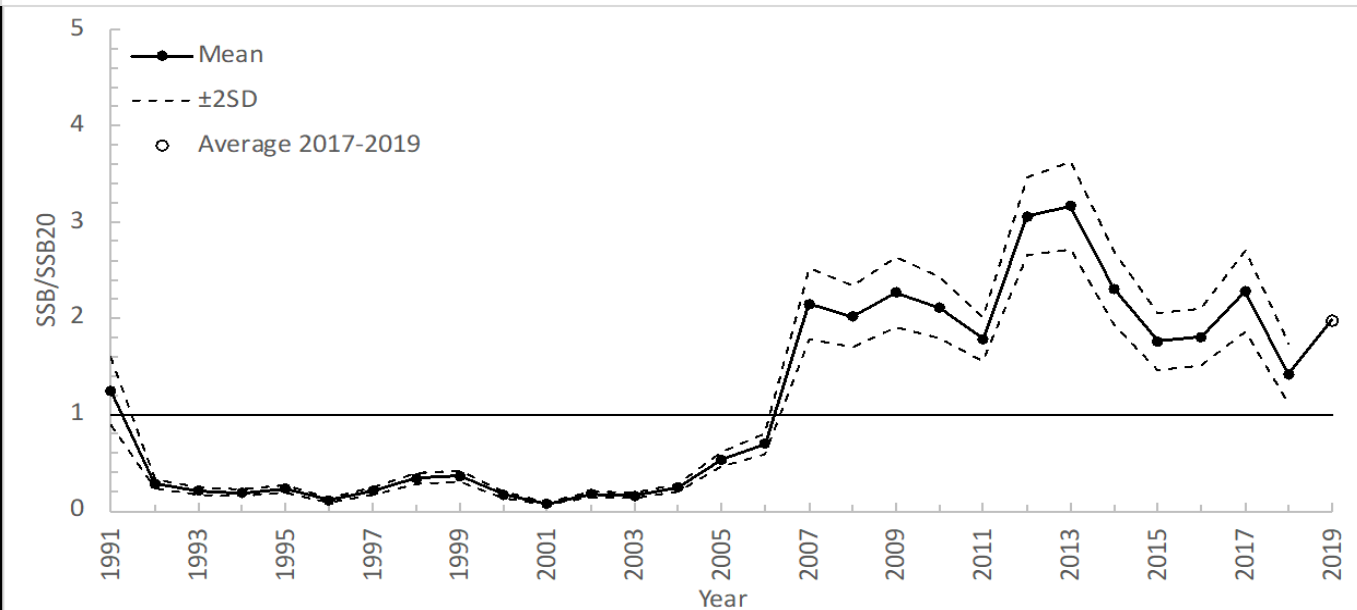
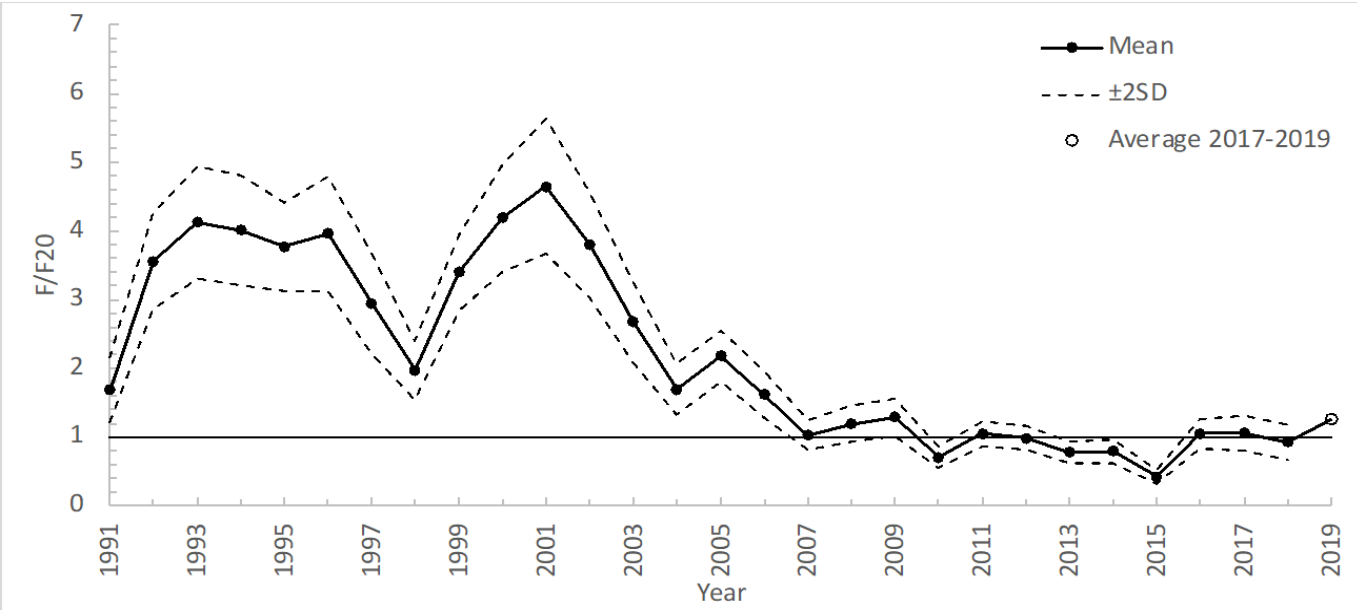
# Two Small Cold Stuns Projection Summary



## *Projections – Fishing Mortality*

- Focus on recent recruitment
  - Median of recent years
- Fishing mortality
  - $F_{2019}$  (1.5)

# Necessary Reductions: Stock Assessment



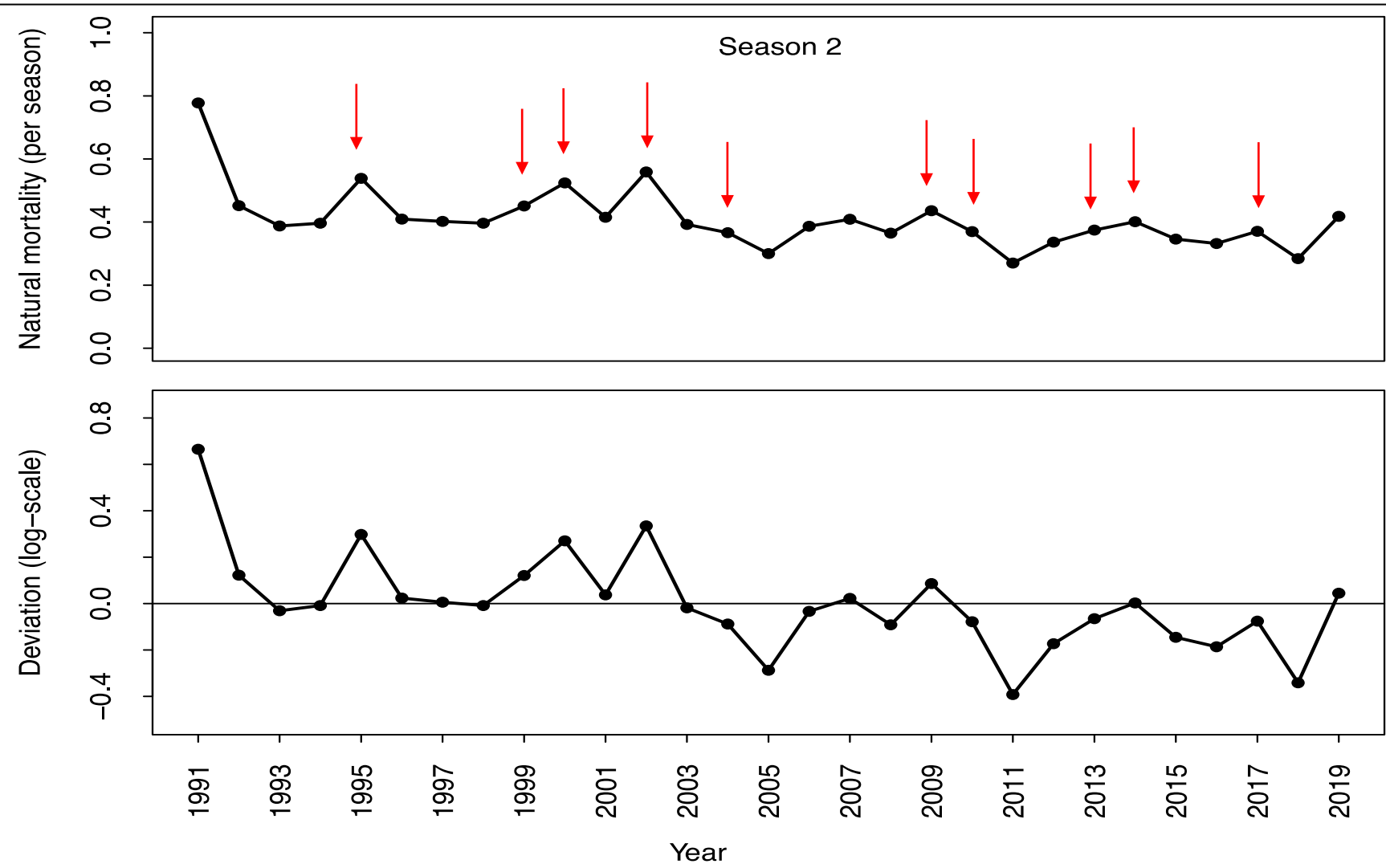
- Not Overfished
  - Spawning stock biomass is high
- Overfishing is occurring
  - Removing too many fish



## *Necessary reductions*

- Need 14.6% - 39.6% reduction in total removals
  - 14.6 % = threshold
  - 39.6% = target
- Why reductions?
  - Statutory requirement to end overfishing
  - Curb fishery growth while spawning stock is still healthy
- Successful current management
  - 14" minimum size limit
  - 4/75 fish bag/trip limit
  - Cold stun adaptive management
- Biology

## Natural Mortality: Season 2 (December–February)



Cold-stun records:

Year	Month	Stock Assessment Year
1995	December	1995
2000	January	1999
2001	January	2000
2003	January	2002
2004	December	2004
2010	January	2009
2010	December	2010
2014	January	2013
2015	February	2014
2018	January	2017

# Annual number of trips by sector

Sector ■ Recreational ■ Commercial

