



# *Stock Assessment and Steps Moving Forward for Striped Bass in the Albemarle Sound & Roanoke River*

*DEPARTMENT OF ENVIRONMENTAL QUALITY*

Marine Fisheries

N.C. Marine Fisheries Commission | Nathaniel Hancock & Charlton Godwin | August 2023



# Where We Are

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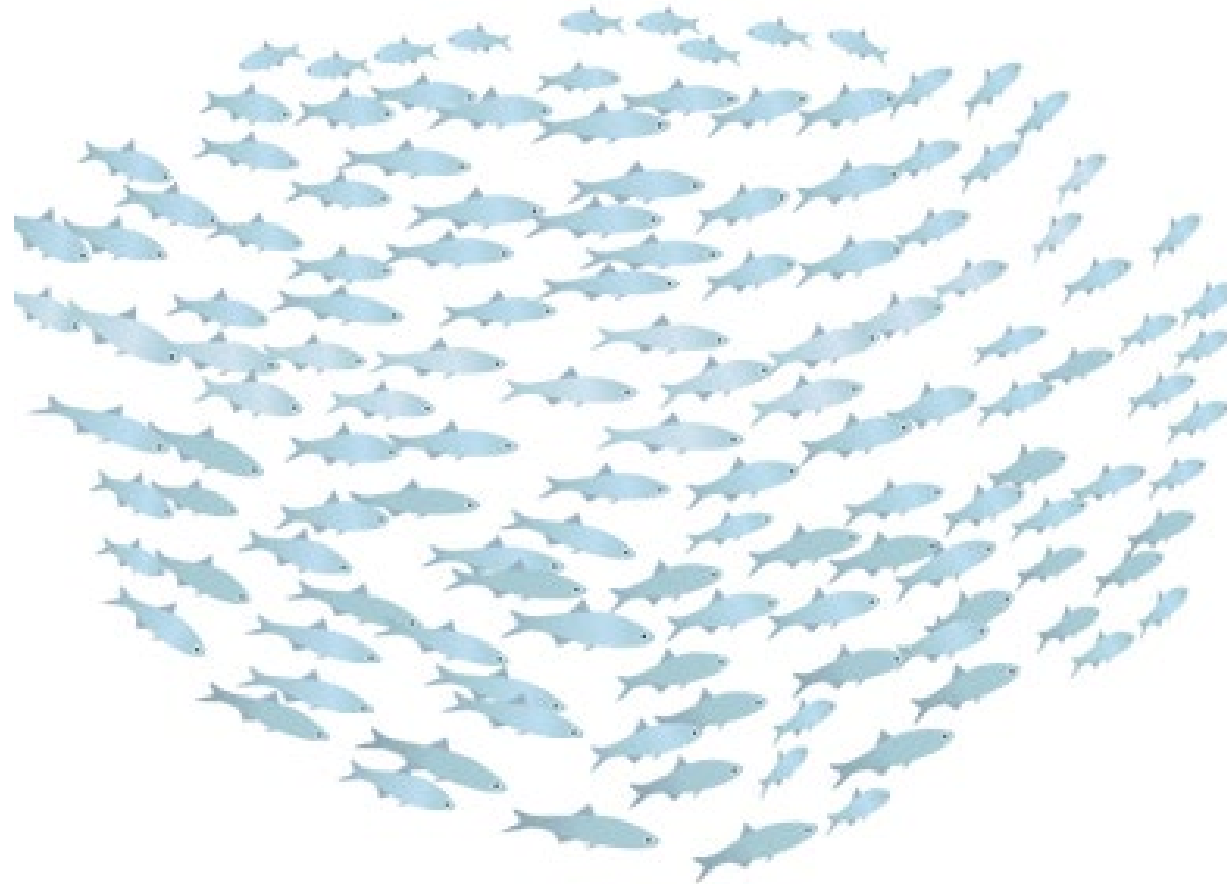
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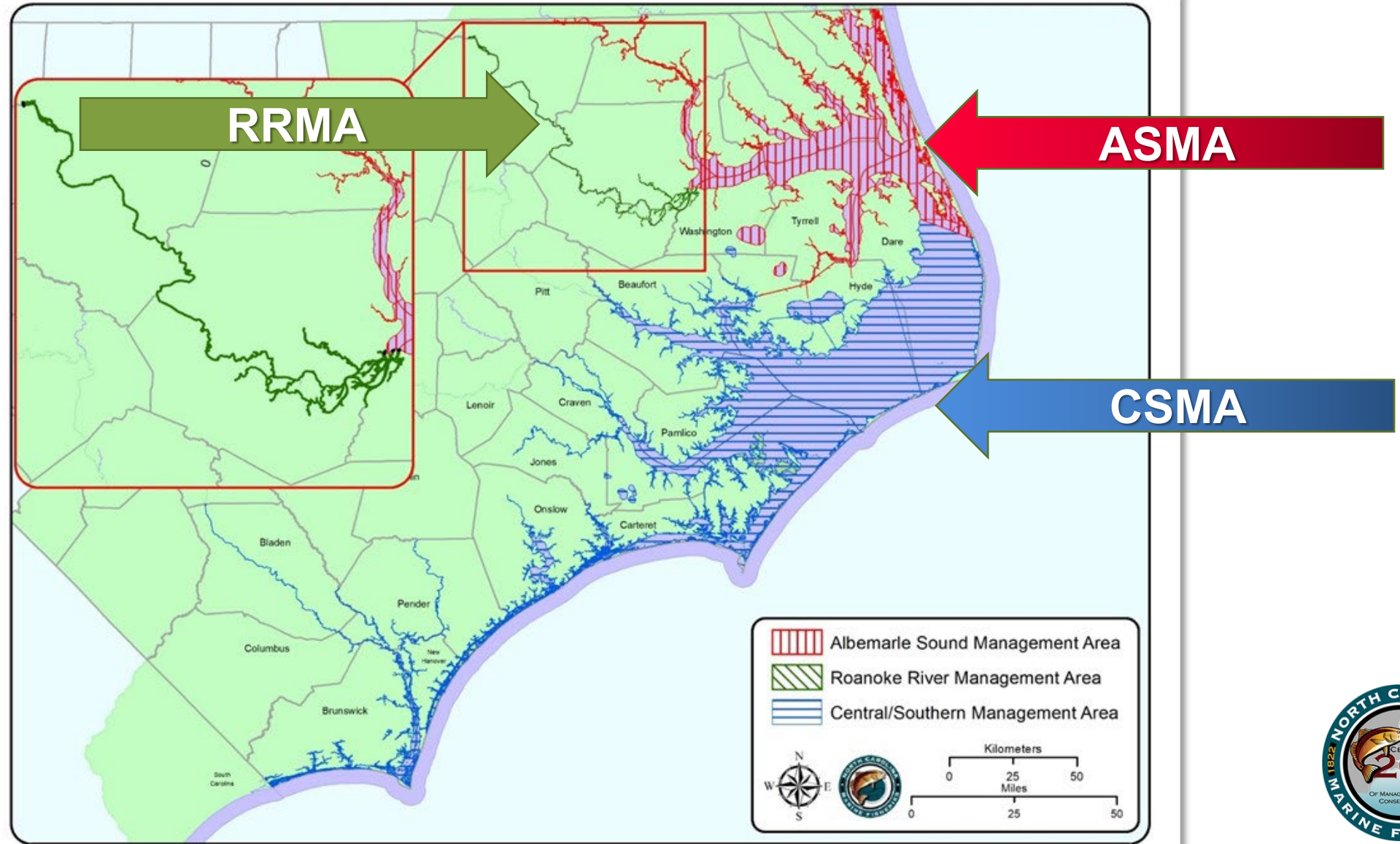
- Review of Stock Assessment, Indices, and Steps Moving Forward



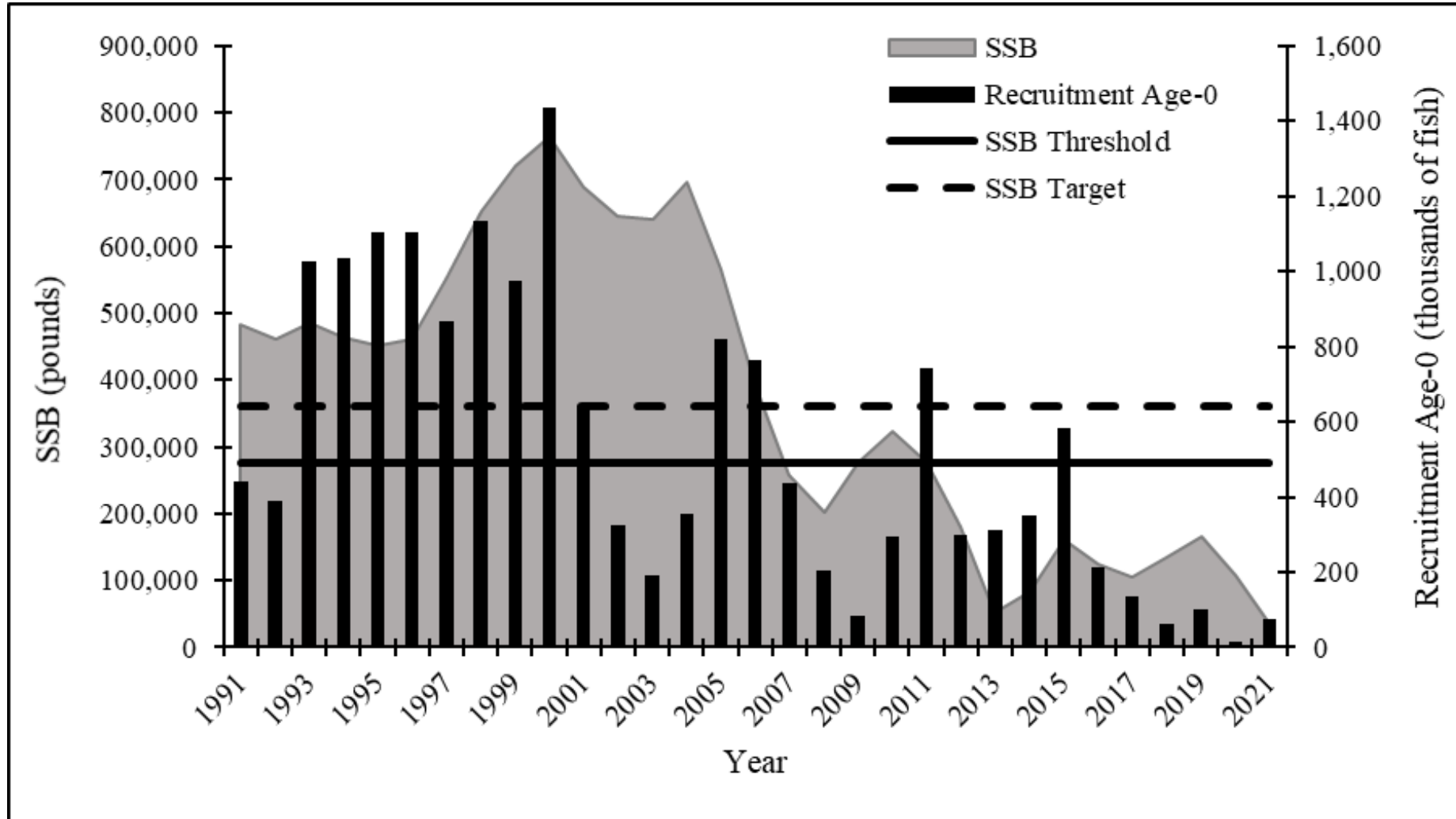
# *Stock Assessment Update Review*



# Striped Bass Management Areas

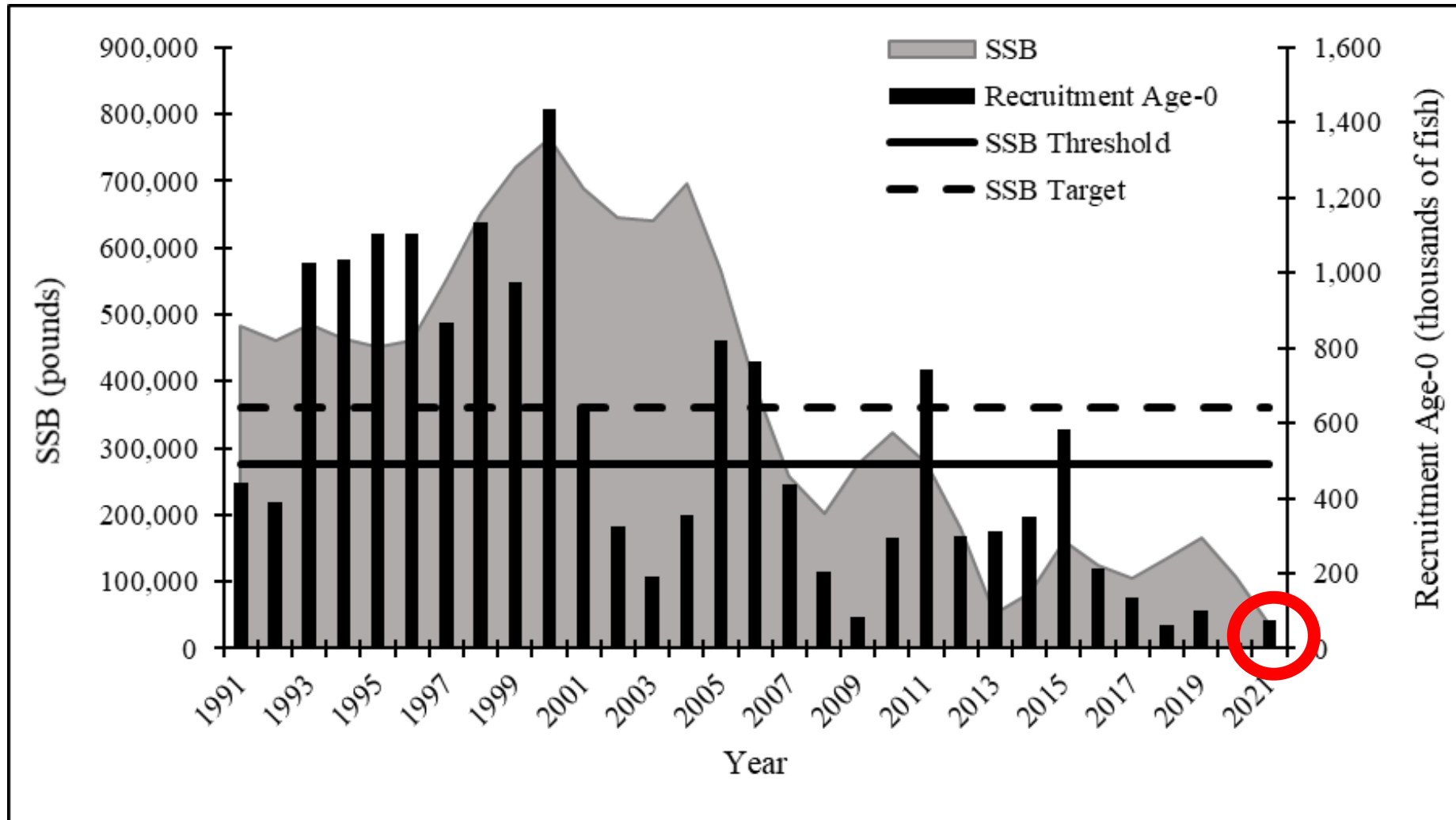


# Stock Status—Spawning Stock Biomass

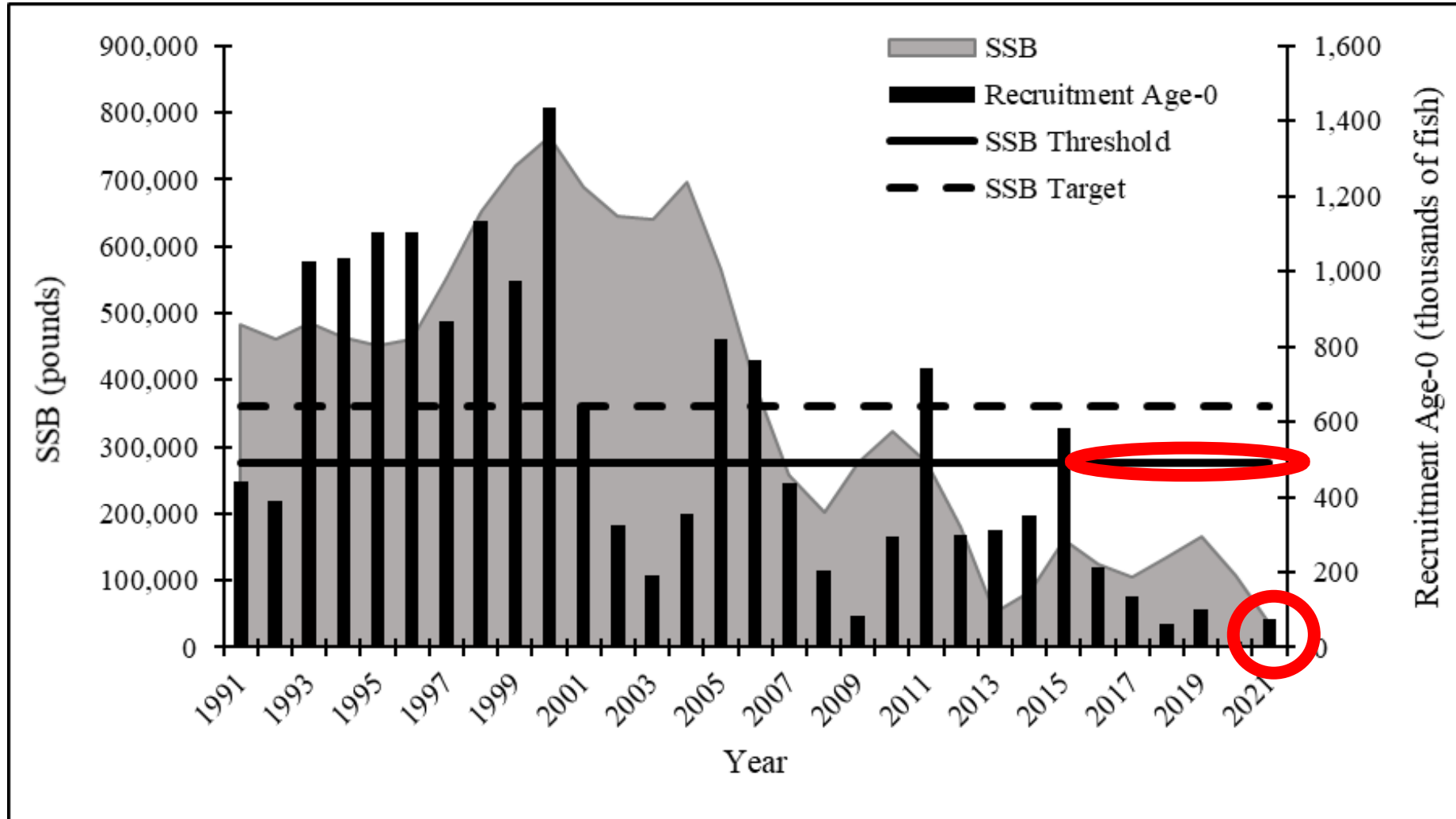




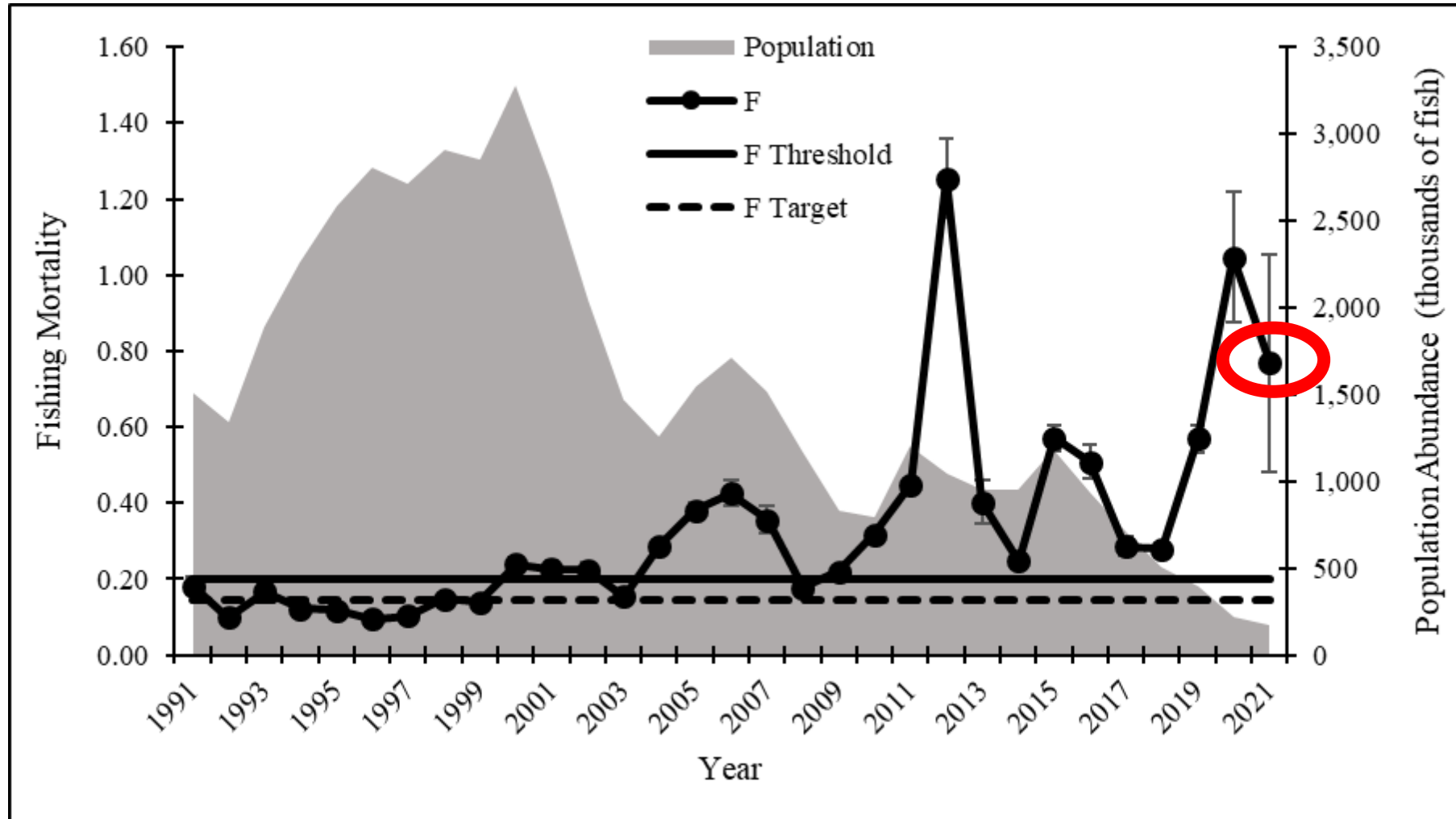
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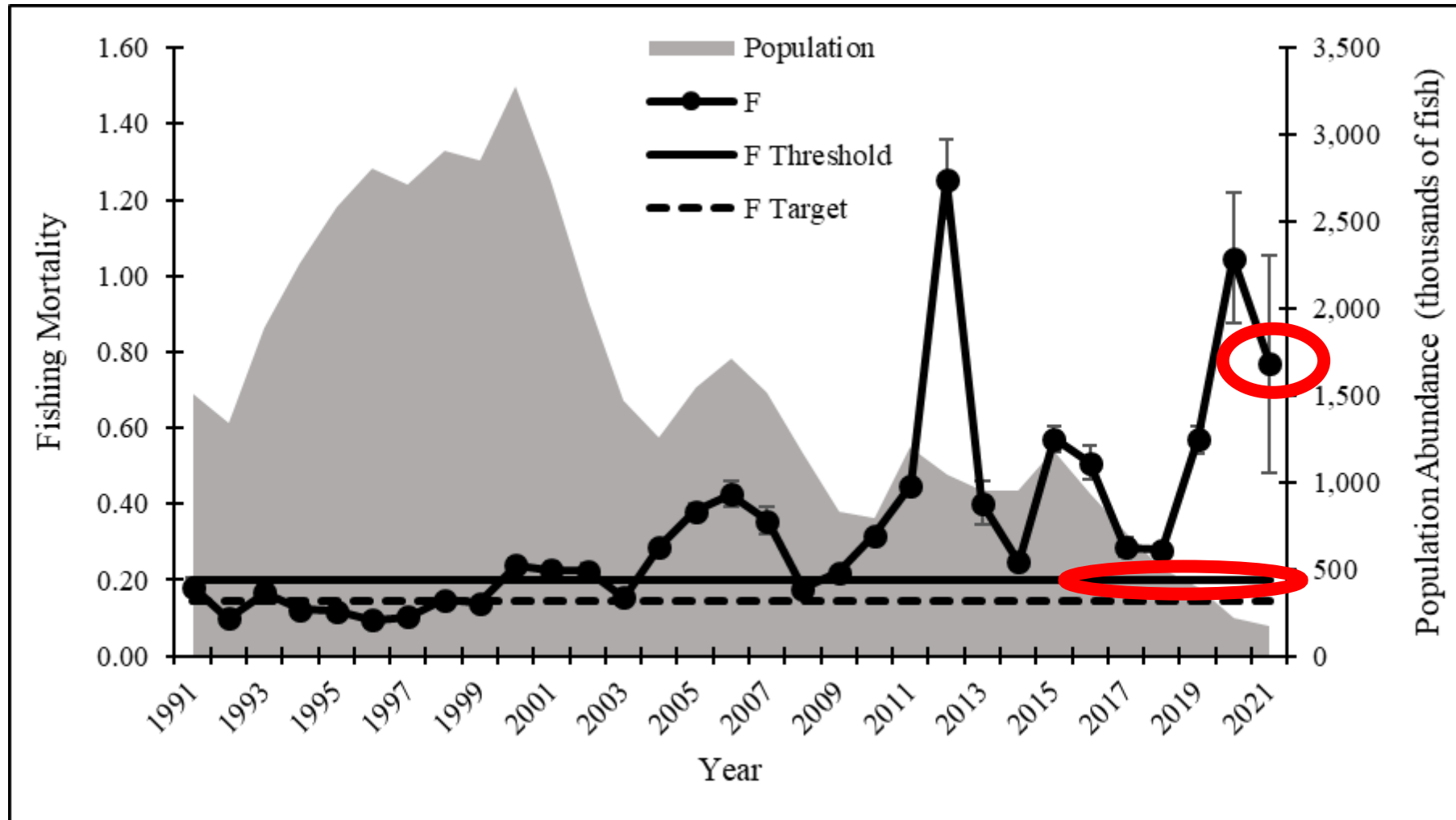
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# Stock Status—Fishing Mortality



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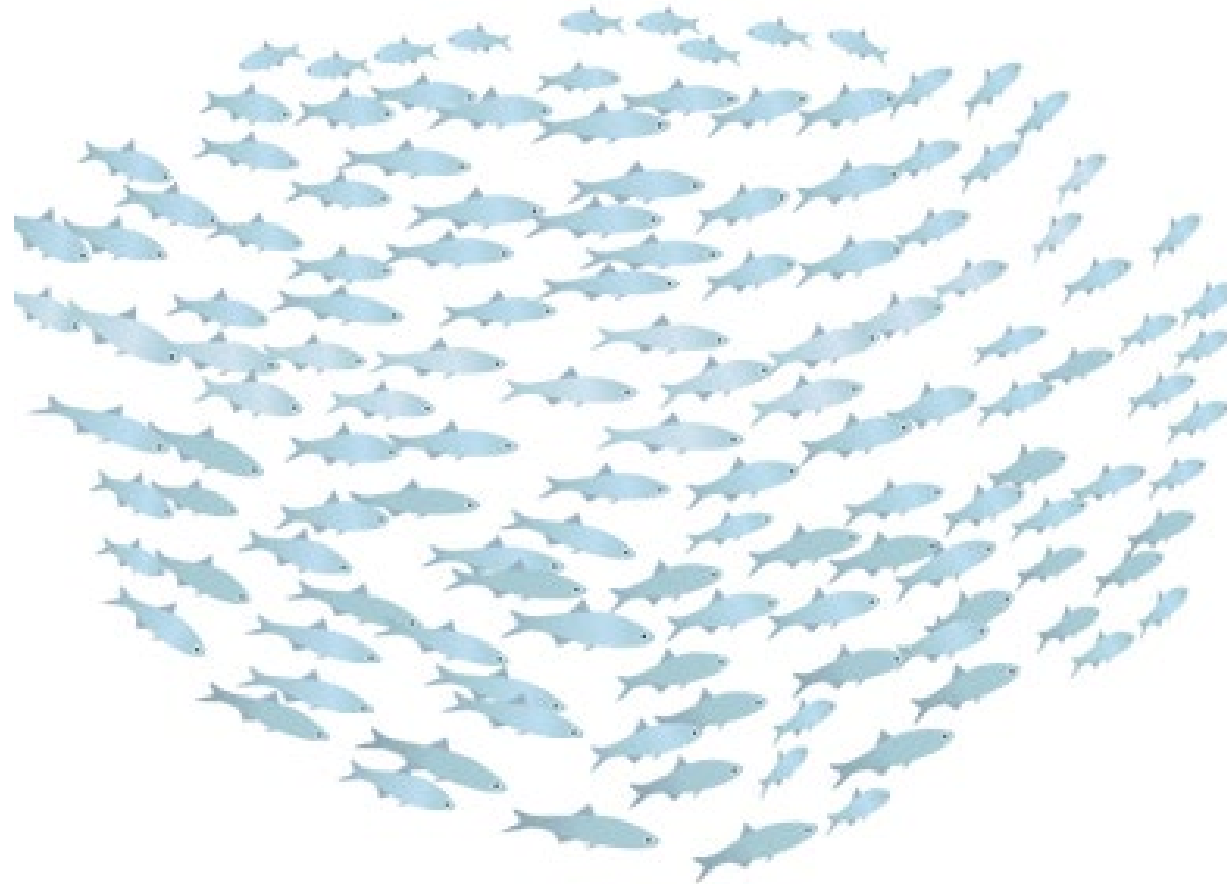


# *Peer Review Conclusions*

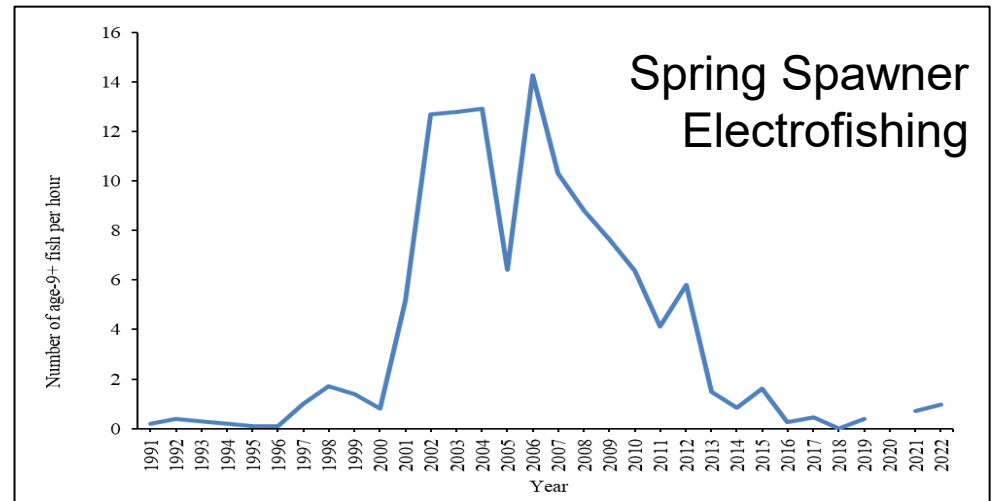
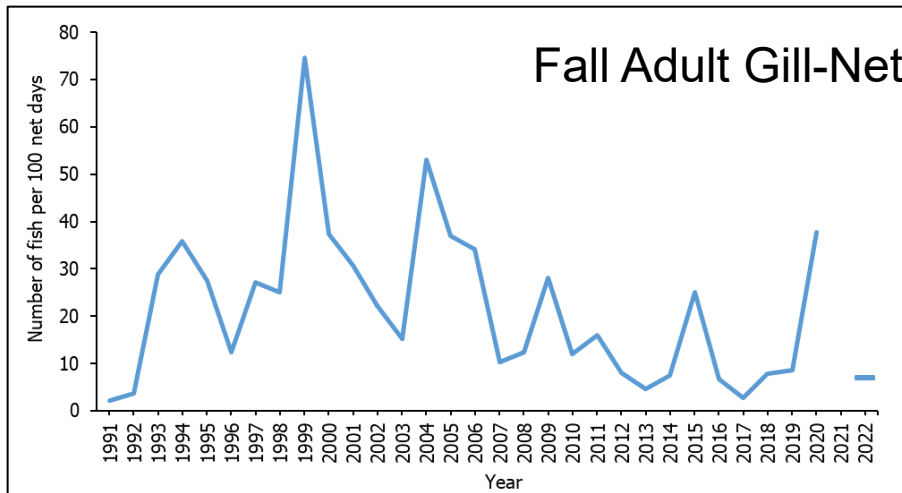
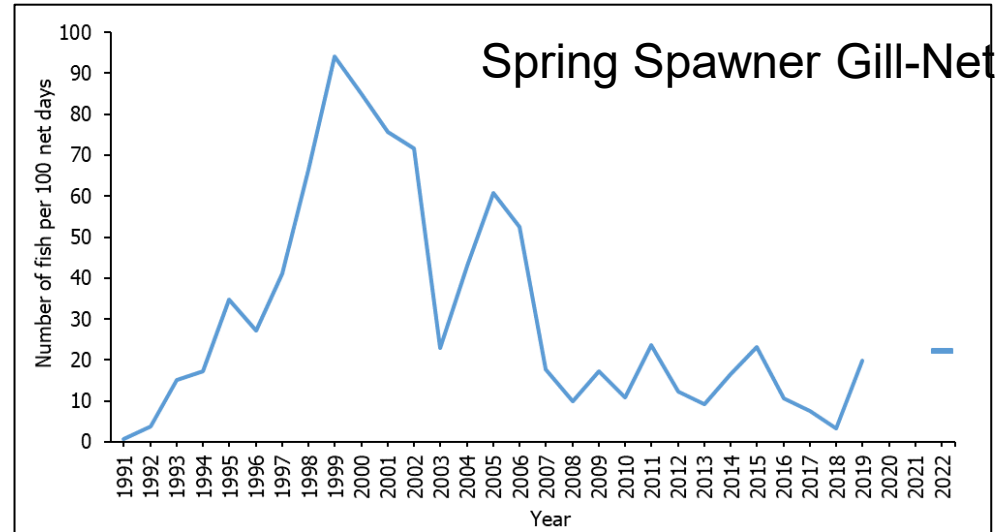
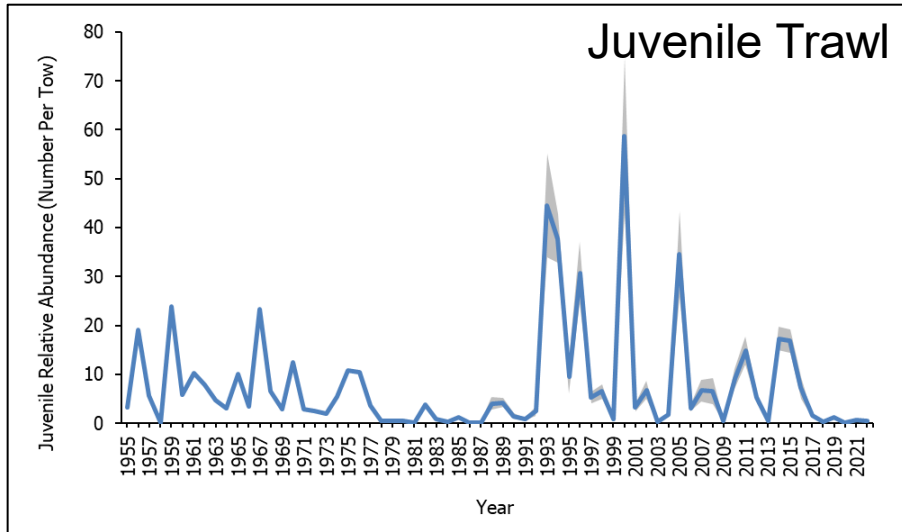
- Approach for handling data during Covid-19 was appropriate
- Base model estimates agree with general data trends
- Model results are a credible representation of current stock status
- Endorsed the results for management
- Environmental factors not yet understood may be contributing to lack of stock rebuilding



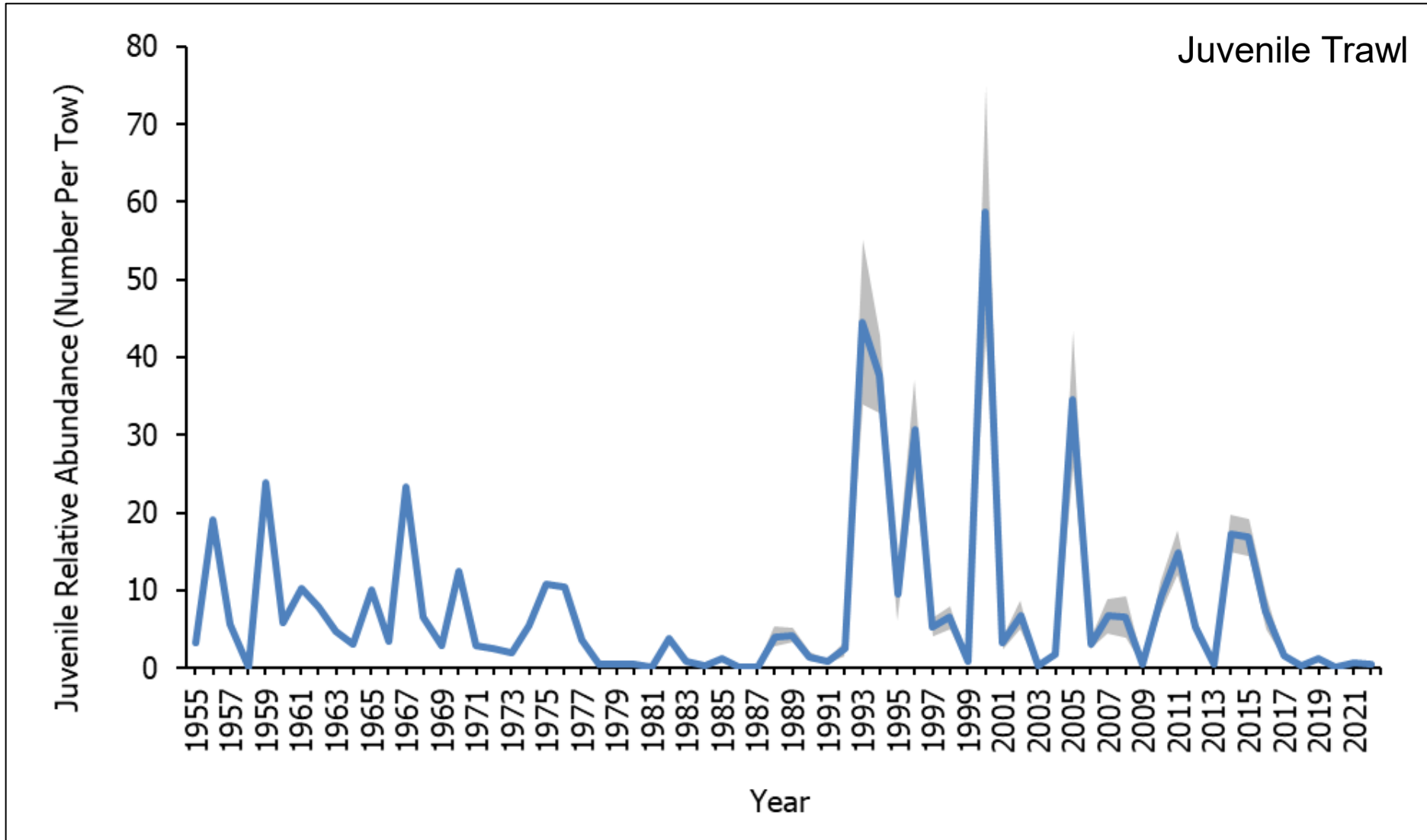
# *Stock Assessment Uncertainty*



# Fisheries-Independent Surveys

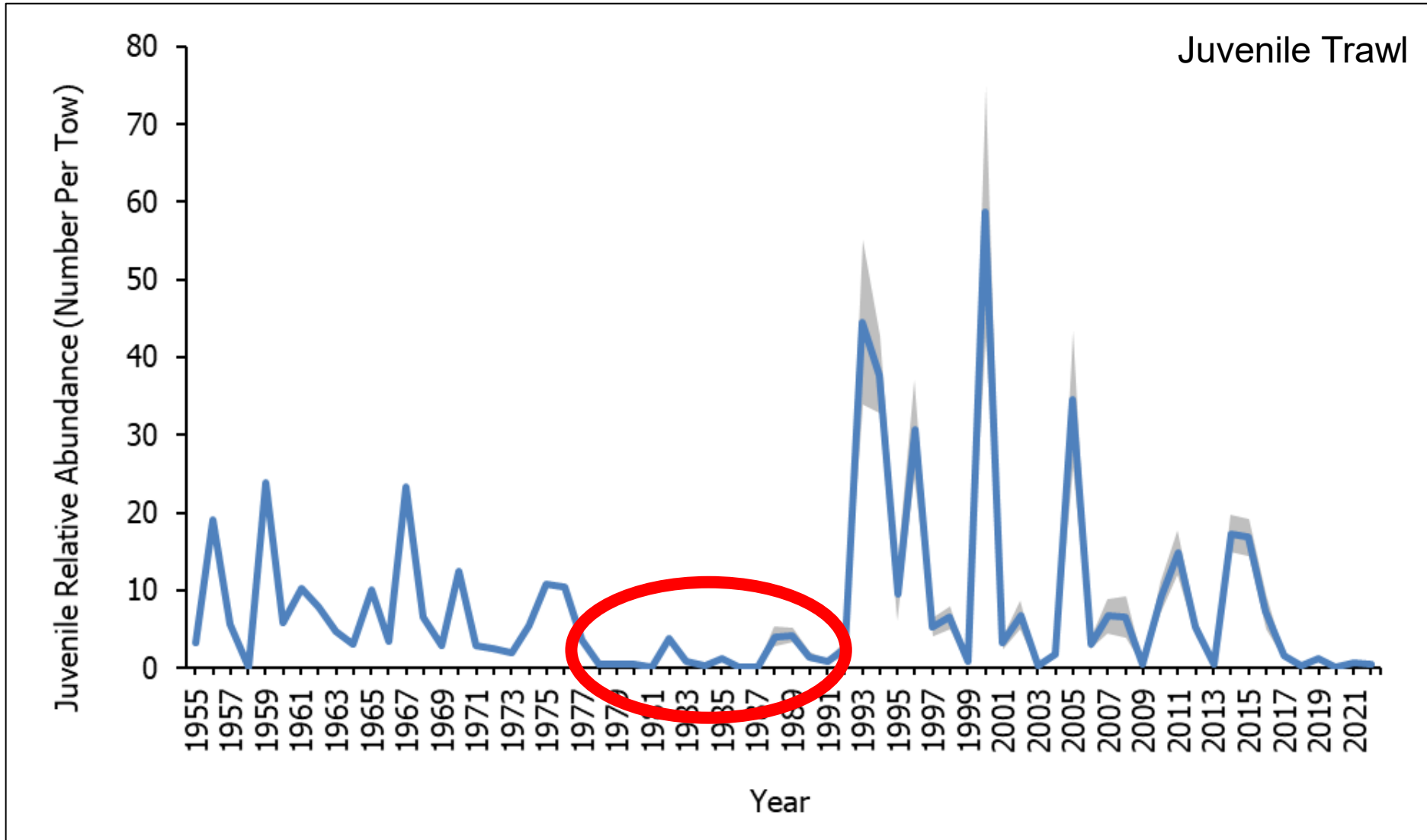


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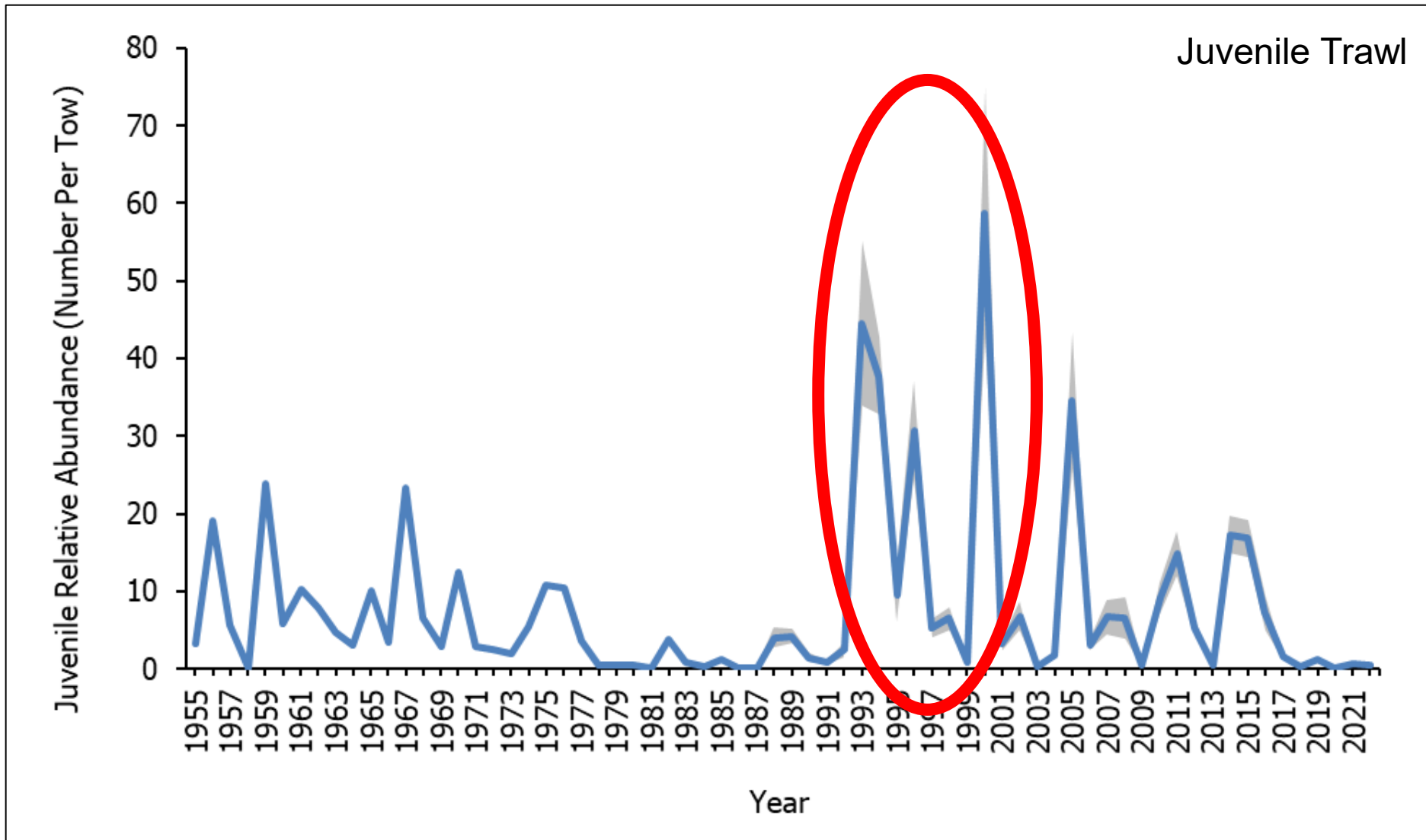




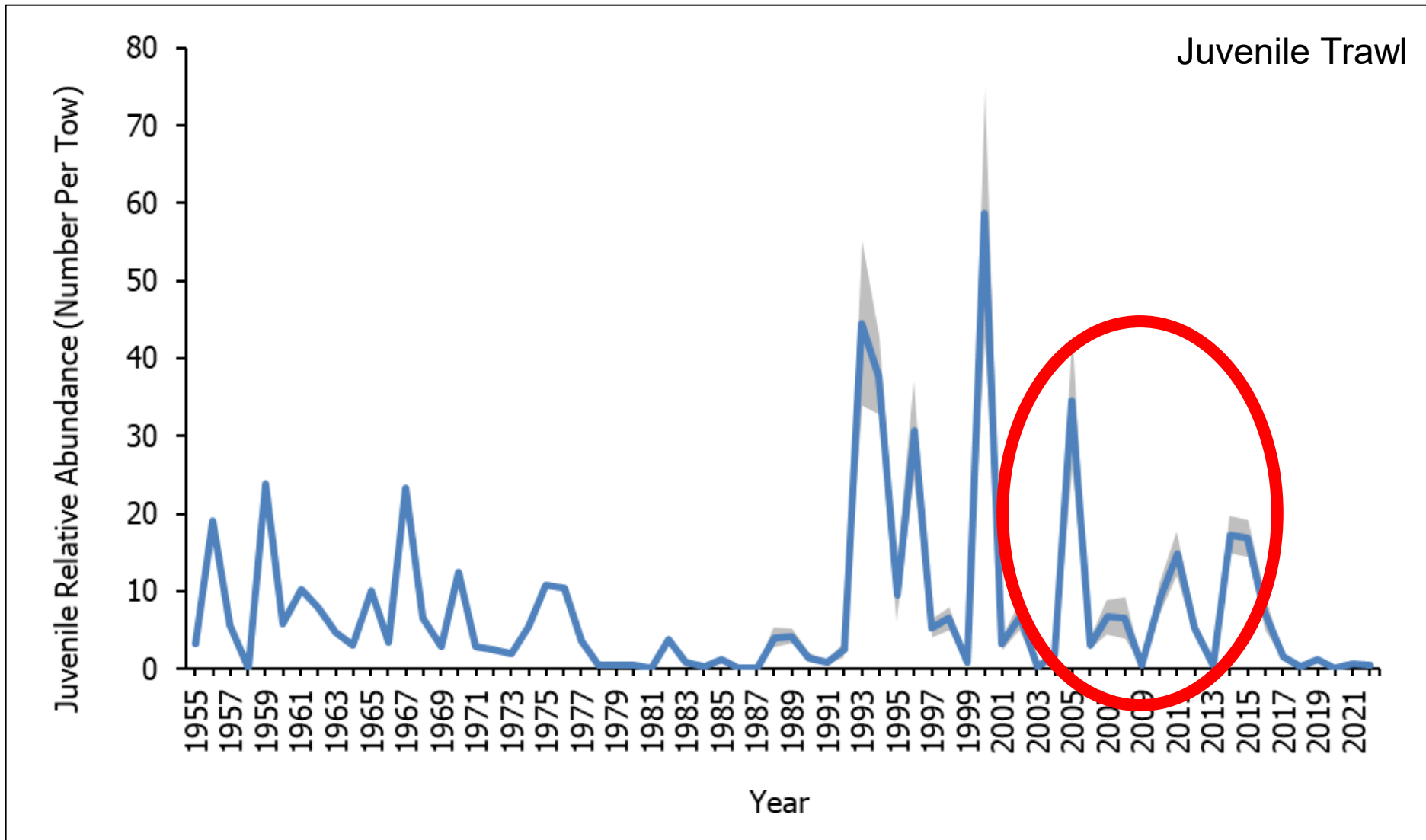
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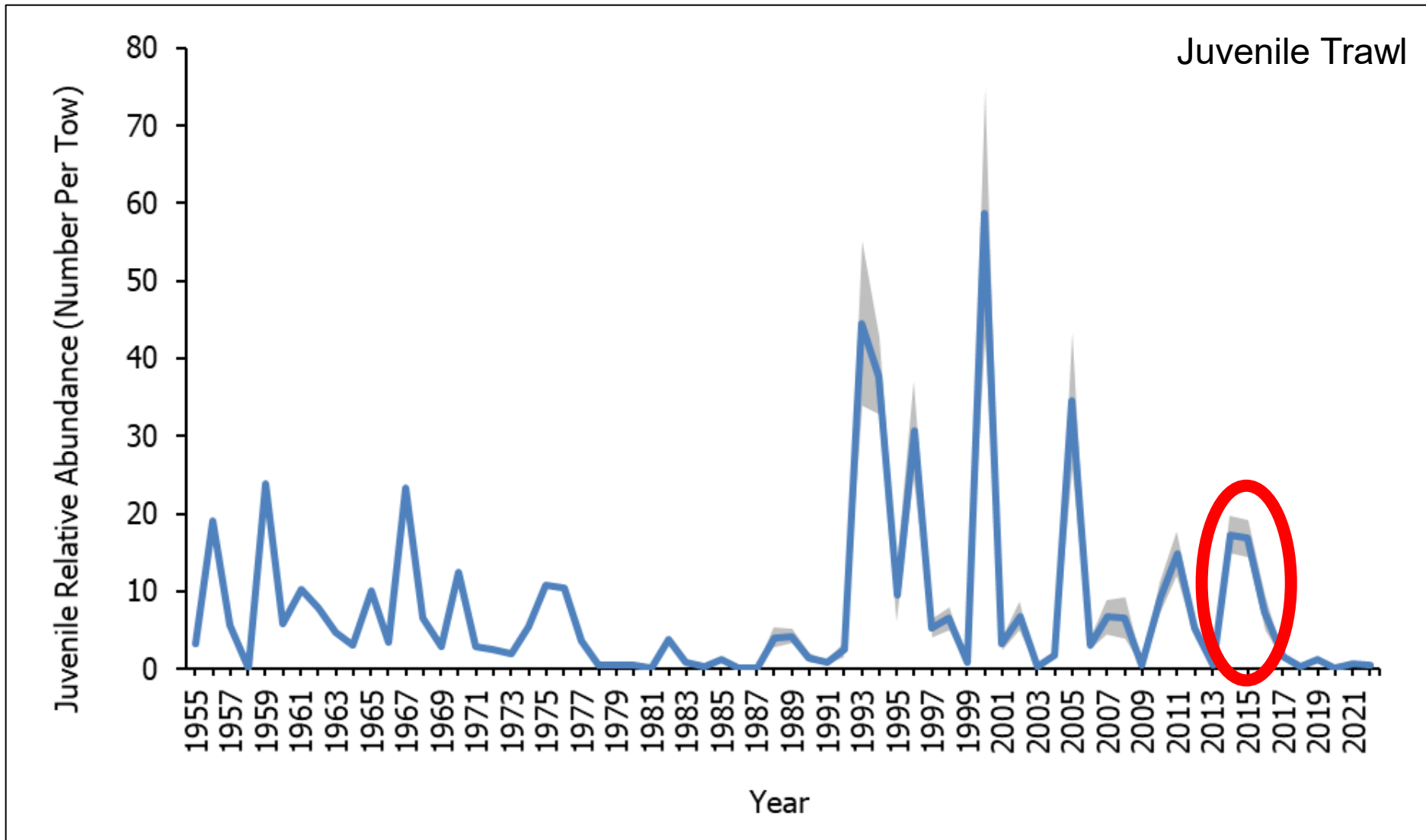
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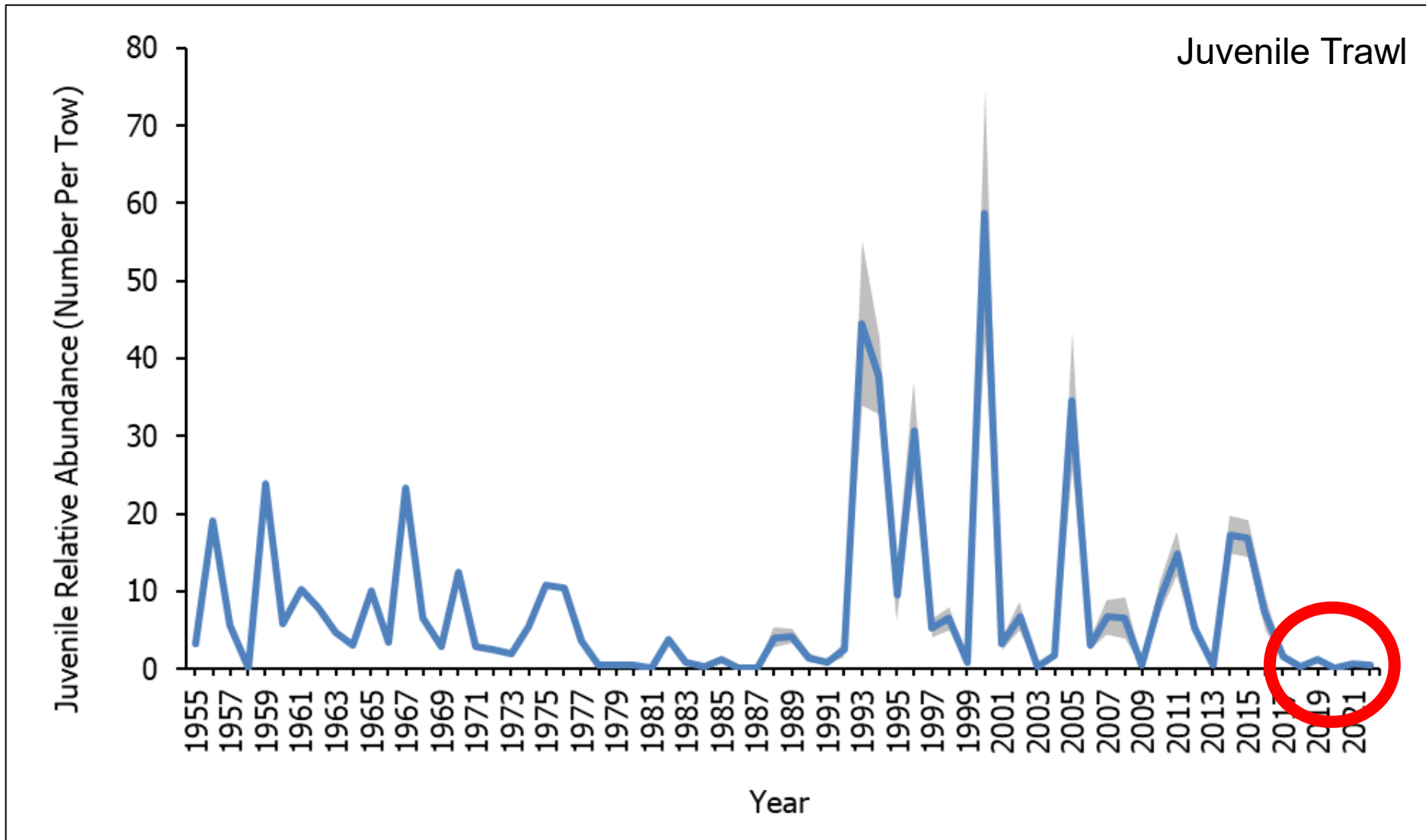
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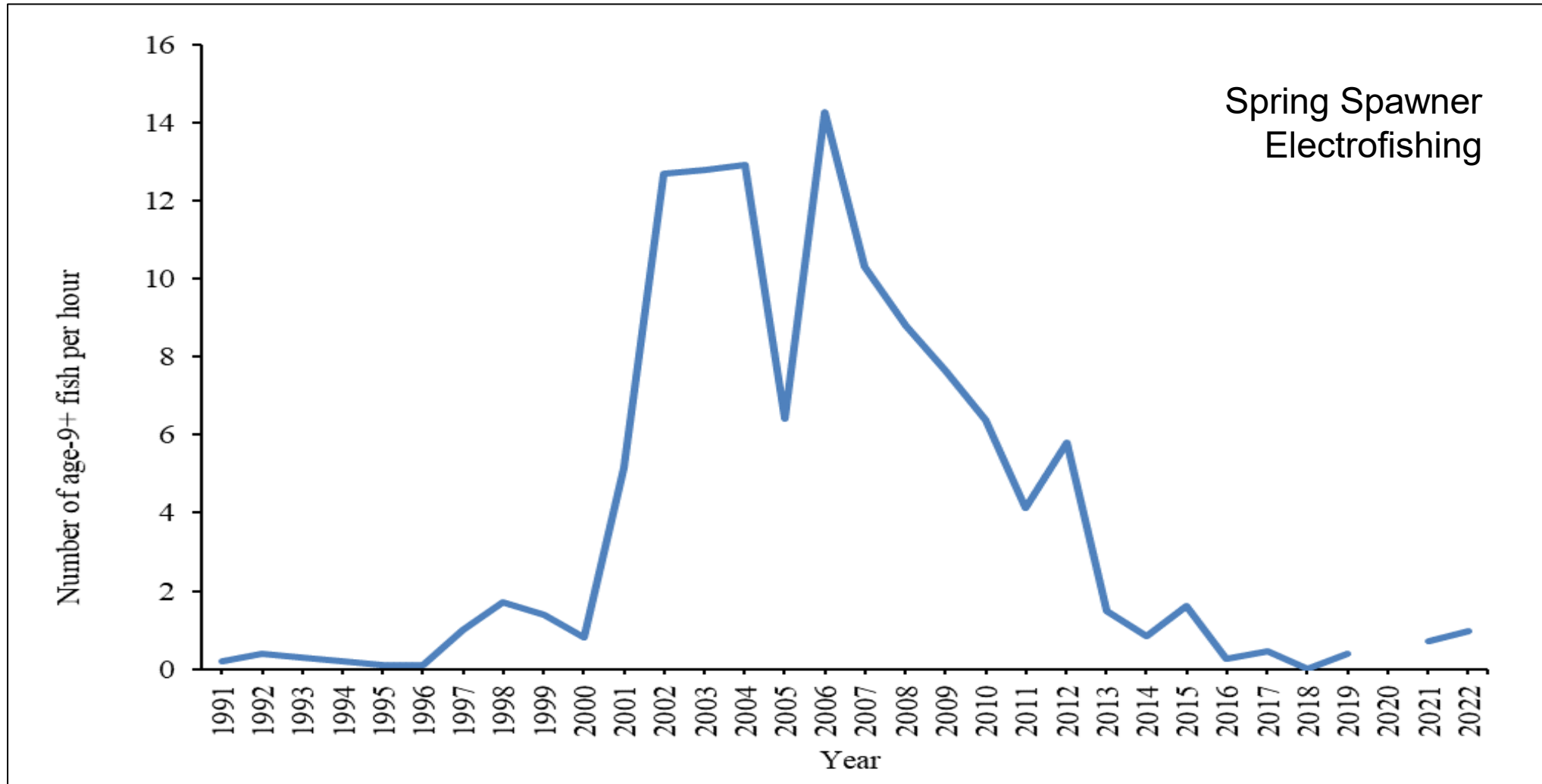
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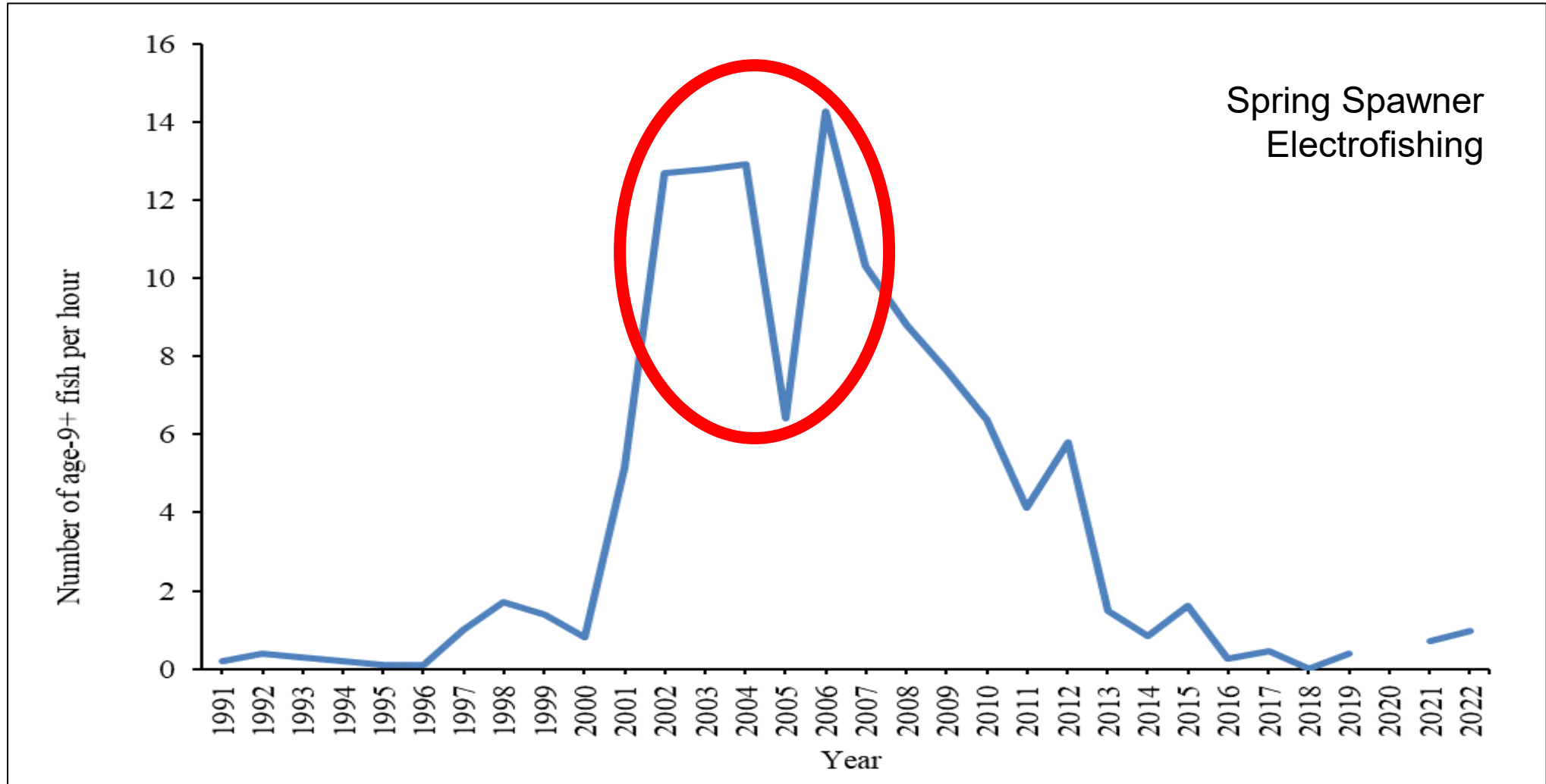
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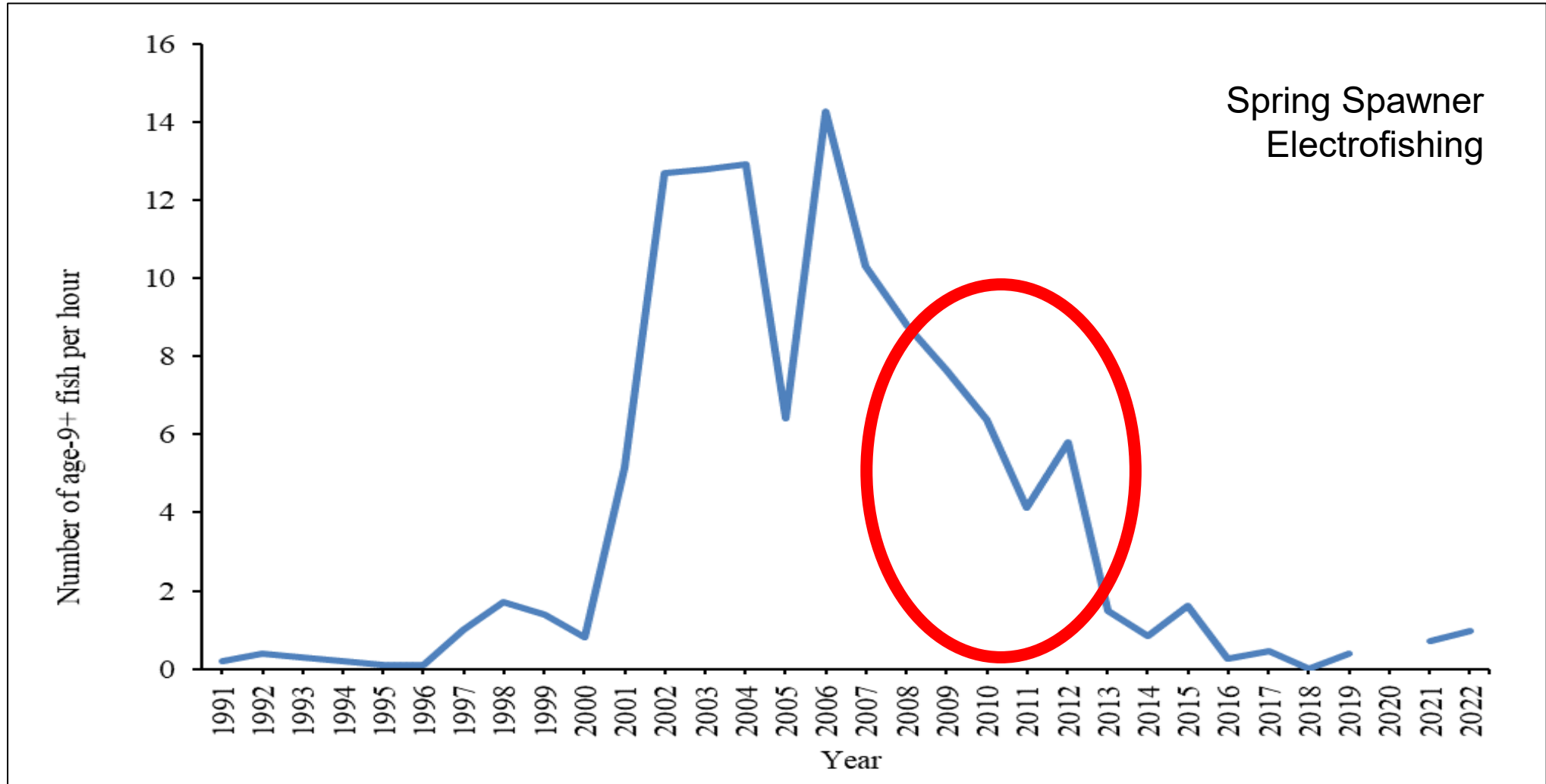
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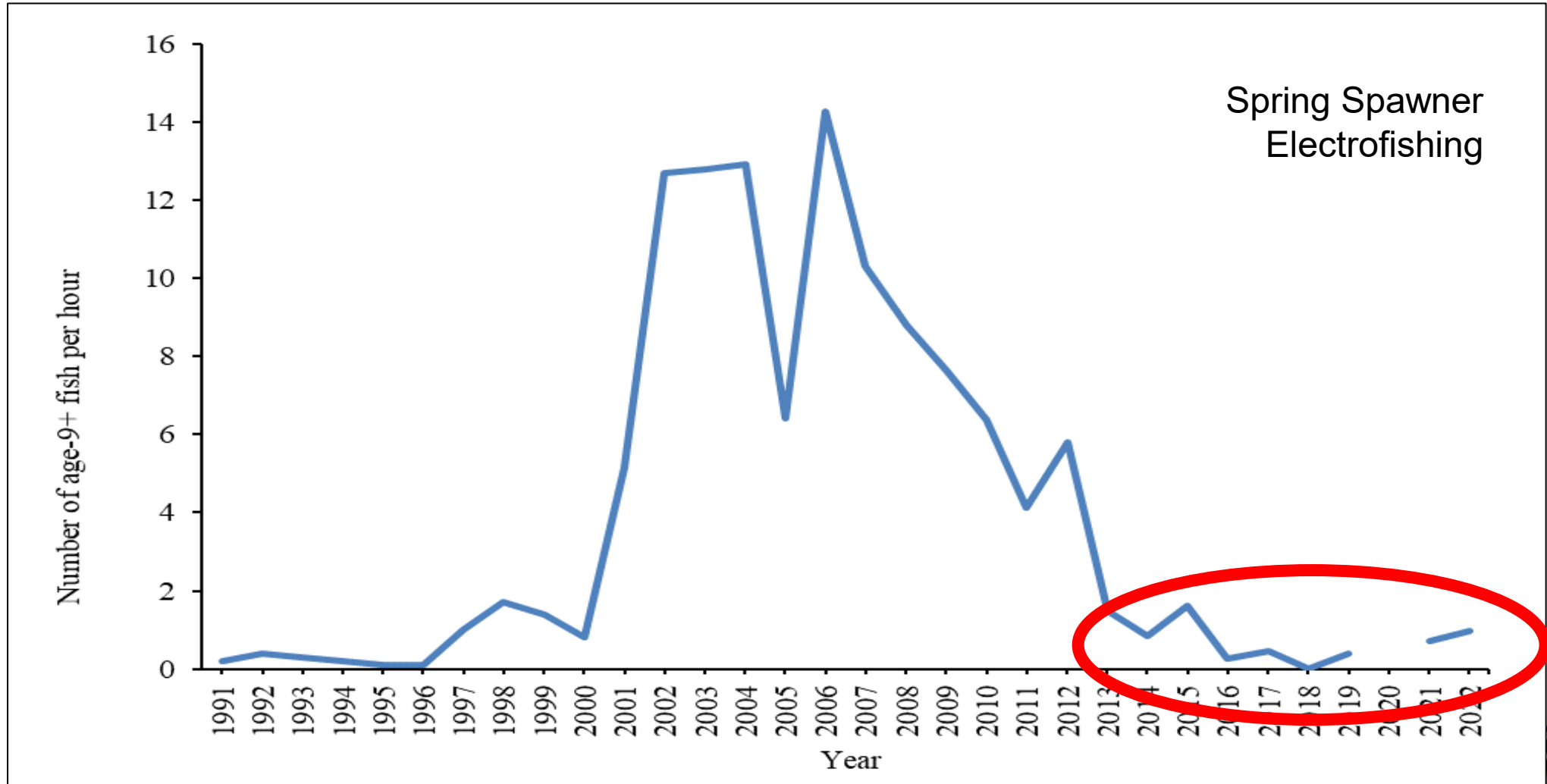


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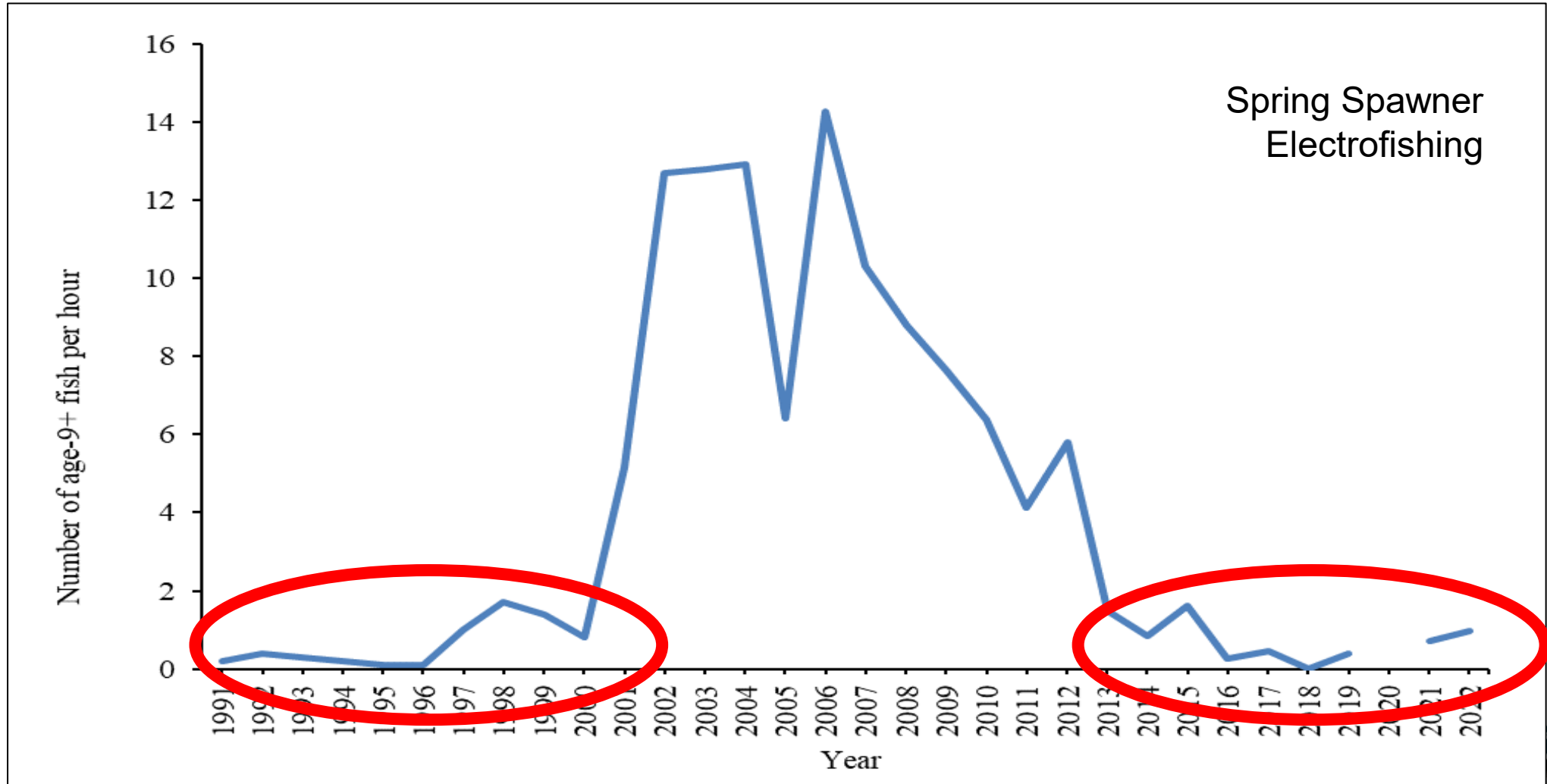




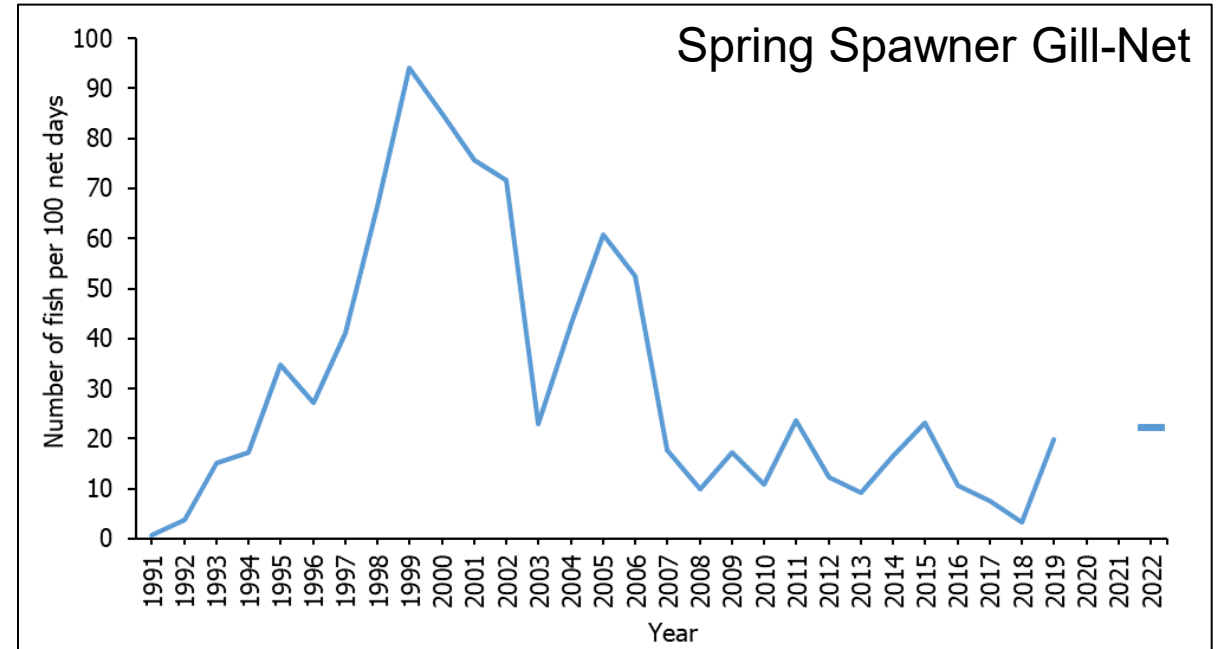
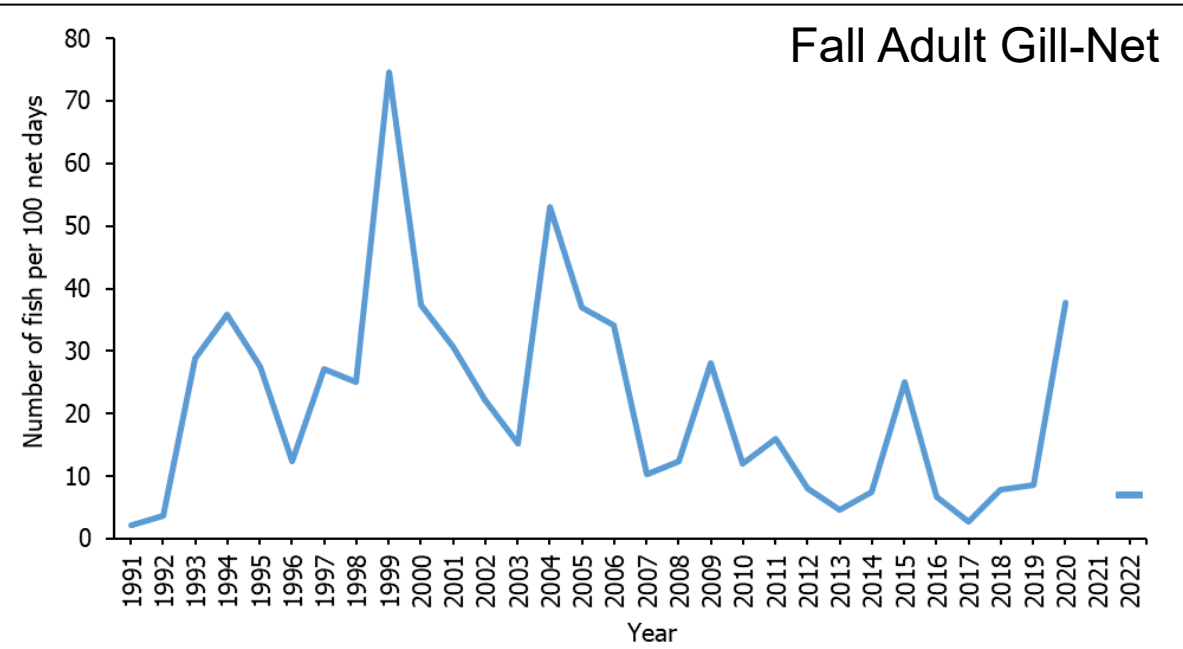
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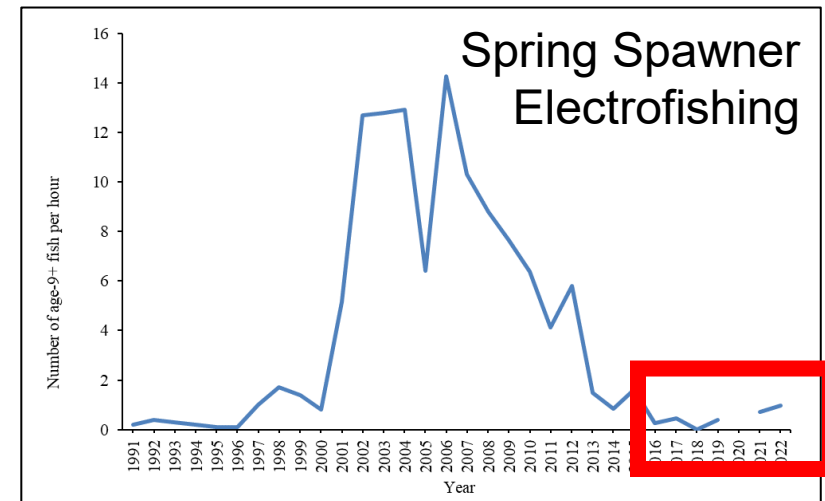
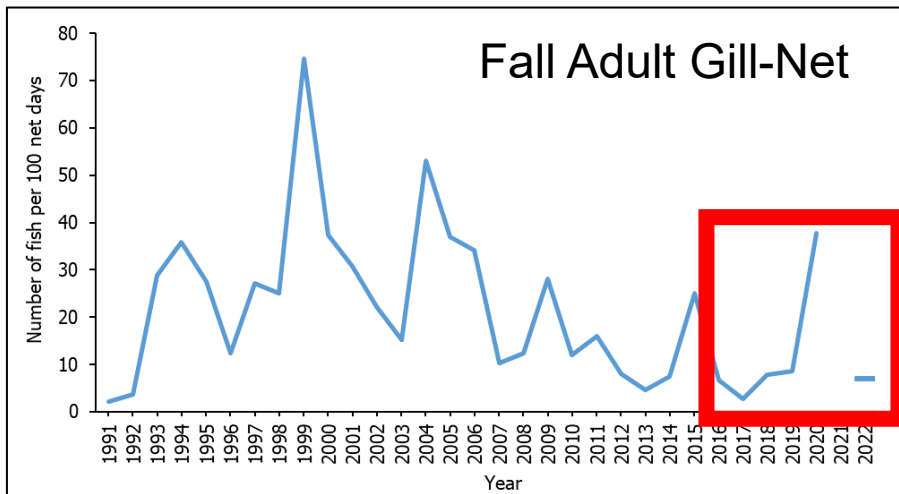
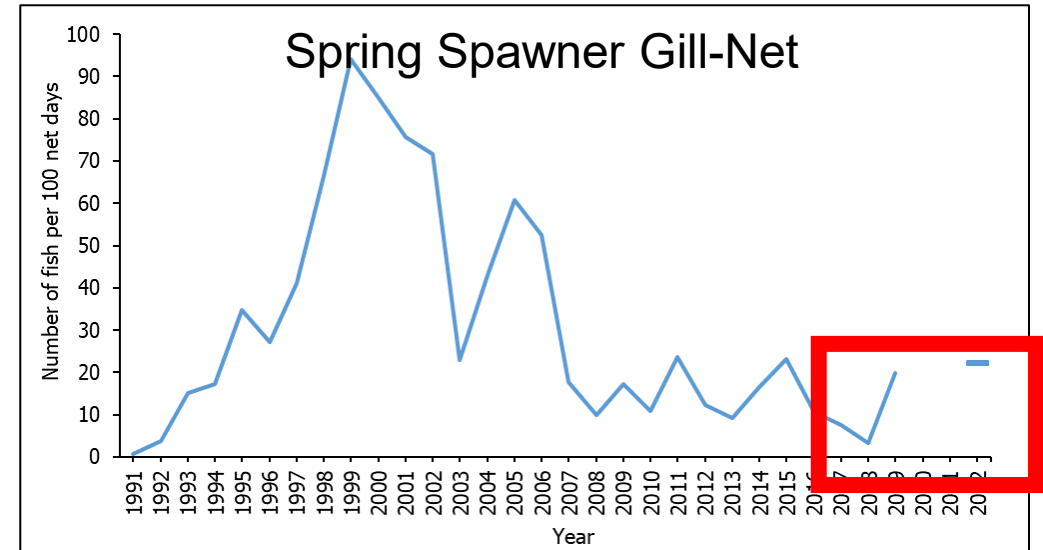
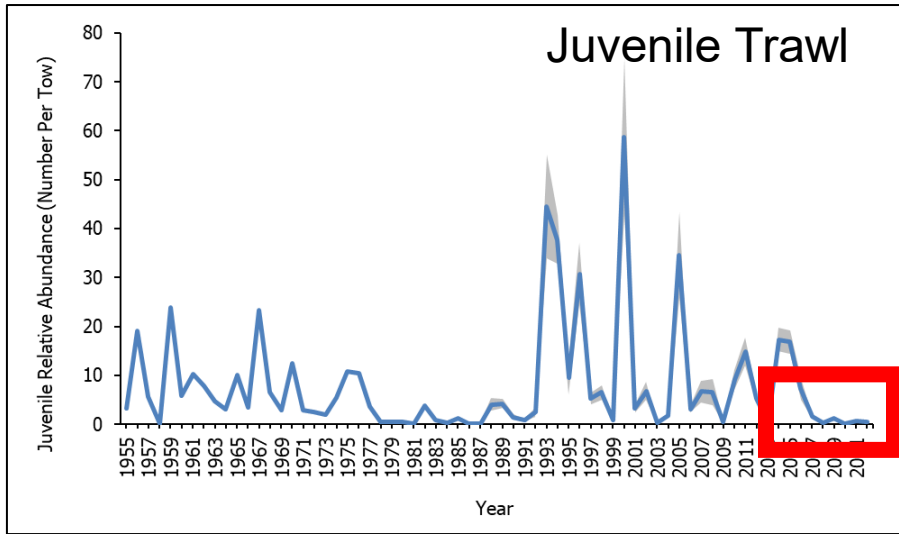
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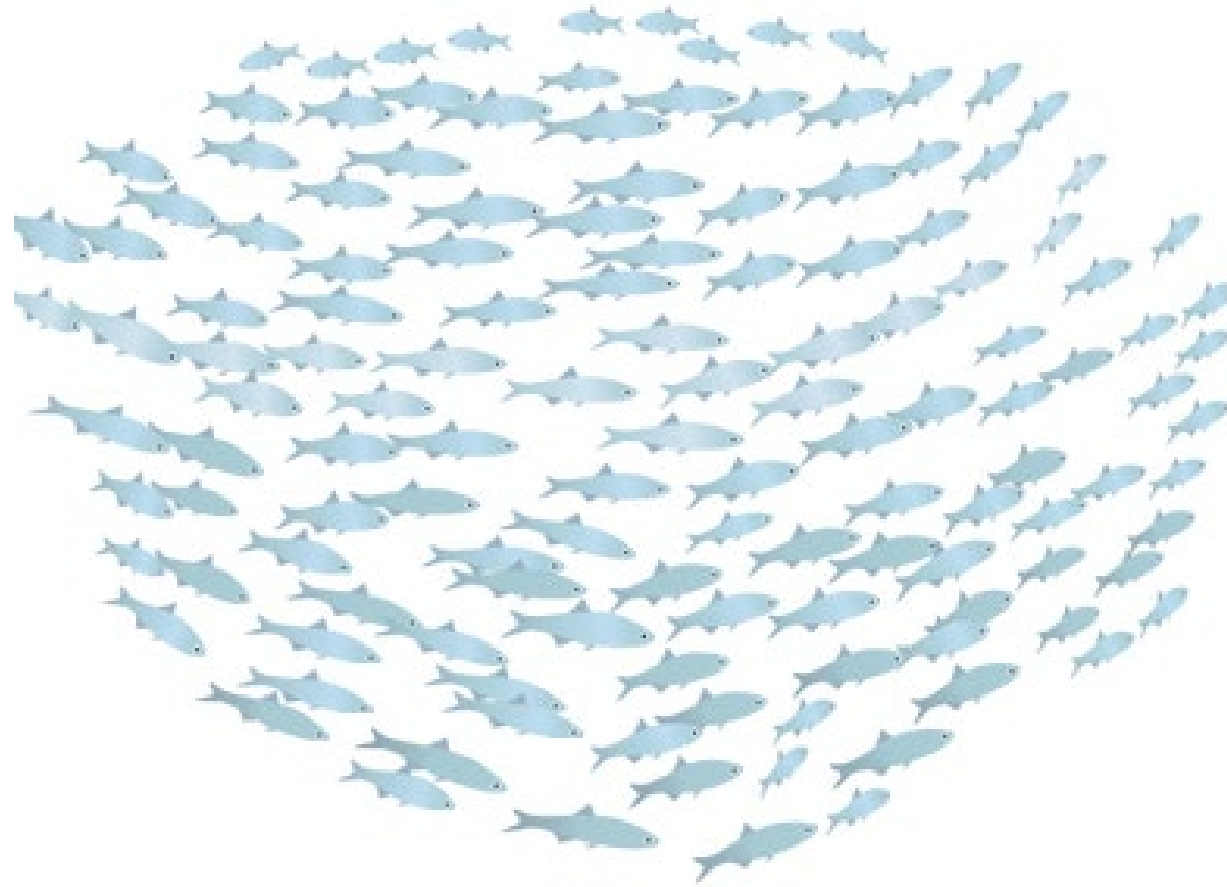


# Summary of Recent Management Changes

- TAL reduced to 51,216lbs in 2021
- Recreational limit reduced to 1 fish per person per day
- Commercial limit reduced to 10 fish per license holder
- 18-25" slot limit for ASMA w/ no harvest over
- 18-22" slot limit for RRMA w/ no harvest over



# Next Steps



# Supplemental Stocking Contingency Plan



# Amendment 2 Adaptive Management

## North Carolina Estuarine Striped Bass Fishery Management Plan Amendment 2



By  
North Carolina Division of Marine Fisheries  
and  
North Carolina Wildlife Resources Commission



North Carolina Department of Environmental Quality  
North Carolina Division of Marine Fisheries  
3441 Arendell Street  
P. O. Box 769  
Morehead City, NC 28557

November 2022





# Amendment 2 Adaptive Management

## 6. Adaptive management

- Use peer reviewed stock assessments and updates to recalculate the BRPs and/or TAL. The current TAL of 51,216 lb remains in place until a new TAL is determined. Stock assessments will be updated at least once between benchmarks. Increases or decreases in the TAL will be implemented through Adaptive Management. A harvest moratorium could be necessary if stock assessment results calculate a TAL that is too low to effectively manage, and/or the stock continues to experience spawning failures.
- Use estimates of  $F$  from stock assessments to compare to the  $F$  BRP and if  $F$  exceeds the  $F_{\text{Target}}$  reduce the TAL to achieve the  $F_{\text{Target}}$  through Adaptive Management.



# Updated Total Allowable Landings

Years	Total Allowable Landings	ASMA Commercial	ASMA Recreational	RRMA Recreational
1991—1997	156,800	98,000	29,400	29,400
1998	250,800	125,400	62,700	62,700
1999	275,880	137,940	68,970	68,970
2000—2002	450,000	225,000	112,500	112,500
2003—2014	550,000	275,000	137,500	137,500
2015—2020	275,000	137,500	68,750	68,750
2021-2023	51,216	25,608	12,804	12,804
2024-	8,349	4,175	2,087	2,087



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- New TAL (8,349 lbs) is 20% of previous low TAL (51,216 lbs)
  - Too low to effectively manage



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  - Too low to effectively manage
- Juvenile Abundance Indices indicate 6 consecutive years of spawning failures (2017-2022)
- Preliminary results for 2023 indicate another spawning failure, even though flows were within recommended range



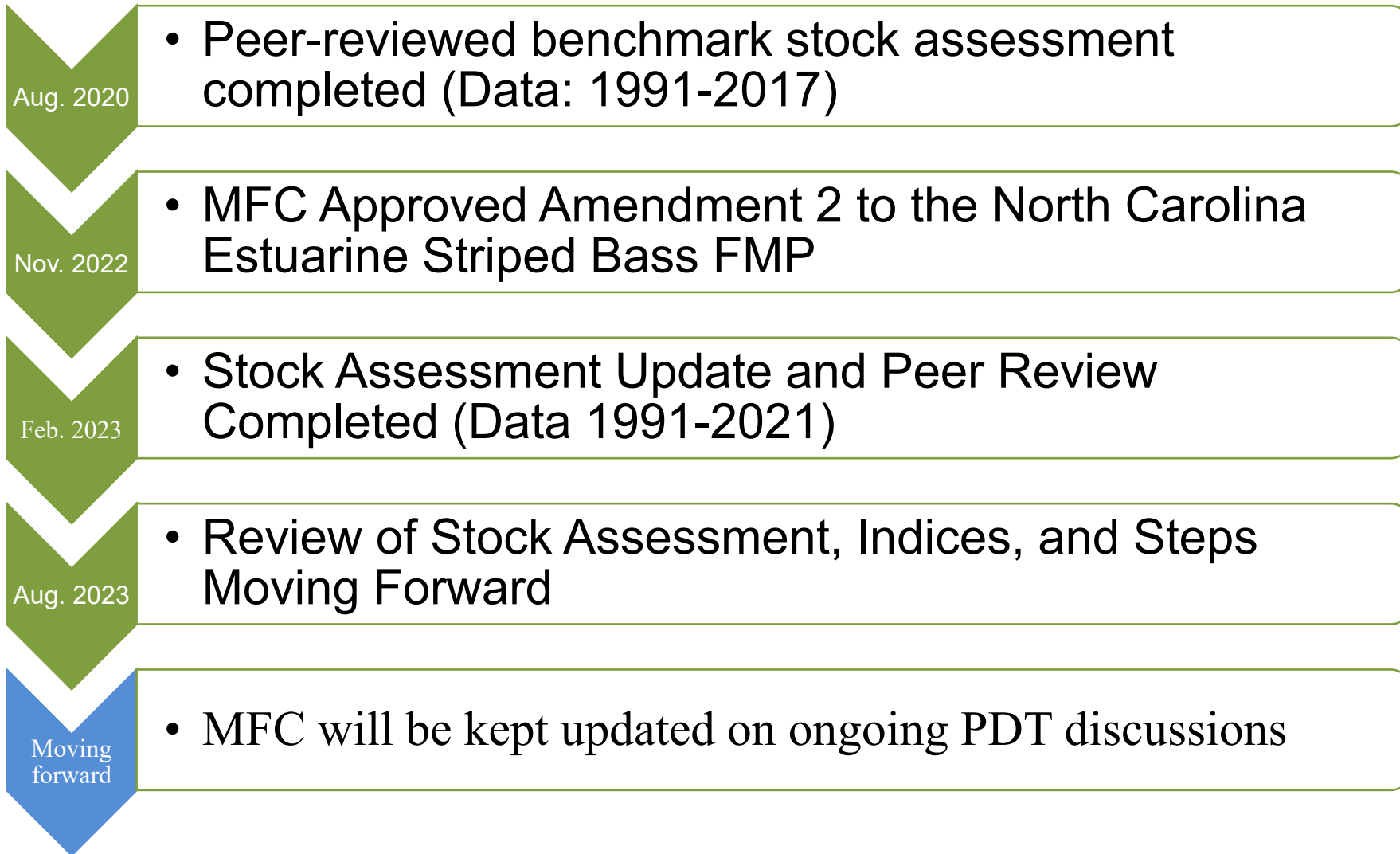
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- Fall 2023 No Harvest Seasons (not enough TAL left for fall season)





# Where We Are





***Questions?***



# TAL Monitoring 2021-2023

ASMA Rec			
Year	Max Daily Landing Estimate (lbs)	TAL (lbs)	Total Landings (lbs)
2021	767	12,804	8,258
2022	1232	12,804	8,417
2023	1773	12,804	9,511
2024		2,087	

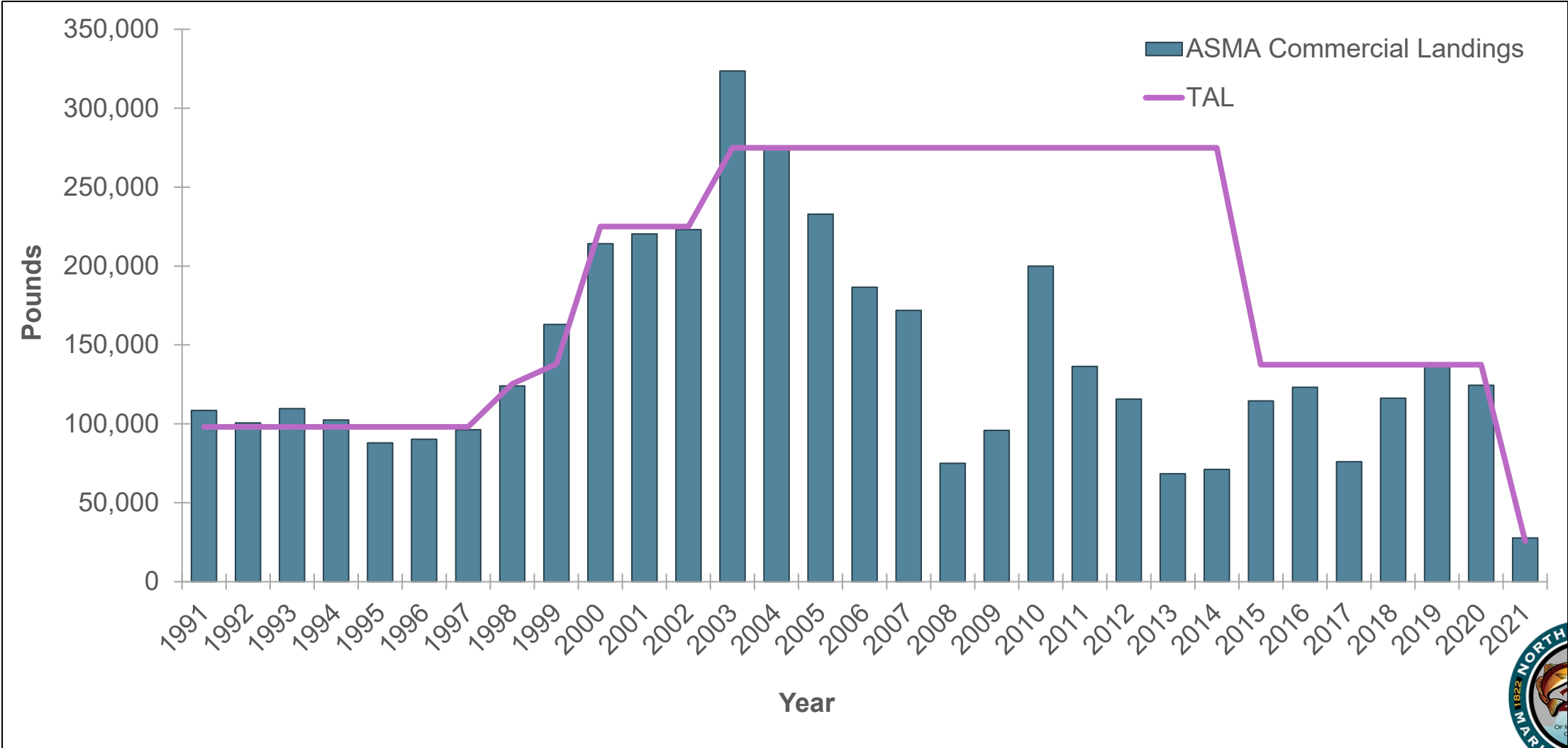


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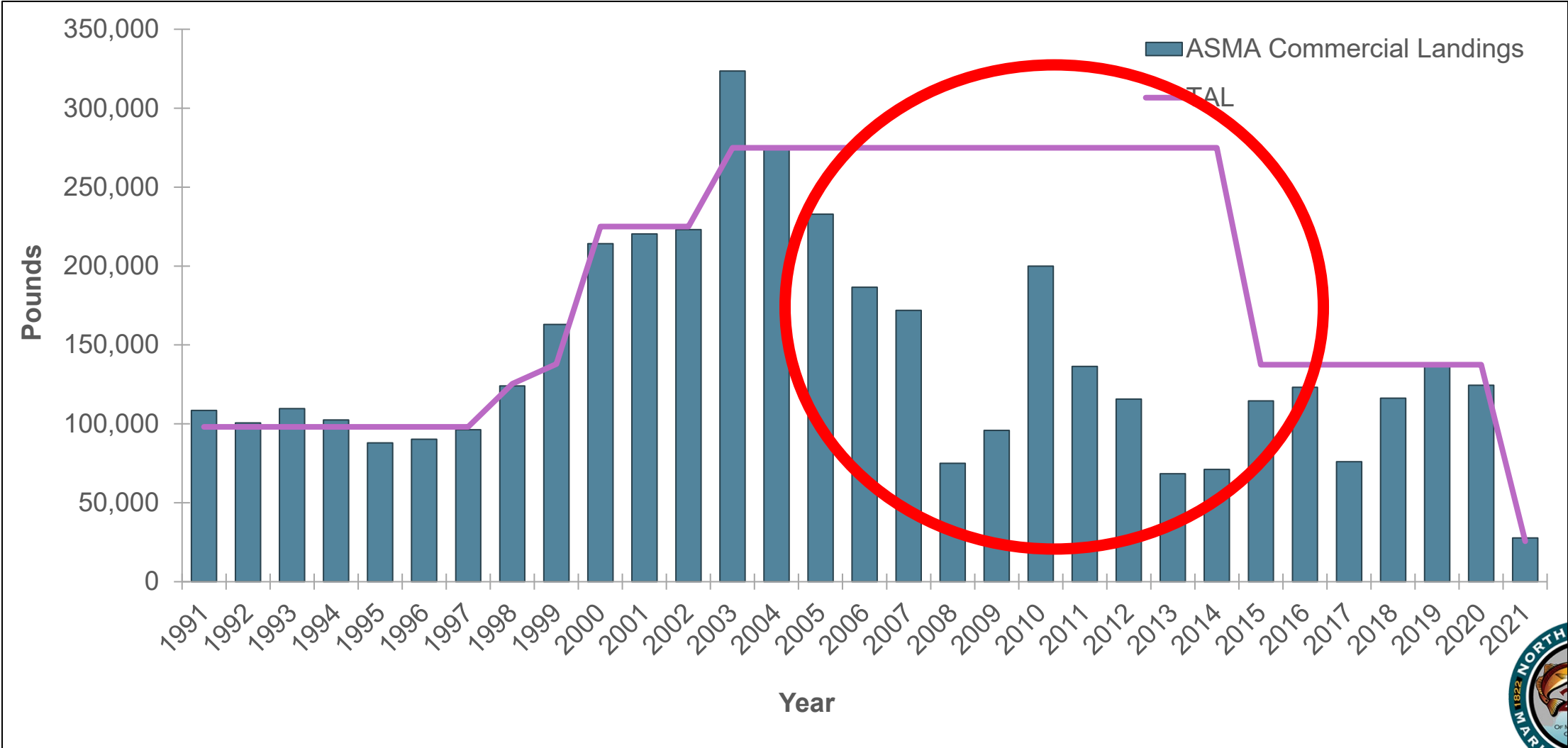
ASMA Commercial			
Year	Max Daily Landing Estimate (lbs)	TAL (lbs)	Total Landings (lbs)
2021	2834	25,608	27,930
2022	2641	25,608	24,026
2023	2194	25,608	20,436
2024		4,175	



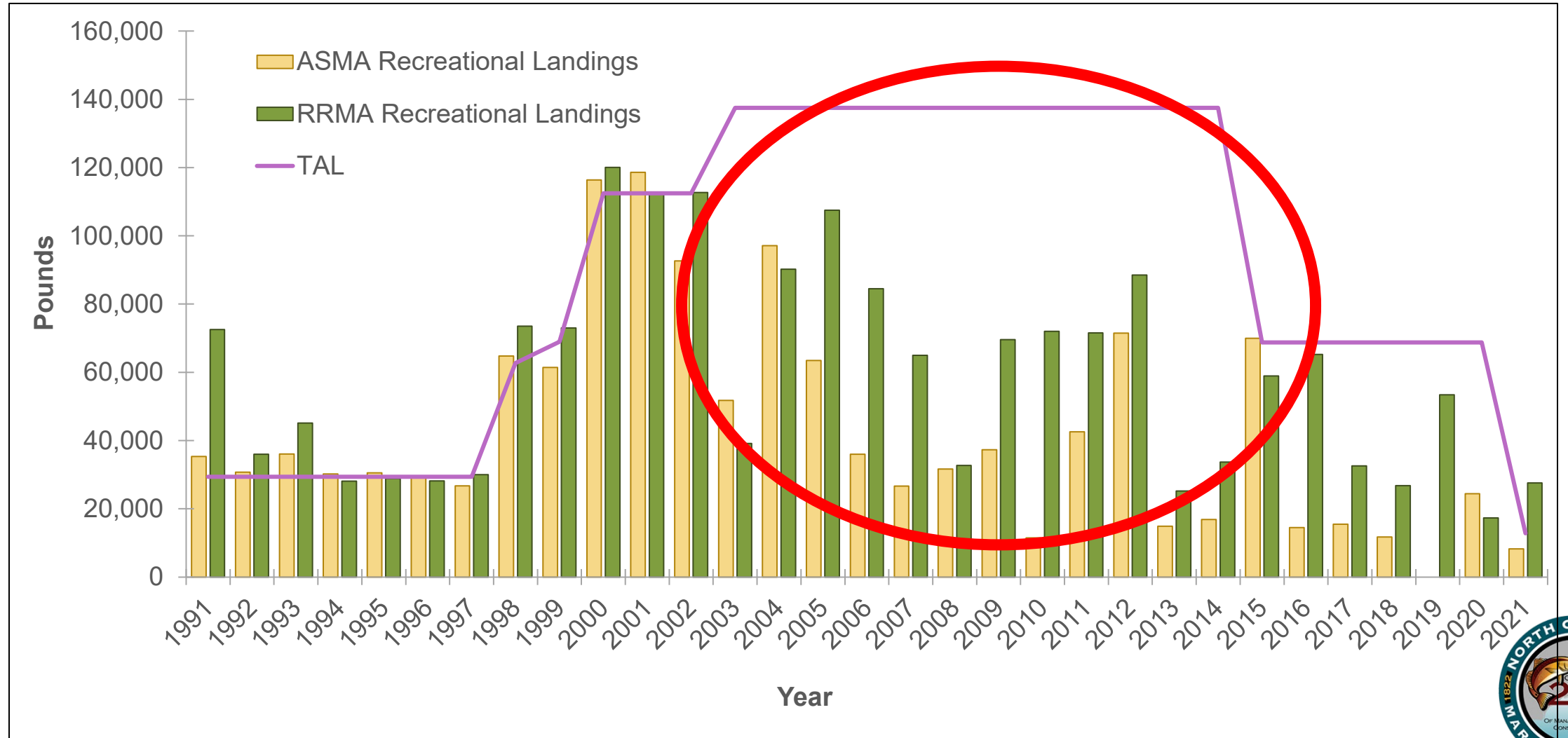
# Commercial Landings



# Commercial Landings



# Recreational Landings



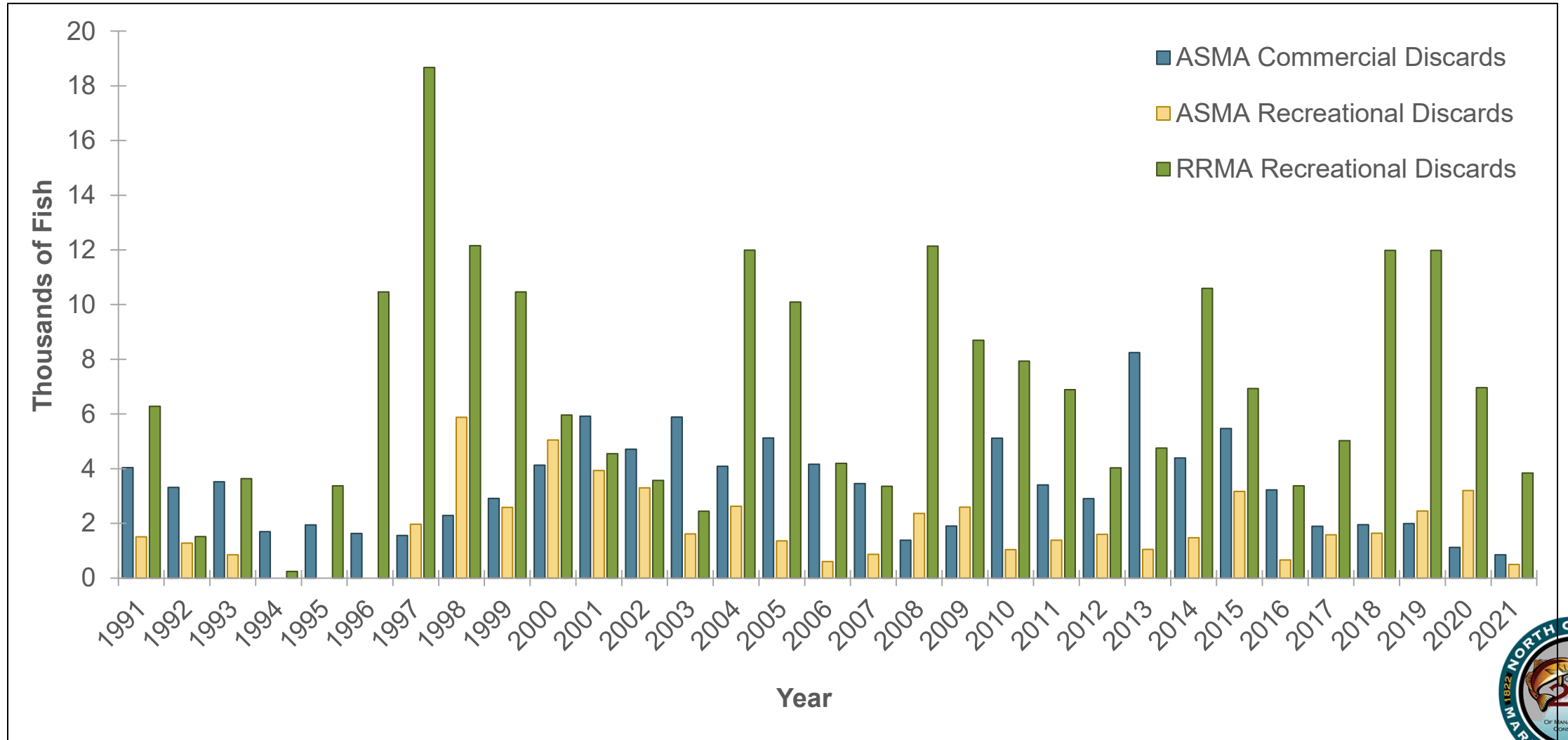
# *Decline in Recruitment*

- Not solely attributable to overfishing
- Potential causes
  - Changes in river flow
  - Prevalence of the non-native blue catfish → predation and competition
- Recommendations
  - Formally incorporate the flow-recruitment relationship into the model
  - Consider factors that may influence abundance that are not tied to striped bass harvest such as blue catfish





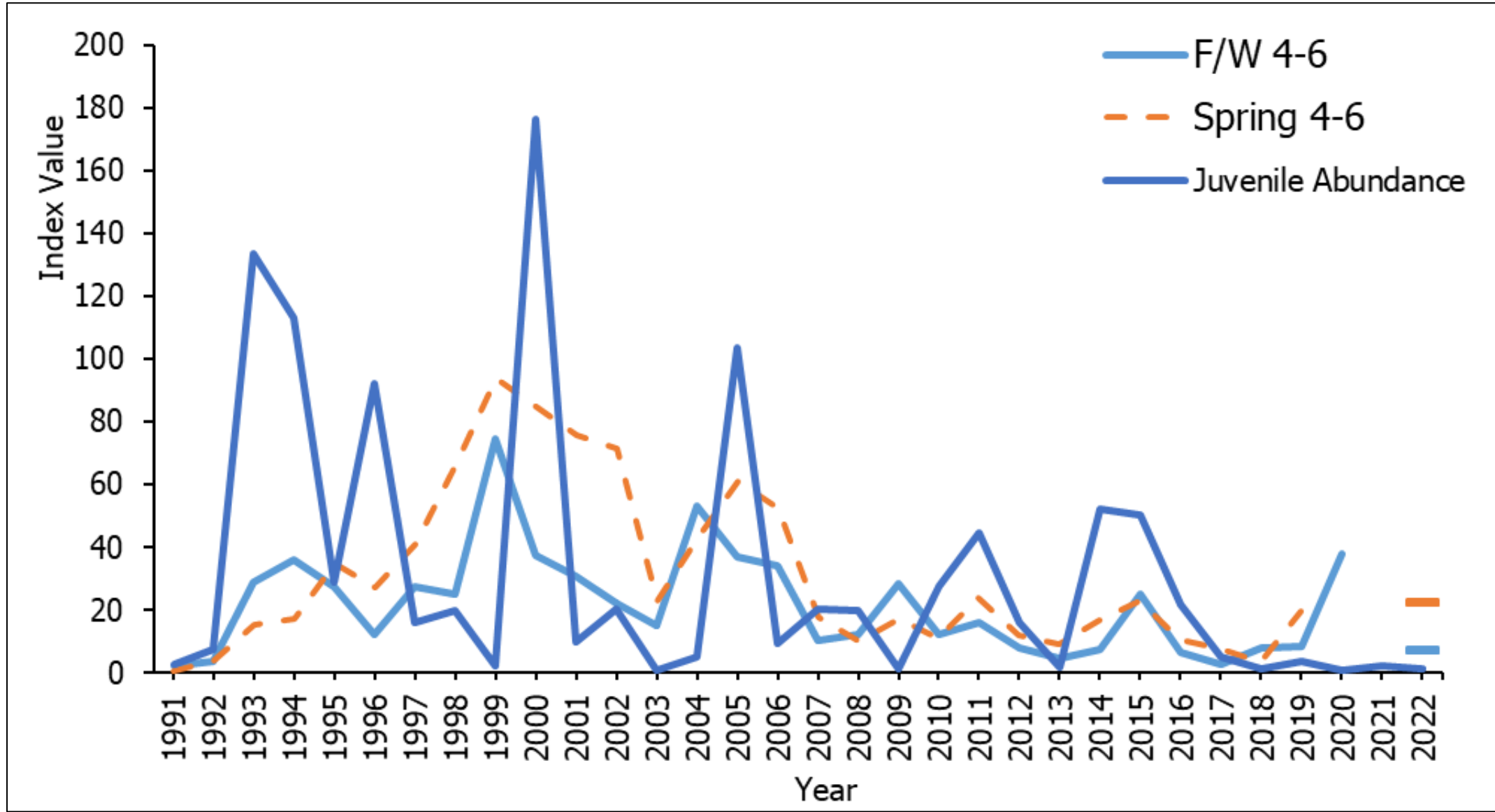
# Fishery Dead Discards



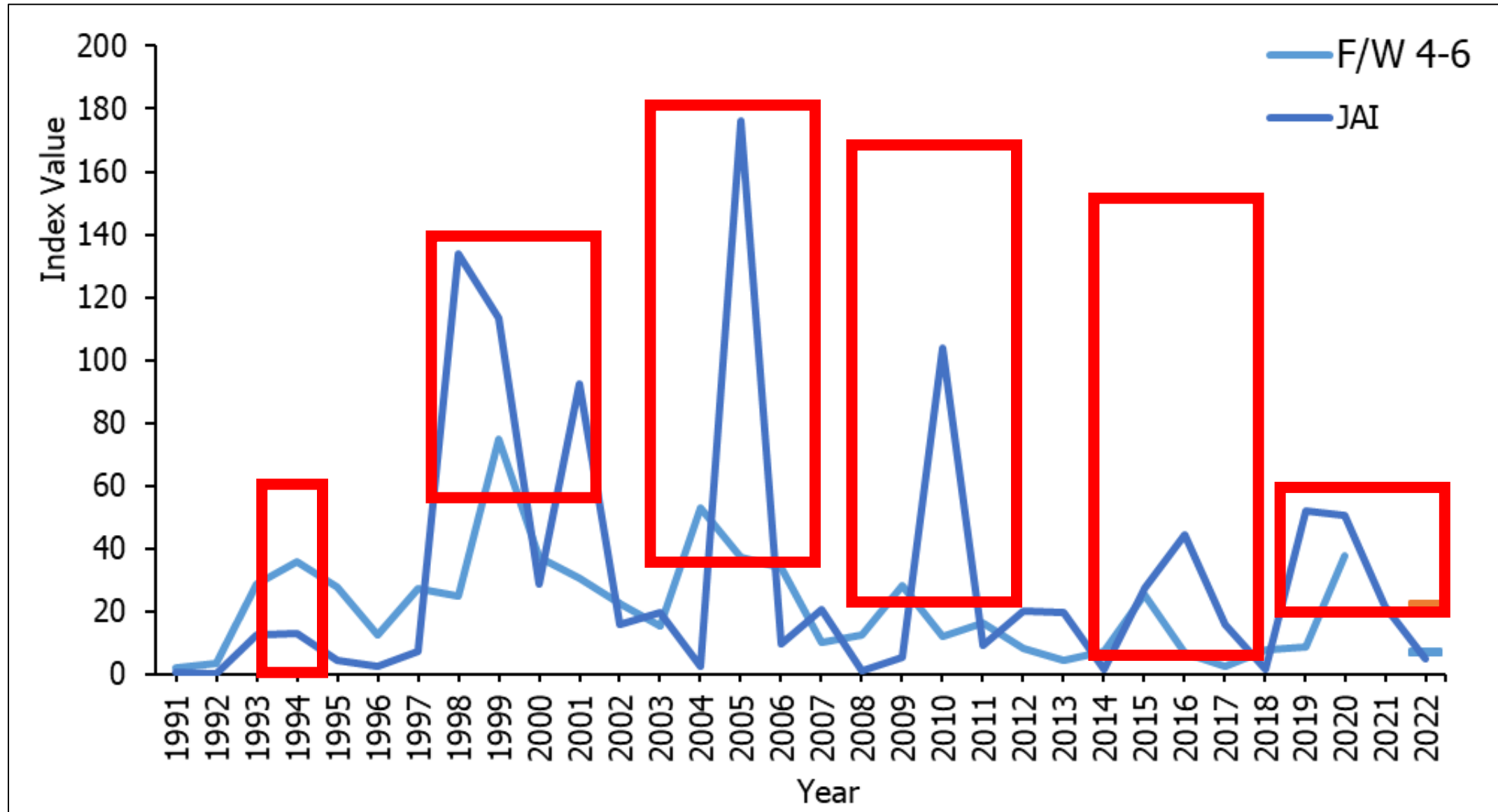
# *Juvenile Abundance vs Adult Abundance*



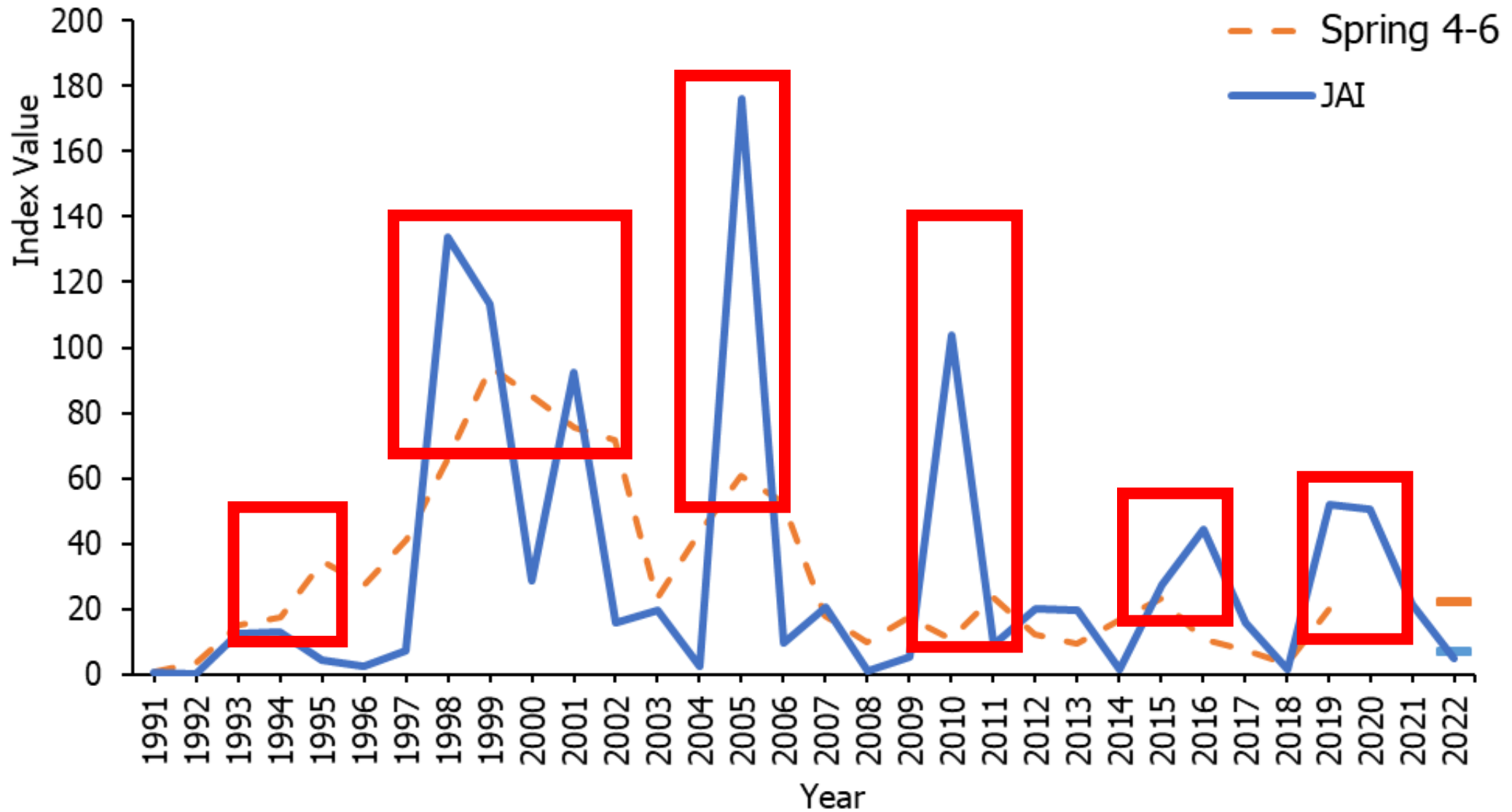
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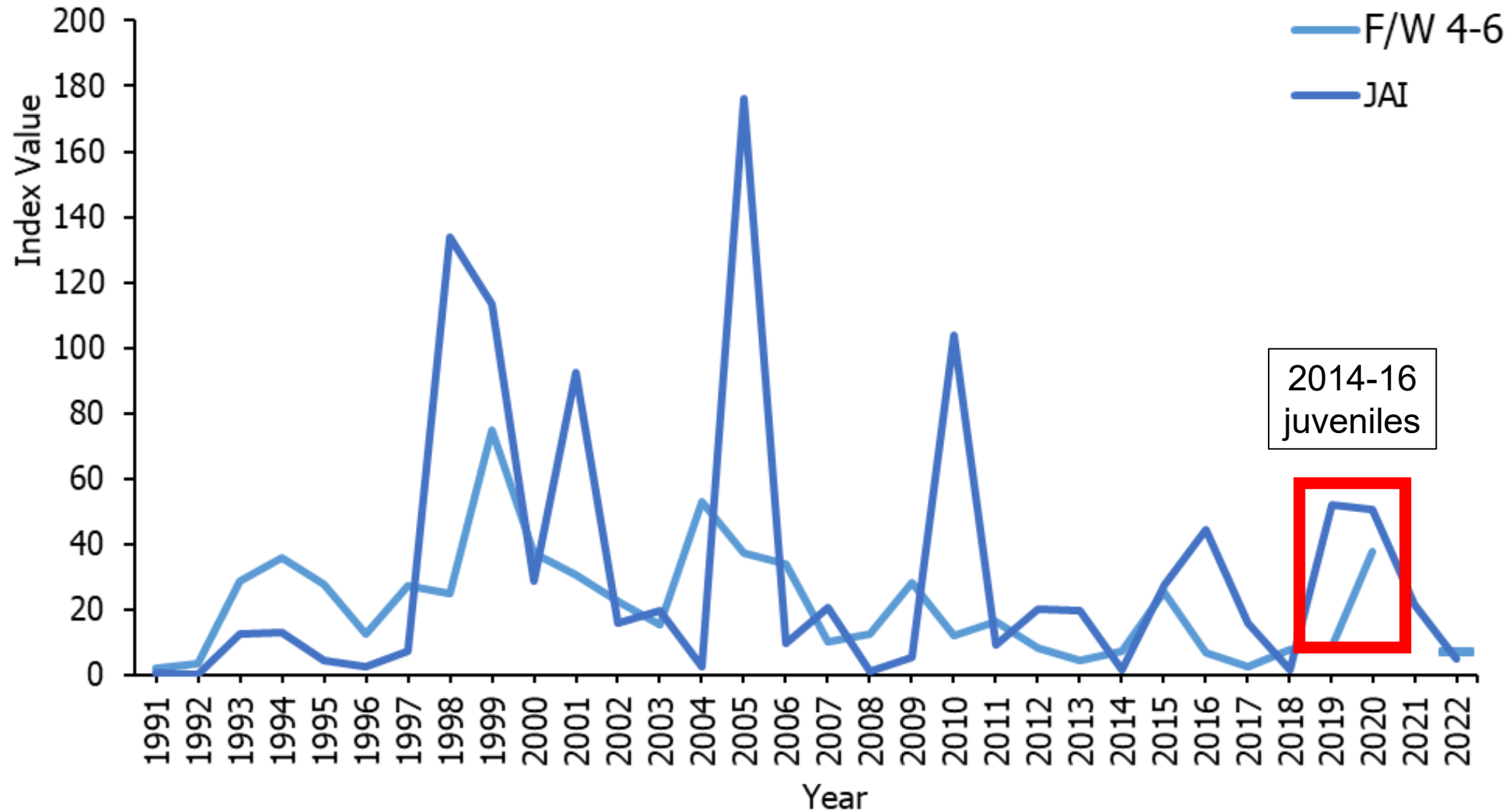
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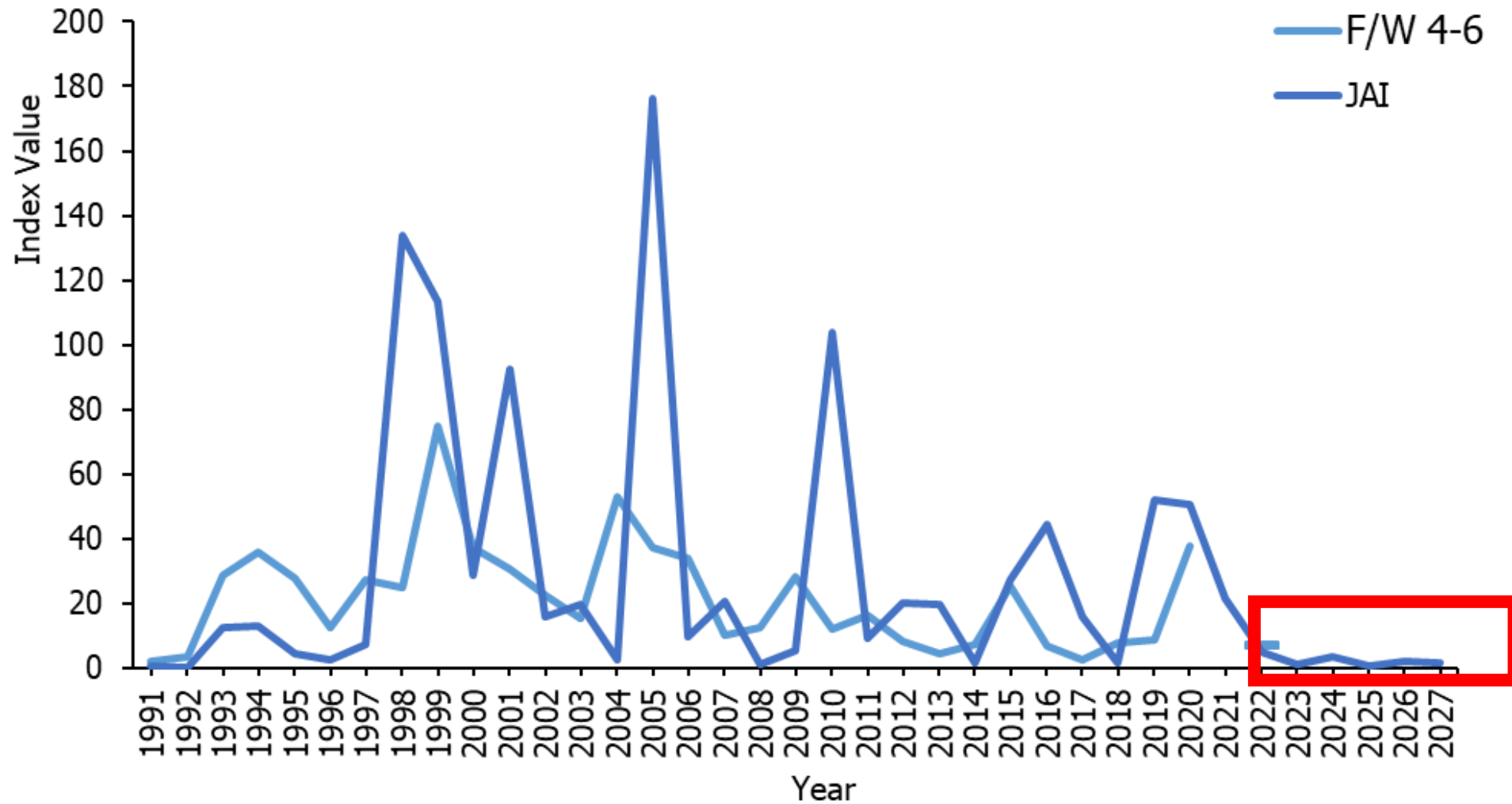
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# Fisheries-Independent Surveys

