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U.S. Gulf of Mexico King Mackerel **2023 Interim Analysis**

Gulf of Mexico Fishery Management Council
Scientific and Statistical Committee

July 2023

2023 Interim Analysis

- Last assessment SEDAR 38U: Terminal year 2017
- Catch advice adjusted using index-based harvest control rule and both 3- or 5-year moving average of the:
 - SEAMAP Fall Plankton survey index of abundance
 - SEAMAP Fall Groundfish survey index of abundance

$$C_{y+1} = C_{ref} * \left(\frac{1}{3 \text{ (or 5)}} \sum_{k=y-2 \text{ (or -4)}}^y I_k \right) / \left(\frac{1}{3 \text{ (or 5)}} \sum_{Y_{ref}-1 \text{ (or -3)}}^{Y_{ref}+1} I_{ref} \right)$$

- *Reference Year* (Y_{ref}) = 2018; the first year following the terminal year of the assessment (2017)
 - C_{ref} = **11.54 million pounds whole weight**

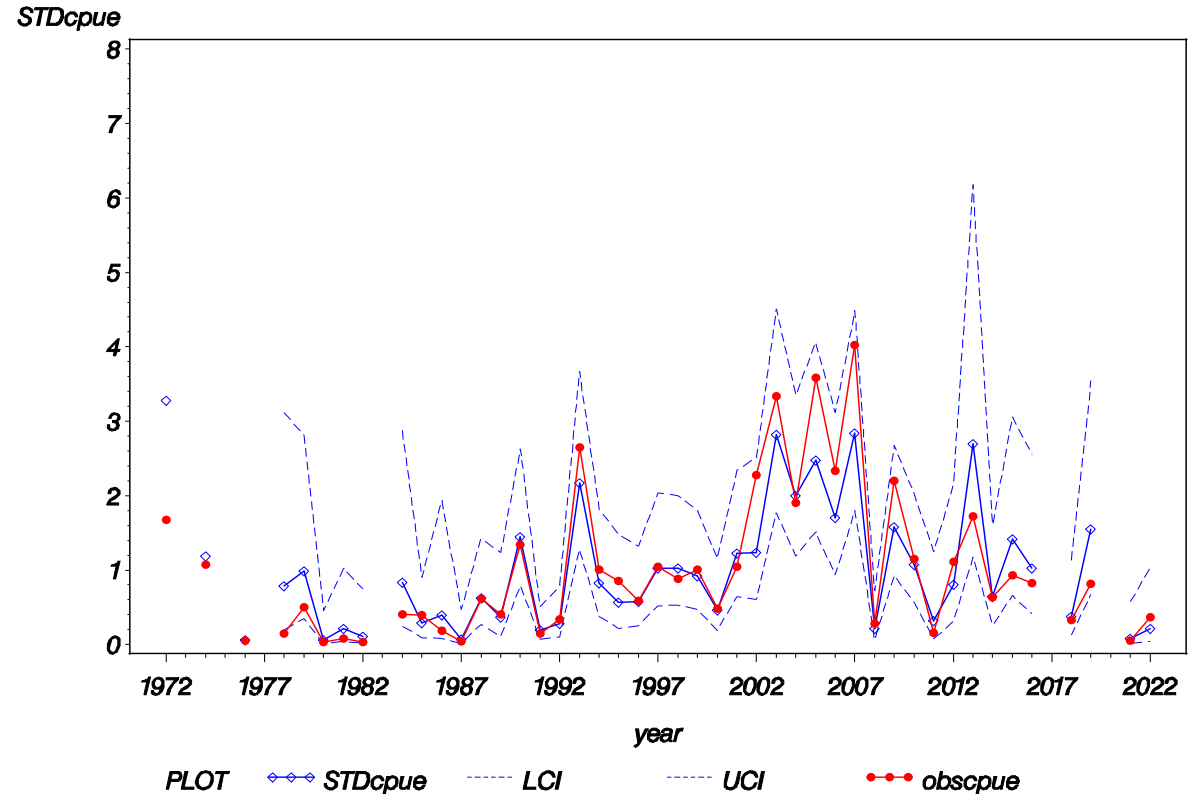


Updated Survey Indices

Fall Plankton Survey



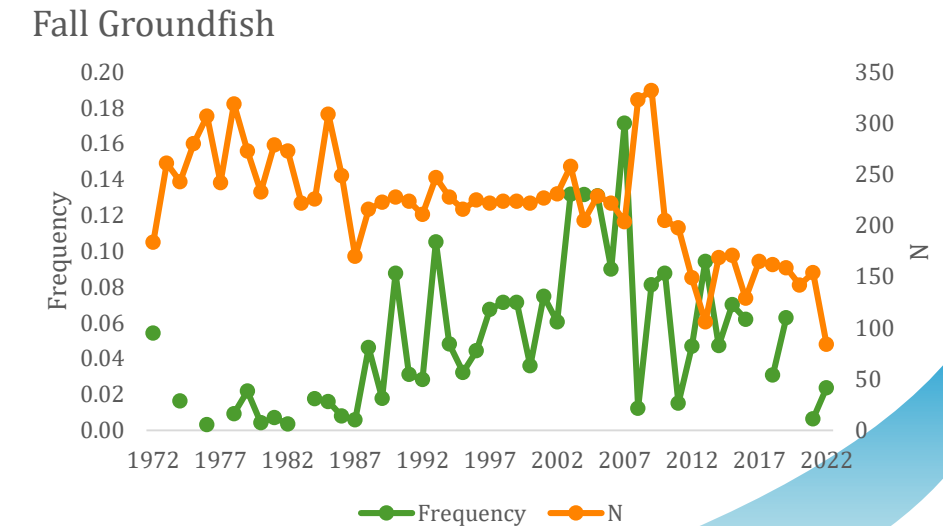
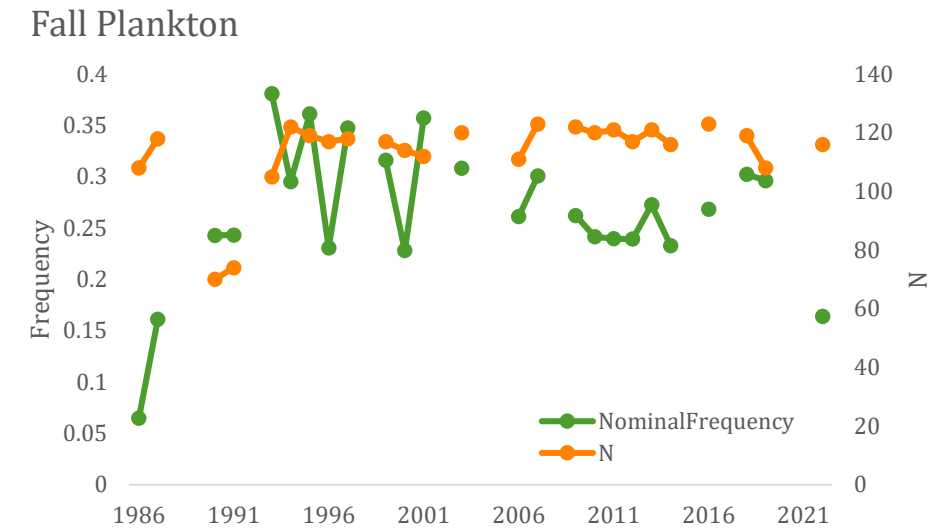
SEAMAP Fall Groundfish S38 King Mackerel Gulf of Mexico 1972 to 2022
Observed and Standardized CPUE (95% CI)



SEAMAP Fall Groundfish recommended as measure of abundance for “young-of-the-year”

Issues with Sampling

- Larval/plankton survey had no sampling in 2020 due to COVID
 - 2017 and 2021 did not achieve Gulf wide sampling coverage needed for inclusion based on current methods
 - In eastern GOM, no King Mackerel encountered in 2022 for the bongo nets, which is surprising as generally a few are always encountered
- Groundfish survey had extremely low catches in last two years
 - One positive encounter in 2021 and two in 2022
 - Gaps are zero catch years



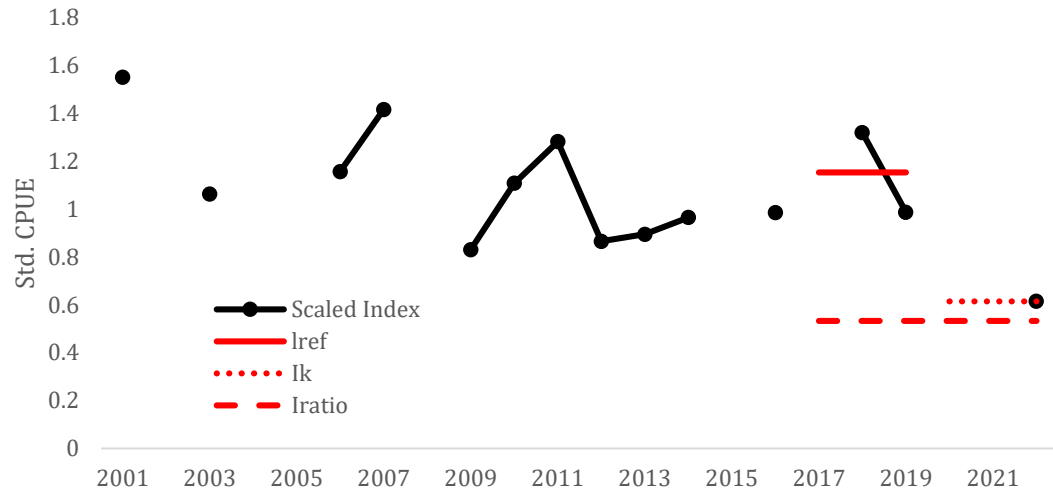
Adjust ABC using Plankton Survey

Value	3 yr avg	5 yr avg
I_{ref}	1.153	1.097
I_k	0.614	0.974
I_{ratio}	0.533	0.887

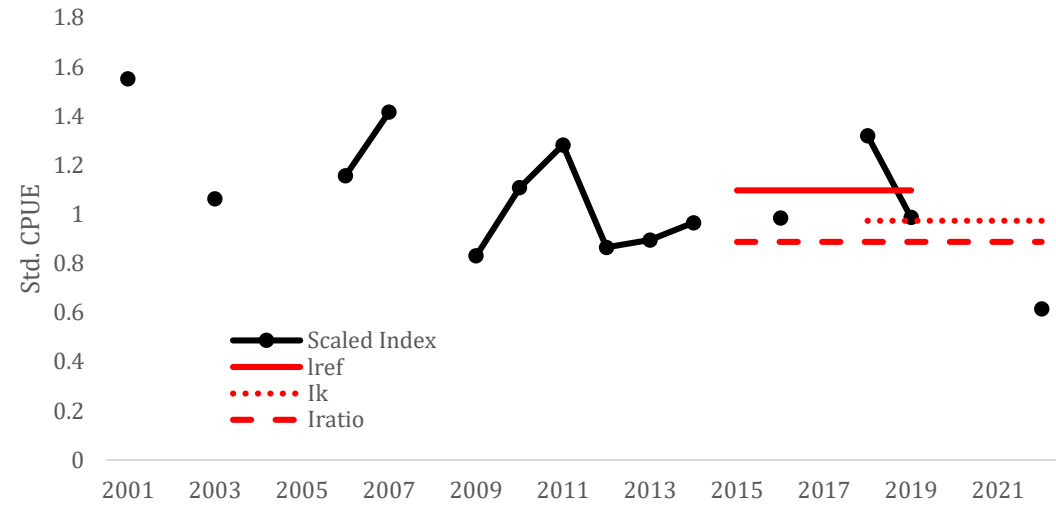
3 yr. moving avg:

5 yr. moving avg:

Fall Plankton



Fall Plankton



* C_{ref} = 11.54 million pounds whole weight

C_{ref} 3-yr adjust = 6.15 million pounds whole weight

* C_{ref} = 11.54 million pounds whole weight

C_{ref} 5-yr adjust = 10.24 million pounds whole weight

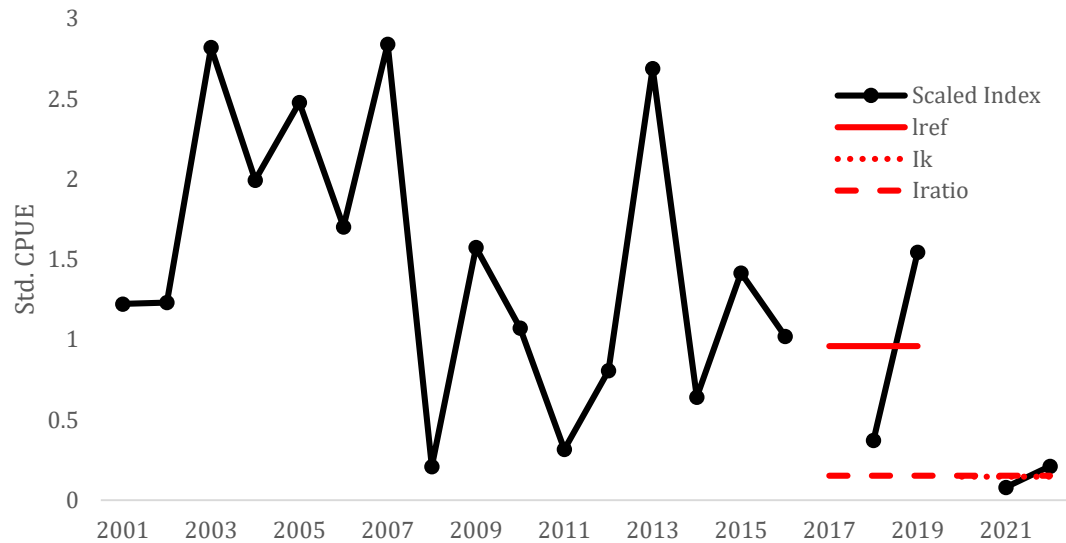
Adjust ABC using Groundfish Survey

3 yr. moving avg:

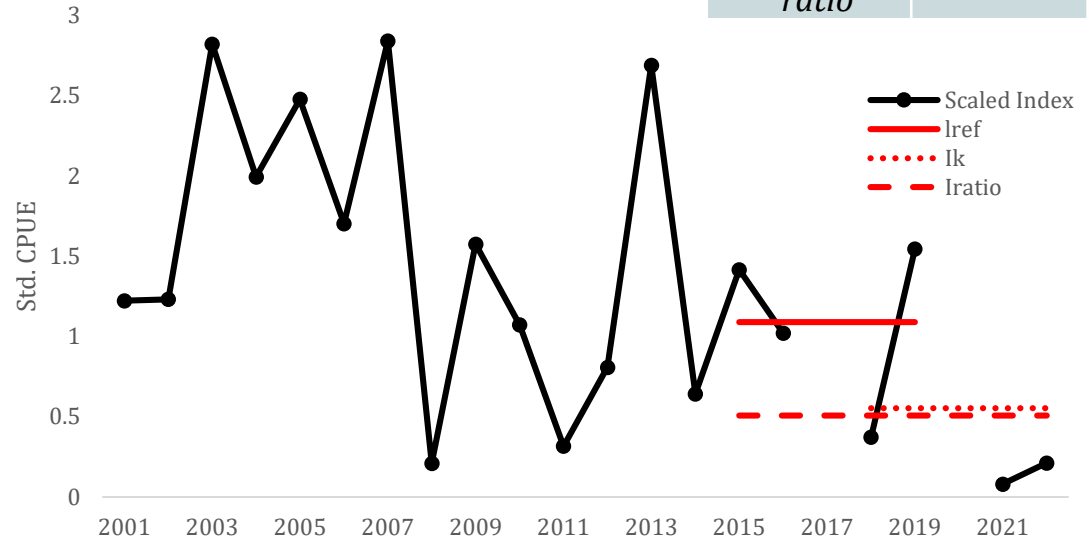
5 yr. moving avg:

Value	3 yr avg	5 yr avg
I_{ref}	0.959	1.089
I_k	0.146	0.553
I_{ratio}	0.153	0.5074

Fall Groundfish



Fall Groundfish



* C_{ref} = 11.54 million pounds whole weight

C_{ref} 3-yr adjust = **1.77 million pounds whole weight**

* C_{ref} = 11.54 million pounds whole weight

C_{ref} 5-yr adjust = **5.86 million pounds whole weight**

Preliminary Catch Advice Summary

- Reference ABC Catch (2018): 11.54 mp ww
- 2023/2024 ABC Catch: 9.99 mp ww

Index	3-year	5-year
Fall Plankton	6.15	10.24
Fall Groundfish	1.77	5.86

- Decisions needed:
 - 3- or 5-yr average
 - Based on Plankton or Groundfish Survey
 - Which year to adjust? (2018 or 2022)



Concerns to consider

- Requirements of a robust interim analysis may not be met in this case:
 - Needs an index that tracks biomass trends
 - Issues with encounter rate and sampling
 - Indices track age 0s and 1s, and natural mortality is 0.66 on age 0s
 - Presumed lower uncertainty is in question
- There is concern that the catch is far below ACLs
 - Suggests that the stock has declined, not just age-0s and 1s.



Recreational ACL monitoring

King Mackerel

2022-2023 Preliminary King Mackerel Recreational Landings (lb) by Two-month Wave Fishing Year July 1 - June 30

Species Complex	Fixed Closed Season	Jul-Aug	Sep-Oct	Nov-Dec	Jan-Feb	Mar-Apr	May-Jun	Total Reported	Annual Catch Limit	%ACL	Datset	Quota Closure
King Mackerel	-	87,714	147,929	566	104,562	99,744		440,516	6,609,600	7%	MRIP-CHTS	

2021-2022 Preliminary King Mackerel Recreational Landings (lb) by Two-month Wave Fishing Year July 1 - June 30

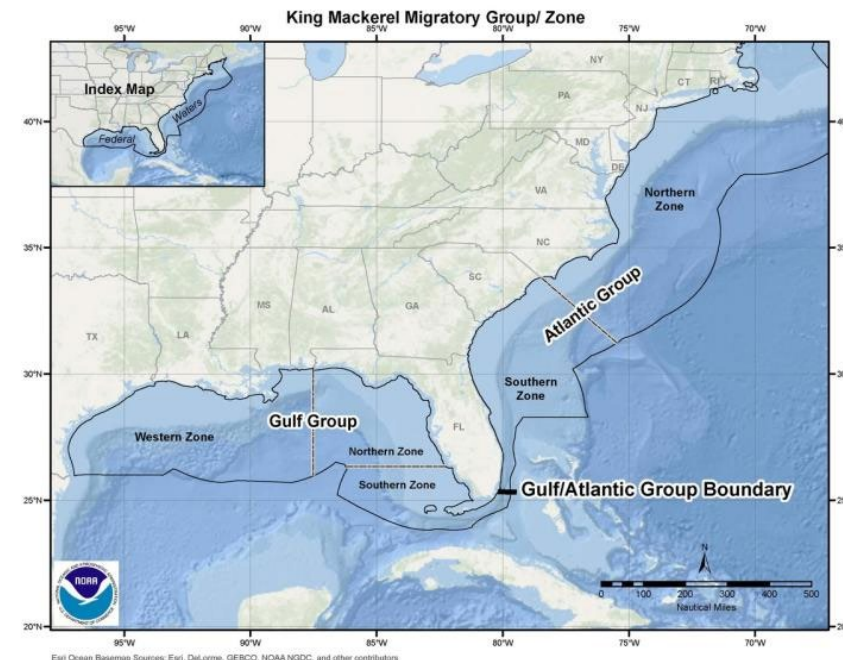
Species Complex	Fixed Closed Season	Jul-Aug	Sep-Oct	Nov-Dec	Jan-Feb	Mar-Apr	May-Jun	Total Reported	Annual Catch Limit	%ACL	Datset	Quota Closure
King Mackerel	-	404,338	60,943	163,693	64,095	144,956	184,968	1,022,994	5,810,000	18%	MRIP-CHTS	

Commercial ACL monitoring

2022-2023 Preliminary Commercial King Mackerel Landings

Northern Zone landings through: 7/3/2023. Southern Zone Gillnet landings through: 4/10/2023. Other Landings through: 7/1/2023 (adjusted 7/3/2023).

Species Complex	Fishing Year	Fixed Closed Months	Est. Landings (lb)*	Quota (lb)*	Quota %	ACL (lb)	ACL %	Current Status
King Mackerel - Western Zone	7/1/2022 - 6/30/2023		359,742	1,244,160	28.9	2,457,216	48.8	OPEN
King Mackerel - Northern zone	10/1/2022 - 9/30/2023		405,029	559,872	72.3			
King Mackerel - Southern zone (Hook and Line)	7/1/2022 - 6/30/2023		434,294	653,184	66.5			
King Mackerel - Southern zone (Gillnet)	1/17/2023(b) - 6/30/2023	July 1 - (b)	615,524	634,222	97.1	634,222	97.1	CLOSED



*Units: **Whole Weight (ww)** Gray triggerfish and Greater Amberjack. **As Reported:** Cobia and King Mackerel.

(b) Actual opening is the Tuesday after MLK Day.



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