



**NOAA**  
**FISHERIES**

SEFSC, Miami  
& Pascagoula

# SEDAR 61: US Gulf of Mexico Red Grouper

## Interim Analysis

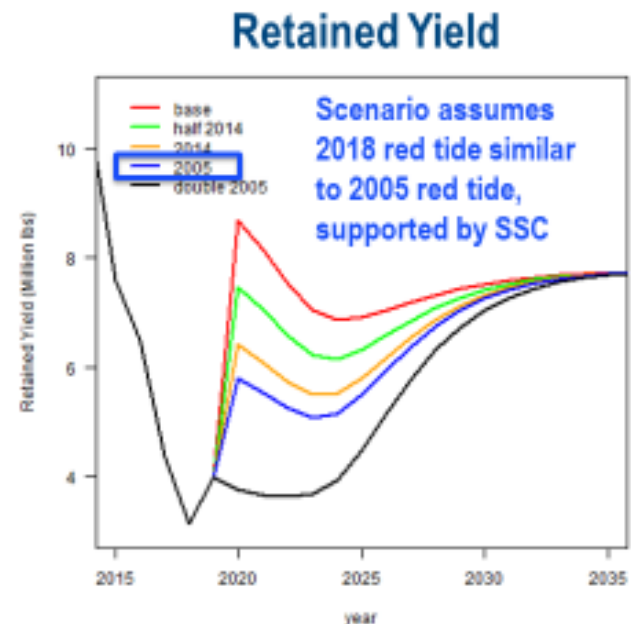
Gulf of Mexico Fishery Management Council  
Scientific and Statistical Committee



May 3, 2021

# Interim Assessment (IA)

- First red grouper IA conducted in October 2018
- Updated red grouper IA in 2019 to adjust harvest recommendations based on stock conditions
  - SEDAR61 terminal year: 2017
  - Made assumptions in projections regarding the impact of 2018 red tide



# Cause for Concern

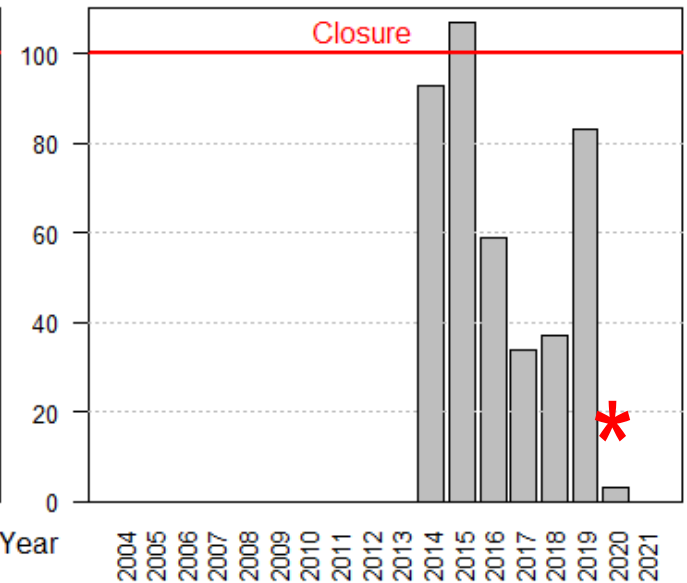
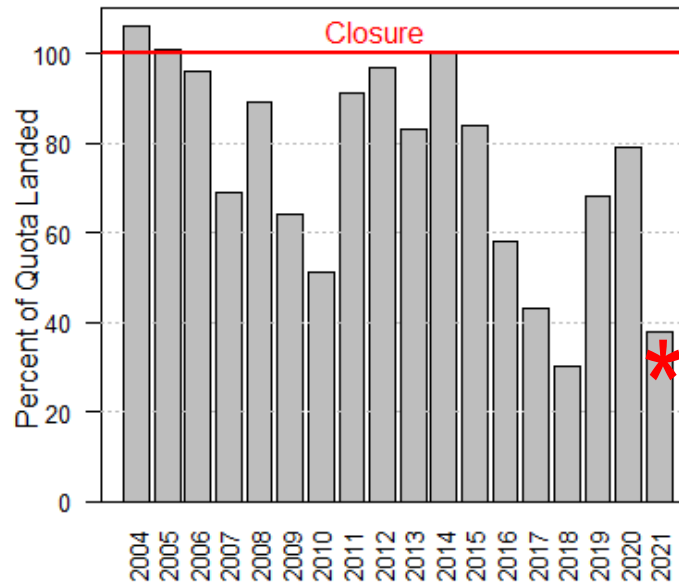
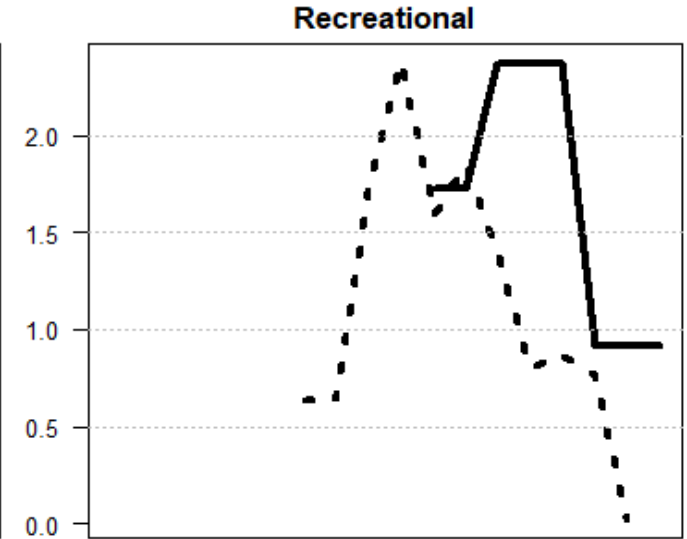
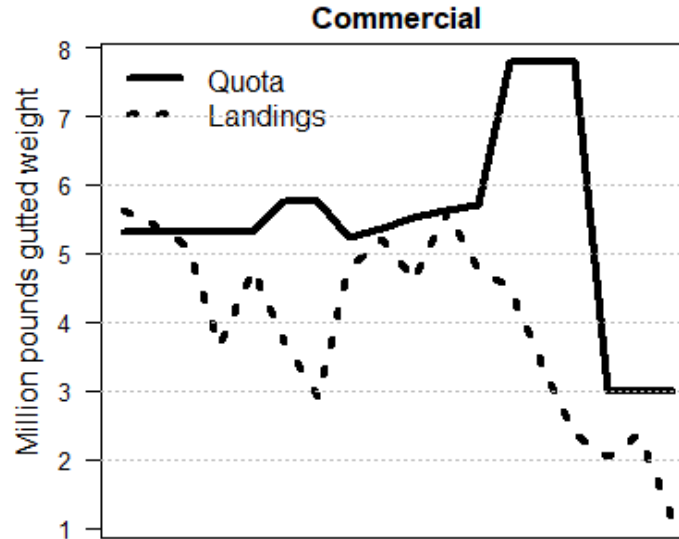
Commercial data from 2010 through 2021 (through April 29, 2021\*) were obtained from the Quotas and Catch Allowances, accessed April 29, 2021

([, remaining years were obtained from the Gulf of Mexico Historical Commercial Landings and Annual Catch Limits \(ACLs\), updated October 23, 2020](https://secatchshares.fisheries.noaa.gov/additionalInformation/selectCommercialQuotas/CatchAllowances(allyears))

(<https://www.fisheries.noaa.gov/southeast/gulf-mexico-historical-commercial-landings-and-annual-catch-limit-monitoring>). Recreational data from 2010 through 2018 were obtained from recreational historical landings, updated October 13, 2020

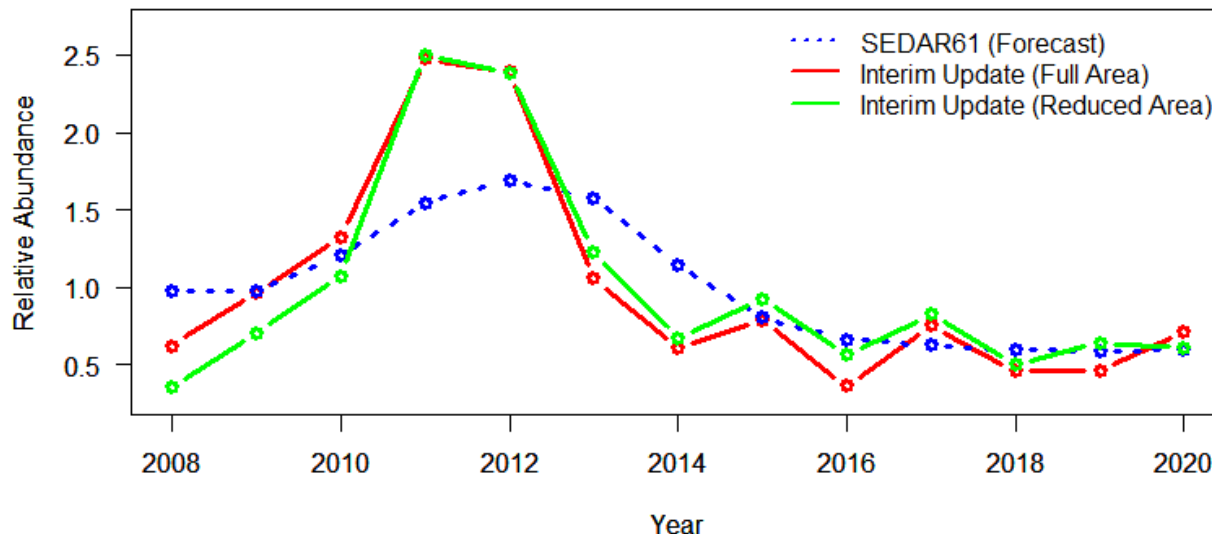
(<https://www.fisheries.noaa.gov/southeast/recreational-fishing-data/gulf-mexico-historical-recreational-landings-and-annual-catch>), data from 2019 and 2020 (through June 2020\*) were obtained March 9, 2021 from

<https://www.fisheries.noaa.gov/southeast/2019-and-2020-gulf-mexico-recreational-landings-and-annual-catch-limits-acls-and-annual>.



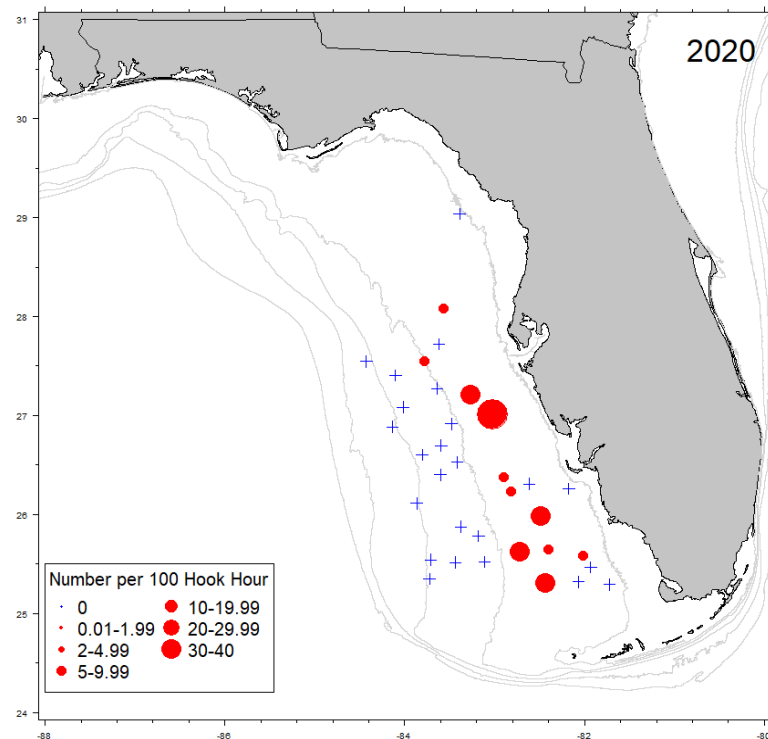
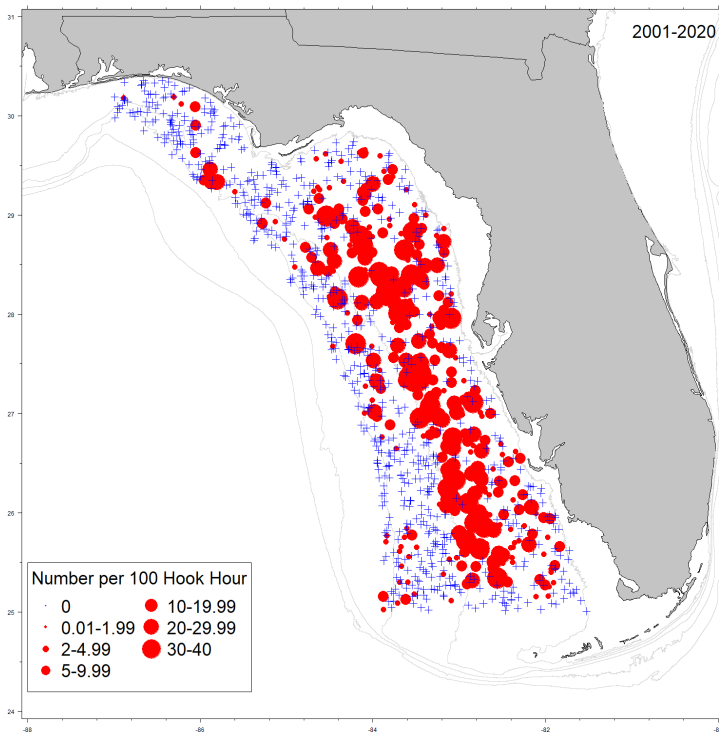
# Index of abundance: NMFS Bottom Longline

- Compare where we are now to where we want to be
  - Where we are now = Observed index value
  - Where we want to be = Forecasted index value
    - Divergence in 2020 for full area index may be due to incomplete spatial coverage due to COVID, weather, and mechanical issues



# Caveats for 2020

- 2020 observed index value may be higher than it would have been with full spatial coverage
  - Zero catches usually encountered in the panhandle



# Harvest Control Rule (HCR)

$$ABC_y = ABC_{assess} \left( \frac{O_y + \beta}{F_y + \beta} \right)$$

- Where  $ABC_{assess} = 4.9^*$  million pounds gutted weight  
\*Sep 2019 SSC recommendation  
(76%com, 24%rec)

$O_y$  = Observed index value in year y,

$F_y$  = Forecasted index value in year y,

$\beta$  = Scalar to adjust responsiveness of HCR x SE  
of index

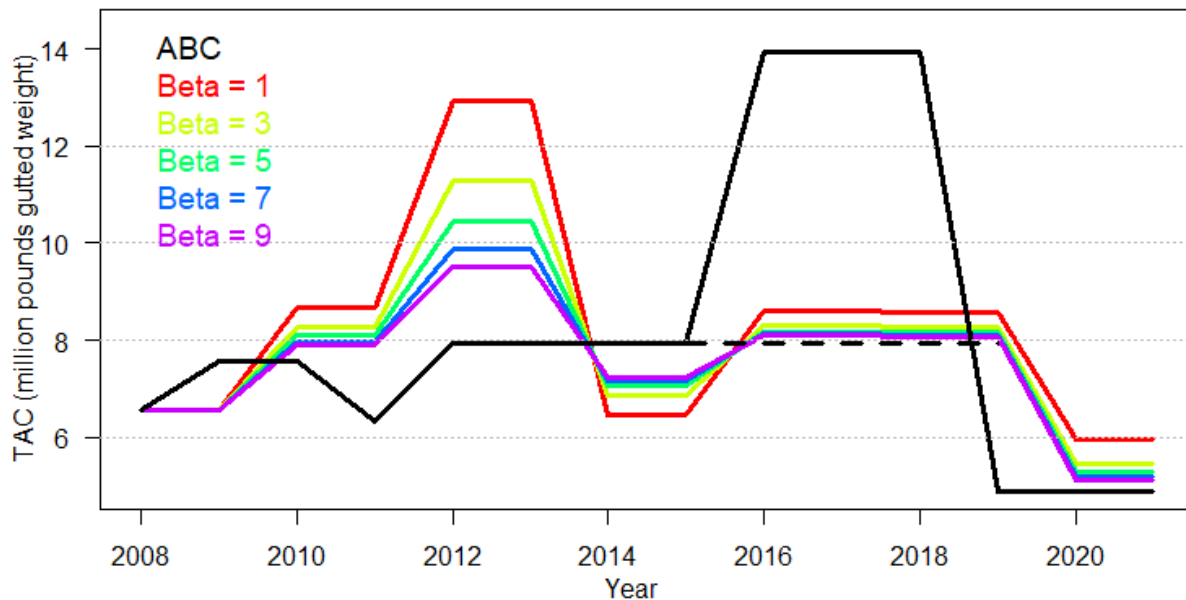
- Changes to ABC only implemented every other year

$ABC_{assess} = 4.9^*$  million pounds gutted weight  
 \*Sep 2019 SSC recommendation (76%com,24%rec)

## Effect of $\beta$

- Previously recommended: (1) excluding ABC change following SEDAR42; and (2)  $\beta = 1$ 
  - Low  $\beta$  tracks index more closely
  - High  $\beta$  tracks ABC

$\beta$	Adj ABC** (million pounds gutted weight)
1	5.948
3	5.457
5	5.279
7	5.187
9	5.131



**\*\*Based on reduced area index**

The dashed black line indicates ignoring the ABC increase that resulted from SEDAR42

# Comparison of derived catch advice

$\beta$	FULL AREA INDEX Adj ABC (million pounds gutted weight)	REDUCED AREA INDEX Adj ABC (million pounds gutted weight)
1	6.522	5.948
3	5.762	5.457
5	5.487	5.279
7	5.345	5.187
9	5.258	5.131

- Full area index value in 2020 impacted by limited spatial coverage
- ABC advice cautioned due to divergence in 2020 index value when using reduced spatial coverage



# Ongoing Work:

- Finish MSE development
  - MSE will be used to select HCR/index pair that best achieves management goals
- Design multitude of HCR's with stakeholder input
- Test HCR/Index combinations to identify optimum HCR

# Questions?

**Thank you to all SEDAR61 data providers  
and for your attention!**

# NMFS Bottom Longline Index – full area

Survey Year	Frequency	N	Delta-Lognormal Index	Scaled Index (mean = 1)	Coefficient of Variation	Lower Confidence Level	Upper Confidence Level
2001	0.215	93	0.74	0.818	0.291	0.462	1.448
2002							
2003	0.342	117	0.983	1.087	0.203	0.727	1.625
2004	0.418	98	1.606	1.775	0.193	1.21	2.604
2005	0.25	40	0.553	0.611	0.408	0.279	1.339
2006	0.282	39	0.52	0.575	0.393	0.269	1.228
2007	0.195	41	0.851	0.941	0.466	0.388	2.284
2008	0.267	60	0.573	0.634	0.324	0.337	1.192
2009	0.349	63	0.889	0.983	0.265	0.584	1.655
2010	0.343	67	1.217	1.346	0.259	0.809	2.24
2011	0.398	123	2.27	2.51	0.182	1.749	3.602
2012	0.469	49	2.196	2.428	0.255	1.468	4.014
2013	0.34	47	0.97	1.072	0.306	0.589	1.95
2014	0.262	42	0.561	0.62	0.384	0.295	1.302
2015	0.255	52	0.719	0.795	0.361	0.395	1.601
2016	0.18	50	0.335	0.37	0.436	0.161	0.854
2017	0.326	43	0.692	0.765	0.343	0.393	1.491
2018	0.191	47	0.422	0.466	0.428	0.205	1.059
2019	0.2	40	0.427	0.472	0.462	0.196	1.136
2020	0.314	35	0.661	0.731	0.384	0.348	1.535

# NMFS Bottom Longline Index – reduced area

Survey Year	Frequency	N	Delta-Lognormal Index	Scaled Index (mean = 1)	Coefficient of Variation	Lower Confidence Level	Upper Confidence Level
2001	0.22222	54	1.12113	0.83603	0.36061	0.41545	1.68238
2002							
2003	0.39189	74	1.47565	1.10039	0.22531	0.70512	1.71725
2004	0.42647	68	1.70252	1.26958	0.22227	0.81831	1.96971
2005	0.27273	33	0.83131	0.61991	0.40836	0.28263	1.35969
2006	0.31429	35	0.81096	0.60474	0.37568	0.29239	1.25074
2007	0.26923	26	1.42127	1.05985	0.48346	0.42380	2.65046
2008	0.24242	33	0.49831	0.37159	0.44741	0.15814	0.87316
2009	0.35000	40	0.98529	0.73473	0.31744	0.39536	1.36541
2010	0.31707	41	1.49276	1.11316	0.33651	0.57819	2.14311
2011	0.44444	72	3.48325	2.59747	0.21226	1.70693	3.95263
2012	0.52941	34	3.32402	2.47873	0.26427	1.47417	4.16785
2013	0.42857	28	1.71615	1.27973	0.32803	0.67522	2.42545
2014	0.37037	27	0.93856	0.69989	0.37742	0.33733	1.45210
2015	0.35484	31	1.28871	0.96099	0.37050	0.46903	1.96899
2016	0.30769	26	0.78804	0.58764	0.43497	0.25559	1.35109
2017	0.43333	30	1.15140	0.85860	0.32492	0.45564	1.61796
2018	0.29630	27	0.70685	0.52710	0.42932	0.23155	1.19989
2019	0.29630	27	0.89194	0.66512	0.43571	0.28892	1.53119
2020	0.32353	34	0.85120	0.63474	0.36666	0.31196	1.29148