

Modifications to Catch Limits, Sector Allocation, and Fishing Seasons for Gulf of Mexico Gag



Draft Options for Amendment 56 to the Fishery Management Plan for Reef Fish Resources in the Gulf of Mexico

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ENVIRONMENTAL ASSESSMENT COVER SHEET

Amendment 56 to the Fishery Management Plan for Reef Fish Resources of the Gulf of Mexico:
Modifications to Catch Limits, Sector Allocation, and Fishing Seasons for Gulf of Mexico Gag

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Type of Action

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This Environmental Assessment is being prepared using the 2020 CEQ NEPA Regulations as modified by the Phase I 2022 revisions. The effective date of the 2022 revisions was May 20, 2022 and reviews begun after this date are required to apply the 2020 regulations as modified by the Phase I revisions unless there is a clear and fundamental conflict with an applicable statute. . This Environmental Assessment began on **May 28, 2022**, and accordingly proceeds under the 2020 regulations as modified by the Phase I revisions.

ABBREVIATIONS USED IN THIS DOCUMENT

ABC	acceptable biological catch
ACL	annual catch limit
ACT	annual catch target
AM	accountability measure
AP	Advisory Panel
APAIS	Access Point Angler Intercept Survey
BiOp	biological opinion
CFR	code of federal regulations
CHTS	coastal household telephone survey
Council	Gulf of Mexico Fishery Management Council
CS	consumer surplus
DLMToolkit	Data Limited Methods Toolkit
DPS	distinct population segment
EEZ	exclusive economic zone
EFH	essential fish habitat
EFP	exempted fishing permit
EIS	environmental impact statement
EJ	environmental justice
E.O.	executive order
ESA	Endangered Species Act
FES	fishing effort survey
FHS	for-hire survey
FMP	Fishery Management Plan
FMSY	maximum sustainable yield
FWC	Florida Fish and Wildlife Conservation Commission
Gulf	Gulf of Mexico
HAPC	habitat area of particular concern
IFQ	individual fishing quota
IPCC	Intergovernmental Panel on Climate Change
LAPP	Limited Access Privilege Program
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MFMT	maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
mp	million pounds
MPA	marine protected area
MRIP	Marine Recreational Information Program
MRFSS	Marine Recreational Fisheries Statistics Survey
MSST	minimum stock size threshold
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OFL	overfishing limit
OST	Office of Science and Technology
PAH	polycyclic aromatic hydrocarbons
Reef Fish FMP	Fishery Management Plan for Reef Fish Resources in the

	Gulf of Mexico
RFA	Regulatory Flexibility Act
RFFA	reasonably foreseeable future actions
RIR	regulatory impact review
Secretary	Secretary of Commerce
SEDAR	Southeast Data and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
SPR	spawning potential ratio
SSB	spawning stock biomass
SSC	Scientific and Statistical Committee
TL	total length
VOC	volatile organic compounds
ww	whole weight

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CHAPTER 1. INTRODUCTION

1.1 Background

Gulf of Mexico (Gulf) gag, a type of grouper, is managed under the Fishery Management Plan (FMP) for Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP). This amendment is intended to end overfishing of the Gulf gag stock, and follows an interim action to reduce overfishing of Gulf gag which was developed by the National Marine Fishery Service (NMFS) with, and as recommended by, the Gulf of Mexico Fishery Management Council (Council). This amendment is being developed because the most recent update to the Southeast Data, Assessment, and Review (SEDAR) 72 (2022) stock assessment alternative model run estimated that gag is overfished and is undergoing overfishing as of 2019. Under the Reef Fish FMP, of which gag is part of the fishery management unit, the gag stock is managed under a stock annual catch limit (ACL), which is further divided between the commercial and recreational sectors. The commercial ACL is currently set at 39% of the stock ACL, and the recreational ACL is set at 61% of the stock ACL. The current sector allocation was set in Amendment 30B to the Reef Fish FMP, and was based on the average landings from 1986 – 2005 (GMFMC 2008). Reef Fish Amendment 30B set an interim sector allocation that would be in effect until such time the Council, through the recommendations of the (now former) Ad Hoc Allocation Committee, could implement a separate amendment to allocate grouper resources between recreational and commercial fisheries. This interim sector allocation was based at the time on all available years during which grouper were identified by species, and used the longest and most robust time series to reduce the influences of short-term shifts in landings resulting from changes in recruitment or regulations. Because the Council ultimately didn't initiate another amendment to the Reef Fish FMP to revisit grouper allocations, this sector allocation for gag remains in effect today.

Commercial Sector

Commercial harvest of gag has been managed under an individual fishing quota (IFQ) program since 2010 (GMFMC 2009). Anyone commercially fishing for gag must possess a federal commercial reef fish permit and gag allocation under the IFQ program. IFQ allocation is determined at the beginning of each calendar year by multiplying a shareholder's IFQ gag share (represented as a fraction of the total commercial quota) times the commercial quota for gag. The commercial quota is set at 86% of the commercial annual catch target (ACT; GMFMC 2011b). The current ACT is approximately 22.84% below the commercial ACL, and the difference between the commercial ACL and ACT allows for multi-use allocation, as described below. The IFQ program acts as the accountability measure (AM) for the commercial gag fishery, and the commercial quota has never been exceeded under the IFQ program.

Gag multi-Use (GGM) Allocation

At the time the commercial quota for gag is distributed to IFQ shareholders, a percentage of each shareholder's initial gag allocation is converted to gag multi-use allocation. This percentage is determined by a formula based on the gag and red grouper ACLs and ACTs in a given year. GGM allocation may be used to possess, land, or sell either gag or red grouper under certain

conditions. GGM allocation can only be used to possess, land, or sell gag after an IFQ account holder's (shareholder or allocation holder) gag allocation has been landed and sold, or transferred; and to possess, land, or sell red grouper, only after both red grouper and red grouper multi-use allocation have been landed and sold, or transferred.

Red grouper multi-use (RGM) allocation

At the time the commercial quota for red grouper is distributed to IFQ shareholders, a percentage of each shareholder's initial red grouper allocation is converted to red grouper multi-use allocation. This percentage is determined by a formula based on the red grouper and gag ACLs in a given year. RGM allocation may be used to possess, land, or sell either red grouper or gag under certain conditions. RGM allocation can only be used to possess, land, or sell red grouper after an IFQ account holder's (shareholder or allocation holder) red grouper allocation has been landed and sold, or transferred; and to possess, land, or sell gag, only after both gag and gag multi-use allocation have been landed and sold, or transferred. However, if gag is under a rebuilding plan, the percentage of RGM allocation is equal to zero.

Recreational Sector

Both an in-season and a post-season AM apply to harvest of gag by the recreational sector. The in-season AM requires NMFS to close the recreational sector when gag landings reach or are projected to reach the recreational ACL. If landings exceed the gag ACL in a fishing year, the post-season AM requires NMFS to shorten the duration of the following fishing year by the amount necessary to ensure landings do not exceed the ACT, unless NMFS determines that managing to the ACT in the following year is unnecessary. If gag is overfished and landings exceed the sector ACL, the ACL and ACT must be reduced in the following year by the amount of the previous year's overage.

Gag Recreational Data

Federal Data Collection Programs

NMFS created the Marine Recreational Fisheries Statistics Survey (MRFSS) in 1979. In the Gulf, MRFSS collected recreational catch and effort data, including for gag, since 1981. MRFSS included both offsite telephone surveys and onsite interviews at marinas and other points where recreational anglers fish. In 2008, the Marine Recreational Information Program (MRIP) replaced MRFSS to meet increasing demand for more precise, accurate, and timely recreational catch estimates. Until 2013, recreational catch, effort, and participation were estimated through a suite of independent but complementary surveys: telephone surveys of households and for-hire vessel operators that collected information about recreational fishing activity; and an angler intercept survey that collected information about the fish that were caught.

The MRIP Access Point Angler Intercept Survey (APAIS) began incorporating a new survey design in 2013. This new design addressed concerns regarding the validity of the survey approach, specifically that trips recorded during a given time period are representative of trips for a full day, by extending the time period dockside samplers stayed at an assigned location

(Foster et al. 2018). The more complete temporal coverage with the new survey design provides for consistent increases or decreases in APAIS angler catch rate statistics, which are used in stock assessments and management, for at least some species (NOAA Fisheries 2019).

MRIP also transitioned from the legacy Coastal Household Telephone Survey (CHTS) to a new mail survey (Fishing Effort Survey [FES]) beginning in 2015, and in 2018, MRIP-FES replaced MRIP-CHTS. Both survey methods collect data needed to estimate marine recreational fishing effort (number of fishing trips) by shore and private/rental boat anglers on the Atlantic and Gulf coasts. MRIP-CHTS used random-digit dialing of homes in coastal counties to contact anglers. The new mail-based FES uses angler license and registration information as one way to identify and contact anglers (supplemented with data from the U.S. Postal Service, which includes virtually all U.S. households). Because FES and CHTS are so different, NMFS conducted side-by-side testing of the two methods and found that in general, total recreational fishing effort estimates generated from the FES are higher — and in some cases substantially higher — than the CHTS estimates (NOAA Fisheries 2019). This is because the FES is designed to more accurately measure fishing activity than the CHTS, albeit while recognizing a greater degree of uncertainty in those landings estimates. This increase in estimated effort is not because there was a sudden rise in fishing effort, but rather because FES better targets actual fishery participants through the directed mail survey. Likewise, the increase in uncertainty about the effort estimates reflects uncertainty that was likely also present in CHTS, but went unaccounted due to biases that were identified as FES was developed. NMFS developed a calibration model to allow historic effort estimates using MRIP-CHTS to be compared to new estimates from MRIP-FES.

State of Florida’s Supplemental Effort Survey

In 2017, the State of Florida created the Gulf Reef Fish Survey to monitor private angling and state charter vessel landings of red snapper, gag, and several other species harvested in state and federal waters in the Gulf. In 2020, that survey was expanded statewide and renamed the State Reef Fish Survey (SRFS), and additional species were added¹. SRFS was created to be compatible with MRIP-CHTS; however, calibrated historical landings for SRFS do estimate somewhat larger participation by the recreational sector than that estimated by MRIP-CHTS, but much lower than that estimated by MRIP-FES. SRFS reports landings and discards monthly in numbers, with a conversion to weight based on that used by MRIP. SRFS uses a combination of dockside intercepts from APAIS to estimate catch and discards and a directed mail survey to estimate fishing effort, the combination of which is used to create estimates of landings and discards.

Recent Gag Stock Assessments

The Gulf gag stock was most recently assessed in SEDAR 72 (2021). Prior to SEDAR 72, gag was assessed in 2016 (SEDAR 33 Update) using female-only spawning stock biomass (SSB) and using a proxy for fishing mortality (F) at maximum sustainable yield (MSY) of F_{MAX} , and was

¹ <https://myfwc.com/research/saltwater/fishstats/srfs/program/>

found to be sustainably managed at the time. Several data inputs used in the SEDAR 33 Update were modified in SEDAR 72. Most notably was the change in the recreational catch and effort data to MRIP-FES from MRIP-CHTS. Additionally, since gag is vulnerable to episodic red tide mortality, SEDAR 72 accounted for observations of these disturbances in 2005, 2014, 2018, and 2021 (projections only) directly within the model. Lastly, changes were made to improve retention and recreational fleet selectivities (i.e., estimates of length compositions of gag retained by the private angling, for-hire, and commercial directed fleets), and to better quantify commercial discards by differentiating between black grouper and gag. Updated information on the maturity schedule, sex transition timing, and these influences on the observed sex ratio were informed by recent research. The base model for SEDAR 72 found gag to be overfished and undergoing overfishing for both females-only and sexes-combined estimates of SSB. The Council's Scientific and Statistical Committee (SSC) reviewed the results in November 2021 and concluded that the SEDAR 72 stock assessment base model, using the sexes-combined SSB estimate, an F_{MSY} proxy of $F_{30\%SPR}$, and a moderate estimate of red tide mortality in 2021 compared to 2005, was consistent with the best scientific information available and suitable for informing fisheries management. The Council's SSC agreed with revising the F_{MSY} proxy from F_{MAX} to the more conservative $F_{30\%SPR}$, in light of the stock's vulnerability to episodic red tide mortality, and low recruitment despite the increased overall productivity estimated by way of the use of the MRIP-FES landings estimates.

Alternative Base Model Run for SEDAR 72

At its January 2022 meeting, the Gulf Council requested that the SEFSC update the SEDAR 72 base model by replacing MRIP-FES calibrated landings for the private angling and state charter vessels (i.e., those charter for-hire vessels and headboats operating in state waters, and without a federal for-hire permit for reef fish species) with landings estimated by SRFS. This alternative model run ("SRFS Run") was presented to the SSC for consideration at its July 2022 meeting. Because the majority of gag are landing in Florida (greater than 98% annually for 2011 – 2020), the SRFS sampling frame includes over 95% of all gag landed by private anglers and state charter vessels, making it an appropriate survey for estimating private angling and state charter vessel landings of gag. The calibration of SRFS to historical gag landings was reviewed and approved by peer-review through the NOAA Office of Science and Technology in May 2022². SRFS was created to be comparable to MRIP-CHTS. SRFS estimates a historically larger harvest by private anglers and state charter vessels than MRIP-CHTS, but does so to a much lesser magnitude than MRIP-FES. Unlike MRIP, which reports landings from two-month effort waves 45 days after the end of each wave, SRFS reports Florida's private vessel landings 45 days after the end of each month. However, because MRIP-FES is used to estimate state for-hire, federal for-hire, and shore mode recreational landings, the combined recreational landings data for gag for all fleets would not be available until 45 days after the end of the 2-month MRIP-FES wave. The SSC-evaluated SEDAR 72 SRFS run was found to be consistent with the best scientific information available at the SSC's July 2022 meeting. The SSC determined that the majority (>95%) of private angling and state charter vessel landings of gag were captured by the SRFS sampling frame; combined with the certification of the SRFS-calibrated historical

² <https://gulfcouncil.org/wp-content/uploads/05h.-SRFS-gag-calibration-review-05-28-2022.pdf>

landings data, SRFS was found to be a suitable and comprehensive survey for gag for the private angling component of the recreational sector. In addition, considerate of the decrease in stock size and relative productivity compared to that estimated in the SEDAR 72 run using landings calibrated to MRIP-FES, and with further consideration of gag's susceptibility to episodic mortality from red tide, the SSC determined that an MSY proxy of $F_{40\%SPR}$ was more appropriate than the proxy of $F_{30\%SPR}$ or F_{Max} . The SSC determined that while $F_{30\%SPR}$ was acceptable for the SEDAR 72 base model using MRIP-FES, $F_{40\%SPR}$ was more appropriate when using SRFS. These more conservative F_{MSY} proxies compared to the status quo of F_{Max} account for consideration of males and females in the gag spawning biomass calculation, the susceptibility of gag to red tide episodic mortality, and differences in estimates of stock productivity when using either MRIP-FES or SRFS. Inclusion of MRIP-FES data for the recreational private vessel fleet results in a larger estimate of historical recreational landings, and thus a larger estimate of historical biomass estimated to have present to have allowed those landings to occur. Inclusion of SRFS for the recreational private vessel fleet results in a substantially lower estimate of historical recreational landings due to a lower comparable estimate of fishing effort; this decreases the estimate of the historical biomass in the model necessary to achieve the levels of harvest estimated by SRFS. This lower historical biomass estimate correlates to a lower degree of stock productivity compared to the same estimate using MRIP-FES. Thus, to ensure a gag stock that is large enough to be robust to both consistent fishing pressure and the potential for episodic mortality from red tide, the SSC recommended revising the F_{MSY} proxy from $F_{30\%SPR}$ under the MRIP-FES model run to $F_{40\%SPR}$ under the SRFS model run. In recommending this more conservative MSY proxy, the SSC recognized that episodic red tide mortality was to be expected in the future. Overall, there was no difference in the stock status determination using either the recreational MRIP-FES time series versus the recreational SRFS time series. The SSC rationalized that the higher SPR target for the MSY proxy would allow the stock to rebuild to a more robust level of SSB, making it more resilient to environmental influences like red tide, and to changes in fishing mortality. Using an MSY proxy of $F_{40\%SPR}$, the SSC determined that gag is overfished and undergoing overfishing as of 2019.

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires that the Council prepare and implement a rebuilding plan within two years of notification that the stock is overfished. The Council was notified of the overfished status of the gag stock on January 26, 2022, following the SSC's review of the first iteration of the SEDAR 72 model using MRIP-FES. The Council intends to develop Amendment 56 with the goal of having the management measures contained herein implemented by NMFS in January 2024. However, recreational harvest for the 2023 fishing year is scheduled to begin on June 1³. If no changes are made to the current recreational catch limits and closed seasons (which are currently in MRIP-CHTS units⁴), NMFS expects recreational landings to significantly exceed the SEDAR

³ Historically, four Florida counties (Franklin, Wakulla, Jefferson, and Taylor) have had different season dates and are open April 1-June 30 and September 1-December 31 in state waters. The Florida Fish and Wildlife Conservation Commission is considering eliminating these special early seasons for 2023 and subsequent years.

⁴ Although MRIP-CHTS, MRIP-FES, and Florida SRFS generate estimates measured in pounds of fish, these estimates are not directly comparable, as described above. The references to "MRIP-CHTS units," "MRIP-FES units," and "SRFS units" signify that the estimates use different scales.

72-projected 2023 recreational ACT and ACL (which are in MRIP-FES units), which projections from SEDAR 72 suggest are higher than what the stock can sustain at this time. As explained above, current regulations require that in the year after an overage of the gag recreational ACL, the recreational stock is managed to the previous year's ACT, and if the stock is overfished, a payback of any overage is required. Using the knowledge that the 2023 catch limits need to be substantially reduced to reduce overfishing based on the SEDAR 72 projections (using MRIP-FES or SRFS), the Council recognized that maintaining the 2023 catch limits (in MRIP-CHTS) would result in negative biological effects and may lengthen the amount of time necessary to rebuild the stock. Therefore, at its June 2022 meeting, the Council voted to request that NMFS implement interim measures to reduce overfishing and change the fishing season for Gulf gag while long-term management measures and regulations to end overfishing are developed. Accordingly, the Council sent a letter to NMFS, dated July 15, 2022 (Appendix A), *requesting a reduction of the Gulf gag stock ACL to 661,901 lb gw, while maintaining the current allocation split of 61% recreational and 39% commercial, and maintaining RGM and GGM. In addition, the Council requested that the recreational fishing season begin on September 1 (rather than the traditional date of June 1), and that the season close on November 10.* This action would modify the stock, commercial, and recreational ACLs, as well as the commercial quota and the recreational ACT. It would also implement a September 1 through November 10 open season for recreational gag fishing. These measures are expected to reduce overfishing, while still providing for gag harvest in 2023 while the Council continues to develop Amendment 56. Because the SSC's review of the SRFS Run of SEDAR 72 predates the initiation of the request for interim measures for gag, that interim rule will use MRIP-FES calibrated landings and projections to reduce overfishing, while Amendment 56 will use SRFS calibrated landings and projections to end overfishing and rebuild the stock.

1.2 Purpose and Need

The purpose of this action is to implement a plan to end overfishing and rebuild the Gulf gag stock by modifying catch limits, the sector allocation, the MSY proxy, and the recreational fishing season.

The need for this action is to use the best scientific information available to end overfishing of Gulf gag and rebuild the stock to a level commensurate with maximum sustainable yield, consistent with the authority under the Magnuson-Stevens Fishery Conservation and Management Act.

1.3 History of Management

Amendment 1, including EA, RIR, and RFA, implemented in 1990, set objectives to stabilize long-term population levels of all reef fish species by establishing a survival rate of biomass into the stock of spawning age fish to achieve at least 20% spawning stock biomass per recruit by January 1, 2000. It also set a 20-inch TL minimum size limit on gag; set a five-grouper recreational daily bag limit; set an 11.0 mp commercial quota for grouper, with the commercial quota divided into a 9.2 mp shallow-water grouper (black grouper, gag, red grouper, Nassau grouper, yellowfin grouper, yellowmouth grouper, rock hind, red hind, speckled hind, and scamp) quota and a 1.8 mp deep-water grouper (misty grouper, snowy grouper, yellowedge

grouper, and warsaw grouper, and scamp once the shallow-water grouper quota was filled) quota; allowed a two-day possession limit for charter vessels and headboats on trips that extend beyond 24 hours; established a longline and buoy gear boundary at the 50-fathom depth contour west of Cape San Blas, Florida, and the 20-fathom depth contour east of Cape San Blas, inshore of which the directed harvest of reef fish with longlines and buoy gear was prohibited, and the retention of reef fish captured incidentally in other longline operations (e.g., sharks) was limited to the recreational daily bag limit; limited trawl vessels to the recreational size and daily bag limits of reef fish; established fish trap permits (up to 100 fish traps per permit holder); and established a commercial reef fish vessel permit.

Amendment 5, including EA, RIR, and RFA implemented in February 1994, established restrictions on the use of fish traps in the Gulf exclusive economic zone; implemented a three-year moratorium on the use of fish traps by creating a fish trap endorsement for fishermen with historical landings; created a special management zone (SMZ) with gear restrictions off the Alabama coast; created a framework procedure for establishing future SMZ's; required that all finfish except for oceanic migratory species be landed with head and fins attached; and closed the region of Riley's Hump (near Dry Tortugas, Florida) to all fishing during May and June to protect mutton snapper spawning aggregations.

A Regulatory Amendment, including EA, RIR, and RFA implemented in June 2000, increased the commercial size limit for gag and black grouper from 20 to 24 inch TL; increased the recreational size limit for gag from 20 to 22 inch TL; prohibited commercial sale of gag, black, and red grouper each year from February 15 to March 15 (during the peak of gag spawning season); and established two marine reserves (Steamboat Lumps and Madison-Swanson) that are closed year-round to fishing for all species under the Gulf Council's jurisdiction.

Amendment 29 including EA, RIR, and RFA, implemented January 2010, established an individual fishing quota (IFQ) system for the commercial harvest of grouper and tilefish, including gag.

Amendment 30B including a final SEIS, RIR and IRFA, implemented May 2009, established ACLs and AMs for gag and red grouper; managed shallow-water grouper to achieve optimum yield (OY) and improve the effectiveness of federal management measures; defined the gag minimum stock size threshold (MSST) and OY; set interim allocations of gag and red grouper between recreational and commercial sectors at 61% recreational and 39% commercial based on average landings from 1986 – 2005; made adjustments to the gag and red grouper ACLs to reflect the current status of these stocks; established ACLs and AMs for the commercial and recreational gag harvest, and commercial aggregate shallow-water grouper harvest; adjusted recreational grouper bag limits and seasons; adjusted commercial grouper quotas; replaced the one-month February 15 through March 15 commercial grouper closed season with a four-month seasonal area closure at the Edges, a 390 square nautical mile area in the dominant gag spawning grounds; eliminated the end date for the Madison-Swanson and Steamboat Lumps marine reserves; and required that vessels with federal commercial or charter reef fish permits comply with the more restrictive of state or federal reef fish regulations when fishing in state waters.

Amendment 31 including a final SEIS, RIR and IRFA, implemented May 2010, prohibited the use of bottom longline gear shoreward of a line approximating the 35-fathom contour from June through August; established a longline endorsement; and restricted the total number of hooks onboard each reef fish bottom longline vessel to 1,000, only 750 of which may be rigged for fishing.

An Interim Rule, published December 1, 2010. While management measures for the gag rebuilding plan were being developed through Amendment 32, the Interim Rule reduced gag landings consistent with ending overfishing; implemented conservative management measures while a rerun of the update stock assessment was being completed; reduced the commercial quota to 100,000 lbs gutted weight (gw); suspended the use of red grouper multi-use individual fishing quota (IFQ) allocation so it would not be used to harvest gag, and; temporarily halted the recreational harvest of gag until recreational fishing management measures being developed in Amendment 32 could be implemented to allow harvest at the appropriate levels.

An Interim Rule, effective from June 1, 2011 through November 27, 2011, and was extended for another 186 days or until Amendment 32 was implemented. The gag 2009 update stock assessment was rerun in December 2010 addressing the problems with discards identified earlier in 2010. This assessment was reviewed in January 2011 by the Gulf Council's SSC and presented to the Gulf Council at its February 2011 meeting. The assessment indicated that the gag commercial quota implemented in the December 1, 2010 interim rule could be increased and that a longer recreational season could be implemented. In response, the Gulf Council requested an interim rule while they continued to work on long-term measures including a gag rebuilding plan in Amendment 32. The interim rule set the commercial gag quota at 430,000 lbs gutted weight (gw) (including the 100,000 lbs previously allowed) for the 2011 fishing year, and temporarily suspended the use of red grouper multi-use IFQ allocation so it could not be used to harvest gag. It also set a two-month recreational gag fishing season from September 16 through November 15.

Amendment 32, including a final FEIS, RIR and IRFA implemented in March 2012, set the commercial and recreational gag ACLs and ACTs for 2012 through 2015 and beyond; implemented gag commercial quotas for 2012 through 2015 and beyond that included a 14% reduction from the ACL to account for additional dead discards of gag resulting from the reduced harvest; modified grouper IFQ multi-use allocations; reduced the commercial minimum size limit of gag from 24 to 22 inches TL to reduce discards; set the gag recreational season from July 1 through October 31 (the bag limit remained two gag in the four-grouper aggregate bag limit); simplified the commercial shallow-water grouper AMs by using the IFQ program to reduce redundancy; and added an overage adjustment and in-season closure to the gag and red grouper recreational AMs to avoid exceeding the ACL.

Amendment 38, including EA, RIR, and RFA implemented in March 2013, revised the postseason recreational AM that reduces the length of the recreational season for all shallow-water grouper in the year following a year in which the ACL for gag or red grouper is exceeded. The modified AM reduces the recreational season of only the species for which the ACL was exceeded.

A 2016 Framework Action revised the gag recreational closed season to January 1 to May 31, annually. This revised closed season is expected to reduce dead discards of gag during the Gulf recreational red snapper season that begins on June 1, annually, and to extend the gag recreational fishing season. The framework action also increased the recreational minimum size limit in Gulf federal waters to 24 inches TL to be consistent with the federal waters of the South Atlantic and state waters off Monroe County, Florida. This final rule was effective May 25, 2016.

Reef Fish Amendment 44 standardized the minimum stock size threshold for certain reef fish species, including gag. The minimum stock size threshold is used to determine whether or not a stock is considered to be overfished; if the biomass of the stock falls below the threshold then the stock is considered to be overfished. The minimum stock size threshold for gag and other reef fish species was set equal to 50% of the biomass at maximum sustainable yield. This final rule was effective December 21, 2017.

A 2018 Framework Action increased the commercial minimum size limit for gag to 24 inches TL. This final rule was effective July 23, 2018.

The Council requested interim measures to reduce overfishing for the 2023 fishing year. This request would decrease the stock ABC for Gulf gag to 661,000 lb gw. The sector allocation was retained at 61% recreational and 39% commercial. The recreational fishing season was modified to open on September 1 and close on November 10. The purpose of this interim rule is to reduce overfishing ahead of the development of Amendment 56 to the Reef Fish FMP. This interim rule is expected to be effective in the spring of 2023, ahead of the 2023 recreational fishing season. On January 1, adequate commercial gag allocation was withheld from IFQ shareholders by SERO in anticipation of the implementation of this interim rule.

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1: Modification of Gulf of Mexico (Gulf) Gag Catch Limits Sector Allocation, and Rebuilding Timeline

Alternative 1: No Action. Retain the current catch limits and sector allocation for gag. The current overfishing limit (OFL), acceptable biological catch (ABC), annual catch limits (ACL), and annual catch targets (ACT) are based on a proxy for maximum sustainable yield (MSY) of the maximum fishing mortality (F_{MAX}) and were derived, in part, using the Marine Recreational Information Program’s Coastal Household Telephone Survey (MRIP-CHTS) data. These catch limits in pounds (lb) gutted weight (gw) are as follows, with the recreational ACL and ACT in MRIP-CHTS units:

OFL	4,180,000
ABC	3,120,000
Stock ACL	3,120,000
Commercial ACL (39% of Stock ACL)	1,217,000
Commercial ACT	939,000
Recreational ACL (61% of Stock ACL)	1,903,000
Recreational ACT	1,708,000

The Council requested interim measures to reduce overfishing for the 2023 fishing year. If implemented, these interim measures would be effective for up to 366 days and reduce the catch limits in lb gw as follows:

OFL	4,180,000
ABC	3,120,000
Stock ACL	661,901
Commercial ACL (39% of Stock ACL)	258,142
Commercial ACT	199,157
Recreational ACL (61% of Stock ACL)	403,759
Recreational ACT	362,374 (Based on 89.75% ACL)

Alternative 2: Revise the catch limits for gag and establish a rebuilding time for the gag stock. The OFL, ABC, ACLs, and ACTs are based on an MSY proxy of the fishing mortality at a 40% spawning potential ratio ($F_{40\%SPR}$), and are were derived, in part, using the State of Florida’s State Reef Fish Survey (SRFS) data. The ABC equals the combined total ACLs from both sectors. Retain the current sector allocation percentages of 61% recreational, 39% commercial, which were derived in part using MRIP-CHTS recreational data. The catch limits in lb gw are rounded to the nearest thousand pounds, with the recreational ACL and ACT informed by SRFS for recreational private vessels, by MRIP’s Fishing Effort Survey (FES) data for the for-hire and shore modes, and are as follows for each rebuilding timeline option:

Option 2a: The minimum time to rebuild (T_{Min}) in the absence of direct fishing pressure ($F = 0$), equal to 11 years. This option does not include dead discards.

$F = F_{40\%SPR}$	OFL	ABC	Rec ACL	Rec ACT	Com ACL	Com ACT
Year	mp gw	mp gw	mp gw	mp gw	mp gw	mp gw
2024	0.603	0	0	0	0	0
2025	0.821	0	0	0	0	0
2026	1.009	0	0	0	0	0
2027	1.222	0	0	0	0	0
2028	1.48	0	0	0	0	0

Option 2b: 75% of $F_{40\%SPR}$, which would rebuild the stock in 18 years

$F = F_{40\%SPR}$	OFL	ABC	Rec ACL	Rec ACT	Com ACL	Com ACT
Year	mp gw	mp gw	mp gw	mp gw	mp gw	mp gw
2024	0.603	0.453	0.294	0.265	0.159	0.133
2025	0.821	0.627	0.408	0.367	0.219	0.184
2026	1.009	0.783	0.509	0.458	0.274	0.230
2027	1.222	0.961	0.625	0.562	0.336	0.283
2028	1.48	1.177	0.765	0.689	0.412	0.346

Option 2c: T_{Min} plus one generation time (8 years for gag), which would rebuild the stock in 19 years

$F = F_{40\%SPR}$	OFL	ABC	Rec ACL	Rec ACT	Com ACL	Com ACT
Year	mp gw	mp gw	mp gw	mp gw	mp gw	mp gw
2024	0.603	0.497	0.323	0.291	0.174	0.146
2025	0.821	0.685	0.445	0.401	0.240	0.201
2026	1.009	0.851	0.553	0.498	0.298	0.250
2027	1.222	1.04	0.676	0.608	0.364	0.306
2028	1.48	1.27	0.826	0.743	0.445	0.373

Option 2d: $T_{Min} * 2$, which would rebuild the stock in 22 years

$F = F_{40\%SPR}$	OFL	ABC	Rec ACL	Rec ACT	Com ACL	Com ACT
Year	mp gw	mp gw	mp gw	mp gw	mp gw	mp gw
2024	0.603	0.547	0.356	0.320	0.191	0.161
2025	0.821	0.749	0.487	0.438	0.262	0.220
2026	1.009	0.926	0.602	0.542	0.324	0.272
2027	1.222	1.127	0.733	0.659	0.394	0.331
2028	1.48	1.371	0.891	0.802	0.480	0.403

Alternative 3: Revise the catch limits for gag and establish a rebuilding time for the gag stock. The OFL, ABC, ACLs, and ACTs are based on the MSY proxy of $F_{40\%SPR}$, and were derived, in

part, using the State of Florida’s State Reef Fish Survey (SRFS) data. The combined ACLs from both sectors equal the ABC. Revise the sector allocation to 65% recreational, 35% commercial, using the SRFS recreational data in place of MRIP-FES for the recreational private vessel fleet only. The catch limits in lb gw are rounded to the nearest thousand pounds, with the recreational ACL and ACT in SRFS units for the recreational private vessel fleet, in MRIP-FES units for the recreational for-hire and shore modes, and are as follows for each rebuilding timeline option:

Option 3a: The minimum time to rebuild (T_{Min}) in the absence of direct fishing pressure ($F = 0$), equal to 11 years. This option does not include dead discards.

F = F_{40%SPR}	OFL	ABC	Rec ACL	Rec ACT	Com ACL	Com ACT
Year	mp gw	mp gw	mp gw	mp gw	mp gw	mp gw
2024	0.591	0	0	0	0	0
2025	0.805	0	0	0	0	0
2026	0.991	0	0	0	0	0
2027	1.200	0	0	0	0	0
2028	1.454	0	0	0	0	0

Option 3b: 75% of $F_{40\%SPR}$, which would rebuild the stock in 18 years

F = F_{40%SPR}	OFL	ABC	Rec ACL	Rec ACT	Com ACL	Com ACT
Year	mp gw	mp gw	mp gw	mp gw	mp gw	mp gw
2024	0.591	0.444	0.288	0.260	0.155	0.130
2025	0.805	0.615	0.400	0.360	0.215	0.181
2026	0.991	0.769	0.500	0.450	0.269	0.226
2027	1.200	0.943	0.613	0.552	0.330	0.277
2028	1.454	1.156	0.751	0.676	0.405	0.340

Option 3c: T_{Min} plus one generation time (8 years for gag), which would rebuild the stock in 19 years

F = F_{40%SPR}	OFL	ABC	Rec ACL	Rec ACT	Com ACL	Com ACT
Year	mp gw	mp gw	mp gw	mp gw	mp gw	mp gw
2024	0.591	0.489	0.318	0.286	0.171	0.144
2025	0.805	0.674	0.438	0.394	0.236	0.198
2026	0.991	0.838	0.545	0.490	0.293	0.246
2027	1.200	1.024	0.666	0.599	0.359	0.301
2028	1.454	1.251	0.813	0.732	0.438	0.368

Option 3d: $T_{Min} * 2$, which would rebuild the stock in 22 years

F = F_{40%SPR}	OFL	ABC	Rec ACL	Rec ACT	Com ACL	Com ACT
Year	mp gw	mp gw	mp gw	mp gw	mp gw	mp gw
2024	0.591	0.537	0.349	0.314	0.188	0.158

2025	0.805	0.736	0.479	0.431	0.258	0.217
2026	0.991	0.911	0.592	0.533	0.319	0.268
2027	1.200	1.109	0.721	0.649	0.388	0.326
2028	1.454	1.349	0.877	0.789	0.472	0.397

Discussion:

This action would modify Gulf gag catch limits to end overfishing of gag. **Alternative 1** would retain the current catch limits, which are based in part on MRIP-CHTS data and is no longer considered consistent with the best scientific information available. These catch limits have remained in place since 2015, due in large part to the uncertainty in the SEDAR 33 Update (2016) stock assessment expressed by the Council’s Scientific and Statistical Committee (SSC) when reviewing that assessment. SEDAR 33 Update detailed a low proportion of males in the spawning stock biomass (SSB), which the SSC thought may have a negative effect on the stock’s reproductive ability. The SSC’s uncertainty about the potential effects of a low proportion of males in the SSB on the stock’s reproductive capacity was acknowledged by the Council, which decided not to increase the catch limits for gag following SEDAR 33 Update. Further, and combined with current fishing mortality, it is expected that **Alternative 1** would result in removals in excess of those projected to be sustainable by the most recent update to the SEDAR 72 (2022) stock assessment. **Alternative 1** is thus not considered viable because it would not end overfishing, and would allow harvest in excess of that projected to allow the stock to rebuild under any of the rebuilding timelines allowed under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). As such, **Alternative 1** will not be discussed further in this section.

Interim Rule – Catch Limits

The National Marine Fisheries Service (NMFS) and the Gulf of Mexico Fishery Management Council (Council) are currently developing an interim rule to reduce overfishing of gag for the 2023 fishing year, while this amendment is being developed. There are two actions in this proposed interim rule, the first of which would reduce the ABC set equal to the ACL for gag to 661,000 lbs gw, based on the projections from the first version of SEDAR 72 (2021) which used MRIP-FES for recreational landings and discards for private anglers and state charter vessels. The updated version of SEDAR 72 (2022) using SRFS was not yet available when work on this proposed interim rule began. The interim rule does not modify the sector allocation from that specified in Reef Fish Amendment 30B (GMFMC 2008), but it does use a modified MSY proxy of $F_{30\%SPR}$. This modification was supported at the time by the Council’s SSC based on the susceptibility of gag to episodic mortality from red tide, consistent fishing pressure, and low recruitment since the late 2000s. This proposed interim rule has not yet been implemented; according to the Magnuson-Stevens Act, an interim rule may be implemented for 180 days, and may be reauthorized for an additional 186 days, for a maximum effective time period of 366 days. Once implemented in early 2023, the management measures specified in **Alternative 1** of this action are expected to be modified to reflect the preferred alternative specified in the proposed interim rule.

Multi-Use Individual Fishing Quota (IFQ) Shares

Under both **Alternative 2** and **Alternative 3**, gag will be under a rebuilding plan. Amendment 32 to the Reef Fish FMP (GMFMC 2011b) establishes provisions for multi-use IFQ shares for gag and red grouper. At the time the commercial quota for gag or red grouper is distributed to IFQ shareholders, a percentage of each shareholder's initial gag and/or red grouper allocation will be converted to multi-use allocation. This multi-use allocation, determined annually, will be based on the following formula:

Red Grouper:

$$\text{Red Grouper multi-use allocation (in \%)} = 100 * [\text{Gag ACL} - \text{Gag commercial quota}] / \text{Red grouper commercial quota}$$

Gag:

$$\text{Gag multi-use allocation (in \%)} = 100 * [\text{Red grouper ACL} - \text{Red grouper commercial quota}] / \text{Gag commercial quota}$$

However, if gag is under a rebuilding plan, the percentage of red grouper multi-use allocation is equal to zero. Red grouper multi-use allocation may be used to possess, land, or sell red grouper only after an IFQ account holder's (shareholder or allocation holder's) red grouper allocation has been landed and sold, or transferred; and to possess, land, or sell gag, only after both gag and gag multi-use allocation have been landed and sold, or transferred. Thus, so long as gag is in a rebuilding plan, zero percent of a shareholder's initial red grouper allocation will be converted to multi-use allocation. However, the amount of gag multi-use allocation will differ under both **Alternative 2** and **Alternative 3**, since red grouper is not in a rebuilding plan and because the gag commercial quota would differ annually from 2024 – 2028.

Alternative 2 and **Alternative 3** would modify the catch limits for gag based on the results of the 2022 update to SEDAR 72. During its review of this operational assessment, the SSC discussed the MSY proxy for gag. This revised MSY proxy is applied to the catch limits described in **Alternative 2** and **Alternative 3**. Under Reef Fish Amendment 48 (GMFMC 2021), the Council may change the MSY proxy for a species in an amendment by specifying the new proxy if it is the only reasonable proxy based on the best scientific information available. Thus, through this amendment, the Council is modifying the MSY proxy for gag to $F_{40\%SPR}$ based on the SSC determination that this MSY proxy is the only reasonable proxy supported by the best scientific information available.

Alternative 2 and **Alternative 3** both modify the catch limits for gag by using SRFS data for the recreational landings and discards for private anglers and state charter vessels for both the setting and monitoring of catch limits, based on an SSC-recommended MSY proxy of $F_{40\%SPR}$. During its August 2022 meeting, Council staff used the SRFS-calibrated historical landings from six different historical reference periods of landings to examine the effects on the sector allocation. These options were shown to differ by less than 1% up to less than 4%; thus, the Council determined that the options presented in **Alternative 2** and **Alternative 3** (based on the 1986 – 2019 SRFS landings estimates) were sufficient for further consideration. The catch limits

specified for each of these alternatives, however, are reliant on two other key decisions embedded in each alternative.

The first key decision point is with respect to the sector allocation between the commercial and recreational fishing sectors. **Alternative 2** uses a sector allocation of 61% recreational, 39% commercial, using the average landings from 1986 – 2005, as specified in Reef Fish Amendment 30B (GMFMC 2008). This sector allocation uses historical landings data calibrated to MRIP-CHTS, which the SSC no longer supports as being consistent with the best scientific information available. This sector allocation ratio results in a *de facto* reallocation to the commercial sector of approximately 4%. This is because the historical landings from the same 1986 – 2005 time period, calibrated to SRFS, indicate slightly higher historical recreational fishing effort when compared to MRIP-CHTS, upon which the status quo sector allocation was determined. This difference is evident in the sector allocation ratio in **Alternative 3**, which results in a sector allocation of 65% recreational, 35% commercial. Selecting **Alternative 2** as preferred would thus reallocate to the commercial sector; whereas, selecting **Alternative 3** as preferred would adjust the sector allocation to reflect the historical landings from the reference period (1986 – 2005) calibrated to SRFS units. **Alternative 2** would be expected to result in comparatively greater yields for the commercial sector due to this *de facto* reallocation in the change from MRIP to SRFS, and lower yields for the recreational sector compared to the status quo in **Alternative 1**. Conversely, **Alternative 3** would be expected to result in comparatively similar proportional yields for both sectors compared to the status quo in **Alternative 1**.

The second key decision is with respect to the rebuilding time. The Magnuson-Stevens Act requires that the rebuilding time period be as short as possible, taking into several factors, including the status and biology of the overfished stock of fish and the needs of fishing communities.⁵ The rebuilding time options in **Alternative 2** and **Alternative 3** include T_{Min} , which is 11 years, and three time periods based on the alternative methods to determine T_{Max} specified in the National Standard 1 Guidelines (50 CFR 600.310(j)(3)(i)(B)(2)), for stocks for which T_{Min} is greater than 10 years. Generally, the longer the rebuilding timeline, the greater the catch limits in the earlier part of the projections; however, all of the rebuilding timelines rebuild the stock to a similar measure of total SSB. **Option a** for both alternatives would set the rebuilding timeline based on T_{Min} , or 11 years, which is contingent on the fishing mortality being set at zero. This would equate to an ABC of 0 lbs gw for 2024 – 2028 and subsequent years, until the stock is rebuilt. **Option b** would set the rebuilding timeline based on the amount of time the stock or stock complex is expected to take to rebuild if fished at 75% of the maximum fishing mortality threshold, or $F_{40\%SPR}$ (the proxy for F_{MSY}) for gag. This equates to an 18-year rebuilding period. **Option c** would set the rebuilding timeline based on T_{Min} plus the length of time associated with one generation time for that stock or stock complex. “Generation time” is the average length of time between when an individual is born and the birth of its offspring, or 8 years for gag; this equates to a 19-year rebuilding period. **Option d** would set the rebuilding timeline based on twice the minimum time to rebuild or $T_{Min} * 2$, which equates to a 22-year rebuilding period.

⁵ 16 U.S.C. § 1854(e)(4).

As more of the total harvest is allocated to the recreational sector, an increase in regulatory discards for that sector is accounted for to consider the proportion of those discards that are expected to die post-release. This increase in regulatory discards, stemming from regulations like minimum size and retention limits, results in a decrease in allowable harvest compared to the status quo. Overall, the rebuilding timeline options in **Alternative 2** result in higher catch limits than those in **Alternative 3**, because of the lower total sector allocation to the recreational sector in Alternative 2. Excluding **Option a** (T_{Min} at $F = 0$; $ABC = 0$ lbs gw) for both **Alternative 2** and **Alternative 3**, the largest catch limits come from **Option 2d** of **Alternative 2**, and the smallest catch limits come from **Option 3b** of **Alternative 3**.

2.2 Action 2: Modification of Gulf Gag Recreational Fishing Season Start Date

Alternative 1: No Action. Retain the current June 1 recreational fishing season opening for gag. NMFS would close harvest when the recreational ACL is projected to be met.

Alternative 2: The federal recreational fishing season for Gulf gag would open on 12:01 am local time on September 1. NMFS would close harvest when the recreational ACL is projected to be met.

Alternative 3: The federal recreational fishing season for Gulf gag would open on 12:01 am local time on October 1. NMFS would close harvest when the recreational ACL is projected to be met.

Alternative 4: The federal recreational fishing season for Gulf gag would open on 12:01 am local time on November 1. NMFS would close harvest when the recreational ACL is projected to be met.

Discussion:

This action would modify the start date for the Gulf federal gag recreational fishing season. The intent of this action is to balance the number of days the season would be open with the necessity to reduce the overall mortality of gag, with special attention paid to reducing fishing mortality on male gag, which make up a historically low proportion of the total spawning population (less than 2%, SEDAR 72 2022). Each of these alternatives constitutes a shorter fishing season duration compared to past fishing seasons which have been open from June 1 – December 31 since 2018. Because the seasons proposed in **Alternatives 2, 3, and 4** in Action 2 would be too brief for landings data to be available in time to analyze in-season, the initial season duration would be based solely upon the NMFS projection. This is also because these proposed fishing seasons begin later in the fishing year, and thus closer to the end of the fishing year on December 31. As such, the uncertainty in the recreational fishing season duration projections for these alternatives is expected to be substantial until additional years of daily catch and effort data are available based on the season opening date selected. Under **Alternative 1**, if any portion of the recreational ACL was not landed by the conclusion of the projected fishing season following an ACL closure by NMFS, then NMFS may reopen the recreational fishing at some point before the end of the fishing year on December 31. Alternative 1 in Action 1 would not reduce overfishing, it is not included in the discussion of Action 2 alternatives.

The compressed fishing season durations projected in Action 2 are not without an inherent risk of exceeding the recreational ACL. For the recreational sector, a post-season accountability measure (AM) is intended to prevent successive overages of the recreational ACL. The AM states that if gag is overfished and the recreational ACL is exceeded in a fishing year, then in the following fishing year, the amount of the overage will be deducted from the following fishing year's recreational ACL. Further, the recreational ACT from the previous season will be

maintained, as reduced by the amount of the ACL overage from the previous year, and the fishing season duration will be set based on the revised recreational ACT. The fishing season durations projected in Action 2 were determined from dividing the monthly landings for 2019 – 2021 by the number of days per month to determine the daily catch rates applicable to the proposed recreational season opening in Action 2. An important caveat to these data is that daily landings estimates are assumed to be the same for both weekends and weekdays. Landings data for private vessels were informed by SRFS; recreational shore and charter for-hire landings were informed by MRIP-FES; and, headboat landings were informed by the Southeast Region Headboat Survey (SRHS).

Modifications to when the fishing season begins within the fishing year are expected to have some consequences, whether they be positive or negative, depending on the time of year during which fishing effort occurs. During the summer months (i.e., June through September), water temperatures along the west Florida Shelf are typically considerably warmer than in the fall (i.e., October and November) and early winter (December). Fishermen have often reported that gag feed more aggressively when water temperatures are cooler, and particularly when nearshore waters (less than 20 meters depth) are cooler. Further, studies on other reef fish describe variable discard mortality rates relative to the time of year when a fish is captured, noting that discard mortality has been observed to be lower when fish are caught and released into cool water compared to warm water (e.g., Campbell et al. 2014). Thus, fishing for gag during summer months, especially from deeper water (greater than 20 meters depth) where barotrauma becomes an increasingly influential factor on discard mortality for gag (Lazarre et al. 2021), may have more deleterious effects for the stock compared to fishing for gag during comparatively cooler fall and/or winter months.

Recreational fishing season durations for the alternatives proposed in Action 2 are detailed in Table 2.2.1, and in further detail in Appendix B. **Alternative 1** would maintain the June 1 season start date. Based on the fishing season duration projections, NMFS projects a season starting June 1 to last 49 – 68 days depending on the alternative chosen in Action 1. Because the recreational gag fishing season has traditionally started on June 1, the estimated season duration may be less uncertain relative to the other alternatives in Action 2, and thus may more likely constrain landings to the ACL. However, because the season would be compressed from the June 1 – December 31 fishing season to which recreational anglers have grown accustomed, the shorter fishing season under **Alternative 1** may increase or compress effort and make accurately predicting the season duration problematic compared to previous fishing years. Unlike the other alternatives in Action 2, under **Alternative 1**, if landings (when received after the season closure) were found to be substantially below the gag recreational ACL, NMFS may reopen the fishing season prior to the end of the fishing year, allowing for harvest of the remaining recreational allocation.

Table 2.2.1. Season duration, start date, and projected end date for Action 2 alternatives based on start date. The recreational ACT shown in the table represents the proposed recreational ACT for the 2024 fishing year.

Action 1, Alternative 2: 39% commercial 61% recreational					
Action 1 Alternatives (Rebuild time)	Rec ACT (lb gw)	Action 2, Alt 1 June 1	Action 2, Alt 2 Sept 1	Action 2, Alt 3 Oct 1	Action 2, Alt 4 Nov 1
Alt 2b: (18y)	263,000	20-Jul (50 days)	6-Nov (67 days)	20-Nov (51 days)	10-Dec (41 days)
Alt 2c: (19y)	293,000	27-Jul (57 days)	11-Nov (72 days)	24-Nov (55 days)	14-Dec (45 days)
Alt 2d: (22y)	322,000	7-Aug (68 days)	15-Nov (76 days)	29-Nov (60 days)	18-Dec (49 days)
Action 1, Alternative 3: 35% commercial 65% recreational					
Action 1 Alternatives (Rebuild time)	Rec ACT (lb gw)	Action 2, Alt 1 June 1	Action 2, Alt 2 Sept 1	Action 2, Alt 3 Oct 1	Action 2, Alt 4 Nov 1
Alt 3b: (18y)	260,000	19-Jul (49 days)	6-Nov (67 days)	19-Nov (50 days)	9-Dec (40 days)
Alt 3c: (19y)	286,000	26-Jul (56 days)	10-Nov (71 days)	23-Nov (54 days)	13-Dec (44 days)
Alt 3d: (22y)	314,000	2-Aug (63 days)	14-Nov (75 days)	28-Nov (59 days)	17-Dec (48 days)

Alternative 2 would modify the start date for the gag recreational fishing season to September 1. Based on the fishing season duration projections, NMFS projects a season starting September 1 to last 67 – 76 days, depending on the alternative chosen in Action 1. Also, because the recreational gag season has never opened on September 1, there is substantial uncertainty associated with effort and catch rates under **Alternative 2**. NMFS estimates are based on recent effort and catch rates for September – November, but because the gag season has traditionally already been open for three months by September 1, these projected harvest rates may underestimate effort and catch for a season that opens on September 1. This is because there may be increased fishing pressure by anglers that can no longer target gag in June, and could shift that effort to the new season. Because **Alternative 2** proposes a maximum season of 76 days (i.e., November 15), the data necessary to analyze in-season whether landings will exceed the ACL. Regardless of these initial projections, NMFS would still have the authority to close the recreational fishing season when it projects the recreational ACL will be met, even if those projections indicate the ACL will be met prior to the originally projected end date.

Alternative 3 would modify the start date for the gag recreational fishing season to October 1, with NMFS projecting that season to last 50 – 60 days, depending on the alternative chosen in Action 1. Likewise, **Alternative 4** would modify the start date for the gag recreational fishing season to November 1, with NMFS projecting that season to last 40 – 49 days, depending on the

alternative chosen in Action 1. Like **Alternative 2**, because the recreational gag season has never opened on October 1 or November 1, there is substantial uncertainty associated with effort and catch rates under **Alternatives 3** and **4**. Because the gag season has traditionally already been open for four months (for an October 1 opening) or five months (for a November 1 opening), these projected harvest rates may underestimate effort and catch for these proposed recreational fishing seasons. This is because there may be increased fishing pressure by anglers that can no longer target gag beginning on June 1, and could shift that effort to the new season. **Alternative 3** proposes a maximum season of 60 days (i.e., November 29), and **Alternative 4** a maximum season of 49 days (i.e., December 18); thus, there would be no data available to analyze in-season to verify whether landings will exceed the ACL. Like **Alternative 2**, landings under **Alternative 3** and **Alternative 4** would not be expected until after the end of the fishing year. Regardless of these initial projections, NMFS would still have the authority to close the recreational fishing season when it projects the recreational ACL will be met.

Alternative 2 is projected to result in the longest possible fishing season (76 days) of the alternatives, followed by **Alternative 1** (68 days), **Alternative 3** (60 days), and **Alternative 4** (49 days). Because each of these alternatives would not allow fishing until the fall, unlike **Alternative 1**, none of these would provide NMFS with enough time to evaluate landings after a closure and reopen the fishing season if the ACL has not been reached. Compared to **Alternative 1**, each of these alternatives increase the uncertainty in projecting a closure that would constrain landings to the recreational ACL because the season has never started at the beginning of September (**Alternative 2**), October (**Alternative 3**), or November (**Alternative 4**). However, given the reduction in the recreational ACL required to reduce overfishing under Action 1, it is uncertain how fishing behavior may change even with a June 1 (**Alternative 1**) start date. Under any of the alternative season start dates, NMFS would have to evaluate available information and consider the sources of uncertainty when evaluating closure projections.

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APPENDIX A. LETTER REGARDING GULF GAG GROUPER INTERIM RULE MEASURES



Gulf of Mexico Fishery Management Council *Managing Fishery Resources in the U.S. Federal Waters of the Gulf of Mexico*

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July 18, 2022

Mr. Andrew Strelcheck, Regional Administrator
Southeast Regional Office
National Marine Fisheries Service
263 13th Avenue South
St. Petersburg, Florida 33701

007050JUL2022

Dear Mr. Strelcheck:

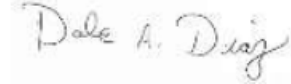
At its June 2022 meeting, the Gulf of Mexico (Gulf) Fishery Management Council (Council) discussed a proposed interim rule and corresponding proposed management measures for Gulf gag grouper. The stock assessment (SEDAR 72 2021) found gag grouper to be overfished and undergoing overfishing, and the National Marine Fisheries Service (NMFS) notified the Council of this stock status on January 26, 2022. Per the rebuilding guidelines defined in the Magnuson-Stevens Fishery Conservation and Management Act, the Council must develop and implement a rebuilding plan that ends overfishing within two years, or by January 26, 2024. However, the commercial sector is managed under the Grouper-Tilefish Individual Fishing Quota (IFQ) Program and the rebuilding plan will include reduced catch levels from status quo that will need to take effect prior to January 1, 2024, when the commercial quota for the 2024 fishing year is scheduled to be released. Likewise, for the 2023 fishing year which occurs in the interim between the present day and the deadline for implementing a rebuilding plan for gag, any interim rule to reduce or end overfishing will need to be implemented by January 1, 2023.

During the June 2022 meeting, the Council reviewed proposed management alternatives for the interim rule. The Council decided to recommend that NMFS adopt catch limits consistent with the current sector allocation of 61% recreational, 39% commercial, based on the rebuilding timeline of T_{MN}^*2 , or twice the minimum time to rebuild the stock if fishing mortality were reduced to zero. This results in a stock ACL of 661,901 pounds gutted weight (lbs gw) in MRIP-FES currency, with a commercial annual catch limit of 258,142 lbs gw and a commercial quota of 199,147 lbs gw, and a recreational ACL of 403,759 lbs gw. The Council elected not to make any modifications to the commercial sector's IFQ multi-use provision for red and gag grouper. Further, the Council recommended that NMFS implement a revision to the fishing season closure for gag grouper, such that the recreational fishing season opens on September 1 and closes by November 10 for the 2023 fishing year.

The Council requests that NMFS implement these interim measures to reduce overfishing of gag as soon as practicable, with an effective date of January 1, 2023. These measures were expected to reduce or end overfishing of gag grouper for the 2023 fishing year, and are expected to aid in the pace of recovery of the stock while the Council works to develop the rebuilding plan via Reef Fish Amendment 56. During its August 2022 in Corpus Christi, Texas, the Council will be considering the SSC-approved catch limit recommendations based on

the requested SEDAR 72 alternative base model run using the State of Florida's State Reef Fish Survey for informing private angling landings and discards. If you have questions, please do not hesitate to contact Council staff.

Sincerely,



Dale Diaz
Council Chair

RR

cc: Council Members / Council Staff / John F. Walter, Ph.D. / Clay Porch, Ph.D. / Jack McGovern, Ph.D. / Peter Hood / Mara Levy / Dan Luers / Jim Nance, Ph.D. / Luiz Barbieri, Ph.D.

APPENDIX B. RECREATIONAL FISHING SEASON DURATION PROJECTIONS

Recreational Season Projection Analyses for Gulf of Mexico Gag Southeast Regional Office LAPP/DM Branch January 2023

Gulf of Mexico gag are managed in federal waters under the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP). In January 2022, there was notification that the stock was overfished and experiencing overfishing. To address this notification, Amendment 56 to the Reef Fish FMP proposes to adjust catch levels (annual catch limits), revise sector allocations, and revise recreational seasonal closures. This analysis predicts recreational season closures based on all management options being considered.

Recreational landings data

Gulf gag recreational landings were obtained from the Southeast Fisheries Science Center (SEFSC) recreational ACL files (accessed October 2022). The SEFSC recreational landings dataset includes landings from the Texas Parks and Wildlife recreational creel survey (TPWD), Louisiana Department of Wildlife and Fisheries creel survey (LA Creel), Southeast Region Headboat Survey (SRHS) and Marine Recreational Information Program (MRIP) Fishing Effort Survey (FES; Florida, Alabama and Mississippi). The MRIP FES files contain estimates from MRIP's Access Point Angler Intercept Survey (APAIS), FES (private angler effort estimates), and For-Hire Telephone Survey (FHS; for-hire effort estimates). For 2020 and 2021, imputed MRIP FES catch estimates are used to account for disruptions in the dockside sampling due to COVID.

The Florida Fish and Wildlife Conservation Commission's (FWC) State Reef Fish Survey (SRFS; accessed January 2023) provides private angling landings for red snapper, gag and several other reef fish species harvested in state and federal water of the west coast of Florida. FWC SRFS data was determined best available data by the Scientific and Statistical Committee (SSC) at the July 2022 meeting for reporting and analyzing Florida private recreational landings of gag. As a result, Florida private recreational landings of gag in the MRIP FES landings file were replaced with SRFS landings that are calibrated to MRIP FES to generate a SRFS informed recreational landings time series with which future landings could be projected. SRFS landings are reported in whole weight, but were converted to pounds gutted weight (lb gw) using a revised gutted to whole weight conversion factor of 1.05 (SEDAR 72). All landings are reported in lb gw (**Table 1**).

A three-year average (2019-2021) of monthly landings were used to predict future landings (**Figure 1**). Since MRIP data are provided in two month waves (e.g., January and February = wave 1, March and April = wave 2, etc.), data from other sources are shown in waves. Monthly landings were estimated for MRIP, TPWD and LA Creel by assuming equal daily catch rates for months within a wave and then combined with SRHS and SRFS, which are provided monthly.

Monthly recreational landings in January through April were minimal due to the seasonal closure that runs January 1 through May 31. Landings for the month of May included those that were reported to SRHS and SRFS, while June landings were estimated by adding SRHS and SRFS landings for that month to all of the landings reported for wave 3 for the MRIP survey. Estimated monthly landings were then divided by the number of days in each month to provide a daily catch rate to project expected closure dates. Based on the cumulatively summed projected recreational landings of gag, the recreational sector can expect a fishing season between 0 and 76 days depending on the management options selected (**Tables 2 and 3**). These results assume no effort shifting and that no landings are made during the spawning season closure.

Table B1. Recreational Gulf gag landings (lb gw) by two-month waves from 2017-2021.

Year	Wave	MRIP FES	SRHS	Charter	Private and Shore (Excl. MRIP's Florida Priv)	SRFS (Florida Priv)	Combined MRIP/SRFS
2017	1	389	25	-	364	-	389
	2	60,215	8	-	67	56,246	56,321
	3	834,210	6,318	52,307	208	252,589	311,422
	4	176,884	3,562	3,942	201	72,783	80,488
	5	142,703	3,986	2,784	549	174,344	181,663
	6	1,173,813	10,803	154,150	-	206,718	371,671
2018	1	18	18	-	-	-	18
	2	35,248	37	-	-	12,849	12,886
	3	705,215	10,133	120,683	578	202,756	334,150
	4	953,445	5,640	26,262	498	288,069	320,469
	5	212,119	3,672	2,089	281	87,343	93,385
	6	632,844	8,144	37,691	33,377	123,909	203,120
2019	1	55	55	-	-	1,469	1,524
	2	30	30	-	-	121,113	121,143
	3	856,819	6,137	109,544	6,943	310,582	433,206
	4	502,765	3,828	31,122	20,533	160,955	216,438
	5	80,670	2,033	7,066	157	84,552	93,808
	6	747,200	9,824	91,935	17,820	135,449	255,028
2020	1	-	-	-	-	-	-
	2	63,713	50	-	-	16,648	16,698
	3	387,745	6,540	126,397	16,645	145,293	294,875
	4	358,669	4,794	145,479	93	86,637	237,003
	5	922,407	2,935	9,002	3,454	463,384	478,776
	6	1,216,526	9,936	40,001	13,139	481,340	544,416
2021	1	-	-	-	-	-	-
	2	158,117	19	-	-	35,485	35,503
	3	478,507	7,513	155,734	16,232	130,701	310,181
	4	575,837	6,442	116,070	10,053	243,112	375,676
	5	98,857	5,530	32,995	10,952	109,237	158,714
	6	1,469,293	12,156	170,462	-	604,406	787,024

Source: SEFSC MRIP FES recreational ACL database [October, 2022], FWC SRFS database [January, 2023].

Notes: MRIP FES landings are presented as a reference and include all Gulf gag landings (TPWD, SRHS, LA Creel, MRIP FES). SRHS, Charter, Shore, Non-Florida Private, and SRFS landings are also presented separately. Combined MRIP/SRFS landings include MRIP FES landings with SRFS data in place of Florida private recreational landings.

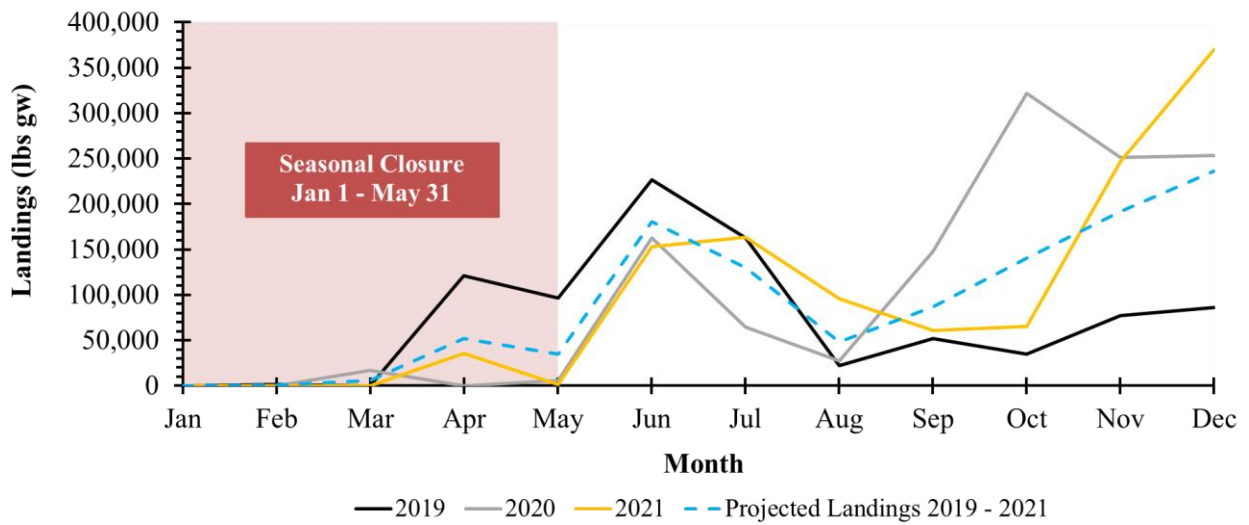


Figure B1. Gulf gag monthly recreational landings (lb gw) for 2019-2021, and projected landings from 2019-2021. Source: SEFSC Recreational MRIP FES ACL Dataset (October, 2022) and FWC SRFS Dataset (January, 2023)

Table B2. The projected Gulf of Mexico gag closure dates expected for the recreational sector with each proposed management option for Action 1 and Action 2. Only 2024 Annual Catch Targets (ACT) are presented here, as this represents the lowest catch limits in the projections. Season durations would be expected to increase in successive years. Source: SEFSC MRIP FES Recreational ACL Dataset (October, 2022); FWC SRFS (January, 2023)

Action 1, Alternative 1 (No Action): 39% commercial 61% recreational					
Action 1 Alternatives	Recreational ACT (lb gw)	Action 2, Alt 1: Jun 1	Action 2, Alt 2: Sept 1	Action 2, Alt 3: Oct 1	Action 2, Alt 4: Nov 1
No Action	1,708,000	No Closure			
Action 1, Alternative 2: 39% commercial 61% recreational					
Alt 2a: TMin at F=0	0	No Season	No Season	No Season	No Season
Alt 2b: 75% of F40% SPR	263,000	Jul 20 (50 days)	Nov 6 (67 days)	Nov 20 (51 days)	Dec 10 (41 days)
Alt 2c: TMin – 1 gen	293,000	Jul 27 (57 days)	Nov 11 (72 days)	Nov 24 (55 days)	Dec 14 (45 days)
Alt 2d: TMin * 2	322,000	Aug 7 (68 days)	Nov 15 (76 days)	Nov 29 (60 days)	Dec 18 (49 days)
Action 1, Alternative 3: 35% commercial 65% recreational					
Alt 3a: TMin at F=0	0	No Season	No Season	No Season	No Season
Alt 3b: 75% of F40% SPR	260,000	Jul 19 (49 days)	Nov 6 (67 days)	Nov 19 (50 days)	Dec 9 (40 days)
Alt 3c: TMin – 1 gen	286,000	Jul 26 (56 days)	Nov 10 (71 days)	Nov 23 (54 days)	Dec 13 (44 days)
Alt 3d: TMin * 2	314,000	Aug 2 (63 days)	Nov 14 (75 days)	Nov 28 (59 days)	Dec 17 (48 days)

The reliability of these results is dependent upon the accuracy of the underlying data and input assumptions. The analysis intends to create a realistic baseline as a foundation for comparisons, under the assumption that projected future landings will accurately reflect actual future landings. These closure dates are our best estimate, but uncertainty still exists as economic conditions, weather events, changes in catch-per-unit effort, fisher response to management regulations, and a variety of other factors may cause departures from any assumption.