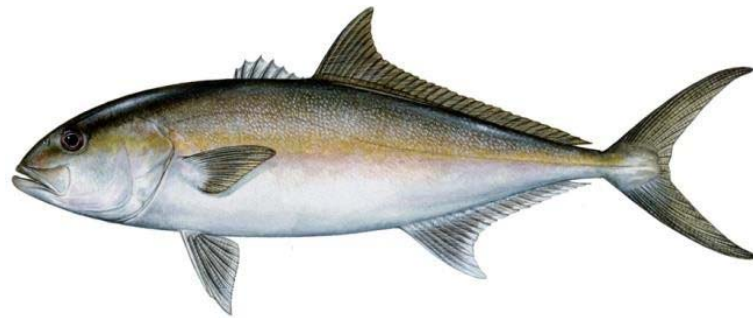


5/26/17

Modifications to Greater Amberjack Allowable Harvest and Rebuilding Plan



RP

Options Paper for a Framework Action to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico

June 2017



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ENVIRONMENTAL ASSESSMENT COVER SHEET

Name of Action

Modifications to Greater Amberjack Allowable Harvest and Rebuilding Plan

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Type of Action

<input type="checkbox"/> Administrative	<input type="checkbox"/> Legislative
<input checked="" type="checkbox"/> Draft	<input type="checkbox"/> Final

ABBREVIATIONS USED IN THIS DOCUMENT

ABC	Acceptable biological catch
ACL	Annual catch limit
ACT	Annual catch target
AMs	Accountability measures
Council	Gulf of Mexico Fishery Management Council
EA	Environmental Assessment
EIS	Environmental Impact Statement
FL	fork length
FMP	Fishery Management Plan
Gulf	Gulf of Mexico
IRFA	Initial regulatory flexibility analysis
lbs	Pounds
LCL	lower confidence limits
Magnuson-Steven Act	Magnuson-Steven Fishery Conservation and Management Act
MFMT	Maximum fishing mortality threshold
MRIP	Marine Recreational Information Program
MSST	Minimum stock size threshold
MSY	Maximum sustainable yield
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
OFL	Overfishing level
OY	Optimum yield
RA	Regional Administrator
RIR	Regulatory impact review
SEDAR	Southeast Data, Assessment and Review
SSBR	Spawning stock biomass per recruit
SSC	Scientific and Statistical Committee
TAC	Total allowable catch
UCL	upper confidence limits
ww	whole weight

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CHAPTER 1. INTRODUCTION

1.1 Background

Secretarial Amendment 2 (GMFMC 2002) to the Fishery Management Plan for Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP) established a rebuilding plan for Gulf of Mexico (Gulf) greater amberjack based on a stock assessment conducted in 2000 (Turner et al. 2000). That assessment determined that the greater amberjack stock was overfished and undergoing overfishing as of 1998. Management measures were implemented in January 1997 to reduce the recreational bag limit from three fish to one fish. In January 1998, a March through May commercial season closure was implemented; however, this closure was not incorporated into the 2000 assessment. The projected effects of these management measures were expected to eliminate overfishing; therefore, no new management measures to further restrict effort were implemented. The starting year for the rebuilding plan was set at 2002, and the management measures were expected to rebuild the greater amberjack stock within 7 years (by 2009), well within the maximum time frame of 10 years (by 2012) as specified by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

In 2006, a Southeast Data, Assessment, and Review (SEDAR) updated stock assessment was completed that determined the greater amberjack stock was not recovering at the rate previously projected. The stock continued to be overfished and experiencing overfishing (SEDAR 9 2006). The Gulf of Mexico Fishery Management Council (Council) and National Marine Fisheries Service (NMFS) developed and implemented Amendment 30A in 2008 in response to the stock assessment results and the requirement to end overfishing and rebuild the stock by 2012 (GMFMC 2008). The minimum reduction required to rebuild the stock by 2012 was 40% of current fishing mortality. The total allowable catch (TAC) implemented in Amendment 30A was 1,871,000 lbs whole weight (ww) for 2008 through 2010 (GMFMC 2008). Amendment 30A also established quotas for the recreational and commercial sectors equal to 1,368,000 and 503,000 lbs ww, respectively. Amendment 30A also required sector-specific accountability measures (AMs) such that if either sector exceeded its allocated portion of the TAC, the Regional Administrator (RA) will close that sector for the remainder of the year. Additionally, if a sector's landings exceed that sector's share of the TAC, the RA will reduce the fishing season by the amount of time necessary to account for the overage in the following fishing year.

A 2010 update stock assessment also determined that the stock remained overfished and was continuing to experience overfishing. In December 2012, Amendment 35 (GMFMC 2012) reduced the stock's annual catch limit (ACL), (previously called the TAC), to 1,780,000 lbs ww in an effort to end overfishing and rebuild the stock. The commercial ACL was set at 481,000 lbs ww, and a recreational ACL was set at 1,299,000 lbs ww, based on the interim sector allocation established in Amendment 30A (GMFMC 2008). Annual catch targets (ACTs) (equivalent to quotas for greater amberjack) were established at 409,000 lbs ww for the commercial sector and 1,130,000 lbs ww for the recreational sector.

A greater amberjack stock assessment (SEDAR 33 2014) was completed and reviewed by the Scientific and Statistical Committee (SSC) at their June 2014 meeting. The SSC accepted the

greater amberjack stock assessment as the best scientific information available. The SSC concluded that greater amberjack was overfished and undergoing overfishing. National Standard 1 guidelines state that when a stock has exceeded its maximum rebuilding time and is not yet rebuilt, the yield should be set at the yield corresponding to $F_{REBUILD}$ (i.e., fishing mortality estimated to rebuild the stock within a stated timeline) or to 75% of maximum fishing mortality threshold (MFMT), whichever is less. The greater amberjack target rebuilding date established in Secretarial Amendment 2 (GMFMC 2002) expired at the end of 2012 without the stock being rebuilt and therefore, the yield needed to remain at the established $F_{REBUILD}$ or be set at 75% of MFMT. Based on the SEDAR 33 findings, the SSC used the acceptable biological catch (ABC) control rule to establish the overfishing limit (OFL) and ABC for a time period of four years beginning in 2015 equivalent to 75% of MFMT based on the results of the most recent stock assessment. The initial OFL and ABC yields for 2015 were set at 2.14 million pounds whole weight (mp ww) and 1.72 mp ww respectively

In 2016, the greater amberjack stock assessment update to SEDAR 33 was completed and reviewed by the SSC at their March 2017 meeting. The SSC accepted the greater amberjack stock assessment as the best scientific information available and concluded that greater amberjack was still overfished and undergoing overfishing (Table 1.1.3), and the stock would not be rebuilt by 2019 as previously projected. The SSC provided a new OFL (Table 1.1) and ABC (Table 1.1.2) for a period of three years beginning in 2018 equivalent to yield at 75% of the MFMT ($F_{30\%SPR}$) based on the results of the update assessment. The results also indicate that Gulf of Mexico greater amberjack has been overfished in all years since 1987 and has been undergoing overfishing since 1985. These results are generally consistent with the SEDAR 33 benchmark assessment however, the update assessment produced lower estimates of SSB/SPR30 and SSB/MSST and higher estimates of F/SPR30 in the most recent years.

Table 1.1.1 The annual OFLs (mp ww) recommended by the SSC at their March 2017 meeting after review of the SEDAR 33 Gulf of Mexico greater amberjack update stock assessment (2017). The corresponding OFLs from the previous SEDAR 33 benchmark assessment (2014) are also provided for reference.

OFL (Annual yield at MFMT (mp ww) = $F_{SPR30\%}$)		
Year	SEDAR 33 update	SEDAR 33
2018	1.500	2.986
2019	1.836	3.068
2020	2.167	3.170

Table 1.1.2 The annual ABCs (mp ww) recommended by the SSC at their March 2017 meeting after review of the SEDAR 33 Gulf of Mexico greater amberjack update stock assessment (2017). The corresponding ABCs from the previous SEDAR 33 (2014) benchmark assessment are also provided for reference.

ABC (Annual yield at FOY (mp ww) = 75%FSPR30%		
Year	SEDAR 33 Update	SEDAR 33
2018	1.182	2.616
2019	1.489	2.730
2020	1.794	2.852

Table 1.1.3. Management advice table from the SEDAR 33 update model and the SEDAR 33 benchmark model for greater amberjack.

Criteria	Definitions	SEDAR 33 Update	SEDAR 33
M		0.28	0.28
Steepness		0.85	0.85
Virgin Recruitment	1,000s	2,761	2,827
SSB Unfished		18,779	17,356
	Mortality rate criteria		
Fmsy or proxy	F_SPR30%	0.20	0.22
MFMT	F_SPR30%	0.20	0.22
Fcurrent	Geometric mean (F(nyr-3)-nyr)	0.33	0.26
Fcurrent/MFMT		1.69	1.15
	Biomass criteria		
SSB_msy or proxy	SSB_SPR30%	5,686	4,646
MSST (Mtons)	(1-M)*SSB_SPR30%	4,094	3,345
SSBcurrent (Mtons)	SSB2015	1,640	2,188
SSBcurrent/SSB_SPR30%	SSB2015	0.288	0.47
SSBcurrent/MSST	SSB2015	0.400	0.65
OFL	Annual yield at MFMT (mp ww) = FSPR30%		
	OFL 2017	1.243	2.906
	OFL 2018	1.500	2.986
	OFL 2019	1.836	3.068
	OFL 2020	2.167	3.170
	OFL 2021	2.438	3.266
	OFL 2022	2.666	3.344
ABC	Annual yield at FOY (mp ww) = 75%FSPR30%		
	ABC 2017	0.936	2.489
	ABC 2018	1.182	2.616
	ABC 2019	1.489	2.730
	ABC2020	1.794	2.852
	ABC 2021	2.057	2.964
	ABC 2022	2.287	3.058
Alternative ABC	Annual yield (mp ww) = FSPR40%		
	2017	0.927	2.379
	2018	1.172	2.514
	2019	1.477	2.633
	2020	1.781	2.758
	2021	2.043	2.872
	2022	2.273	2.968

This document includes a range of alternatives for adjusting the rebuilding time period and the stock ACL, to end overfishing and rebuild the stock.

Landings Data

Total annual landings of greater amberjack have ranged from 1.396 mp ww in 2011 to 3.560 mp ww in 2003 (Table 1.1.4). From 2002 through 2016, landings have averaged 2.070 mp ww with a declining trend over this time period (Figure 1.1.1). A summary of landings relative to management targets and season closure dates is in Table 1.1.5 (commercial) and Table 1.1.6 (recreational). The accountability measures (AMs) implemented in Amendment 30A (GMFMC 2008) required that any annual commercial harvest exceeding the commercial ACL be deducted from the commercial ACL in the subsequent calendar year. Also, these overage adjustments are made on preliminary landings as final landings are not completed by the beginning of the subsequent calendar year. This may result in minor deviations from the final overage (if any) and the overage deduction.

Table 1.1.4. Commercial and recreational landings of greater amberjack (lbs ww) from 2002 to 2016.

Year	Headboat	Charter	Private	Recreational Total	Commercial	Grand Total
2002	160,636	1,114,754	857,969	1,972,723	703,303	2,676,026
2003	199,347	1,072,018	1,630,455	2,702,473	857,125	3,559,598
2004	108,769	1,068,814	1,214,647	2,283,461	870,953	3,154,414
2005	61,281	365,893	1,089,981	1,455,874	662,285	2,118,159
2006	79,892	1,030,943	589,351	1,620,294	566,384	2,186,678
2007	59,436	516,253	291,797	808,050	589,235	1,397,285
2008	54,544	478,614	785,504	1,264,118	440,936	1,705,054
2009	103,191	653,160	723,964	1,377,124	601,446	1,978,570
2010	53,203	460,740	711,282	1,172,022	534,095	1,706,117
2011	62,835	583,813	303,351	887,164	508,871	1,396,035
2012	99,680	546,086	592,952	1,139,038	308,334	1,447,372
2013	73,246	605,860	941,655	1,547,515	457,879	2,005,394
2014	46,435	333,485	710,128	1,043,613	486,679	1,530,292
2015	58,513	759,017	591,711	1,350,728	458,693	1,809,421
*2016	20,063	540,507	1,393,732	1,934,239	440,297	2,374,536

Source: Southeast Fisheries Science Center recreational (1/5/2017) and commercial (2/7/2017) ACL
Recreational landings exclude Monroe County, Florida.

*Preliminary

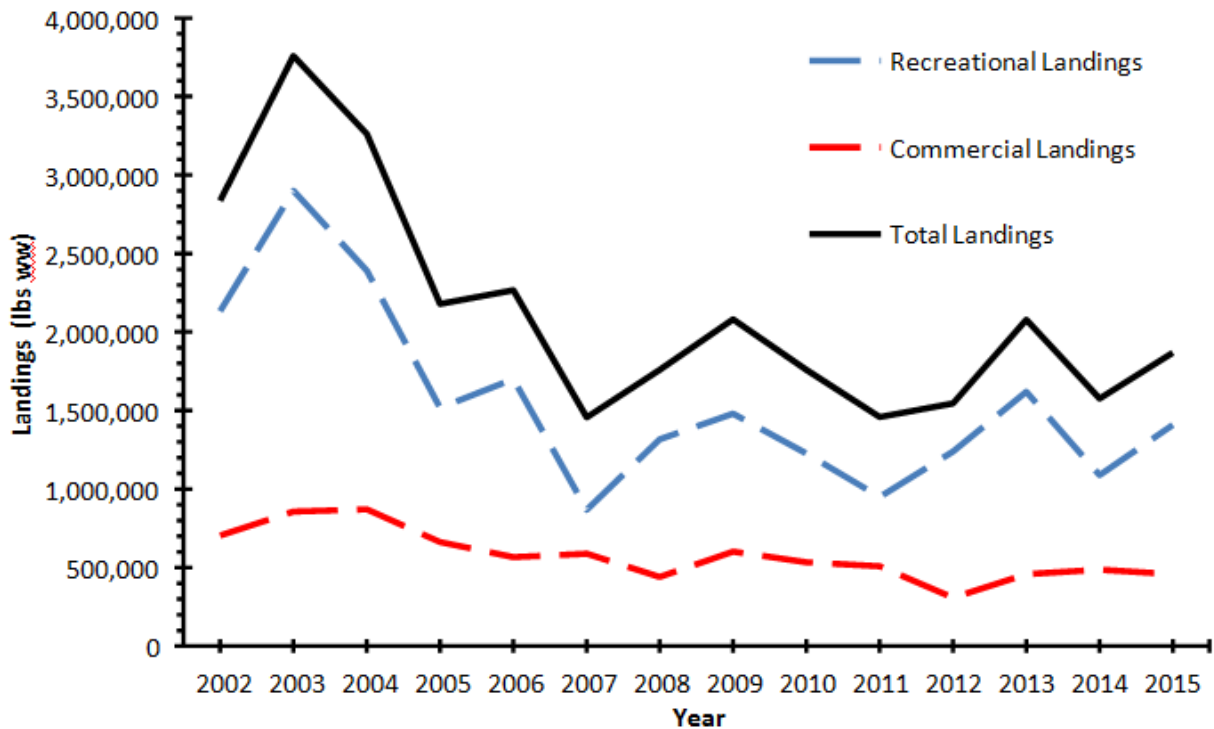


Figure 1.1.1. Recreational, commercial, and total landings (lbs ww) of greater amberjack from 2002 through 2015. Recreational landings were estimate from the Marine Recreational Information Program, Texas Parks and Wildlife Department, Louisiana Creel, and Southeast Region Headboat Surveys.

Source: SEFSC recreational (1/5/2017) and commercial (2/7/2017) ACL datasets.

Table 1.1.5 Summary of recent annual commercial landings relative to management targets (lbs ww).

Commercial						
Year	Landings	ACT	Adjusted ACT	ACL	Adjusted ACL	Closure Date
2008	439,176			503,000		
2009	601,446			503,000		11/7/2009
2010	534,095			503,000	373,072	10/28/2010
2011	508,871			503,000	342,091	6/18/2011
2012	308,334	503,000	237,438	503,000	237,438	3/1/2012
2013	457,879	338,157		481,000	410,157	7/1/2013
2014	486,679	409,000		481,000		8/25/2014
2015	458,693	394,740		464,400		7/19/2015
2016	440,297	394,740		464,400		7/17/2016
2017		394,470		464,400		

Table 1.1.6. Summary of recent annual recreational landings relative to management targets (lbs ww).

Recreational						
Year	Landings	ACT	Adjusted ACT	ACL	Adjusted ACL	Closure Date
2008	1,264,118			1,368,000		
2009	1,377,124			1,368,000		10/24/2009
2010	1,172,022			1,368,000	1,243,184	
2011	887,164	1,368,000		1,368,000	1,315,224	
2012	1,139,038	1,299,000		1,368,000		
2013	1,547,515	1,299,000		1,299,000		
2014	1,043,613	1,299,000	888,839	1,299,000	1,063,538	8/25/2015
2015	1,350,728	1,092,372		1,255,600		9/28/2015
2016	1,934,239	1,092,372	933,731	1,255,600	1,101,959	6/1/2016
2017		1,092,372	335,741	1,255,600	498,969	3/24/2017

1.2 Purpose and Need

The purpose of this amendment is to adjust the greater amberjack rebuilding time, ACLs and ACTs, and to incorporate updated stock status information from the 2017 stock assessment. The 2017 stock assessment update determined that greater amberjack continues to be overfished and undergoing overfishing.

The need for this amendment is to end overfishing and rebuild the greater amberjack stock in the Gulf.

1.3 History of Management

The **Reef Fish FMP** [with its associated environmental impact statement (EIS)] was implemented in November 1984. The original list of species included in the management unit consisted of snappers, groupers, and sea basses. Gray triggerfish and *Seriola* species, including greater amberjack, were in a second list of species included in the fishery, but not in the management unit. The species in this list were not considered to be target species because they were generally taken incidentally to the directed fishery for species in the management unit. Their inclusion in the Reef Fish FMP was for purposes of data collection, and their take was not regulated.

Amendment 1 [with its associated environmental assessment (EA), regulatory impact review (RIR), and initial regulatory flexibility analysis (IRFA)] to the Reef Fish FMP, implemented in 1990, added greater amberjack and lesser amberjack to the list of species in the management unit. It set a greater amberjack recreational minimum size limit of 28 inches FL, a three-fish recreational bag limit, and a commercial minimum size limit of 36 inches FL. This amendment's objective was to stabilize the long-term population levels of all reef fish species by establishing a survival rate of biomass into the stock of spawning age to achieve at least 20% SSBR, relative to the SSBR that would occur with no fishing. A framework procedure for specification of TAC was created to allow for annual management changes. This amendment also established a commercial vessel reef fish permit as a requirement for harvest in excess of the bag limit and for the sale of reef fish.

Amendment 4 (with its associated EA and RIR), implemented in May 1992, added the remaining *Seriola* species (banded rudderfish and almaco jack) to the management unit, and established a moratorium on the issuance of new commercial reef fish vessel permits for a maximum period of three years.

Amendment 5 (with its associated supplemental EIS, RIR, and IRFA), implemented in February 1994, 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.

Amendment 12 (with its associated EA and RIR), submitted in December 1995 and

implemented in January 1997, reduced the greater amberjack bag limit from three fish to one fish per person, and created an aggregate bag limit of 20 reef fish for all reef fish species not having a bag limit (including lesser amberjack, banded rudderfish, almaco jack and gray triggerfish). NMFS disapproved proposed provisions to include lesser amberjack and banded rudderfish along with greater amberjack in an aggregate one-fish bag limit and to establish a 28-inch FL minimum size limit for those species.

Amendment 15 (with its associated EA, RIR, and IRFA), implemented in January 1998, closed the commercial sector for greater amberjack in the Gulf during the months of March, April, and May.

A Regulatory Amendment (with its associated EA, RIR, and IRFA), implemented in August 1999, closed two areas (i.e., created two marine reserves), 115 and 104 square nautical miles respectively, year-round to all fishing under the jurisdiction of the Council with a four-year sunset clause.

Generic Sustainable Fisheries Act Amendment (with its associated EA, RIR, and IRFA), partially approved and implemented in November 1999, set the MFMT for greater amberjack at the fishing mortality necessary to achieve 30% of the unfished spawning potential $F_{30\% SPR}$. Estimates of maximum sustainable yield (MSY), minimum stock size threshold (MSST), and optimum yield (OY) were disapproved because they were based on SPR proxies rather than biomass-based estimates.

Secretarial Amendment 2 (with associated EIS, RIR and IRFA), implemented in July, 2003 for greater amberjack, specified MSY as the yield associated with $F_{30\% SPR}$ (proxy for F_{MSY}) when the stock is at equilibrium, OY as the yield associated with an $F_{40\% SPR}$ when the stock is at equilibrium, MFMT equal to $F_{30\% SPR}$, and MSST equal to $(1-M)*B_{MSY}$ (where M = natural mortality) or 75% of B_{MSY} . It also set a rebuilding plan limiting the harvest to 2,900,000 lbs for 2003-2005, 5,200,000 lbs for 2006-2008, 7,000,000 lbs for 2009-2011, and for 7,900,000 lbs for 2012. This was expected to rebuild the stock in seven years. Regulations implemented in 1997 and 1998 (Amendments 12 and 15 to the Reef Fish FMP) were deemed sufficient to comply with the rebuilding plan so no new regulations were implemented.

Amendment 30A (with associated EIS, RIR, and IRFA), implemented August 2008, was developed to stop overfishing of gray triggerfish and greater amberjack. The amendment established ACLs and AMs for greater amberjack and gray triggerfish. For greater amberjack, the rebuilding plan was modified, increasing the recreational minimum size limit to 30 inches FL, implementing a zero bag limit for captain and crew of for-hire vessels, and setting commercial and recreational quotas. **Amendment 30A** also established an interim allocation for greater amberjack harvest of 73% recreational and 27% commercial, which would be in effect until such time that the Council, through the recommendations of an Ad Hoc Allocation Committee, could implement a separate amendment that fairly and equitably allocated FMP resources between recreational and commercial sectors.

A Regulatory Amendment (with associated EA, RIR, and IRFA), implemented in June 2011, specified the greater amberjack recreational closed season from June 1 – July 31. The intended

effect of this final rule was to mitigate the social and economic impacts associated with implementing in-season closures.

Amendment 35 (with associated EA, RIR, and IRFA), implemented in 2012, in response to a 2010 update stock assessment, established a new ACL equal to the ABC at 1,780,000 lbs, which was less than the current annual catch limit of 1,830,000 lbs. Reducing the stock ACL by 18% from no action was expected to end overfishing. The rule also established a commercial trip limit of 2,000 lbs throughout the fishing year. The council also considered bag limits and closed season management measures for the recreational fishing sector but did not alter any recreational management measures.

2015 Framework Amendment (with associated EA, RIR, and IRFA), implemented in January 2016 decreased the total annual catch limit from 1,780,000 lbs to 1,720,000 lbs, the commercial ACL at 464,400 lbs and the commercial quota at 394,740 lbs, set the recreational ACL at 1,255,600 lbs and the recreational quota at 1,092,372 lbs, reduced the commercial trip limit from 2,000 lbs to 1,500 lbs, and increased the minimum recreational size limit from 30 inches FL to 34 inches FL.

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1 - Modifications to the Greater Amberjack Rebuilding Time Period, Annual Catch Limits (ACL) and Annual Catch Targets (ACT)

Note: Commercially harvested greater amberjack are typically landed gutted rather than whole. However, the management alternatives in this action are stated in pounds (lbs) whole weight (ww) consistent with current federal regulations and sector allocations. The National Marine Fisheries Service (NMFS) published a reminder July 29, 2014 ([FB14-55](#)) clarifying that one pound gutted weight is equivalent to 1.04 lbs ww using the standard conversion.

The current interim quota allocation for greater amberjack is 73% to the recreational sector and 27% to the commercial sector (GMFMC 2008).

Alternative 1 (No Action): Maintain the current ACL and ACT (quota). The stock is not projected to rebuild at this ACL.

Year	Recreational			Commercial	
	ABC/ Stock ACL	ACL	ACT	ACL	ACT
2015 +	1,720,000	1,255,600	1,092,372	464,400	394,740

Alternative 2: Set the ACL equal to the ABC recommended by the Scientific and Statistical Committee (SSC) from 2018 through 2020, based upon the SEDAR 33 Update Assessment (2017). This alternative is projected to rebuild the stock by 2027.

Option a. Apply the ACL/ACT Control Rule (landings from 2013 through 2016) to establish: 13% buffer to the commercial sector and 17% buffer to the recreational sector.

Year	Recreational			Commercial	
	ABC/ Stock ACL	ACL	ACT	ACL	ACT
2018	1,182,000	862,860	716,173	319,140	277,651
2019	1,489,000	1,086,970	902,185	402,030	349,766
2020+	1,794,000	1,309,620	1,086,985	484,380	421,411

Option b. Do not use the ACL/ACT Control Rule to set an ACT. The quotas will be equal to the ACLs.

Year	Recreational			Commercial	
	ABC/ Stock ACL	ACL	ACT	ACL	ACT
2018	1,182,000	862,860		319,140	
2019	1,489,000	1,086,970		402,030	
2020+	1,794,000	1,309,620		484,380	

Alternative 3: Set a constant ABC at the lowest level recommended by the SSC for 2018+. This alternative is projected to rebuild the stock by 2024.

Option a. Retain the ACL/ACT Control Rule (landings from 2013 through 2016) to establish a 13% buffer to the commercial sector and 17% buffer to the recreational sector.

Year	Recreational			Commercial	
	ABC/ Stock ACL	ACL	ACT	ACL	ACT
2018 +	1,182,000	862,860	716,173	319,140	277,651

Option b. Do not use the ACL/ACT Control Rule to set an ACT. The quotas will be equal to the ACLs.

Year	Recreational			Commercial	
	ABC/ Stock ACL	ACL	ACT	ACL	ACT
2018 +	1,182,000	862,860		319,140	

Alternative 4: Set the stock ACL at zero (i.e., no allowable harvest). This alternative is projected to rebuild the stock by 2022.

Discussion

The 2017 Southeast Data, Assessment, and Review (SEDAR) workshops (SEDAR 33 Update 2017) determined that the greater amberjack stock remains overfished and is experiencing overfishing as of 2015, the terminal year of data in the assessment. The criteria used to make these status determinations were established in Secretarial Amendment 2 (GMFMC 2002) and are defined as follows: maximum sustainable yield (MSY) is the yield associated with $F_{30\% SPR}$ (proxy for MSY) when the stock is at equilibrium; optimum yield is the yield associated with an $F_{40\% SPR}$ when the stock is at equilibrium; maximum fishing mortality threshold (MFMT) is equal to $F_{30\% SPR}$; and minimum stock size threshold is equal to $(1 - M) \cdot B_{MSY}$, or 72% of biomass at maximum sustainable yield (B_{MSY}). Natural mortality (M) equals 0.28 for greater amberjack.

Action 1 includes alternatives to adjust the rebuilding time period by modifying the ABC, ACLs, and ACTs for greater amberjack based on the SEDAR 33 Update Assessment (2017) and subsequent SSC review, including recommendations for the ABC. The 2015 Framework Amendment (GMFMC 2015g) established a stock ABC of 1,720,000 lbs, which exceeds the current SSC recommendation for ABC of 1,182,000 lbs for 2018.

Greater amberjack are currently managed toward harvesting the ACT (quota). This strategy provides a management buffer between the ACT and ACL, ultimately reducing the likelihood of exceeding the ACL and triggering accountability measures (AMs). The Gulf of Mexico Fishery Management Council (Council) established an ACL/ACT control rule in the Generic ACL/AM Amendment (GMFMC 2011a). The Council developed the ACL/ACT control rule so it could objectively and efficiently assign catch limits and targets that take into account management uncertainty. The rule uses different levels of information about catch levels, sector overages, stock management practices, and data quality to assign levels of reduction for either sector ACLs or ACTs.

Alternative 1 (No Action) would retain the current rebuilding time period, as well as the current ABC and ACL, which are equal to the SSC's ABC recommendation for 2015. The ABC was set at constant level recommended by the SSC for 2015+. The ACL/ACT Control Rule was applied resulting in a commercial buffer of 15% and a recreational buffer of 13%. This alternative was projected to rebuild the stock by 2019; however, the most recent stock assessment (SEDAR 33 Update 2017) indicates that the stock is remains overfished and undergoing overfishing and will not rebuild by 2019.

Alternative 2 would set the stock ACL equal to the ABC recommended by the SSC from 2018 through 2020 and is projected to rebuild the stock (i.e., SSB to SPR 30%) by 2027. **Alternative 2** would also establish a new stock ACL of 1,182,000 lbs. This would be 538,000 lbs less than the current stock ACL (1,720,000 lbs). The stock ACL would increase to 1,489,000 lbs in 2019, and 1,794,000 lbs in 2020 and years thereafter until a new ABC is developed. Based on the interim allocation (73% recreational and 27% commercial), the sector ACLs for 2018 would be 862,860 lbs for the recreational sector and 319,140 lbs for the commercial sector. Additionally, **Alternative 2 Option a**, would use the updated ACL/ACT control rule through the 2016 landings and apply a 13% commercial buffer and a 17% recreational buffer to establish the ACT, or management target. **Alternative 2, Option b** would remove the ACT as a management target and establish the ACL as the quota.

Alternative 3, Option a would set a constant catch ACL at 1,182,000 lbs ww, which is the lowest level recommended by the SSC from 2018-2020 based upon the SEDAR 33 Update Assessment (2017). **Option a** would apply the new ACL/ACT Control Rule buffer: Commercial Buffer = 13% and Recreational Buffer = 17%. **Alternative 3, Option b** would remove ACT as a management target and establish the ACL as the quota at ACL at 1,182,000 lbs ww. **Alternative 3** is projected to rebuild the stock by 2024.

Alternative 4 would set the stock ACL and commercial and recreational ACTs at zero and is projected to rebuild the stock by 2022. A new stock assessment would be needed in 2022 or later to determine if the stock has rebuilt and issue a revised OFL and ABC. However, in the

absence of landings from a directed fishery, a traditional stock assessment may not be possible. A fishery-independent sampling program may be needed during the closed period to provide the information needed to be able to conduct a future assessment. In addition, a prohibition of harvest would be extremely disruptive to the reef fish fishery.

2.2 Action 2 – Modify Recreational Seasonal for Greater Amberjack

Alternative 1: No Action – Do not modify the current June 1 - July 31 recreational closed season

Alternative 2: Modify the recreational closed season to be March 1 – May 31

Alternative 3: Modify the recreational closed season to March 1 – June 30

Alternative 4: Modify the recreational closed season to January 1 – June 30

Discussion: Alternative 1 would maintain the current fixed closed season June 1-July 31. The original intent of this fixed recreational closed season was to eliminate in-season quota closures and allow one highly targeted species to be open when the other was closed (red snapper and greater amberjack). However, this has become more complex as the recreational sector is now composed of private angling and for-hire components for the harvest of red snapper. For 2017, the for-hire component's red snapper season will be 49 days (June 1 - July 19) and the private angling season will be 3 days (June 1 - June 3). Each of the Gulf states has their own red snapper recreational seasons in state waters that may change unexpectedly. **Alternative 1** retains a fixed closed season during the months with the greatest fishing effort, historically.

Alternative 2 would eliminate the current fixed closed season (June 1 - July 31) and establish a March 1 - May 31 recreational closed season. **Alternative 2** would be consistent with the commercial closed season and would reduce fishing mortality during the peak spawning months (SEDAR 33, 2014). However, the June 1 re-opening coincides with the red snapper season opening when effort and harvest is estimated to be highest, and the season would likely have to be closed prior to year-end to prevent exceeding the allowable harvest.

Alternative 3 would eliminate the current fixed closed season (June 1-July 31) and establish a recreational fixed closed season from March 1 - June 30. This alternative would encompass the commercial fixed closed season (March - May) but include an additional month to protect greater amberjack during peak spawning. This would likely extend the recreational fishing season. **Alternative 3** would establish a longer fixed season closure than **Alternative 1** or **Alternative 2**, but may allow for more total fishing days each year as the season would occur during periods of lower historical effort.

Alternative 4 would eliminate the current fixed closed season (June 1-July 31) and establish a recreational fixed closed season from January 1 - June 30. This would establish the longest fixed closed season of the alternatives considered. Similar to **Alternatives 2-3**, **Alternative 4** would reduce fishing mortality during the spawning season and would extend the fishing season later in the year in comparison to **Alternative 1-3**. Additional analyses will be completed to estimate season length for each of the alternatives in Action 2.

2.3 Action 3: Modify the Recreational Minimum Size Limit

Alternative 1: No Action – Do not modify the current recreational minimum size limit of 34 inches fork length (FL)

Alternative 2: Modify the minimum recreational size limit for greater amberjack to 30 inches FL

Alternative 3: Modify the minimum recreational size limit for greater amberjack to 32 inches FL

Alternative 4: Modify the minimum recreational size limit for greater amberjack to 36 inches FL

Discussion

Alternative 1 would maintain the current 34-inch FL recreational minimum size limit that was implemented in 2016 to allow a greater proportion of individuals to reach sexual maturity prior to entering the fishery. Prior to 2016, the minimum size limit was 30 inches FL. There is concern that the increase in the minimum size limit could have increased the average size and weight of harvested fish allowing ACT to be reached sooner, and shortening the recreational fishing season. In 2016, the average weights and lengths of landed greater amberjack were similar to previous years (Figures 2.3.1 and 2.3.2) suggesting there was little effect from increasing the minimum size limit on the rate the ACT was reached. The terminal year of the most recent stock assessment was 2015 thus, the increased minimum size limit (implemented in 2016) was not included.

In 2017, the recreational fishing season was closed on March 24, 2017 as the allowable harvest was achieved. This season was shorter than expected because of the large quota overage in 2016 that reduced the 2017 ACT. Preliminary Marine Recreational Information Program (MRIP) data also suggest that the average size (and weight) of landed fish was larger in 2017 than previous years. It is unknown if this is a result of variability in the data (Proportional Standard Error was 45%), increased size limit, or condition of the stock because the new regulations have only been in effect for two years.

Alternative 2 would reduce the minimum size limit for greater amberjack to 30 inches FL and **Alternative 3** would reduce the minimum size limit to 32 inches FL. **Alternative 4** would increase the minimum size limit for greater amberjack to 36 inches FL. In general, minimum size limits can be used to affect fishing mortality and the spawning potential of the stocks. Approximately 50% of greater amberjack reach sexual maturity by 32 inches FL (D. Murie, personal communication and SERO 2014). Management changes that increase the minimum size limit would be expected to increase the spawning potential of the stock however, there is concern that the recent increase in minimum size limit or an additional increase to 36 inches FL (**Alternative 4**) would further increase the average size (weight) of animals and increase discards. Given that the minimum size limit of 34 inches FL has been in place only since 2016,

it is difficult to predict the effect from a further modification to the minimum size limit on the length of the recreational season.

Table 2.2.1. Proportion of mature females at selected lengths for greater amberjack in the Gulf of Mexico. At each selected length, the proportion of mature females is estimated using logistic regression. The 95% lower (LCL) and upper (UCL) confidence limits are also provided.

Proportion of mature females			
Fork length (FL, in inches)	Proportion mature	LCL	UCL
30	0.11	0.00	0.23
32	0.45	0.23	0.66
34	0.85	0.69	1.00
36	0.97	0.92	1.00

Source: D. Murie, personal communication and SERO 2014.

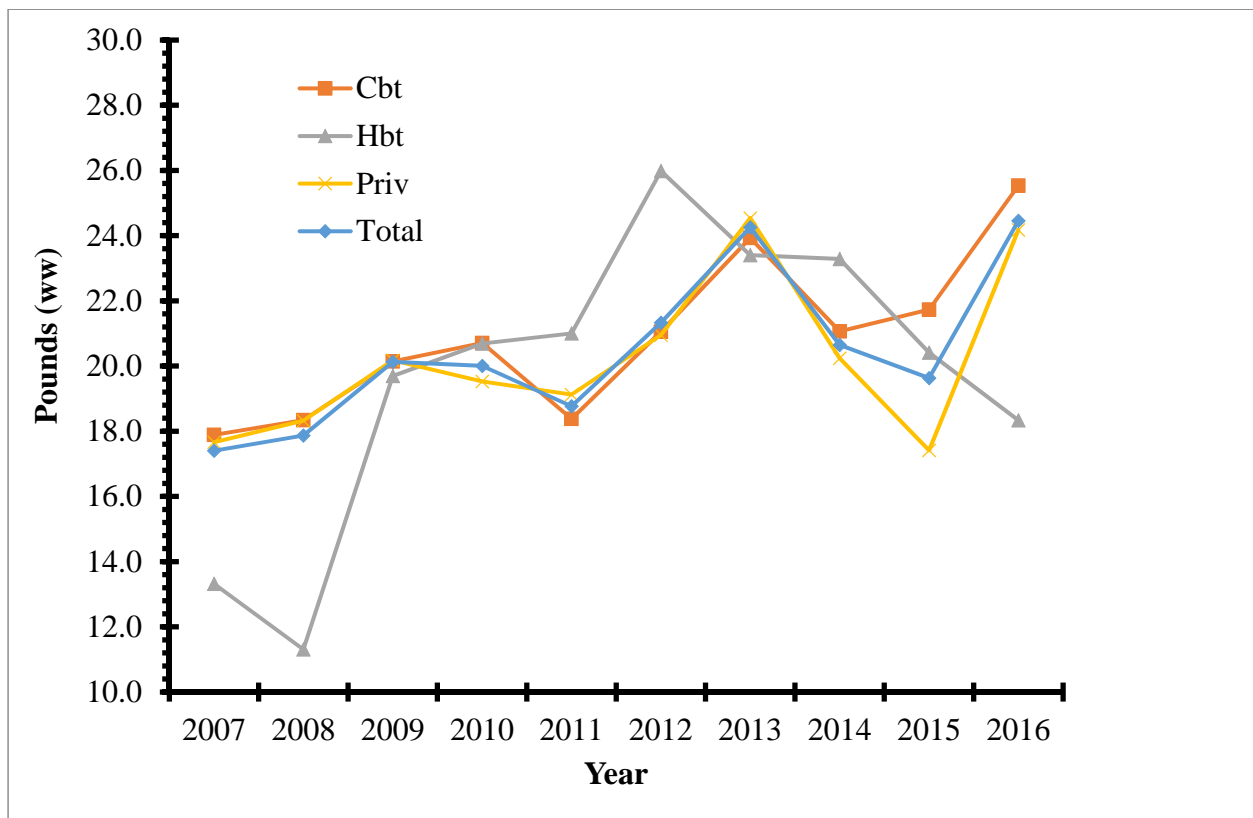


Figure 2.3.1. Average weight (lbs ww) of greater amberjack harvested in the Gulf of Mexico by year and mode.

Source: Southeast Fisheries Science Center recreational (3/20/2017) MRIP dataset.

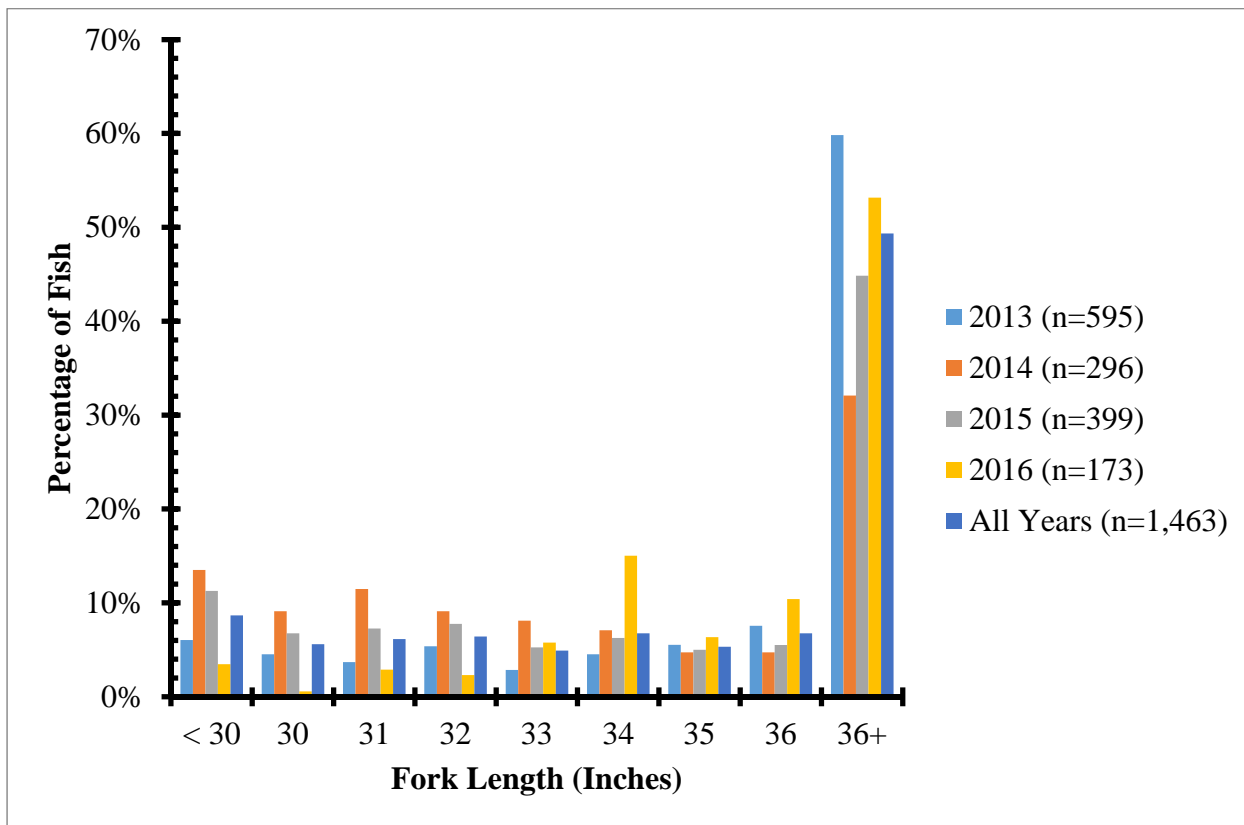


Figure 2.3.2. Length distribution from 2013 to 2016 of recreational harvested greater amberjack generated from Marine Recreational Information Program (MRIP, n=153), Southeast Region Headboat Survey (SRHS, n=839), LA Creel (n=404), and Texas Parks and Wildlife Division (TPWD, n=67). Note: Length data for 2016 from TPWD was unavailable.

CHAPTER 3. REFERENCES

GMFMC. 2002. Secretarial amendment 2 to the reef fish fishery management plan to set greater amberjack sustainable fisheries act targets and thresholds and to set a rebuilding plan. Gulf of Mexico Fishery Management Council, Tampa, Florida.

<http://www.gulfcouncil.org/beta/gmfmcweb/downloads/Secretarial-Amendment-2-RF.pdf>

GMFMC. 2008. Final reef fish amendment 30A: greater amberjack – revised rebuilding plan, accountability measures; gray triggerfish – establish rebuilding plan, end overfishing, accountability measures, regional management, management thresholds and benchmarks including supplemental environmental impact statement, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida. <http://www.gulfcouncil.org/docs/amendments/Amend-30A-Final%202008.pdf>

GMFMC. 2011a. Final generic annual catch limits/accountability measures amendment for the Gulf of Mexico fishery management council's red drum, reef fish, shrimp, coral and coral reefs fishery management plans, including environmental impact statement, regulatory impact review, regulatory flexibility analysis, and fishery impact statement. Gulf of Mexico Fishery Management Council. Tampa, Florida.

http://www.gulfcouncil.org/docs/amendments/Final%20Generic%20ACL_AM_Amendment-September%209%202011%20v.pdf

GMFMC. 2012. Final regulatory Amendment 35 to the reef fish fishery management plan – greater amberjack – Modifications to the Greater Amberjack Rebuilding Plan and Adjustments to the Recreational and Commercial Management Measures. Gulf of Mexico Fishery Management Council. Tampa, Florida.

http://gulfcouncil.org/Beta/GMFMCWeb/downloads/Final_Amendment_35_Greater_Amberjack_Rebuilding_8_May_2012.pdf

GMFMC. 2015g. Modifications to greater amberjack allowable harvest and management measures. Framework action to the fishery management plan for the reef fish resources of the Gulf of Mexico including environmental assessment, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council. Tampa, Florida.

<http://gulfcouncil.org/docs/amendments/Greater%20AJ%20FINAL%20VERSION%207-10-15.pdf>

SEDAR 9 2006. Stock assessment report for Gulf of Mexico greater amberjack. SEDAR9-SAR2. SEDAR, Charleston, SC.

SEDAR 33. 2014. Gulf of Mexico Greater Amberjack Stock Assessment Report. SEDAR, North Charleston SC. 490 pp.

http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=33

SEDAR 33 Update Assessment 2017 33 Gulf of Mexico Greater Amberjack Stock Assessment

Report. SEDAR, North Charleston SC. 490 pp.

http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=33

Turner, S.C., N.J. Cummings, and C.P. Porch. 2000. Stock assessment of Gulf of Mexico greater amberjack using data through 1998. NOAA, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, Florida 33149. SFD-99/00-100.

APPENDIX A. RECREATIONAL AND COMMERCIAL ACL/ACT CONTROL RULES

ACL/ACT Buffer Spreadsheet

version 4.1 - April 2011 Recalculated 3/28/2017

Greater amberjack
Commercial - 2017

sum of points 3

max points 6.0

Buffer between ACL and ACT (or ABC and ACL)

Unweighted 10

Weighted 13

Min. Buffer	0	min. buffer	User adjustable
Max Unw. Buff	19	max unwtd. Buff	
Max Wtd Buff	25	max wtd. buffe	User adjustable

Component	Element score	Element	Selection	Element result			
Stock assemblag		0 This ACL/ACT is for a single stock.	x	0	select	0	FALS
		1 This ACL/ACT is for a stock assemblage, or an indicator species for a stock assemblage					
Ability to Constrain Catch		0 Catch limit has been exceeded 0 or 1 times in last 4 years		2		1	FALS
		1 Catch limit has been exceeded 2 or more times in last 4 years	x				
		For the year with max. overage, add 0.5 pts. For every 10 percentage points (rounded up) above ACL Not applicable (there is no catch limit)	1.0				
		Apply this component to recreational fisheries, not commercial or IFQ fisheries					
Precision of Landings Data Recreational		0 Method of absolute counting		not applicabl	select		FALS
		1 MRIP proportional standard error (PSE) <= 20			select		
		2 MRIP proportional standard error (PSE) > 20					0
		Not applicable (will not be included in buffer calculation)	x			0	
		Apply this component to commercial fisheries or any fishery under an IFQ program					
Precision of Landings Data Commercial		0 Landings from IFQ program		1		1	FALS
		1 Landings based on dealer reporting	x				
		2 Landings based on other					
		Not applicable (will not be included in buffer calculation)					
					select		
Timeliness		0 In-season accountability measures used or fishery is under an IFQ	x	0		0	FALS
		1 In-season accountability measures not used					
				Sum		3	

Weighting factor		Element weight	Element	Selection	Weighting			
Overfished statu		0	1. Stock biomass is at or above B_{OY} (or proxy).		0.3	select	FALS	
		0.1	2. Stock biomass is below B_{OY} (or proxy) but at or above B_{MSY} (or proxy).			select	FALS	
		0.2	3. Stock biomass is below B_{MSY} (or proxy) but at or above minimum stock size threshold (0.3	FALS
		0.3	4. Stock is overfished, below MSST.	x			0.3	FALS
		0.3	5. Status criterion is unknown.			select	FALS	

ACL/ACT Buffer Spreadsheet

version 4.1 - April 2011 - Recalculated 3/28/2016

Greater amberjack
Recreational - 2017

sum of points 6
max points 9.0

Buffer between ACL and ACT (or ABC and ACL) Unweighted 13

Min. Buffer	0 min. buffer	User adjustable
Max Unw. Buff	19 max unwt. Buff	
Max Wtd Buff	25 max wtd. buffe	User adjustable

Weighted 17

Component	Element score	Element	Selection	Element result
Stock assemblag		0 This ACL/ACT is for a single stock.	x	0
		1 This ACL/ACT is for a stock assemblage, or an indicator species for a stock assemblage		
Ability to Constrain Catch		0 Catch limit has been exceeded 0 or 1 times in last 4 years		5
		1 Catch limit has been exceeded 2 or more times in last 4 years	x	
		For the year with max. overage, add 0.5 pts. For every 10 percentage points (rounded up) above ACL	4.0	
		Not applicable (there is no catch limit)		
		Apply this component to recreational fisheries, not commercial or IFQ fisheries		
Precision of Landings Data Recreational		0 Method of absolute counting		1
		1 MRIP proportional standard error (PSE) <= 20	x	
		2 MRIP proportional standard error (PSE) > 20		
		Not applicable (will not be included in buffer calculation)		
		Apply this component to commercial fisheries or any fishery under an IFQ program		
Precision of Landings Data Commercial		0 Landings from IFQ program		not applicabl
		1 Landings based on dealer reporting		
		2 Landings based on other		
		Not applicable (will not be included in buffer calculation)	x	
Timeliness		0 In-season accountability measures used or fishery is under an IFQ	x	0
		1 In-season accountability measures not used		

Sum 6

Weighting factor		Element weight	Element	Selection	Weighting
Overfished statu		0	1. Stock biomass is at or above B_{OY} (or proxy).		0.3
		0.1	2. Stock biomass is below B_{OY} (or proxy) but at or above B_{MSY} (or proxy).		
		0.2	3. Stock biomass is below B_{MSY} (or proxy) but at or above minimum stock size threshold (
		0.3	4. Stock is overfished, below MSST.	x	
		0.3	5. Status criterion is unknown.		