Amendment 11

to the Fishery Management Plan for the Shrimp Fishery of the South Atlantic Region

Modifications to Vessel Transit Provisions Through Cold-Weather Closed Areas

Fishery Impact Statement | Regulatory Impact Review | Regulatory Flexibility Analysis

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Definitions, Abbreviations and Acronyms Used in the FMP

ABC	acceptable biological catch
ACL	annual catch limit
AM	accountability measure
ACT	annual catch target
B	a measure of stock biomass in either weight or other appropriate unit
B_{MSY}	the stock biomass expected to exist under equilibrium conditions when fishing at F_{MSY}
B_{OY}	the stock biomass expected to exist under equilibrium conditions when fishing at F_{OY}
B_{CURR}	The current stock biomass
CPUE	catch per unit effort
DEIS	draft environmental impact statement
EA	environmental assessment
EEZ	exclusive economic zone
EFH	essential fish habitat
F	a measure of the instantaneous rate of fishing mortality
$F_{30\%SPR}$	fishing mortality that will produce a static SPR = 30%
F_{CURR}	the current instantaneous rate of fishing mortality
F_{MSY}	the rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}
F_{OY}	the rate of fishing mortality expected to achieve OY under equilibrium conditions and a corresponding biomass of B_{OY}
FEIS	final environmental impact statement
FMP	fishery management plan
FMU	fishery management unit
M	natural mortality rate
MARMAP	Marine Resources Monitoring Assessment and Prediction Program
MFMT	maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
MRFSS	Marine Recreational Fisheries Statistics Survey
MRIP	Marine Recreational Information Program
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSST	minimum stock size threshold
MSY	maximum sustainable yield
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OFL	overfishing limit
OY	optimum yield
RIR	regulatory impact review
SAFMC	South Atlantic Fishery Management Council
SEDAR	Southeast Data, Assessment, and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
SIA	social impact assessment
SPR	spawning potential ratio
SSC	Scientific and Statistical Committee

Amendment 11 to the Fishery Management Plan for the Shrimp Fishery of the South Atlantic Region

Proposed actions:	Modify transit provisions for shrimp vessels during cold-weather closure events.
Lead agency:	Amendment – South Atlantic Fishery Management Council (Council) Categorical Exclusion – National Marine Fisheries Service (NMFS), Southeast Regional Office
For Further Information Contact:	Chip Collier South Atlantic Fishery Management Council 4055 Faber Place, Suite 201 North Charleston, SC 29405 843-571-4366 866-SAFMC-10 Chip.Collier@safmc.net Frank Helies NMFS, Southeast Region 263 13th Avenue South St. Petersburg, FL 33701 727-824-5305 Frank.Helies@noaa.gov

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Chapter 1. Introduction

1.1 What Action is Being Proposed?

Amendment 11 to the Fishery Management Plan (FMP) for the Shrimp Fishery of the South Atlantic Region (Shrimp FMP) proposes modifying provisions for vessels transiting through cold-weather closed areas in federal waters. Currently, vessels transiting cold-weather closed areas in federal waters of the South Atlantic with brown, pink or white shrimp on board are required to stow a trawl net with a mesh size of less than 4 inches below deck. The action in this amendment would modify the transit and gear stowage measures for the cold-weather closed areas that eliminates the requirement to stow gear below deck.

1.1.1 Options

Status Quo. Brown shrimp, pink shrimp, or white shrimp may be possessed on board a fishing vessel in a closed area, provided the vessel is in transit and all trawl nets with a mesh size less than 4 inches (10.2 cm), as measured between the centers of opposite knots when pulled taut, are stowed below deck while transiting the closed area. A vessel is in transit when it is on a direct and continuous course through a closed area.

Option 1. A vessel may transit South Atlantic cold-weather closed areas while possessing brown shrimp, pink shrimp, or white shrimp provided the vessel is in transit and fishing gear appropriately stowed. Transit means non-stop progression through the area with fishing gear appropriately stowed. Gear appropriately stowed means trawl doors and nets out of the water and bag straps removed from the net.

Option 2. A vessel may transit South Atlantic cold-weather closed areas while possessing brown shrimp, pink shrimp, or white shrimp provided the vessel is in transit and fishing gear appropriately stowed. Transit means non-stop progression through the area with fishing gear appropriately stowed. Gear appropriately stowed means trawl doors in the rack (cradle), nets in the rigging and tied down, and try net on the deck.

Option 1 mirrors the regulations for shrimp vessels transiting areas closed to harvesting for shrimp in the Gulf of Mexico exclusive economic zone (EEZ). **Option 2** was developed and recommended during the January 17, 2020, joint meeting of the South Atlantic Fishery Management Council's (Council) Law Enforcement, Shrimp, and Deep-water Shrimp Advisory Panels. Both options would require non-stop progression through the closed area but have differing definitions of "appropriately stowed." Doors and nets out the water (**Option 1**) would enable law enforcement to see if fishermen are complying with the transit provisions and requiring the bag strap be removed would add another safeguard to prevent quick deployment of fishing gear in closed areas when law enforcement is not present. Doors in the rack (cradle), nets in the rigging and tied down, and try net on the deck (**Option 2**) would also enable law enforcement to see if fishermen are complying with the transit provisions but would take fishermen more time than **Option 1** to stow and deploy fishing gear. For the fishermen that can stow their gear below deck (**Status Quo**), **Option 1** and **Option 2** would reduce the time needed

to stow gear because fishermen would no longer need to disassemble the trawl gear prior to stowing nets less than 4 inches below deck (remove nets from the rigging and the doors). The action is expected to reduce adverse socio-economic and safety at sea impacts associated with the current transit provisions. **Option 1** and **Option 2** could reduce travel time for fishermen that cannot stow their nets below deck and travel around the areas, improve safety at sea because fishermen would spend less time on the water (especially during rough conditions) and less time handling fishing gear, and improve trust in management by making the transit provisions more workable for fishermen. Both options would likely increase compliance with transit provisions as the changes would make it easier for fishermen to stow gear. Both options would continue to allow law enforcement officers to adequately enforce the transit provisions and protect over-wintering white shrimp.

1.2 Why is the Council Considering Action?

The purpose of this action is to modify cold-weather closed area transit provisions to match current fishing vessel designs, reduce the socio-economic impact for fishermen avoiding the closed areas if they cannot comply with the transit regulations, and improve safety at sea while maintaining protection for over-wintering white shrimp and regulation enforceability. During the development of the Shrimp FMP, the Council created closed areas to protect spawning stock white shrimp after significant mortality events associated with cold temperatures and a process that enabled South Atlantic states (Florida through North Carolina) to request a concurrent closure of the brown, pink, or white shrimp (*Litopenaeus setiferus*) trawl fishery in the EEZ adjacent to closed state waters and closure to trawling with nets with stretched mesh less than 4 inches out to 25 nautical miles (SAFMC 1993). These temporary closed areas are called cold-weather closure areas (**Figure 1.2.1**). The closures occurred off Georgia and South Carolina in 2001 and 2018 and occurred off South Carolina only in 2014.

Management Agencies

- ***South Atlantic Fishery Management Council*** – Engages in a process to determine a range of actions and alternatives and recommends action to NMFS.
- ***National Marine Fisheries Service*** and ***Council staffs*** – Develops alternatives based on guidance from the Council and analyzes the environmental impacts of those alternatives. If approved by the Secretary of Commerce, NMFS implements the action through rulemaking.

Prior to the requirements and process for cold weather closures changing in 2013 in Amendment 9 to the Shrimp FMP, an area could be closed if white shrimp abundance decreased by 80% or more based on trawl studies conducted by state or federal agencies (SAFMC 1993), all other specific state requirements were met, and the state requested a concurrent closure of the adjacent EEZ through the Council, including the requirement to convene the Council's Shrimp Review Panel to review the state's EEZ closure request. Amendment 9 modified the requirements for a concurrent EEZ closure and the procedure for states to request a closure (SAFMC 2012). Currently, states can request a closure of the EEZ if white shrimp abundance decreased by 80% or more or if water temperatures were below 48º F (9º C) for at least one week. Temperature was added as an additional criterion to request a closure because white

shrimp mortality was documented to increase at or below 48º F (SAFMC 2012). Amendment 9 streamlined the process by providing that the state's request go directly to the National Marine Fisheries Service, provided the requests include all required documentation.

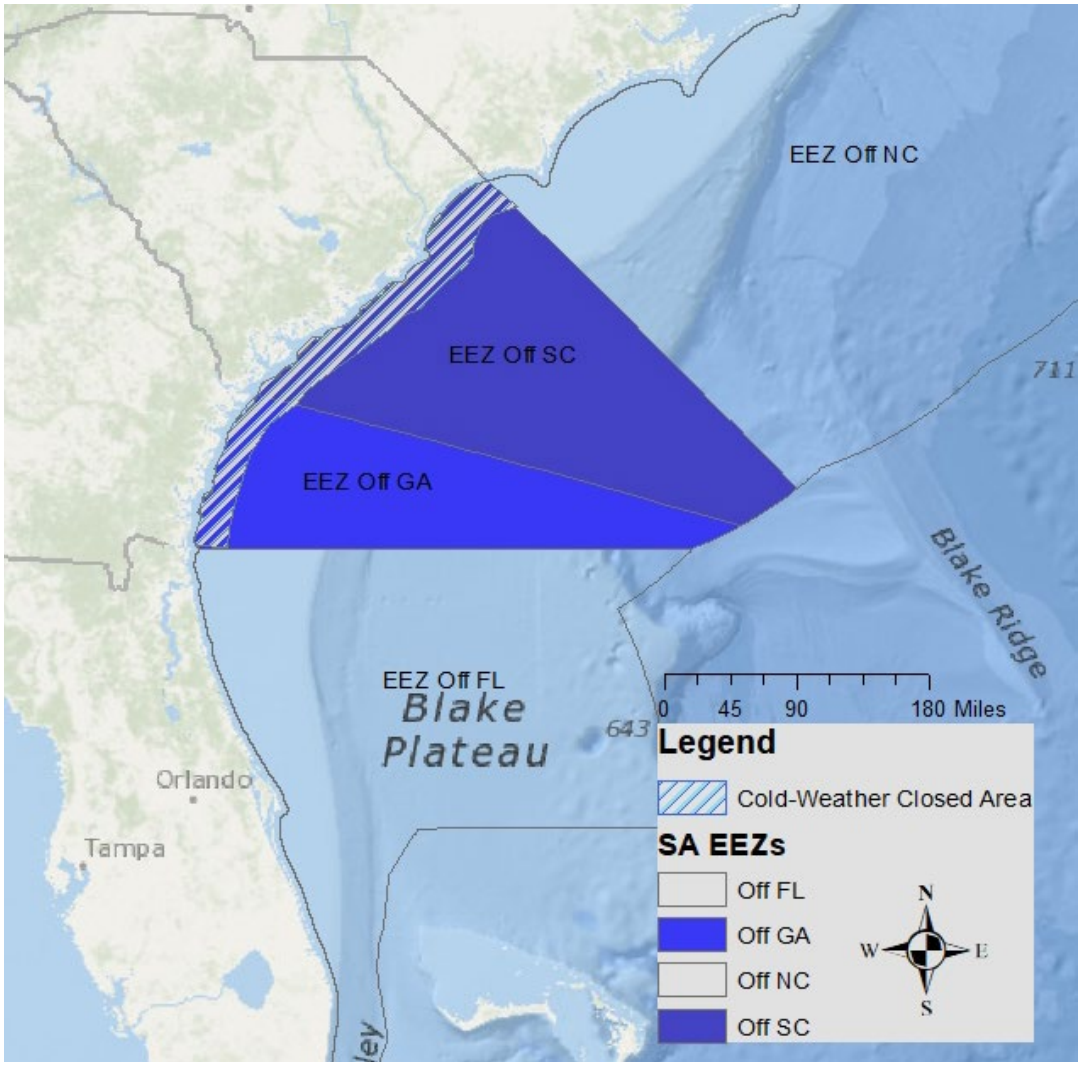

Figure 1.2.1. Map of the EEZ off Florida, Georgia, South Carolina, and North Carolina with the hatched line indicating the approximate area of closed trawling area with nets less than 4 inch stretched mesh and EEZs indicating closed trawling area for brown, pink, or white shrimp.[1] Georgia and South Carolina are highlighted since these are the only two states that have requested closures.

When portions of the EEZ are closed due to a cold weather event and fishermen are transiting the closed area with brown, pink or white shrimp on board, they are required to stow any nets with a mesh size of less than 4 inches below deck and vessels must maintain a direct and continuous course while transiting through the closed area. Fishermen indicated they can no longer stow their gear below deck due to increased bulk from turtle excluder devices, which have become a requirement since the cold-weather closed areas transit provisions were enacted, in a net folded in preparation for below deck stowage and fishing vessel design changes since some vessels no longer have below deck storage easily accessible from the fishing deck. Fishermen

[1] The map is for reference only and should not be used to determine legal boundaries.

also stated it can be dangerous to lower trawl doors to the deck of a shrimp boat when seas are rough in order to disconnect the nets from doors to stow the nets below deck. Transit provisions have been developed for other trawl fisheries in federal waters of the Gulf of Mexico, Mid-Atlantic, New England, and South Atlantic regions (**Table 1.2.1**). Gear stowage requirements when transiting federal waters generally include two or three components: stowage requirement for the doors or the trawl, disconnection of the trawl from the doors, or removal of a trawl part (e.g., remove bag straps). The options for the South Atlantic cold weather closure transit provisions were developed to address fishermen's safety concerns, reduce the negative socio-economics impacts from avoiding the area, protect over-wintering white shrimp, improve compliance, and address enforceability based on regulations in other areas and stakeholder input.

Purpose and Need of Shrimp Amendment 11

The *purpose* is to modify cold-weather closed area transit provisions to match current vessel design, reduce the socio-economic impact for fishermen avoiding the areas if they cannot comply with regulations, and improve safety at sea while maintaining protection for overwintering white shrimp and regulation enforceability.

The *need* is to adjust current regulations because gear cannot be stowed below deck on many vessels.

Table 1.2.1. Transit provisions for vessels crossing closed areas in the Gulf of Mexico, Mid-Atlantic, New England, and South Atlantic regions.

Managed Area	Transit Provisions
Cold-Weather Closure	Brown shrimp, pink shrimp, or white shrimp may be possessed on board a fishing vessel in a closed area, provided the vessel is in transit and all trawl nets with a mesh size less than 4 inches (10.2 cm), as measured between the centers of opposite knots when pulled taut, are stowed below deck while transiting the closed area. For the purpose of this paragraph, a vessel is in transit when it is on a direct and continuous course through a closed area.
Marine Protected Areas	Transit means direct, non-stop progression through the area. Fishing gear appropriately stowed means a trawl or try net may remain on deck, but trawl doors must be disconnected from such net and must be secured.
Spawning Special Management Zones	Transit means direct, non-stop progression through the area. Fishing gear appropriately stowed means trawl doors and nets must be out of the water, but the doors are not required to be on deck or secured on or below deck.
Oculina Bank HAPC	Fishing for or possession of rock shrimp in or from the area is prohibited, except for a shrimp vessel with a valid commercial vessel permit for rock shrimp that possesses rock shrimp may transit through the area if fishing gear is appropriately stowed. For the purpose of this paragraph, transit means a direct and non-stop continuous course through the area, maintaining a minimum speed of five knots as determined by an operating VMS and a VMS minimum ping rate of 1 ping per 5 minutes; fishing gear appropriately stowed means that doors and nets are out of the water.
Gulf of Mexico Marine Protected Areas	A vessel may transit the area with non-stop progression through the area and fishing gear appropriately stowed. A trawl net may remain on deck, but trawl doors must be disconnected from the trawl gear and must be secured.
Gulf of Mexico Closed Shrimping Areas	A vessel may transit with non-stop progression through the Gulf of Mexico EEZ with fishing gear appropriately stowed with trawl doors and nets out of the water and the bag straps must be removed from the net.
Northeast Coral Zones	Vessels may transit the area provided bottom-tending trawl nets are out of the water and stowed on the reel and any other fishing gear that is prohibited in these areas is on board, out of the water, and not deployed. Fishing gear is not required to meet the definition of "not available for immediate use" below[2], when a vessel transits the area.
Northeast Protected Areas	A vessel may transit the area, unless otherwise restricted, provided that its gear is stowed and not available for immediate use as defined in below. A vessel may transit the area, provided there is a compelling safety reason to enter the area and all gear is stowed and "not available for immediate use" as defined below[2].

[2] *Not available for immediate use* means that the gear is not being used for fishing and is stowed in conformance with one of the following methods:
(1) *Nets*—(i) *Below-deck stowage.* (A) The net is stored below the main working deck from which it is deployed and retrieved; (B) The net is fan-folded (flaked) and bound around its circumference.
(ii) *On-deck stowage.* (A) The net is fan-folded (flaked) and bound around its circumference;
(B) The net is securely fastened to the deck or rail of the vessel; and
(C) The towing wires, including the leg wires, are detached from the net.

1.3 What are the Biological Effects of the Action?

The action is anticipated to have no effect on shrimp populations and indirect positive effects on the biological environment in that both options would allow for shorter transit from fishing grounds to port. All the options would protect over-wintering white shrimp, but **Option 1** would have a greater potential for illegal fishing because it would take the least amount of time to deploy fishing gear. A negative impact to white shrimp is likely minimal because the areas would be closed due to a significant reduction in white shrimp abundance (>80%). Therefore, fishing in the area would not be profitable and fishermen would trawl in areas with higher white shrimp abundance.

Positive effects from both **Option 1** and **Option 2** would result from fewer emissions of greenhouse gases and reduced noise pollution caused by reducing travelling time from vessels in transit.

1.4 What are the Economic Effects of the Action?

Economic effects are described in Section 3.

1.5 What are the Social Effects of the Action?

The South Atlantic communities most likely to experience the effects of the proposed action are described here. The description of communities includes information about the top communities based on a "regional quotient" (RQ) of commercial landings and value for shrimp. The RQ is the proportion of landings and value out of the total landings and value of that species for that region and is a relative measure. If a community is identified as a shrimp community based on the RQ, this does not necessarily mean that the community would experience significant impacts due to changes in the fishery if a different species or number of species was also important to the local community and economy.

The majority of the top brown shrimp communities are located in North Carolina, with a few of the top communities located in Florida (**Figure 1.5.1**). About 16% of brown shrimp is landed in the top community of Engelhard, North Carolina, representing about 15% of the South Atlantic-wide ex-vessels value. About 14% of brown shrimp is landed in the second ranked community of Beaufort, North Carolina, representing about 14% of the ex-vessel value.

The top pink shrimp communities are located in Florida, North Carolina, and Georgia (**Figure 1.5.2**). About 54% of pink shrimp is landed in the top community of Key West, Florida, representing about 63% of the South Atlantic-wide ex-vessels value. Collectively, about 18% of pink shrimp is landed in the second and third ranked communities of North Miami and Miami Florida, representing about 9% of the ex-vessel value.

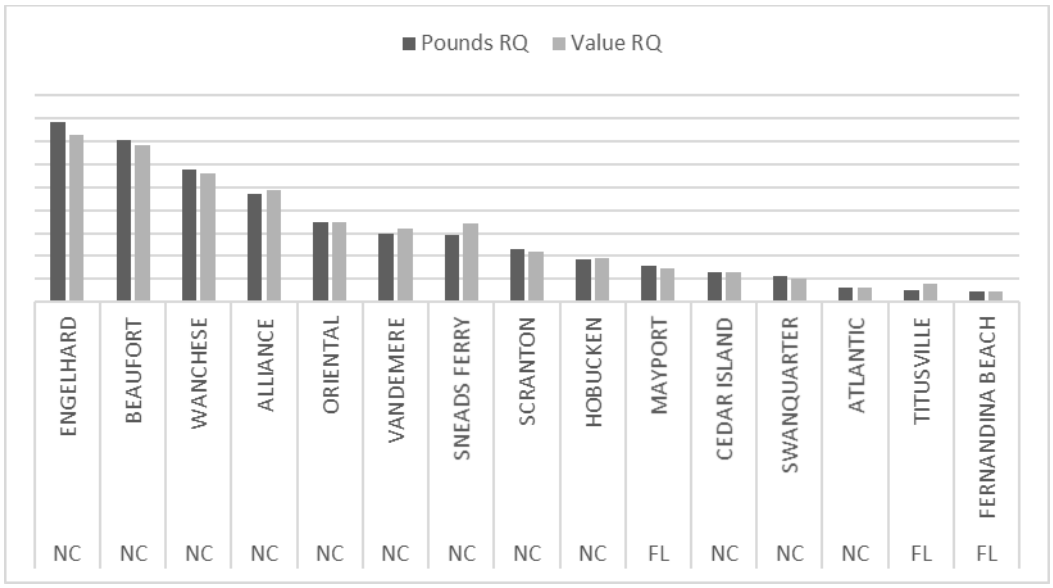

Figure 1.5.1. Top South Atlantic communities ranked by pounds and value RQ of brown shrimp. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SERO, Community ALS 2017.

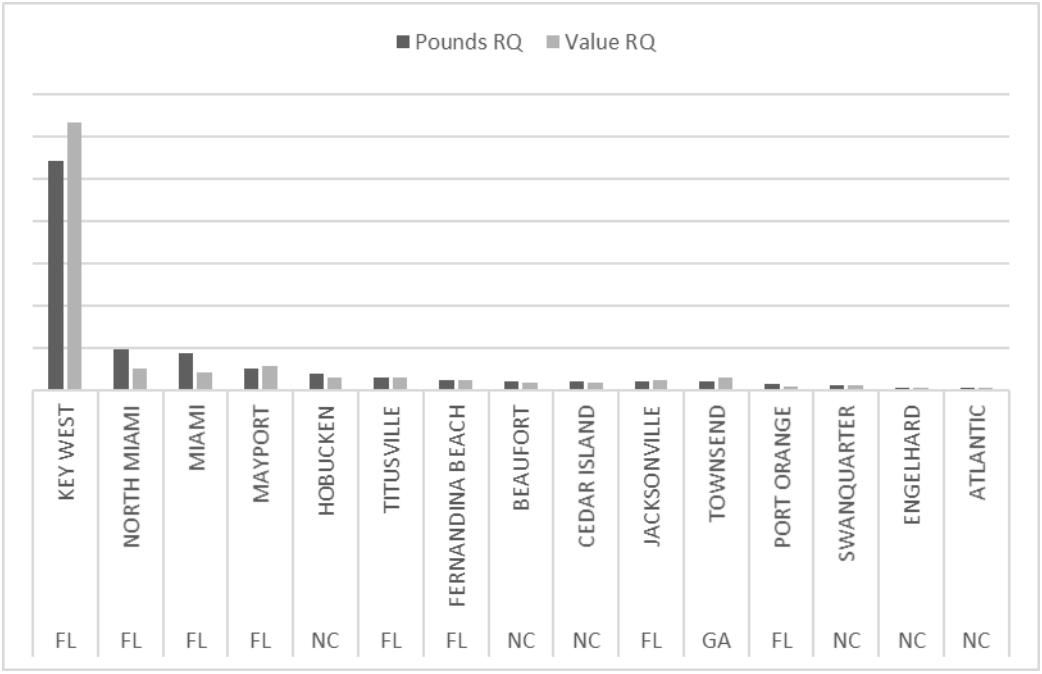

Figure 1.5.2. Top South Atlantic communities ranked by pounds and value RQ of pink shrimp. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SERO, Community ALS 2017.

Top white shrimp communities are located in all four states (**Figure 1.5.3**). Collectively, about 22% of white shrimp is landed in the top two communities of Mayport, Florida, and Engelhard, North Carolina, representing about 21% of the South Atlantic-wide ex-vessel value.

About 10% of white shrimp is landed in the third ranked community of Beaufort, North Carolina, representing about 8% of the ex-vessel value.

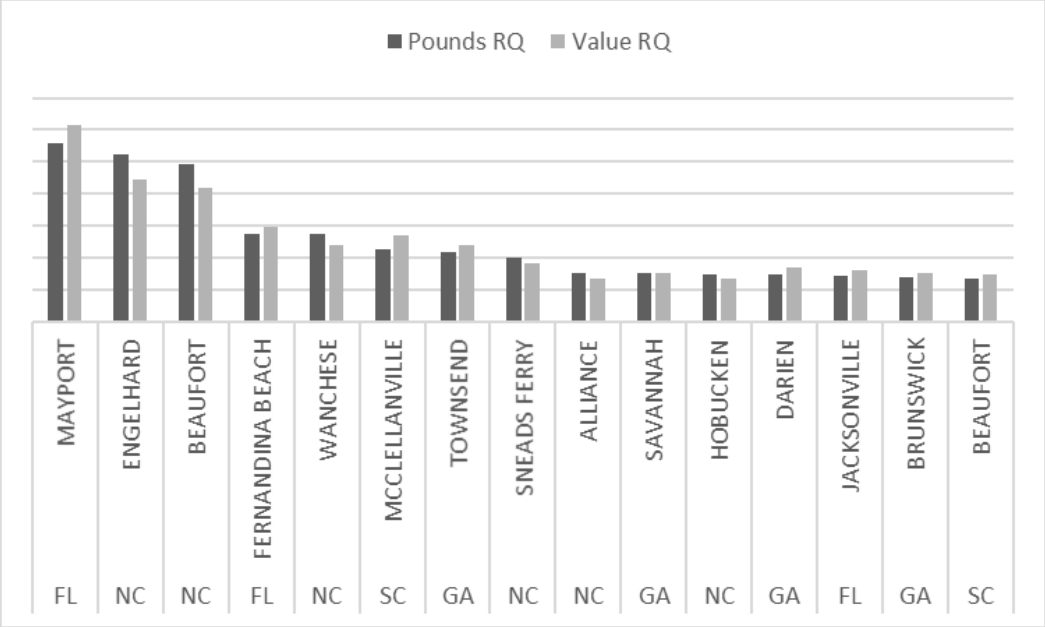

Figure 1.5.3. Top South Atlantic communities ranked by pounds and value RQ of white shrimp. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SERO, Community ALS 2017.

This action is anticipated to have positive social effects to fishing communities in the form of increased compliance and improvements to safety at sea. Shrimp fishermen have indicated that current transit provisions that require nets less than 4 inches be stowed below deck are no longer feasible due to changes in vessel design. Lowering trawl doors to the deck of a shrimp vessel and disconnecting nets from trawl doors creates dangerous conditions for fishermen working on board. Modifying transit provisions to require that trawl doors and nets be out of the water with bag straps removed from the net (**Option 1**) or trawl doors in the rack (cradle), nets in the rigging and tied down, and try net on the deck (**Option 2**), would have positive direct social effects by improving safety at sea while maintaining the necessary enforceability of the transit provisions. Although fishermen must handle the trawl doors to set them in the rack (**Option 2**), doors in the rack is the normal placement of the doors when fishermen are transiting long distances and fishermen have developed methods to place the doors in the rack safely. Since all of the proposed options have some portion of the provisions visible from a distance by law enforcement (nets not visible since stowed below deck (**Status Quo**), fishing gear out of the water (**Option 1**), and doors in the rack, nets in the rigging, and try net on the deck (**Option 2**)), all transit provisions enable at sea enforcement. Additionally, if **Option 1** and **Option 2** result in fishermen choosing to offload their catch in South Carolina or Georgia during cold-water closures, fish houses and dealers in those areas would experience indirect social benefits in the form of more consistent access to product.

Option 1 would expressly align current transit provisions in the South Atlantic with transit provisions for shrimp closed areas in the Gulf of Mexico region. Creating consistency in regulations throughout federal waters would be expected to reduce confusion among shrimp

fishermen who fish in both areas and aid in compliance and enforcement efforts resulting in indirect positive social effects. Alternatively, **Option 2** was developed and recommended by the Council's Law Enforcement, Shrimp, and Deep-water Shrimp Advisory Panels during a joint meeting on January 17, 2020, and matches how many fishermen stow their gear during long transits. Addressing stakeholder concerns and recommendations by striving for consistency between what fishermen and law enforcement experience on the water and management measures can result in increased trust in the science and management process and long-term positive indirect social effects.

1.6 Council Rationale

1.6.1 Law Enforcement and Shrimp/Deepwater Shrimp Advisory Panels (AP) Comments and Recommendations

The Law Enforcement, Deep-water Shrimp, and Shrimp APs met jointly via webinar on January 17, 2020, to the discuss transit provisions for the cold-weather closed areas. The Law Enforcement AP members wanted to consider a vessel monitoring system for the fishery so that vessels could be better tracked. The Deep-water Shrimp and Shrimp APs suggested having doors and nets out of the water with the bag straps (codend ties) removed (**Option 1**) because these transit provisions would require the least amount of time to comply with, they would be enforceable at sea, and matched the Gulf of Mexico transit provision. The APs developed a joint recommendation in order to reach a compromise (**Option 2**). The APs felt this was an appropriate recommendation because it would take more time to set out the gear in the water compared to **Option 1**, it is currently how gear is stowed for long transits, and it would be enforceable at sea. Law enforcement officers were concerned with illegal fishing that could occur under **Option 1 s**ince **Option 1** would require the least amount of time to deploy gear. Law enforcement officers felt there was a chance of illegal fishing occurring when they were not present.

1.6.2 Public Comments and Recommendations

There was only one public comment on the action at the public hearings which were held February 5 and 6, 2020 and no public comments were received through the public comment forum as of February 7, 2020 (https://safmc.wufoo.com/reports/shrimp-amendment-11/). The one public comment was in favor of **Option 1**.

1.6.3 Council's Choice for Action

Chapter 2. Regulatory Impact Review

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest to satisfy our obligations under Executive Order (E.O.) 12866, as amended. In conjunction with the analysis of direct and indirect effects in the "Environmental Consequences" section of this amendment, the RIR: 1) provides a comprehensive review of the level and incidence of impacts associated with a regulatory action; 2) provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives which could be used to solve the problem; and 3) ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way. The RIR also serves as the basis for determining whether any proposed regulations are a "significant regulatory action" under certain criteria provided in E.O. 12866. In addition, the RIR provides some information that may be used in conducting an analysis of the effects on small entities pursuant to the Regulatory Flexibility Act (RFA). This RIR analyzes the effects that this regulatory action would be expected to have on the commercial sector of the South Atlantic shrimp fishery.

2.1 Problems and Objectives

The problems and objectives for the proposed action are presented in **Section 1.2** of this amendment and are incorporated herein by reference.

2.2 Economic Description of the Fisheries

The Fishery Management Plan (FMP) for the Shrimp Fishery of the South Atlantic Region (Shrimp FMP) has not been amended since 2012, and in fact has only been amended twice in the last decade. Nonetheless, some information regarding the fisheries' operations and economic characteristics can be found in Amendment 9 (SAFMC 2012) and Amendment 7 (SAFMC 2008) to the FMP, and that information is incorporated herein by reference. The South Atlantic shrimp fishery consists of three major sectors: the harvesting sector, the dealer/wholesaler sector, and the processing sector. The following discussion provides summary statistics and selected characteristics for these sectors. Imports and the economic impacts of the fishery are also presented.

2.2.1 Harvesting Sector

The harvesting sector is generally composed of two fleets: 1) a small vessel fleet that is predominantly active in inshore and state offshore waters and very diverse with respect to gear and other operating characteristics; and 2) a fleet mostly composed of larger vessels that are predominantly active in offshore waters, particularly the exclusive economic zone (EEZ), and almost always using otter trawl gear. Most vessels in the former are not federally permitted while most vessels in the latter are federally permitted, and in fact must be federally permitted in order to harvest federally managed shrimp species in the South Atlantic EEZ. There are three types of federal shrimp permits in the South Atlantic: 1) penaeid shrimp permit (SPA), 2) the rock shrimp Carolinas Zone permit (RSCZ), and 3) the rock shrimp limited access permit

(RSLA). The first two permits are open access permits. The SPA permit is required to harvest penaeid shrimp (white, brown, and pink shrimp) in the EEZ. The RSCZ permit is required to harvest rock shrimp off of South Carolina and North Carolina. Rock shrimp are an incidentally harvested species off the Carolinas. The RSLA permit is limited access and required to harvest rock shrimp from the EEZ off the east coast of Florida and Georgia, where a directed fishery for rock shrimp is prosecuted.

From 2014 through 2018, most federally permitted vessels possessed an SPA permit, while many fewer possessed either of the rock shrimp permits (**Table 2.2.1.1**). The number of vessels with an RSLA permit has been stable during this time, with the number of vessels possessing an RSCZ permit increasing slightly, while the number of vessels with an SPA permit has been declining (almost 4%). The latter has led to a decrease in the total number of permitted vessels, which has declined by more than 3% during this time. Based on information in Amendment 9, these short-term trends are part of a declining trend in the long-term, with the number of vessels possessing an SPA permit and the total number of permitted vessels declining by about 20% since 2009.

Table 2.2.1.1. Number of South Atlantic Federal Permits and Permitted Vessels from 2014-2018.

Year	SPA	RSLA	RSCZ	Permitted Vessels
2014	579	105	128	605
2015	582	103	126	604
2016	558	103	131	587
2017	561	103	142	591
2018	558	103	139	585

Most vessels participate in the South Atlantic shrimp fisheries by targeting shrimp, particularly white, brown, pink, and rock shrimp, which are also the four species managed under the FMP. For the purposes of the information in **Table 2.2.1.2**, a "shrimp trip" is a trip where at least 1 lb of shrimp is harvested. These shrimp are generally harvested for food or consumption purposes, though some shrimp are harvested for bait purposes. **Table 2.2.1.2** also illustrates that these vessels are highly dependent on revenue from fisheries other than shrimp, i.e., non-shrimp trips. Revenue from non-shrimp trips has typically accounted for around 60% of these vessels' revenues in the aggregate during the 2014-2018 time period, though dependence on revenues from other fisheries varies considerably across vessels.

Participation in the South Atlantic shrimp fisheries was somewhat variable from 2014 through 2018, ranging from a high of 938 vessels in 2015 to a low of 778 vessels in 2018 (**Table 2.2.1.2**). The decline in 2018 is most likely attributable to the cold-weather event and associated closures that were implemented off South Carolina and Georgia during most of the first 6 months of the year.

The South Atlantic shrimp fisheries are composed of vessels with federal permits and those without federal permits. In general, relatively larger vessels tend to have federal permits, particularly those that target rock shrimp. From 2014-2018, most vessels participating in the

shrimp fisheries did not possess federal South Atlantic shrimp permits (approximately 70%). Even though federally permitted vessels are less numerous, they are relatively more productive with respect to shrimp landings and revenue compared to non-permitted vessels, as they accounted for about 78% of the landings and more than 81% of the revenue.

Also, of the vessels that did possess federal permits, on average, only around 44% were active in the South Atlantic shrimp fisheries during this time. The percent of active federally permitted vessels decreased slightly in 2018 compared to the previous 4 years, again most likely due to the cold-weather event and associated closures off South Carolina and Georgia.

South Atlantic shrimp landings and revenue were highly variable from 2014 through 2018. Landings range from a low of about 14.5 million lbs in 2014 to a high of about 27.9 million lbs in 2017. Further, there was a clear upward trend in landings from 2014-2017, which appears to have been interrupted by cold water event and associated closures in 2018. The cause(s) of the increased landings is unknown at this time but does not appear to be driven by increases in participation.

Somewhat similarly, revenue from shrimp landings also saw an upward trend from 2014-2017, but then decreased significantly in 2018. However, the upward trend in revenue was not nearly as significant as the increase in landings as there was also a significant decrease in the average ex-vessel price of shrimp from 2014 to 2015. Though the average price has remained generally stable since 2015, it remains about a $1 per pound lower than it was in 2014. Thus, although landings in 2018 were more than 4 million lbs higher than in 2014, revenue was more than $5 million less in 2018 compared to 2014. In addition, although the decline in shrimp revenue is reflected in the decline in the active shrimp vessels' total gross revenue, it only accounts for about 40% of the latter decline. As **Table 2.2.1.2** illustrates, these vessels experienced an even larger decline in their revenue from other fisheries in 2018. The reason(s) for this decline are unknown at present. Regardless of the reasons, as a result, their total gross revenue decreased by approximately 33% from 2017 to 2018.

Economic surveys of non-federally-permitted vessels in the South Atlantic shrimp fisheries have not been conducted. Economic surveys that may have covered such vessels are many years old, specific to a particular state, and thus are not considered useful for describing recent participation in the fisheries or economic performance. However, an annual economic survey of federally-permitted vessels has been conducted each year since 2009. The most recent annual assessment of these vessels' economic performance was for 2014 (Liese 2017). Response rates to the economic survey in the South Atlantic decreased noticeably between 2012 and 2014. Further, economic performance in shrimp fisheries is usually highly variable from year to year. Thus, a single year will likely not be indicative of typical or average economic performance in these fisheries over time. **Table 2.2.1.3** presents information on the average performance of federally permitted vessels from 2011 through 2014.

Table 2.2.1.2. Selected characteristics of participation in the South Atlantic shrimp fisheries, 2014-2018. Revenue is in 2018 dollars.

	2014	2015	2016	2017	2018
Number of active vessels	853	938	883	885	778
Percent of active vessels with a federal permit	31.1	28.6	30.2	30.8	30.5
Number of active vessels with a federal permit	265	268	267	273	237
Percent of active vessels without a federal permit	68.9	71.4	69.8	69.2	69.5
Number of active vessels without a federal permit	588	670	616	612	541
Number of federally permitted vessels	605	604	587	591	585
Percent active	43.8	44.4	45.5	46.2	40.5
Percent inactive	56.2	55.6	54.5	53.8	59.5
Shrimp Landings (million lbs, heads-on)	14.51	22.75	24.57	27.88	18.74
Shrimp Gross revenue (mill)	$49.58	$52.12	$60.12	$66.88	$44.20
Non-Shrimp Gross Revenue on Shrimp trips (mill)	$.46	$.43	$.64	$.67	$.46
Non-Shrimp Gross Revenue on Non-Shrimp Trips (mill)	$83.58	$80.58	$83.24	$95.45	$64.62
Total Gross Revenue (mill)	$133.62	$133.12	$144.00	$163.01	$109.28
Shrimp landings by federally permitted vessels (mill)	11.02	17.88	18.92	21.67	14.94
Shrimp gross revenue by federally permitted vessels (mill)	$40.07	$42.67	$48.44	$53.86	$36.67
Total Gross Revenue by federally permitted vessels (mill)	$103.95	$103.06	$113.04	$124.20	$86.05
Percent of shrimp landings by federally permitted vessels	75.9	78.6	77.0	77.7	79.7
Percent of shrimp gross revenues by federally permitted vessels	80.8	81.9	80.6	80.5	83.0

*Active in the context of this table means a vessel landed at least 1 lb of shrimp from South Atlantic waters in a given year. All estimates are subject to minor errors as about 0.4% of the gross shrimp revenue could not be assigned to a specific vessel. Source: personal communication, ACCSP, Jan. 15, 2020.

Vessels that target rock shrimp (RSLA) and vessels that are primarily engaged in other fisheries but also harvest South Atlantic penaeid shrimp (SPA secondary) have significantly higher annual gross revenues from fishing relative to vessels that primarily harvest penaeid shrimp (SPA primary; **Table 2.2.1.3**). In fact, the RSLA and SPA secondary vessels' gross revenues are significantly higher than the average federally-permitted Gulf of Mexico shrimp vessel (Liese 2018). In general, although vessels with higher gross revenues also have higher

operating expenses, they also generated greater net cash flow, net revenue from operations, and economic returns. Some vessels' economic characteristics most closely resemble the revenue and economic profiles of one of the three groups of vessels, while others are hybrids and most closely resemble the "average" vessel in the federally-permitted fleet (ALL).[3]

Table 2.2.1.3. Economic and financial characteristics of an average South Atlantic active shrimp vessel with an SPA or RSLA permit, averaged across 2011-2014. All dollar values are in 2018 dollars.

	ALL	RSLA	SPA PRIMARY	SPA SECONDARY
Number of observations	225	29	160	36
Balance Sheet				
Assets	$178,555	$590,424	$126,850	$361,072
Liabilities	$17,844	$78,856	$12,226	$25,938
Equity	$160,711	$511,568	$114,625	$335,134
Cash Flow				
Inflow	$287,632	$728,169	$189,806	$622,485
Atlantic penaeid shrimp	56%	58%	85%	21%
Atlantic rock shrimp	3%	11%	4%	0%
Gulf shrimp (any)	14%	24%	2%	25%
Non-shrimp seafood	24%	1%	5%	53%
Non-fishing revenue	3%	5%	4%	1%
Outflow	$243,752	$597,958	$161,985	$523,631
Net cash flow	$43,880	$130,211	$27,821	$98,854
Income Statement				
Revenue (commercial fishing operations)	$279,630	$693,041	$181,896	$617,999
Expenses	$254,737	$603,719	$174,055	$532,564
Variable costs – Non-labor	42.8%	44.1%	44.0%	41.3%
Variable costs – Labor	34.6%	31.6%	34.1%	36.4%
Fixed costs	22.6%	24.3%	21.9%	22.3%
Net revenue from operations	$24,893	$89,324	$7,841	$85,435
Net receipts from non-operating activities	$6,946	$30,603	$7,436	$2,438
Net revenue before tax (profit or loss)	$31,839	$119,926	$15,277	$87,873
Returns				
Economic Return	14.3%	14.3%	7.5%	22.9%
Return on Equity	20.2%	24.7%	14.9%	25.9%

Source: Liese 2013, Liese and Stemle 2017a, Liese and Stemle 2017b, and Liese 2017.

[3] Information specific to vessels that only possess an RSCZ permit is not provided as the sample sizes in each year are very small and rock shrimp harvested under that permit is the result of incidental harvest rather than targeting.

2.2.2 Dealers and Processors

From 2014 through 2018, the number of South Atlantic food shrimp dealers each year ranged from 311 in 2014) to 369 in 2015. **Table 2.2.2.1** provides selected characteristics for South Atlantic food shrimp dealers. The information regarding purchases of shrimp landings and the value of those purchases is the same information provided in **Table 2.2.1.2** for the harvesting sector and therefore reflects the same trends for the same reasons (e.g., upward trend from 2014-2017 with a decline in 2018). Also similarly, the decline in total revenue in 2018 was due to a decline in purchases of other landings as well as shrimp, and in fact the decline was relatively greater for purchases of other landings than shrimp.

More specifically, between 2014 and 2018, the annual ex-vessel landings and value of shrimp purchases by South Atlantic dealers averaged about 21.69 million lbs and $54.58 million per year (in 2018 dollars). The decline in the average ex-vessel price per lb from 2014 to 2015 is also reflected in **Table 2.2.2.1**. Purchases of other landings averaged around $135 mil per year, while total seafood purchases by these dealers averaged almost $190 million per year from 2014 through 2018. Thus, similar to vessels in the harvesting sector, shrimp dealers are very dependent on purchases of landings other than shrimp, with shrimp representing about 29% of their total purchases and other landings accounting for about 71%.

Although not directly illustrated by the estimates in **Table 2.2.2.1**, the distribution of purchases and the value of those purchases is highly skewed across dealers, suggesting that the population of shrimp dealers is very heterogeneous in economic terms. Specifically, there are a small number of relatively large shrimp dealers that purchase relatively large amounts of shrimp and other seafood landings, but there are also a relatively large number of small dealers that purchase relatively small amounts of shrimp and other landings. Dealers in the former group tend to be processors as well as dealers, while the latter group is composed mostly of shrimp fishermen who also act as their own dealer, generally to avoid the additional costs associated with selling their product to a "traditional" dealer with a dock and offloading facilities. When data distributions are highly skewed, it is generally more appropriate to use the median to represent the "average" rather than the mean.

For e.g., the "average" shrimp dealer only purchased about $8,500 of shrimp landings per year from 2014 through 2018. Purchases of other landings were somewhat higher at almost $26,000 per year. Total seafood purchases per year on average were about $40,000 per year.[4] Thus, the average shrimp dealer is a very small business compared to a shrimp processor and even many shrimp vessels. Further, as illustrated by the percentage of their total seafood purchases that are purchases of shrimp, most shrimp dealers in the South Atlantic are not very specialized and instead are highly dependent on purchases of other landings. Specifically, from 2014 through 2018, shrimp purchases only account for around 35% of their total annual seafood purchases.[5] Thus, although changes in the economics of the shrimp fishery's harvesting sector

[4] Unlike means, median values are not additive and thus the median value of shrimp and other purchases does not equal the median value of their total purchases.

[5] Unlike most of the data distributions regarding shrimp dealers, the percentage of their total purchases coming from shrimp is not highly skewed, and thus mean values are reported in that case.

will affect shrimp dealers, those effects will be muted by their relatively greater dependence on purchases of other landings.

Table 2.2.2.1. Selected characteristics of South Atlantic shrimp dealers, 2014-2018.* Pounds are whole weight (heads-on) and dollar values are in 2018 dollars.

Years	2014	2015	2016	2017	2018
Number of dealers	311	369	346	361	341
Pounds of shrimp purchased (mill)	14.51	22.75	24.57	27.88	18.74
Value of purchased shrimp (mill)	$49.58	$52.12	$60.12	$66.88	$44.20
Average price per pound (mean)	$3.41	$2.29	$2.45	$2.39	$2.36
Total value of other landings purchased by shrimp dealers (mill)	$136.49	$136.22	$139.40	$148.72	$114.20
Total value of all purchases by shrimp dealers (mill)	$186.07	$188.34	$199.51	$215.61	$158.41
Average pounds of shrimp purchased per dealer (median)	3,127	4,087	4,875	3,885	2,445
Average value of shrimp purchased per dealer (median)	$8,179	$8,055	$11,817	$8,446	$5,898
Average value of other landings purchased per dealer (median)	$31,339	$26,813	$25,685	$25,731	$18,447
Average total value of all purchases by shrimp dealers, per dealer (median)	$48,843	$44,150	$40,010	$41,489	$27,229
Average percent of purchases is shrimp, per dealer (mean)	32.0	34.0	36.5	35.9	36.7

*A South Atlantic shrimp dealer is a dealer that purchased shrimp harvested from South Atlantic waters. Dealer estimates are subject to very minor errors as about .14% of shrimp revenue could not be assigned to a specific dealer. Source: personal communication, ACCSP, Jan. 15, 2020.

Information regarding South Atlantic shrimp processors from 2014-2017 is provided in **Table 2.2.2.2**. There are relatively few shrimp processors in the South Atlantic and they tend to be smaller in size with respect to their operations relative to their Gulf of Mexico counterparts. Economic activity by South Atlantic processors seems to vary more directly with changes in shrimp imports (see **Table 2.2.4.1**) than with domestic landings from the South Atlantic (see **Table 2.2.2.1**), though domestic production is still likely a significant component of their processed volume and value. It is not possible using available data to determine whether or to what extent the share of domestic versus imported shrimp has changed. This is to be expected given that processing operations are driven by volume and production from the South Atlantic shrimp fisheries is noticeably smaller with respect to volume compared to the Gulf of Mexico and significantly smaller compared to the volume of imports. Nonetheless, the information in **Table 2.2.3.1** suggests that these processors are highly specialized in and therefore dependent on the processing of shrimp rather than other seafood products, regardless of the source.

Processed volume and value of shrimp was stable from 2014-2016, but value decreased somewhat in 2017 due to a decrease in the average price/lb of processed shrimp. The distribution of processed shrimp in terms of volume and value became less skewed toward the largest processors during this time as well, as reflected by a steady increase in the median

volume and value of processed shrimp per processor. The most noticeable change in their operations has been a 30% reduction in the number of employees. Although this reduction is likely due in part to the decrease in processed price and value in 2017, a significant reduction in employment occurred in 2016 even though volume, price, and value were stable compared to previous years. Thus, employment reductions must be related to a desire or need to reduce operating costs to maintain or increase profitability.

Table 2.2.2.2. Selected characteristics of the South Atlantic food shrimp processing industry, 2014-2017. Pounds are whole weight, dollar values are in 2018 dollars.

Years	2014	2015	2016	2017
Number of processors	8	9	8	8
Million pounds of shrimp processed*	43.3	43.6	44.3	46.6
Average processed price per pound (mean)	$3.40	$3.37	$3.37	$2.88
Value of processed shrimp (millions)	$147.1	$146.8	$149.1	$134.4
Total value of all products processed by South Atlantic shrimp processors (millions)	$155.9	$156.5	$154.0	$138.6
Average pounds of shrimp processed per processor (median)	562,707	536,794	743,065	979,920
Average value of processed shrimp per processor (median, millions)	$2.42	$2.31	$2.77	$2.58
Average total value of all products processed by shrimp processors, per processor (median, millions)	$4.16	$4.45	$3.91	$3.77
Average percent of total processed value is food shrimp, per processor (median)	94.1	79.8	92.7	95.5
Total number of employees	542	535	450	380

* Includes all shrimp regardless of where harvested/produced, but only includes shrimp processed for human consumption (i.e., shrimp processed for bait or shrimp meal are excluded). Most averages are reported in terms of medians rather than means because the data distributions are highly skewed. Source: personal communication, Office of Science and Technology, Oct. 21, 2019.

2.2.3 Economic Impacts of the South Atlantic Shrimp Fishery

The commercial harvest and subsequent sales and consumption of shrimp generates business activity as fishermen expend funds to harvest shrimp and consumers spend money on goods and services, such as shrimp purchased at a local seafood market and served during restaurant visits. These expenditures spur additional business activity in the region(s) where the harvest and purchases are made, such as jobs in local seafood markets, grocers, restaurants, and fishing supply establishments. In the absence of the availability of a given species for purchase, consumers would likely spend their money on substitute goods and services. As a result, the analysis presented below represents a distributional analysis only; that is, it only shows how economic impacts may be distributed through regional markets.

Economic impact models are used to determine the current economic impacts of an industry or sector, as reflected by these measures, as well as changes expected to occur if expenditures or gross revenues change in a particular industry or sector. Economic impacts are generally characterized in terms of jobs (full- and part-time), income impacts (wages, salaries, and self-

employed income), output impacts (gross business sales), and value-added impacts, which represent the contribution made to the U.S. Gross Domestic Product (GDP), that accrue to the local, state, regional and the national economy as a result of expenditures or gross revenues. These impacts should not be added together because this would result in double counting. These results are based on average relationships developed through the analysis of many fishing operations that harvest many different species. Separate models to address individual species are not available. Estimates were derived using the model developed for and applied in NMFS (2018).[6]

Average gross revenue from shrimp harvested in South Atlantic waters averaged about $54.581 million between 2014 and 2018 in 2018 dollars.[7] Estimates of the economic impacts generated as a result of this revenue are provided in **Table 2.2.3.1**. According to this information, the South Atlantic shrimp fishery generated employment, income, value added, and output (sales) impacts of 6,683 jobs, $186.23 million, $266.77 million, and $528.61 million, respectively.

6 A detailed description of the input/output model is provided in NMFS (2011).

7 Although a small percentage of revenue on South Atlantic shrimp trips comes from species other than shrimp, economic multipliers are species or fishery specific and thus economic impacts from non-shrimp species on shrimp trips are not included.

Table 2.2.3.1. Economic impacts of the South Atlantic Shrimp Fishery. All monetary estimates are in thousands of 2018 dollars and employment is measures in full-time equivalent jobs.

INDUSTRY SECTOR	DIRECT	INDIRECT	INDUCED	TOTAL
Harvesters				
Employment impacts	939	183	212	1,333
Income impacts	22,699	6,412	11,173	40,284
Total value added impacts	24,196	22,976	19,295	66,468
Output impacts	54,581	53,047	37,088	144,715
Primary dealers/processors				
Employment impacts	254	101	176	531
Income impacts	9,615	8,861	8,381	26,857
Total value added impacts	10,249	11,307	15,779	37,335
Output impacts	30,947	23,310	30,844	85,101
Secondary wholesalers/distributors				
Employment impacts	64	14	62	140
Income impacts	3,115	926	3,276	7,317
Total value added impacts	3,320	1,554	5,595	10,469
Output impacts	8,343	3,042	10,882	22,266
Grocers				
Employment impacts	395	44	87	527
Income impacts	9,223	3,044	4,598	16,864
Total value added impacts	9,831	4,905	7,784	22,519
Output impacts	15,763	7,966	15,282	39,010
Restaurants				
Employment impacts	3,383	223	546	4,152
Income impacts	50,869	15,244	28,791	94,903
Total value added impacts	54,223	27,249	48,509	129,981
Output impacts	99,148	42,640	95,723	237,512
Harvesters and seafood industry				
Employment impacts	5,035	566	1,083	6,683
Income impacts	95,520	34,487	56,219	186,226
Total value added impacts	101,820	67,990	96,963	266,773
Output impacts	208,782	130,005	189,818	528,605

Source: Calculated by NMFS SERO using the model developed for and applied in NMFS (2017).

2.2.4 Imports

On average, between 2014 and 2018, the United States has imported almost 1.4 billion lbs (product weight) of shrimp products annually. The volume of shrimp imports steadily increased during this time, rising by almost 23%, with the largest increase occurring in 2017. The value of imported shrimp products averaged $6.35 billion (2018 dollars) annually between 2014 and 2018. Contrary to the trend in volume, the value of shrimp imports decreased significantly, by almost 20%, from 2014 to 2015, suggesting a significant decline in the average price of shrimp imports in 2015. Although shrimp import value rebounded over the next few years, it decreased

again in 2018 and has still not recovered to the level seen in 2014. **Table 2.2.4.1** provides annual pounds and value of shrimp imports and the share of imports by country of origin.

The distribution of market share between countries exporting shrimp to the United States, as measured by value, has changed significantly over time. Thailand was the primary country of origin for shrimp products imported into the United States between 2007 and 2012, and in fact typically accounted for about one-third of all imports during that time. Vietnam and Indonesia were the next largest exporting countries to the United States, but still only accounted for about 20% of shrimp imports during that time. However, the market share of imports between countries changed dramatically in 2012 and 2013 as Thailand's imports decreased significantly due to a breakout of Early Mortality Syndrome (EMS). As imports of shrimp from Thailand decreased other countries took advantage of the situation by increasing their exports of shrimp to the United States and, as a result, have increased their market share in recent years. Most notably, although India only represented 5% of the market back in 2007, it has essentially captured the market share Thailand use to have, and represented almost 36% of the import market as of 2018. Although Indonesia was able to maintain its market share at just over 19% from 2014 through 2018, the market shares for other major exporting countries (Vietnam, Ecuador, and Thailand) have declined during this time.

Table 2.2.4.1. Annual pounds and value of shrimp imports and share of imports by country, 2014-2018.

	2014	2015	2016	2017	2018
Pounds of shrimp imports (product weight, million pounds)	1,251,223	1,291,512	1,330,305	1,463,800	1,533,480
Value of shrimp imports (millions $, nominal)	$6,708	$5,435	$5,705	$6,545	$6,236
Value of shrimp imports (millions $, 2018$)	$7,142	$5,725	$5,945	$6,693	$6,236
Share of Imports by Country					
India	20.6	23.4	26.2	33.2	35.5
Indonesia	19.7	20.2	19.4	18.1	19.5
Vietnam	15.0	12.1	12.0	9.7	9.9
Ecuador	13.4	11.7	10.3	8.8	8.4
Thailand	12.2	13.8	14.5	12.4	8.9
Mexico	4.5	5.9	5.2	5.2	5.4
China*	4.0	3.5	4.1	5.1	4.5
All others	10.6	9.4	8.3	7.5	7.9

Source: Pounds of Shrimp Imports (GOM Data Management, pers. comm., April 1, 2019). Values and market share by country (Office of Science and Technology, pers. comm., Jan. 14, 2020). *Does not include imports from Hong Kong, Taipei, or Macao.

2.3 Effects of Management Measures

Cold-Weather Transit Provisions

Cold-weather closures for shrimp in the South Atlantic EEZ are relatively infrequent. Thus, there would be no difference in the economic effects of the **Status Quo** compared to **Option 1** or **Option 2** in most years. The **Status Quo** would continue to require all vessels possessing shrimp and transiting through affected portions of the South Atlantic EEZ to stow all trawl nets with a mesh size less than 4 inches below deck in years when cold weather closures are implemented. Based on landings data from January through June 2018, which is the most recent year that a cold weather closure took place, 33 vessels[8] with homeports in states north of Florida offloaded shrimp in the state. This serves as an estimate of the likely number of vessels that may be affected by cold weather closure transit provisions. Some vessel operators have indicated that they cannot readily stow their trawl nets below deck due to vessel design changes and are unable to comply with current gear stowage requirements. As such, the **Status Quo** may result in negative economic effects because shrimp vessels that are unable or unwilling to store fishing gear according to the **Status Quo** may need to offload shrimp at an alternate port instead of their home port. This potentially affects revenue for some vessels, since these vessels may not be able to offload at their preferred location and these vessels may also face increased costs. Some vessels may need to take a more indirect route back to their homeport through state waters instead of federal waters to avoid the federal transit provisions and thus would experience increased fuel usage and other trip-related costs. Additionally, vessels choosing to land shrimp

[8] Source: personal communication, ACCSP, Jan. 15, 2020.

in Florida but sell to dealers in states north of Florida may partially or wholly absorb offloading costs and land-based transit costs. The magnitude of the potential negative economic effects from the **Status Quo** would be represented by lower net revenue and thus lower net economic benefits for the affected vessels.

The **Status Quo** also affects some shrimp dealers in years when cold-weather closures occur. If fishing vessels are not able to bring shrimp with them when returning to their home port, dealers in that home port may be negatively affected through foregone sales of shrimp. Additionally, based on public comment, some shrimp dealers need to transport shrimp by land-based methods to their location from a vessel's offloading site when cold weather closures are in place. In such cases, these affected dealers face increased shipping costs and may bear a portion of offloading costs, which may decrease net revenue and thus decrease net economic benefits for these dealers.

Option 1 would allow vessels possessing brown shrimp, pink shrimp, or white shrimp to transit through cold-weather closed areas in affected portions of the South Atlantic EEZ provided that the vessel remains in transit and gear is stowed with trawl doors and nets out of the water, with bag straps removed from the nets. Relative to the **Status Quo**, **Option 1** would be easier to comply with and expected to result in direct economic benefits in years when federal cold-weather closures are in place. Shrimp vessels that previously were unable to store fishing gear according to the **Status Quo** could more easily comply with gear stowage requirements and would be able to more easily return to their homeport with shrimp on board. This would potentially increase the affected vessels' net revenue by reducing potential costs such as offloading and land-based transit costs as well as lowering trip costs if a more direct route back to the vessels' homeport through federal waters is more feasible. The magnitude of the positive economic effects that may result from **Option 1** would be represented by higher net revenue and thus increased net economic benefits for the affected vessels.

Option 1 would also benefit some shrimp dealers in years when cold-weather closures occur. If vessels are able to possess shrimp when returning to their home port, dealers in the home port may be positively affected through increased sales of shrimp, thus representing a likely increase in economic benefits. Additionally, some shrimp dealers would not need to ship shrimp from a vessel's offloading site to the dealer location. In such cases, these affected dealers would no longer face increased shipping costs and may no longer bear a portion of the offloading costs, which likely would result in increased net revenue and thus increased net economic benefits for these dealers.

Option 2 would allow vessels possessing brown shrimp, pink shrimp, or white shrimp to transit through cold-weather closed areas in affected portions of the South Atlantic EEZ provided that the vessel remains in transit and gear is stowed with trawl doors in the rack and nets in the rigging are tied down with the try net on the deck. The economic effects of **Option 2** would be similar to those described for **Option 1**, but **Option 2** would be more burdensome and likely time consuming for fishermen to comply with at sea. This may result in higher opportunity costs for **Option 2** compared to **Option 1**. Overall, **Option 1** is expected to potentially increase net economic benefits for shrimp vessels and dealers the most out of the options considered,

followed by **Option 2** and the **Status Quo**. Quantitative estimates of the described economic effects are not available with current data.

The gross revenue for dealers that is generated for shrimp landings may be the similar across the options considered, however there may be some distributive economic effects among dealers by state. The **Status Quo** may be beneficial to dealers in Florida, since the current regulations encourage shrimp to be landed in Florida rather than in states further north when cold weather closures are in place. If transit provisions are relaxed under **Option 1** and **Option 2**, dealers in states north of Florida may receive greater landings of shrimp that would have otherwise been sold by dealers in Florida. Thus **Option 1** and **Option 2** may increase economic benefits for dealers in states north of Florida, which in turn would reduce economic benefits for dealers in Florida.

2.4 Public Costs of Regulations

The preparation, implementation, enforcement, and monitoring of this or any federal action involves the expenditure of public and private resources, which can be expressed as costs associated with the regulations. Costs to the private sector are discussed in the effects of management measures. Estimated public costs associated with this action include:

South Atlantic Council costs of document preparation, meetings, public hearings, and information dissemination	$11,533
NMFS administrative costs of document preparation, meetings, and review	$5,640
TOTAL[9]	$17,173

The estimate provided above does not include any law enforcement costs. Any enforcement duties associated with this action would be expected to be covered under routine enforcement costs rather than an expenditure of new funds. The South Atlantic Council and NMFS administrative costs directly attributable to this amendment and the rulemaking process would be incurred prior to the effective date of the final rule implementing this amendment.

2.5 Net Benefits of Regulatory Action

It is important to specify the time period being considered when evaluating benefits and costs. According to OMB's FAQs regarding Circular A-4,[10] "When choosing the appropriate time horizon for estimating costs and benefits, agencies should consider how long the regulation being analyzed is likely to have resulting effects. The time horizon begins when the regulatory action is implemented and ends when those effects are expected to cease. Ideally, analysis should include all future costs and benefits. Here as elsewhere, however, a 'rule of reason' is

[9] Calculations are inclusive of the estimated cost of total staff time dedicated to amendment development and applicable meeting costs (Scoping, Public Hearings, South Atlantic Fishery Management Council, Scientific and Statistical Committee, and Advisory Panel meetings).

[10] See p. 4 at https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/OMB/circulars/a004/a-4_FAQ.pdf

appropriate, and the agency should consider for how long it can reasonably predict the future and limit its analysis to this time period. Thus, if a regulation has no predetermined sunset provision, the agency will need to choose the endpoint of its analysis on the basis of a judgment about the foreseeable future."

For current purposes, the reasonably "foreseeable future" is considered to be the next 5 years. There are two primary reasons for considering the next 5 years the appropriate time period for evaluating the benefits and costs of this regulatory action rather than a longer (or shorter) time period. First, this regulatory action does not include a predetermined sunset provision. Second, based on the history of management of fisheries in the South Atlantic Region, regulations such as those considered in this amendment are often revisited within 5 years or so.

The estimated non-discounted public costs resulting from the regulation are $17,173 (2018 dollars). The costs resulting from the amendment and the associated rulemaking process should not be discounted as they will be incurred prior to the effective date of the final rule. There are no quantified net changes in economic benefits for this action. However, a qualitative analysis of the economic effects of this amendment, as discussed in **Section 2.3**, indicates notable potential positive economic effects that may outweigh the quantified public cost. Based on the analyses of economic effects as well as the deregulatory nature of this amendment, this regulatory action is expected to increase net benefits to the Nation.

2.6 Determination of Significant Regulatory Action

Pursuant to E.O. 12866, a regulation is considered a "significant regulatory action" if it is likely to result in: 1) an annual effect of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; 2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; 3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or 4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order. Based on the information provided above, these actions have been determined to not be economically significant for the purposes of E.O. 12866.

Chapter 3. Regulatory Flexibility Act Analysis

To be completed

Chapter 4. References

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Appendix A. Fishery Impact Statement (FIS)

To be completed

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires that a fishery impact statement (FIS) be prepared for all amendments to fishery management plans. The FIS contains: 1) an assessment of the likely biological, economic, and social effects of the conservation and management measures on fishery participants and their communities; 2) an assessment of any effects on participants in the fisheries conducted in adjacent areas under the authority of another Fishery Management Council; and 3) the safety of human life at sea. Detailed discussion of the expected effects for all proposed changes is provided in Chapters 1 and 2. The FIS provides a summary of these effects.

Actions Contained in Amendment 11 to the Fishery Management Plan (FMP) for the Shrimp Fishery of the South Atlantic Region (Amendment 11)

Amendment 11 would modify provisions for vessels transiting through cold-weather closed areas in federal waters.

Assessment of Biological Effects

Assessment of Economic Effects

Assessment of Social Effects

Assessment of Effects on Safety at Sea