11/19/14

Adjustments to the Annual Catch Limit and Accountability Measure for Royal Red Shrimp

Amendment 16

to the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, U.S. Waters

Including Supplemental Environmental Impact Statement, Regulatory Impact Review, and Regulatory Flexibility Act Analysis

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Gulf of Mexico Shrimp 16
Supplemental Environmental Impact Statement (SEIS)

Abstract: This SEIS is prepared pursuant to the National Environmental Policy Act to assess the environmental impacts associated with a regulatory action. The SEIS analyzes the impacts of a reasonable range of alternatives intended to: 1) set the commercial annual catch limit for royal red shrimp and determine if the use of a commercial quota should continue, and 2) choose a commercial accountability measure for royal red shrimp. This SEIS is a supplement to the EIS for the 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 (available at http://www.gulfcouncil.org/docs/amendments/Final%20Generic%20ACL_AM_Amendment-September%209%202011%20v.pdf).

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ABBREVIATIONS USED IN THIS DOCUMENT

ABC	acceptable biological catch
ACL	annual catch limit
ALS	accumulated landings system
AM	accountability measure
Bi Op	biological opinion
BRD	bycatch reduction device
Council	Gulf of Mexico Fishery Management Council
CZMA	Coastal Zone Management Act
DPS	distinct population segment
DWH	Deepwater Horizon MC252 oil spill
EA	environmental assessment
EEZ	exclusive economic zone
EFH	essential fish habitat
EIS	environmental impact statement
EJ	environmental justice
ELB	electronic logbook
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FIS	fishery impact statement
FMP	fishery management plan
GMFMC	Gulf of Mexico Fishery Management Council
GRRS	Gulf royal red shrimp endorsement
Gulf	Gulf of Mexico
HAPC	habitat area of particular concern
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
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
PBR	potential biological removal
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
Secretary	Secretary of Commerce
SEFSC	Southeast Fishery Science Center
SEIS	supplemental environmental impact statement
SERO	NMFS' Southeast Regional Office
SPGM	Gulf shrimp moratorium permit
SSC	scientific and statistical committee
TALFF	total allowable level of foreign fishing
TED	turtle excluder device
USCG	United States Coast Guard
VOOP	vessel of opportunity program

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EXECUTIVE SUMMARY

On January 30, 2012, the National Marine Fisheries Service (NMFS) implemented regulations developed by the Gulf of Mexico Fishery Management Council (Council) through a generic annual catch limit (ACL) and accountability measures (AM) amendment. The generic amendment modified multiple fishery management plans, including the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, United States Waters. For royal red shrimp, the "no action" alternatives and discussions were incorrect in stating that there were currently no management restrictions because a quota and in-season quota closure were in the regulations. Now, the quota and in-season closure are in conflict with and redundant to the subsequently established ACL and AM. The purpose of this amendment is to select an ACL and AM for royal red shrimp. The supplemental environmental impact statement analyzes a range of alternatives for two actions.

Action 1: Adjust the annual catch limit and quota for royal red shrimp

The current ACL is 334,000 lbs of tails and the current quota is 392,000 lbs of tails. In 2012, the ACL was set to equal the acceptable biological catch (ABC). In March 2014, the Council's Scientific and Statistical Committee revised the ABC from 334,000 lbs of tails to 337,000 lbs of tails. Action 1 addresses the ACL and quota conflict with three alternatives.

Alternative 1, no action, would be inconsistent with the Magnuson-Stevens Fishery Conservation and Management Act because the quota can be equal to, but cannot be set higher than, the ABC. **Alternative 2** would remove the quota and retain the ACL, resolving the conflict. **Preferred Alternative 3** would remove the quota and the current ACL and establish a new ACL of 337,000 lbs of tails.

Trawling, the primary method used for shrimping, impacts the physical environment because the heavy doors of the trap drag along the bottom and the tickler chains scrape along the sea floor. The shrimp fishery is prosecuted primarily over soft substrates, such as mud or silt, which are more resilient to disturbance than other bottom types. Although the royal red shrimp fishery is prosecuted in depths and near areas that are likely to contain deep-sea coral communities, fishermen avoid such areas because entanglement and loss of gear is likely. Impacts to the biological environment include potential bycatch of non-targeted species and potential removal of benthic organisms by the trawl. With **Alternative 1,** the fishery would continue to be prosecuted with the impacts to the physical and biological environments described above. Given the shrimp permit moratorium, increased fuel costs, and decreased number of vessels in the fishery, the ACLs in either **Alternative 2** or **Preferred Alternative 3** would be unlikely to result in additional impacts.

Alternative 1 would not be expected to affect the economic environment because royal red shrimp landings have been far below the quota and the ACL. Based on the reduced number of vessels targeting royal red shrimp and the steady decline in the pounds of tails landed during the last 10 years, royal red shrimp harvest would not be likely to approach either ACL set by **Alternative 2** or **Preferred Alternative 3.** Therefore, economic effects are not expected from

Preferred Alternative 3 or **Alternative 2.** In the future, should royal red shrimp harvests increase and reach the ACL, **Preferred Alternative 3** would be more beneficial to the industry because it sets a slightly higher ACL than **Alternative 2.**

Social effects may be expected to result from modifying catch limits (ACLs or quotas), should total landings reach or exceed the existing catch limit, triggering the AM. Because royal red shrimp landings are unlikely to exceed any of the catch limits in the alternatives, none of these impacts would be expected to result from modifying the ACL and quota in this action.

Alternative 1 would keep the quota, maintaining the current administrative burden of in-season monitoring and closure. **Alternative 2** and **Preferred Alternative 3** would remove the quota and set an ACL that is either lower than (**Alternative 2**) or equal to (**Preferred Alternative 3**) the ABC and would make the regulations consistent with the national standard guidelines. The difference between the ACLs in **Alternative 2** and **Preferred Alternative 3** is 3,000 lbs of tails per year. This small difference in ACLs would only be expected to result in minor differential impacts. However, the ACL in **Preferred Alternative 3** allows for more shrimp to be caught which makes the AM less likely to go into effect, and therefore, is less burdensome.

<u>Action 2: Adjust the accountability measure and closure procedures for royal red shrimp</u>

The original management plan for shrimp established in-season monitoring and closure of the royal red component of the shrimp fishery if the quota is met or projected to be met. In 2012, the Council set a post-season accountability measure under which NMFS will not monitor landings in-season unless the ACL is exceeded in one year based on a review of landings after the end of the year. Then, NMFS will monitor the stock in-season in the following year and implement a closure if landings reach or are projected to reach the ACL in the second year. If a closure is not necessary the second year, then in-season monitoring will stop in subsequent years unless the ACL is exceeded again. Action 2 addresses the AM redundancy with three alternatives.

Alternative 1, no action, would retain both AMs; however, the in-season closure makes the second season monitoring and closure from the 2012 rule irrelevant because NMFS would monitor landings in-season every year. **Preferred Alternative 2** retains the 2012 AM that triggers in-season monitoring and closures only if the ACL was exceeded in the previous year, and removes the in-season quota closure that could occur every year. The Council chose this AM previously because they determined they had no reason to expect that the stock would exceed its ACL and wished to reduce the administrative burden of in-season quota monitoring versus post-season monitoring. **Alternative 3** would retain the in-season monitoring and closure and remove the 2012 AM.

For **Alternative 1**, if landings reached the ACL in a year, NMFS would prohibit fishing for royal red shrimp and the stock would be protected from overfishing. Given the same ACL, in practice **Alternative 1** would function the same as **Alternative 3** because in-season monitoring would occur every year; therefore, the impacts would be the same. **Preferred Alternative 2** would require in-season monitoring only if the previous year's landings exceeded the ACL and would only trigger a closure in the subsequent year if the ACL is projected to be reached again. This option could allow an overage in a year before the AM would be triggered, which would have

increased negative impacts on the physical and biological environments, including additional fishing mortality and impacts to habitat from fishing gear. However, average annual landings for the last ten years have been well below any proposed ACL in Action 1 since 1962. Therefore the probability of an overage is expected to be very small, and any additional impacts on the physical and biological environments would be unlikely.

For **Alternative 1,** the AM set in 2012 is redundant with the in-season closure, but that would have no economic impact. **Preferred Alternative 2** or **Alternative 3** would not be expected to affect royal red shrimp harvests or other customary uses of the resource, mainly because the ACL, which would trigger the AM if exceeded, is unlikely to be reached in the near future. Therefore, economic effects would not be expected for any of the three alternatives**.** However, if the AM is triggered, **Preferred Alternative 2** would provide greater short-term economic benefits than **Alternative 3** by delaying the possibility of an in-season closure until the year following an ACL overage.

As noted, landings are unlikely to exceed the quota, triggering an AM. Although unlikely to be triggered, **Preferred Alternative 2** would provide greater social benefits than **Alternatives 1** or **3** by delaying the possibility of an in-season closure until the year following a quota overage.

Alternative 1 would have no immediate direct or indirect effect on the administrative environment. **Preferred Alternative 2** should ease the burden on the administrative environment because landings would not need to be monitored in-season every year. On the other hand, the administrative environment may be negatively affected by **Preferred Alternative 2** if harvest is not sufficiently constrained and leads to overfishing of the royal red shrimp stock. **Alternative 3** would continue to require monitoring landings on a timely basis each year. This alternative would maintain the burden on NMFS staff to collate and verify landings information as for **Alternative 1**.

The intent of this amendment is to improve prospects for sustained participation in the respective fisheries over time and the proposed actions in this amendment are expected to result in long-term benefits if catch rates increase and approach the ACL. The proposed changes in management for the Gulf royal red shrimp fishery are not related to other actions with individually insignificant but cumulatively significant impacts.

FISHERY IMPACT STATEMENT

The Magnuson-Stevens Fishery Conservation and Management Act requires that a fishery impact statement (FIS) be prepared for all amendments to fishery management plans. The FIS contains an assessment of the likely biological, social, economic, and administrative effects of the conservation and management measures on fishery participants and their communities. It also considers participants in the fisheries conducted in adjacent areas under the authority of another regional fishery management councils, and the safety of human life at sea.

Amendment 16 to the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, U. S. Waters consists of two management actions developed by the Gulf of Mexico Fishery Management Council (Council). The first action (**Action 1**) addresses the annual catch limit (ACL) for royal red shrimp. The second action (**Action 2**) addresses accountability measures for royal red shrimp.

Biological Effects

The proposed modifications are anticipated to have little to no effect on the physical and biological environment. The shrimp fishery will continue to affect the surrounding environment by both trawling and bycatch; however, the actions in this amendment are not expected to increase effort in the fishery. Harvest of royal red shrimp has been below the preferred ACL in all years since 1962 and well below it in recent years. Therefore, the likelihood of reaching the ACL and triggering accountability measures is very low.

Economic Effects

Economic effects are not expected to result from either action because the ACL is not expected to be met and trigger accountability measures. Further, with the preferred alternatives, a closure would only happen if royal red shrimp harvest reaches the ACL for two consecutive years. If accountability measures are triggered, a closure could have some short-term economic impacts.

Social Effects

There are not likely to be direct social effects from these actions because the actions are not expected to affect how the fishery is prosecuted. Royal red shrimp harvest has remained below the proposed ACL for over 50 years making the probability of triggering accountability measures extremely low.

Safety at Sea

None of the actions in this amendment are anticipated to force vessels to participate in the fishery under adverse weather or ocean conditions. Therefore, no additional safety-at-sea issues would be created.

CHAPTER 1. INTRODUCTION

1.1 Background

When the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, United States Waters (Shrimp FMP) was established in 1981, the maximum sustainable yield (MSY) for royal red shrimp (*Pleoticus robustus*) was estimated at 392,000 lbs of tails annually. The optimum yield (OY) was set equal to the MSY and specified as a fixed annual quota. This quota has remained in the regulations since that time.

> ***50 CFR § 622.57 Quotas***.
> *(a) Royal red shrimp in the Gulf. The quota for all persons who harvest royal red shrimp in the Gulf is 392,000 lb (177.8 mt), tail weight.*
>
> *(1) Quota closure restrictions. When the quota in § 622.57(a) is reached, or is projected to be reached, royal red shrimp in or from the Gulf EEZ may not be retained, and the sale or purchase of royal red shrimp taken from the Gulf EEZ is prohibited. This prohibition on sale or purchase during a closure for royal red shrimp does not apply to royal red shrimp that were harvested, landed ashore, and sold prior to the effective date of the closure and were held in cold storage by a dealer or processor.*

On January 30, 2012, the National Marine Fisheries Service (NMFS) implemented regulations developed through the Generic Annual Catch Limit/Accountability Measures Amendment[1] (GMFMC 2011) to multiple fishery management plans, including the Shrimp FMP. That amendment included actions to establish the commercial annual catch limit (ACL) and accountability measures (AM) for royal red shrimp. However, the "no action" alternatives and discussions in the Generic ACL/AM Amendment incorrectly stated that there were currently no management restrictions or AMs for royal red shrimp even though a quota and in-season quota closure were already in the regulations. The Gulf of Mexico Fishery Management Council (Council) chose the following preferred alternatives in the Generic ACL/AM Amendment:

Maximum Sustainable Yield
The largest average catch that can continuously be taken from a stock under existing environmental conditions.

Optimum Yield
The harvest level for a species that achieves the greatest overall benefits, including economic, social, and biological considerations.

Annual Catch Limit
The amount of fish that can be harvested from the stock each year.

Accountability Measures
Measures taken to prevent harvest from exceeding the annual catch limit, and if exceeded, mitigate or correct the overage.

[1] Full title: 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.

Action 7
Preferred Alternative 2. *The Scientific and Statistical Committee recommended an overfishing limit of 392,000 lbs of tails, annually and an acceptable biological catch of 334,000 lbs of tails, annually for the commercial sector. Based on these recommendations the commercial royal red shrimp Annual Catch Limit will be set at:*

> ***Preferred Option a.*** *Set ACL = 334,000 pounds of tails, annually (100% of the Acceptable Biological Catch)*

Action 8
Preferred Alternative 4 (apply to other reef fish and royal red shrimp): *Implement in-season accountability measures if the ACL is exceeded in the previous year.*

As a consequence, both the ACL and AM were added to the regulations, but the quota and in-season closure provisions were not removed. The result is a quota for royal red shrimp that is greater than the acceptable biological catch (ABC) and ACL. The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires ACLs for most federally managed species to limit the catch of a stock each year, and National Standard 1 guidelines define the ACL as the annual level of catch that serves as the basis for invoking AMs. Therefore, an annual quota cannot be set higher than the ACL. Further, the ACL can be equal to the ABC, but not higher. Thus, the quota for royal red shrimp cannot remain at 392,000 lbs of tails. In March 2014, the Council's Scientific and Statistical Committee revised the ABC from 334,000 lbs of tails to 337,000 lbs of tails. The Council may remove the quota and retain the current ACL or they may increase the ACL up to the new ABC level. Based on available data, landings have not exceeded any of these potential ACLs since 1962.

The AM for royal red shrimp chosen by the Council in the Generic ACL/AM Amendment is in conflict with the quota regulations. The preferred alternative for the AM in the Generic ACL/AM Amendment implements an in-season closure only if the ACL was exceeded in the previous year, whereas the quota regulations require an in-season closure each year if the quota is met. The Council must clarify which of these management measures they would like to retain.

Because the Council and the public were not fully informed of the existing regulations when the preferred alternatives in the Generic ACL/AM Amendment were chosen, and because current regulations are conflicting, NMFS and the Council are reconsidering the commercial ACL, quota, and AM for royal red shrimp in this amendment.

Who's Who?

- Gulf of Mexico Fishery Management Council – Determines a range of actions and alternatives, and recommends action to the National Marine Fisheries Service
- National Marine Fisheries Service and Council staffs – Develop alternatives based on guidance from the Council, and analyze the environmental impacts of those alternatives
- Secretary of Commerce – Approves, disapproves, or partially approves the amendment as recommended by the Council.

1.2 Purpose and Need

Purpose for Action

The purpose of this action is to determine the annual catch limit and accountability measure for royal red shrimp and consider the continued use of the royal red shrimp quota.

Need for Action

The need for this action is to prevent overfishing while helping to achieve optimum yield, reconcile conflicting regulations, and comply with requirements of the Magnuson-Stevens Fishery Conservation and Management Act.

1.3 History of Management

The following is a list of management changes relevant to royal red shrimp management.

The Shrimp FMP/Environmental Impact Statement (EIS), implemented in 1981, included royal red shrimp in the management unit (GMFMC 1981). An estimate of MSY for this species was given as 392,000 lbs of tails annually. The OY was set equal to the MSY, and specified as a fixed annual quota. Because of low domestic harvest capacity at that time, a total allowable level of foreign fishing (TALFF) was set at 146,000 lbs of tails. The domestic annual harvest was therefore limited to 246,000 lbs of tails.

Amendment 2/Environmental Assessment (EA) (1982) updated catch and economic data in the Shrimp FMP.

Amendment 5/EA (1991) defined overfishing of royal red shrimp to be fishing in excess of MSY (equal to OY), and fishing was to cease when OY was attained.

Amendment 7/EA (partially approved, 1994) eliminated the TALFF because there had been no foreign fishing for this species. As a result, the total allowable catch of 392,000 lbs of tails was available for domestic fishing. An emergency rule allowing harvest of up to 474,000 lbs of royal red shrimp tails in 1994 was promulgated to prevent a closure of the fishery before the TALFF reserve could be eliminated by implementation of Amendment 7. A redefinition of overfishing for royal red shrimp was included in Amendment 7, but was disapproved by NMFS because they concluded it would not prevent overfishing.

Amendment 8/EA (1995) established a procedure that would allow total allowable catch for royal red shrimp to be set up to 30% above MSY, for no more than two consecutive years so that a better estimate of MSY could be determined. This action was subsequently negated by the 1996 Sustainable Fisheries Act amendment to the Magnuson-Stevens Act that established that OY cannot exceed MSY.

Amendment 9/supplemental EIS (1998) required the use of a NMFS-certified bycatch reduction device (BRD) in shrimp trawls used in the exclusive economic zone (EEZ) from Cape San Blas, Florida to the Texas/Mexico border but exempted shrimp trawls fishing for royal red shrimp seaward of the 100-fathom contour.

Amendment 10/EA (2004) required BRDs in shrimp trawls used in the Gulf EEZ east of Cape San Blas, Florida but exempted shrimp trawls fishing for royal red shrimp seaward of the 100-fathom contour.

Amendment 11/EA (2002) required owners and operators of all vessels harvesting shrimp from the Gulf EEZ to obtain a federal commercial vessel permit. This amendment prohibited both the use of traps to harvest royal red shrimp from the Gulf and the transfer of royal red shrimp at sea.

Amendment 12/EA (2001) was included as part of the Generic Essential Fish Habitat (EFH) Amendment that established EFH for shrimp in the Gulf.

Amendment 13/EA (2006) established an endorsement to the existing federal shrimp vessel permit for vessels harvesting royal red shrimp; defined the overfishing threshold and the overfished condition for royal red shrimp; established bycatch reporting methodologies and improved collection of shrimping effort data in the EEZ; required completion of a Gulf Shrimp Vessel and Gear Characterization Form; established a moratorium on the issuance of commercial shrimp vessel permits; and required reporting and certification of landings during the moratorium. The moratorium was effective October 26, 2006.

Amendment 14/EIS (2008) was a joint amendment with Reef Fish Amendment 27. It established a target red snapper bycatch mortality goal for the shrimp fishery in the western Gulf and defined seasonal closure restrictions that can be used to manage shrimp fishing efforts in relation to the target red snapper bycatch mortality reduction goal. It established a framework procedure to streamline the management of shrimp fishing effort in the western Gulf.

In 2010, NMFS implemented a series of **emergency rules** in response to the Deepwater Horizon MC 252 oil spill that established procedures for closing and re-opening areas of the Gulf EEZ to fishing that were affected by oil. The intent of the emergency rules was to prevent the harvest of adulterated seafood. Two additional emergency rules revised the re-opening procedure by allowing for timely adjustment of the closed area of the Gulf to royal red shrimp fishing in response to an interaction of a royal red shrimp fishing vessel with sub-surface tar balls. As of April 19, 2011, NMFS reopened all areas of the Gulf that were previously closed to fishing because of the oil spill.

The Generic ACL/AM Amendment/EIS (2011) set ACLs and AMs for royal red shrimp. Penaeid shrimp were not included in this amendment because their annual lifecycle exempts them from the Magnuson-Stevens Act requirement for ACLs and AMs.

Amendment 15/EA is under development. This amendment will modify the framework procedure for the Shrimp FMP to allow changes to royal red shrimp AMs via the standard documentation procedure.

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1 – Adjust the annual catch limit (ACL) and quota for royal red shrimp

Alternative 1. No Action.
Retain the 334,000-lbs of tails commercial ACL.
Retain the 392,000-lbs of tails quota.

Alternative 2.
Retain the 334,000-lbs of tails commercial ACL.
Remove the 392,000-lbs of tails quota.

Preferred Alternative 3.
Remove both the 334,000-lbs of tails ACL and the 392,000 lbs of tails quota.
Change the ACL to 337,000 lbs of tails.

Discussion:
Federal regulations currently include an ACL of 334,000 lbs of tails and a quota of 392,000 lbs of tails. In the Generic ACL/Accountability Measures (AM) Amendment (GMFMC 2011), the preferred alternative set the ACL at 334,000 lbs of tails. However, the no action alternative did not recognize that a quota of 392,000 lbs of tails was already in the regulations. This resulted in regulations with a quota higher than the ACL.

In the last review of royal red shrimp (Jones et al. 1994), the maximum sustainable yield (MSY) was determined to range from 392,000 to 650,000 lbs of tails (GMFMC 2005). At its May 2010 meeting, the Scientific and Statistical Committee (SSC) recommended that the overfishing limit (OFL) be set at 392,000 lbs of tails based on the MSY cited in the 1994 report. Landings have not approached the lower end of the MSY range since its adoption (Figure 2.1.1). In 2010, the SSC recommended that the acceptable biological catch (ABC) be set at 334,000 lbs of tails because that was thought to have been the highest catch. However, the highest landings of 336,810 lbs of tails occurred in 1994. Therefore, at its March 2014 meeting, the SSC recommended an ABC of 337,000 lbs of tails based on the actual highest landings.

Commercial royal red shrimp landings are unlikely to exceed 337,000 lbs of tails based on the last ten years of landings, limited participation in the fishery, and depth and location where fishing occurs. Commercial landings for the past 19 years have not exceeded the current ACL of 334,000 lbs of tails and commercial landings for the past 50 years have never exceeded 392,000 lbs of tails (Figure 2.1.1). There has been an overarching decline in the pounds of tails landed for the past 10 years, and the number of vessels actively targeting royal red shrimp has been estimated at less than 20 vessels.

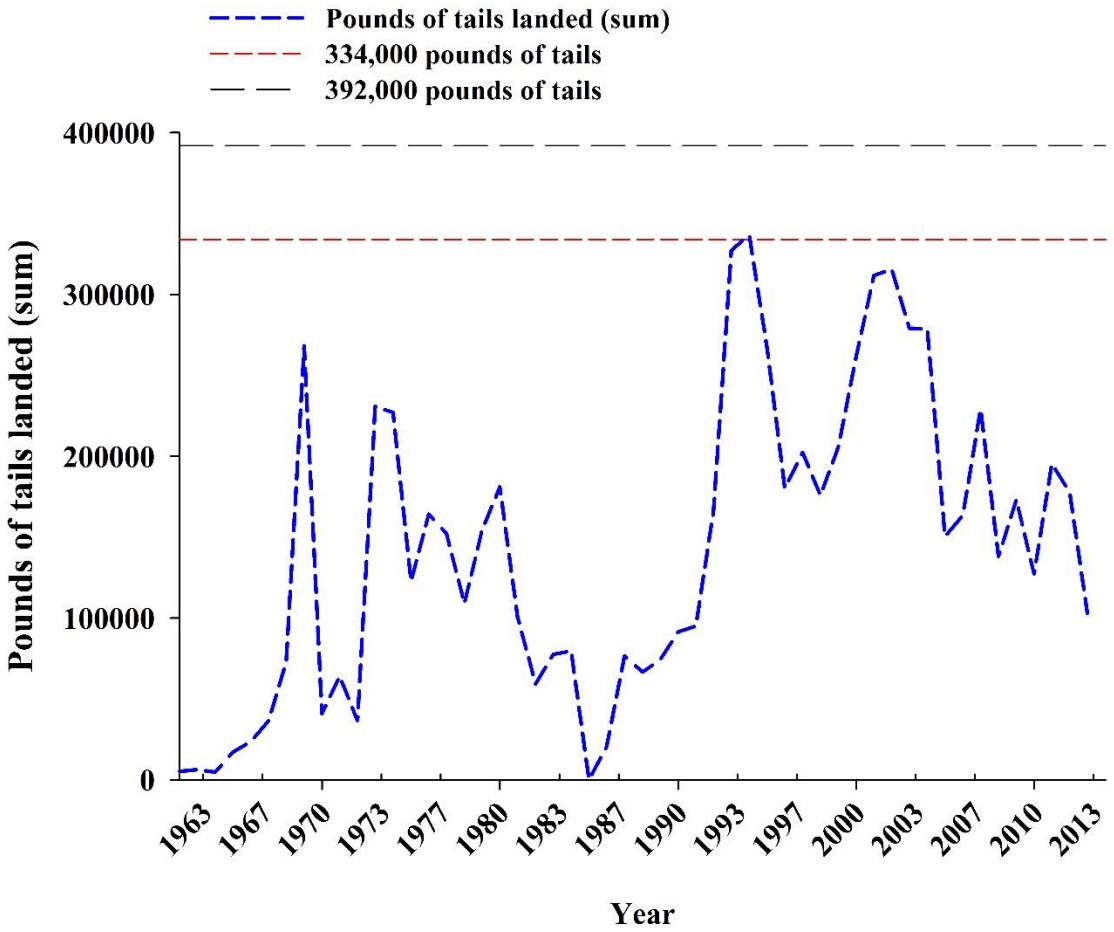

Figure 2.1.1. Gulf of Mexico royal red shrimp landings from 1962 through 2013. The red dashed line is the ACL of 334,000 lbs of tails and the black dashed line is the quota of 392,000 lbs of tails.
Source: Shrimp Database, SEFSC-Galveston.

Alternative 1 would not rectify the conflicting regulations currently in place and would maintain a quota that is higher than the ACL and ABC. This would be inconsistent with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) because the quota can be equal to, but cannot be set higher than, the ACL and ABC.

Alternative 2 would adjust the current regulations to reflect the intent of the preferred alternative from the Generic ACL/AM Amendment (GMFMC 2011) and remove the quota that was omitted from the no action alternative. In the Generic ACL/AM Amendment (GMFMC 2011), the Gulf of Mexico Fishery Management Council (Council) chose the ACL based on the May 2010 SSC recommendation for the ABC; it was determined that the species was not overfished or undergoing overfishing. At its 2010 meeting, the SSC established an ABC of 334,000 lbs of tails but recommended that a new stock assessment be completed since the stock assessment was old. At the 2010 meeting, 334,000 lbs of tails was presented to the SSC as the highest landings but that was incorrect. The highest landings level was 336,810 lbs of tails, which was later clarified at the March 2014 SSC meeting.

Preferred Alternative 3 would set the ACL equal to the ABC of 337,000 lbs of tails as recommended by the SSC in 2014. This number is based on the highest landings of 336,810 lbs of tails which was presented in numerical form to the SSC in March 2014 (the 2010 data were graphically represented) (Figure 2.1.1). The SSC also recommended that the OFL be set at 392,000 lbs of tails. This alternative would remove the quota that is higher than the ACL and would rectify the regulations so that they are consistent with the Magnuson-Stevens Act.

Council Conclusions:
The Council chose **Preferred Alternative 3** because it sets the ACL equal to the ABC, which is consistent with the rationale for selecting the ACL in the Generic ACL/Accountability Measures Amendment (2010). The Council did not choose **Alternative 1** because that would fail to rectify the inconsistent regulations. The Council did not choose **Alternative 2** because it sets the ACL lower than the ABC.

2.2 Action 2 – Adjust the accountability measure (AM) and closure procedures for royal red shrimp

Alternative 1. No Action.

Retain the AM set through the Generic ACL/AM Amendment.*
Retain the in-season closure set through the revised 1981 FMP.

Preferred Alternative 2.

Retain the AM set through the Generic ACL/AM Amendment.*
Remove the in-season closure set through the revised 1981 FMP.

Alternative 3.

Remove the AM set through the Generic ACL/AM Amendment.*
Retain the in-season closure set through the revised 1981 FMP, which would then serve as the AM.

** If commercial landings, as estimated by the Science and Research Director, exceed the commercial ACL, then during the following fishing year, if commercial landings reach or are projected to reach the commercial ACL, the National Marine Fisheries Service (NMFS) will file a notification with the Office of the Federal Register to close the commercial sector for the remainder of that fishing year.*

Discussion:
Federal regulations currently include an in-season closure if the quota is met or projected to be met, based on in-season monitoring. But federal regulations also currently include an AM that implements in-season monitoring and closures only if the ACL was exceeded in the previous year. Based on the preferred alternative in Action 1, the quota will be removed and the ACL will be the trigger for any accountability measure. Therefore, the first AM requires that NMFS close the season each year that the ACL is met or projected to be met, and functionally prevents the second AM from ever being triggered.

Accountability measures are designed to prevent ACLs from being exceeded, and if exceeded, correct or mitigate any overages. The National Standard 1 guidelines identify two types of AMs: in-season AMs to prevent landings from exceeding the ACL and post-season AMs for when the ACL is exceeded. The in-season quota closure is an in-season AM, but the AM established in the Generic ACL/AM Amendment (GMFMC 2011) contains aspects of both in-season and post-season AMs. With the second AM, if the ACL has been determined to be exceeded after a fishing year is complete (post-season), the stock will be monitored in-season in the following year. Should landings projections for this following year indicate the ACL will be exceeded again, NMFS will prohibit further harvest of royal red shrimp. If a closure is not necessary the year following an ACL overage, then in-season monitoring will cease in subsequent years unless the ACL is exceeded again. Under the National Standard 1 guidelines, if a stock catch exceeds the ACL more than once in a four-year period, the system of ACLs and AMs should be re-evaluated and modified, if necessary, to improve its performance and effectiveness.

One issue relative to the use of in-season AMs is the timeliness of data reporting. The time between when shrimp are caught and when projections of the harvest can be made must be short enough so that fishery managers can put in place measures to prevent overages of the ACL. NMFS only receives data from selected dealers with royal red shrimp landings through the Commercial Landings System twice per month. Regular landings of royal red shrimp are limited to only these few dealers, although other dealers may also buy royal red shrimp on an intermittent basis. Requiring all dealers to report regularly, including “no landings” reports, would be an unnecessary burden on the industry. Therefore, the system uses historical landings of royal red shrimp to calculate expansions for non-reporting dealers, and to project closure dates. These practices currently lead to some amount of uncertainty for in-season monitoring.

If the in-season closure is retained as the AM, the ACL chosen in Action 1 would become the quota on which the closure is based. If the AM from the Generic ACL/AM Amendment is retained, the implementation of in-season monitoring and subsequent closure would also be based on the ACL chosen in Action 1. The highest royal red shrimp landings were in 1994 with 336,810 lbs of tails. This is the only time in the past 50 years that landings have neared the preferred alternative ACL proposed in Action 1 (Figure 2.1.1); therefore, the expectation of triggering either AM is extremely low.

Alternative 1 would retain two closure procedures that are in conflict. The in-season closure from the Generic ACL/AM Amendment would be triggered only if landings exceed the ACL in one year and then reach or are projected to reach the ACL the following year. However, the in-season closure from the original fishery management plan would be triggered if landings reach or are projected to reach the quota in a single year. Therefore, given the same ACL, the in-season closure makes the second season monitoring and closure from the Generic ACL/AM Amendment irrelevant because in-season monitoring would occur every year.

Preferred Alternative 2 would retain the AM that triggers in-season monitoring and closures only if the ACL was exceeded in the previous year and remove the in-season quota closure that could occur every year. This alternative would enact the Council’s preferred alternative specified in the Generic ACL/AM Amendment, as intended. The Council chose this AM

previously because they determined there was no reason to expect that the stock would exceed its ACL and wished to reduce the administrative burden of in-season quota monitoring.

In the Generic ACL/AM Amendment, the action setting AMs included an alternative to implement an in-season closure the first year landings reach or were projected to reach the ACL. However, the Council did not select that alternative as preferred. **Alternative 3** replicates that alternative and would change the AM to an in-season closure each year landings are reached or projected to reach the quota/ACL. This alternative would provide the greatest opportunity to contain harvest below the ACL, but may not be necessary because landings have not approached the ACL in many years.

Council Conclusions:
The Council chose **Preferred Alternative 2**, which matches the decision made in the Generic ACL/AM Amendment. It chose this alternative because they continued to believe the stock will not exceed its ACL and the administrative burden of annual in-season quota monitoring is not necessary. The Council did not choose **Alternative 1** because that alternative would leave inconsistent closure provisions in the federal regulations. The Council did not choose **Alternative 3** because it determined annual in-season monitoring was not necessary for a species being harvested well below its ACL.

CHAPTER 3. AFFECTED ENVIRONMENT

3.1 Description of the Fishery

The management unit of the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, United States Waters (Shrimp FMP) consists of brown, white, pink, and royal red shrimp. Seabobs and rock shrimp occur as incidental catch in the fishery but are not federally managed in the Gulf of Mexico (Gulf). The final environmental impact statement (EIS) for the original Shrimp FMP and the FMP as revised in 1981 contain a description of the Gulf shrimp fishery. Amendment 8 (GMFMC 1995) and Amendment 9 (GMFMC 1997) updated this information, and little has changed since that time. This material is incorporated by reference and is not repeated here in detail. This description focuses on the royal red shrimp component of the Gulf shrimp fishery which is the subject of this amendment.

Royal red shrimp have been a small component of Gulf shrimp landings since the early 1960s. A few vessels in the Gulf shrimp fishery have targeted royal red shrimp, but fishing effort has been variable and inconsistent. Participation in this fishery requires larger vessels and heavier gear than used for shallow-water penaeid shrimp. The otter trawl, with various modifications, is the dominant gear used in offshore waters. A basic otter trawl consists of a heavy mesh bag with wings on each side designed to funnel the shrimp into the codend or tail. Details about the specifics of each gear type as well as the historical development of the fishery can be found in Shrimp Amendment 14 (GMFMC 2007).

Royal red shrimp occur only in federal waters. Commercial fishing for royal red shrimp is most common on the continental shelf from about 140 to 300 fathoms, and east of the Mississippi River (GMFMC 2005a). Primary fishing grounds are the Desoto Canyon about 75 miles off Mobile, Alabama; offshore of Tampa Bay, Florida; and the Dry Tortugas northwest of the Florida Keys (Figure 3.1.1). The peak fishing season is March through June. Royal red shrimp are available in other areas and at other times, but costs are generally too high to make fishing practical (GMFMC 2005a).

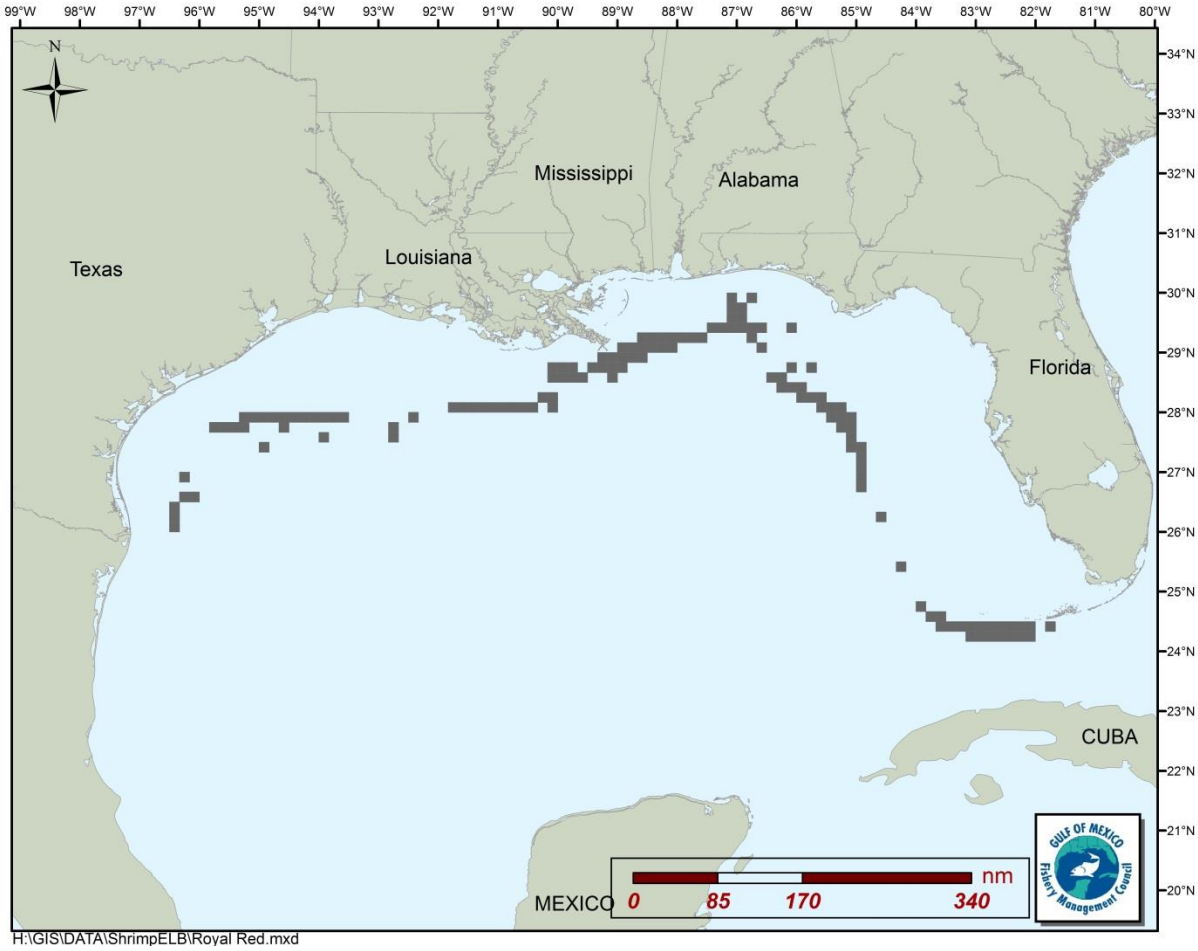

Figure 3.1.1. Map of areas of shrimp effort in the depth zones where royal red shrimp occur (150-800 m).
Source: SEFSC-Galveston, electronic logbook data.

Federal permits for shrimp vessels are currently required for fishing in federal waters, and state license requirements vary. An endorsement to the federal permit is required for vessels engaging in royal red shrimp fishing. A moratorium on the federal shrimp permits began in 2006 and will expire in 2016 unless the Gulf of Mexico Fishery Management Council (Council) takes action. As of July 25, 2014, 295 vessels had valid royal red shrimp endorsements; however, only an average of nine vessels per year have landed any royal red shrimp in the last ten years (see Table 3.5.1). While some of these vessels could be considered "historical" participants in the fishery and may be reliant on royal red shrimp, others are not (GMFMC 2005a).

Since landings were recorded starting in 1962, the current ACL of 334,000 lbs of tails has only be reached in one year (Table 3.1.1). Average annual landings for the last ten years were 173,581 lbs of tails. The total nominal value of these landings averaged $866,117 during that time. In 2013, 74% of landings were from federal waters off Alabama, 24% were from off Florida, and 2% were from off Louisiana.

Table 3.1.1. Landings and value for Gulf royal red shrimp. Landings are in pounds of tails. Data for 2013 are preliminary.

Year	Pounds (tails)	Value ($)		Year	Pounds (tails)	Value ($)
1962	4,925	4,148		1988	66,485	213,680
1963	6,245	3,641		1989	74,173	278,933
1964	4,591	2,690		1990	91,406	331,796
1965	17,045	10,511		1991	94,928	328,642
1966	23,475	17,237		1992	166,433	585,183
1967	36,256	28,164		1993	327,090	1,055,791
1968	72,866	63,056		1994	336,810	1,153,340
1969	268,222	250,108		1995	266,977	954,253
1970	40,867	30,704		1996	180,158	684,715
1971	64,081	56,328		1997	202,373	800,261
1972	36,645	39,332		1998	175,832	665,670
1973	230,794	432,383		1999	205,354	710,051
1974	226,871	335,424		2000	260,965	1,017,627
1975	122,607	188,479		2001	311,693	1,253,747
1976	164,213	389,927		2002	315,495	1,157,015
1977	150,705	328,145		2003	279,013	1,037,753
1978	108,994	213,038		2004	278,519	1,028,317
1979	132,122	439,018		2005	150,316	659,343
1980	180,974	470,190		2006	163,323	854,423
1981	100,407	258,587		2007	229,024	1,021,305
1982	59,220	210,818		2008	138,116	743,468
1983	77,518	306,364		2009	173,065	836,734
1984	79,494	259,868		2010	127,358	690,628
1985	36	176		2011	195,354	1,196,121
1986	20,617	55,622		2012	177,658	1,129,757
1987	76,475	275,977		2013	199,499	1,042,324

Source: Shrimp Database, SEFSC-Galveston.

3.2 Description of the Physical Environment

The EIS for the original Shrimp FMP and the FMP as revised in 1981 contain a description of the physical environment. The physical environment for royal red shrimp was also included in Shrimp Amendment 13 (GMFMC 2005a). This material is still relevant, and is incorporated by reference and summarized below.

The Gulf is a semi-enclosed oceanic basin of approximately 600,000 square miles (Gore 1992). It is connected to the Atlantic Ocean by the Straits of Florida and to the Caribbean Sea by the Yucatan Channel. Oceanic conditions are primarily influenced by the Loop Current, the discharge of freshwater into the Northern Gulf, and a semi-permanent anticyclonic gyre in the western Gulf. Gulf water temperatures range from 12º C to 29º C (54º F to 84º F) depending of depth and season. In the Gulf, royal red shrimp are found along the continental shelf in depths of

180 m to 730 m (Perry and Larsen 2004) on silt, mud, sand and calcareous bottoms (Tavares 2002).

Several area closures, including gear restrictions, may affect targeted and incidental harvest of royal red shrimp in the Gulf. Some of the areas listed below are in water depths that are shallower than where royal red shrimp occur. However, because little is known about the larval stages of royal red shrimp, the areas are included here. These are described in detail in Amendment 13 (GMFMC 2005a) and incorporated by reference. The areas include:

- Cooperative Texas Shrimp Closure
- Tortugas Shrimp Sanctuary
- Southwest Florida Seasonal Closure
- Central Florida Seasonal Closure
- Madison-Swanson and Steamboat Lumps Marine Reserves
- The Edges Marine Reserve
- Tortugas North and South Marine Reserves
- Tortugas Shrimp Sanctuary
- Alabama Special Management Zone

Reef and bank areas designated as Habitat Areas of Particular Concern (HAPCs) in the northwestern Gulf include: East and West Flower Garden Banks, Stetson Bank, Sonnier Bank, MacNeil Bank, 29 Fathom, Rankin Bright Bank, Geyer Bank, McGrail Bank, Bouma Bank, Rezak Sidner Bank, Alderice Bank, and Jakkula Bank, Florida Middle Grounds HAPC and Pulley Ridge HAPC. There is one site listed in the National Register of Historic Places in the Gulf; the wreck of the *U.S.S. Hatteras*, located in federal waters off Texas.

Generic Amendment 3 addressed essential fish habitat (EFH) requirements (GMFMC 2005b) and established that a weak link in the tickler chain is required on bottom trawls for all habitats throughout the Gulf exclusive economic zone (EEZ) to protect bottom habitats from further damage if the tickler chain is hung up on natural bottom structures. A weak link is defined as a length or section of the tickler chain that has a breaking strength less than the chain itself and is easily seen as such when visually inspected.

The Deepwater Horizon MC252 (DWH) oil spill affected at least one-third of the Gulf from western Louisiana east to the Florida Panhandle and south to the Campeche Bank of Mexico. Millions of barrels of oil flowed from the ruptured wellhead (www.restorethegulf.gov). The impacts of the DWH oil spill on the physical environment may be significant and long-term. Oil was dispersed on the surface, and because of the heavy use of dispersants (both at the surface and at the wellhead), oil was also suspended within the water column (Camilli et al. 2010; Kujawinski et al. 2011). Floating and suspended oil washed onto coastlines in several areas of the Gulf along with non-floating tar balls. Suspended and floating oil degrades over time, but tar balls persist in the environment and can be transported hundreds of miles (Goodman 2003).

Surface or submerged oil during the DWH oil spill event could have restricted the normal processes of atmospheric oxygen mixing into and replenishing oxygen concentrations in the water column affecting the long-standing hypoxic zone located west of the Mississippi River on

the Louisiana continental shelf (NOAA 2010). Microbial biodegradation of hydrocarbons in the water column may have occurred without substantial oxygen drawdown (Hazen et al. 2010). Residence time of hydrocarbons in sediments is also a concern. The indices developed for past oil spills (Harper 2003) and oil spill scenarios (Stjernholm et al. 2011) such as the "oil residence index" do not appear to have been used during the assessment of the DWH oil spill.

3.3 Description of the Biological/Ecological Environment

The EIS for the original Shrimp FMP and the FMP as revised in 1981 contain a description of the biology of shrimp species. Amendment 9 (GMFMC 1997) updated this information and no substantial new information is available. This material is incorporated by reference and is not repeated here in detail.

The life history of royal red shrimp is poorly known. Royal red shrimp become mature at three years, do not fully recruit to the fishery until they are 2-3 years old, and many year classes may occur in the same location (Reed and Farrington 2010). The fishery occurs in water depths of 180-730 m with concentrations in the 250-500 m range (Anderson and Lindner, 1971; Perez Farfante 1977; Tavares 2002). Royal red shrimp decrease in size with depth; juveniles likely occur in deeper habitats (Paramo and Saint-Paul 2011), and females are larger than males (Tavares 2002; Paramo and Saint-Paul 2011).

Royal red shrimp are primarily fished over sand, mud, or silt bottom types. The fishery is prosecuted in areas and in depths where deep-sea corals may occur, and deep-sea corals are vulnerable to fishing gear. However, it is unlikely that many trawls will occur over deep-sea coral mounds. To do so would likely result in the loss of gear, so shrimpers avoid these areas. Deep-sea corals occur in the Gulf (NOAA 2012) and the bottom habitat and bathymetric range of each deep-sea coral species is species-specific. Some pennatulids (sea pens) and other sea fans may occur on the soft bottoms along with royal red shrimp and are possibly removed by shrimp trawls. These organisms may also not be accounted for in bycatch estimates for several reasons, such as observers may be unaware, or because the sea pens and sea fans break up in to pieces during the trawl and are not recovered in the net. There are efforts to identify areas of high abundance of deep-sea corals,[2] but to date, knowledge about deep-sea coral distribution is patchy. Currently, NOAA has a group of experts evaluating historical data for coral presence in US waters and there are efforts to validate a model[3] predicting coral distribution.

Protected Species

Species in the Gulf protected under the Endangered Species Act (ESA) include: seven marine mammal species (blue, sei, fin, humpback, sperm, North Atlantic right whales and manatees); five sea turtle species (Kemp's ridley, loggerhead, green, leatherback, and hawksbill); two fish species (Gulf sturgeon, and smalltooth sawfish); and seven coral species (elkhorn coral, staghorn coral, lobed star coral, knobby star coral, mountainous star coral, pillar coral, and rough cactus

[2] http://www.habitat.noaa.gov/protection/corals/deepseacorals.html
[3] http://coastalscience.noaa.gov/projects/detail?key=35

coral). Twelve species of fish and invertebrates in the Gulf are currently listed as species of concern.

Otter trawls may directly affect smalltooth sawfish that are foraging within or moving through an active trawling location via direct contact with the gear. The long, toothed rostrum of the smalltooth sawfish causes this species to be particularly vulnerable to entanglement in any type of netting gear, including the netting used in shrimp trawls. However, smalltooth sawfish occur in shallower waters than where the royal red shrimp fishery is prosecuted.

Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all highly migratory and are known to occur in areas subject to shrimp trawling. Incidental bycatch of the species by commercial fisheries is a major contributor to past declines and threat to future recovery (NMFS and USFWS 1991, 1992a, 1992b, 2008; NMFS et al. 2011). Historically, southeastern U.S. shrimp fisheries (both Gulf and South Atlantic) have been the largest fishery threat to sea turtles. Regulations requiring turtle excluder devices (TEDs) have made significant improvements on the effects of trawl fisheries on sea turtles. However, royal red shrimp trawls are not required to have TEDs if the catch is 90% or more royal red shrimp because the fishery is prosecuted in depths that are unlikely to capture sea turtles.

The biological opinion (Bi Op) prepared for the continued authorization of the U.S. shrimp fisheries in federal waters (NMFS 2014) evaluated the effects of all fishing activity authorized under the FMP on threatened and endangered species in accordance with Section 7 of the ESA. The Bi Op, which was based on the best available commercial and scientific data, concluded the continued operation of the Gulf shrimp fishery is not likely to jeopardize the continued existence of threatened or endangered species (NMFS 2014). Currently, any sea turtle or smalltooth sawfish incidentally caught by the fishery is to be handled in such a way as to minimize stress to the animal and increase its survival rate. After the completion of the Bi Op, NMFS designated new critical habitat for the Northwestern Atlantic distinct population segment of loggerhead sea turtles; however, it determined that all Gulf fisheries operate outside the nearshore reproductive and concentrated breeding habitats and, therefore, will have no effect on these critical habitat types. The Gulf fisheries may operate in *Sargassum* habitat but NMFS concluded that any effects to this habitat will be insignificant. NMFS also added five species of coral that occur in the Gulf to the endangered species list but determined the Gulf shrimp fishery is not likely to adversely affect these species.

The shrimp fishery is classified in the 2014 List of Fisheries as a Category II fishery (79 FR 14418, March 14, 2014). This classification indicates the annual mortality and serious injury of a marine mammal stock is greater than 1% but less than 50 % of the stocks potential biological removal (PBR): the number of individuals that may be removed from a marine mammal stock, not including natural mortalities, while allowing that stock to reach or maintain its optimum sustainable population. This fishery was elevated to Category II from Category III (mortality or serious injury to <1% of the PBR) in 2011 based on increased interactions reported by observers, strandings, and fisheries research data.[4]

[4] http://www.nmfs.noaa.gov/pr/pdfs/fisheries/lof2012/southeastern_us_atlantic_gulf_shrimp_trawl.pdf

3.4 Description of the Economic Environment

Descriptions of the economic environment for the Gulf shrimp fishery are contained in previous amendments and NMFS regulatory actions, and are incorporated herein by reference [see Shrimp Amendment 13 (GMFMC 2005a); Shrimp Amendment 14/Reef Fish Amendment 27 (GMFMC 2007); Regulatory Impact Review and Regulatory Flexibility Act Analysis for Making Technical Changes to TEDs to Enhance Turtle Protection in the Southeastern United States Under Sea Turtle Conservation Regulations (NMFS 2002); Regulatory Impact Review and Regulatory Flexibility Act Analysis, and Social Impact Assessment for the Proposed Rule to Revise the Gulf/South Atlantic Bycatch Reduction Device Testing Manual and Modify the Bycatch Reduction Criterion for Bycatch Reduction Devices Used in the Penaeid Shrimp Fishery West of Cape San Blas, Florida (NMFS 2006); Framework Action to Establish Funding Responsibilities for the Electronic Logbook Program in the Shrimp Fishery of the Gulf of Mexico (GMFMC 2013)].

The Framework Action to Establish Funding Responsibilities for the Electronic Logbook Program in the Shrimp Fishery of the Gulf of Mexico (GMFMC 2013) provides some updated description of the Gulf shrimp fishery as a whole. The economic information included in that framework action is incorporated herein by reference. The following discussion focuses on the economic and financial characteristics of vessels that possessed valid federal Gulf royal red shrimp permit (GRRS) for the years 2008 through 2013, unless otherwise noted. As of this writing, the 2013 data are preliminary. Shrimp Amendment 15 (GMFMC 2014), currently under development, will provide more updates on the description of the Gulf shrimp fishery as a whole.

The NMFS Permits Branch uses the acronyms SPGM (shrimp permit Gulf of Mexico) for the federal moratorium shrimp permit and GRRS (Gulf royal red shrimp) for the Gulf royal red shrimp endorsement. These acronyms will be used throughout this section.

Permits, Landings, and Dockside Revenues

The royal red shrimp sector is a relatively small segment of the Gulf shrimp fishery. On average (2006-2013), royal red shrimp accounted for less than 1% of total Gulf shrimp landings and dockside revenues. The known level of the stock biomass, the deep-water nature of the fishery, the limited geographic location of known fishing grounds, and the equipment needed to fish for royal red shrimp may have contributed to the relatively low share of the royal red shrimp landings and revenues to the overall shrimp landings and revenues in the Gulf.

As of July 25, 2014, there were 1,486 valid or renewable federal moratorium shrimp permits (SPGM) and 295 valid GRRS. The GRRS is an open access permit that requires the Gulf SPGM, and many shrimp vessels operating in the Gulf EEZ possess this permit. From 2008 through 2013, the total number of GRRS permits ranged from 331 to 388 and averaged 344 annually (Table 3.4.1). All Gulf states and some other states outside the Gulf serve as homeports for vessels with GRSS permits. However, only a handful of shrimp vessels have been active in the royal red shrimp segment of the Gulf shrimp fishery (Tables 3.4.1 and 3.4.2).

GRRS-permitted vessels must possess SPGM permits, and some also possess South Atlantic shrimp permits, including limited access South Atlantic rock shrimp permits. In some years, GRRS-permitted vessels fished for rock shrimp and penaeid species in the South Atlantic.

For purposes of this section, GRRS-permitted vessels are designated as GRRS vessels and SPGM-permitted vessels as SPGM vessels. All GRRS vessels are also SPGM vessels but not vice-versa.

Table 3.4.1. Number of Gulf royal red shrimp endorsements (GRRS) by state 2008-2013.

	2008	2009	2010	2011	2012	2013	Average
Alabama	54	47	40	38	38	43	43
Florida	57	46	44	43	46	42	46
Louisiana	78	66	57	59	73	62	66
Mississippi	19	16	15	19	21	20	18
Texas	136	125	127	130	128	119	128
Others	44	39	42	42	45	45	43
Total	388	339	325	331	351	331	344

Source: NMFS-SERO, Permits Branch, 2014.

From 2008 through 2013, the number of GRRS vessels landing royal red shrimp ranged from four to nine, with an average of six (Table 3.4.2) which is significantly less than the number of GRRS vessels for those years. Omitted from Table 3.4.2 are vessels that reported landings of royal red shrimp but did not have GRRS permits; landings of royal red shrimp by such vessels were very small and could be other shrimp species. For this reason, the numbers in Table 3.4.2 slightly differ from those in Table 3.1.1. For the period 2008-2013, GRRS vessels that landed royal red shrimp reported average landings of 167,742 lbs of tails of royal red shrimp worth $943,987 each year. These vessels also landed an average of 606,722 lbs of other shrimp species, including penaeid species, with a dockside value of $2,618,956 per year. In total, these vessels landed an average of 774,464 lbs of various shrimp species valued at $3,562,943 per year. All landings are heads off and all dollar values are in 2011 dollars.

Table 3.4.2. Landings (lbs heads off) and dockside revenues (2011 dollars) by vessels with royal red shrimp permits, 2008-2013. "Other shrimp" includes penaeid and other shrimp species. Data for 2013 are preliminary.

	Number of Vessels	Royal Red Shrimp		Other Shrimp		Total	
		Pounds	Revenue	Pounds	Revenue	Pounds	Revenue
2008	6	138,039	$776,590	674,834	$2,894,853	812,873	$3,671,442
2009	6	173,065	$877,304	723,327	$2,290,988	896,392	$3,168,291
2010	6	127,311	$712,107	592,799	$2,500,539	720,110	$3,212,646
2011	5	194,780	$1,194,431	556,033	$2,310,321	750,813	$3,504,752
2012	4	177,321	$1,105,173	317,260	$1,368,861	494,581	$2,474,034
2013	9	195,934	$998,318	776,080	$4,348,173	972,014	$5,346,491
Average	6	167,742	$943,987	606,722	$2,618,956	774,464	$3,562,943

Source: Gulf Shrimp Database, SEFSC-Galveston; C. Liese, pers. comm., 2014.

Landings and revenues on a per vessel basis for GRRS vessels that landed royal red shrimp are presented in Table 3.4.3. On average (2008-2013), these vessels annually landed 29,688 lbs of tails of royal red shrimp and 101,430 lbs of other shrimp species valued at $170,073 and $428,079, respectively. The average GRRS vessel generated revenues of $598,152 from all shrimp species. For the period 2008-2013, royal red shrimp accounted for about 17.0% to 35.9% of all shrimp landings and about 18.7% to 44.7% of revenues from all shrimp species landed by GRRS vessels. All landings are heads off and all dollar values are in 2011 dollars.

Table 3.4.3. Per vessel landings (lbs heads off) and dockside revenues (2011 dollars) by vessels with royal red shrimp permits, 2008-2013. "Other shrimp" includes penaeid and other shrimp species. Data for 2013 are preliminary.

	Royal Red Shrimp		Other Shrimp		Total		Royal Red as Percent of Total	
	Pounds	Revenue	Pounds	Revenue	Pounds	Revenue	Pounds	Revenue
2008	23,007	$129,432	112,472	$482,475	135,479	$611,907	17.0%	21.2%
2009	28,844	$146,217	120,555	$381,831	149,399	$528,049	19.3%	27.7%
2010	21,219	$118,685	98,800	$416,757	120,018	$535,441	17.7%	22.2%
2011	38,956	$238,886	111,207	$462,064	150,163	$700,950	25.9%	34.1%
2012	44,330	$276,293	79,315	$342,215	123,645	$618,509	35.9%	44.7%
2013	21,770	$110,924	86,231	$483,130	108,002	$594,055	20.2%	18.7%
Average	29,688	$170,073	101,430	$428,079	131,118	$598,152	22.6%	28.4%

Source: Gulf Shrimp Database, SEFSC-Galveston; C. Liese, pers. comm., 2014.

Physical and Operational Characteristics of Royal Red Shrimp Vessels

Some GRRS vessels that landed royal red shrimp in 2008-2013 were part of those vessels sampled for the annual Economic Survey of Federal Gulf Shrimp Permit Holders. Upon close examination of the sampled vessels with GRRS permits, only five vessels appear to provide reasonable information for generating financial statements for vessels active in the royal red shrimp fishery (C. Liese, pers. comm. 2014). These vessels may be considered active in the royal red shrimp fishery consistently. During 2008-2013, three of the five vessels were active in the royal red shrimp fishery for six years, one vessel for four years, and one vessel for three years. These five vessels accounted for about 86% of all revenues from royal red shrimp for the period 2008-2013. These vessels may be considered to represent the core active operations in the royal red shrimp fishery.

Table 3.3.4 presents certain characteristics of the five vessels (GRRS vessels) and those of SPGM vessels. Information for SPGM vessels is only for 2011 (see Liese, 2013) and is included mainly for general comparison with GRRS vessels. Alabama was the home port state of all five GRRS vessels. Mississippi vessels are combined with those of Alabama for counting SPGM vessels only. In addition, all five GRRS vessels possessed South Atlantic open access shrimp permits and limited access rock shrimp permits. In essence, GRRS vessels are larger, faster, and newer than regular SPGM vessels, and their size of operation is larger as well. Incidentally, three of the five GRRS vessels changed ownership between 2004 and 2006.

Table 3.4.4. Physical and operational characteristics of five vessels that landed royal red shrimp (GRRS) and of the entire federally permitted Gulf shrimp fleet (SPGM).

Vessel Characteristics		
	GRRS Vessels	**SPGM Vessels (2011)**
Length (feet)	84	66
Gross tons	159	99
Horsepower	731	524
Year built	1997	1987
Hull material – steel	100%	71%
Refrigeration – freezer	100%	57%
State of Owner – Florida	0%	14%
State of Owner – Alabama (or Mississippi)	100%	15%
State of Owner – Louisiana	0%	27%
State of Owner – Texas	0%	38%
State of Owner – Other state	0%	6%
Vessel Operation		
	GRRS Vessels	**SPGM Vessels (2011)**
Owner-operator	60%	53%
Actively shrimping	100%	83%
Number of trips – Gulf shrimp	11	---
Days at sea – Gulf shrimp	239	127
Shrimp landed (lb heads off)	184,657	69,069
Fuel use (gallons)	101,396	35,585

Source: C. Liese, pers. comm. 2014.

Key Economic and Financial Characteristics of Royal Red Shrimp Vessels

An annual Economic Survey of Federal Gulf Shrimp Permit Holders has been undertaken since 2007, collecting information about the previous year's activities. Survey results have been summarized in a series of annual reports on the economics of the federal Gulf shrimp fishery. The latest of such reports pertain to the 2011 fishing year (see Liese 2013). The 2012 report is not yet completed and the 2013 data are presently being collected and processed.

The type of economic data the survey collects is based on an accounting framework of money flows and values associated with the productive activity of commercial shrimping. With these data, three financial statements, namely the balance sheet, the cash flow statement, and the income statement, are prepared to give a comprehensive overview of the financial and economic situation of the offshore shrimp fishery.[5]

Key economic and financial characteristics of royal red shrimp vessels are based on information from five vessels that consistently landed royal red shrimp in 2008-2011. Financial information for 2012 and 2013 are not yet available. As noted earlier, these five vessels may be considered

[5] For more detailed descriptions of these three financial statements, see Liese et al. 2009. The Annual Economic Survey of Federal Gulf Shrimp Permit Holders: Report on the Design, Implementation, and Descriptive Results for 2006. NOAA Technical Memorandum NMFS-SEFSC-584.

to represent the core, active royal red shrimp vessels. The information presented includes all sources of revenues and costs for the vessels and not just those directly associated with the harvest of royal red shrimp.

Highly reflective of the larger size of operation for GRRS vessels is the fairly large asset value of about $688,000 primarily attributed to the market value of the vessel and permit (Table 3.4.5). Owner's equity of about $536,000 is also fairly large. Most vessels have outstanding loans averaging about $153,000. The balance sheet account for a GRRS vessel is more than twice that of the average SPGM vessel in 2011 (Liese 2013).

Cash inflow for GRRS vessels is relatively high at about $897,000. Revenue from all species of shrimp landed is the biggest source of cash inflow. This is also matched by a large cash outflow of about $722,000 resulting in a net cash flow of about $175,000. This last amount is substantially larger than the net cash flow for an average SPGM vessel of about $35,000 in 2011 (Liese 2013). A notable entry in the cash inflow line is the DWH-related receipt of about $112,000, which significantly increases the net cash flow for GRRS vessels. But even without this entry, net cash flow for GRRS vessels would still be substantially higher than that for SPGM vessels.

The income statement depicts a relatively good financial condition for GRRS vessels from the standpoint of their fishing operations. Relatively high revenue from operation is matched by relatively high costs, resulting in net revenue from fishing operation of about $42,000. This is almost triple the net revenue of about $14,000 for an average SPGM vessel in 2011. The largest cost item is non-labor cost, which accounts for about 44% of total costs. DWH-related receipts contribute materially to the relatively high profit before tax of about $153,000. Without those receipts, however, the profit level for GRRS vessels would still be much higher than that for an average SPGM vessel.

The last two items in Table 3.4.5 provide some estimates on the productivity of vessel operation. Economic return of 6.1% is calculated by dividing net operating revenue by the value of vessel asset. This is a measure of the productivity of a shrimp vessel's production from a societal perspective. The calculated economic return is about ten times that for an average SPGM vessel in 2011. Return on equity of 28.6% is calculated by dividing profit by the owner's equity on the vessel. This is a more important performance metric for a vessel owner as it provides an owner's "bottom line" return relative to his/her equity on the productive asset. The relatively high return on equity is materially influenced by the DWH-related payment.

Table 3.4.5. Economic and financial characteristics of an average vessel with federal royal red shrimp permit (GRRS). Numbers, except percentages, are in 2011 dollars.

Balance Sheet	
Assets – Market value of vessel and permit	**688,460**
Original value of vessel (purchase price)	496,134
Implicit permit value	32,035
Liabilities – Loan on vessel	**152,614**
% of vessels with loan	80%
Equity – Owner's equity in vessel	**535,846**
Insurance coverage (% of vessels/ % of assets)	60%/34%
Cash Flow	
Inflow – Total	**896,853**
Shrimp revenue	772,358
Non-shrimp revenue	1,298
Government payments received (shrimp related)	10,737
DWH-related payments received	112,460
Outflow – Total	**722,350**
Fuel	266,867
Other supplies	58,346
Crew and captain (hired)	181,001
Regular maintenance (vessel and gear)	92,732
Major repair and haul-out	6,973
Overhead	77,096
Interest payments made (on vessel loans)	12,220
Principal payments made (on vessel loans)	27,116
New investments and upgrades (in vessel)	0
Net Cash Flow (excluding taxes)	**174,503**
Income Statement	
Revenue from Operations	**773,656**
Costs of Operations	**731,641**
Variable costs – Non-labor (fuel, supplies)	44.4%
Variable costs – Labor (hired, owner)	28.6%
Fixed costs (maintenance, repair, insurance, overhead, depreciation)	26.9%
Net Revenue from Operation	**42,014**
Profit or Loss (before tax)	**152,991**
Industry Returns	
Economic return	6.1%
Return on equity	28.6%

Source: C. Liese, pers. comm. 2014.

3.5 Description of the Social Environment

Although at most recent count, there are 295 royal red shrimp permits, for most of recent history the number of vessels landing royal red shrimp has been much lower. Figure 3.5.1 provides the number of vessels landing royal red shrimp, which has decreased from 17 vessels in 2004, to 6 vessels in 2006. Since 2006, the number of vessels landing royal reds has remained stable, while the value of landings is trending upward and the pounds landed has remained relatively consistent (Figure 3.5.1).

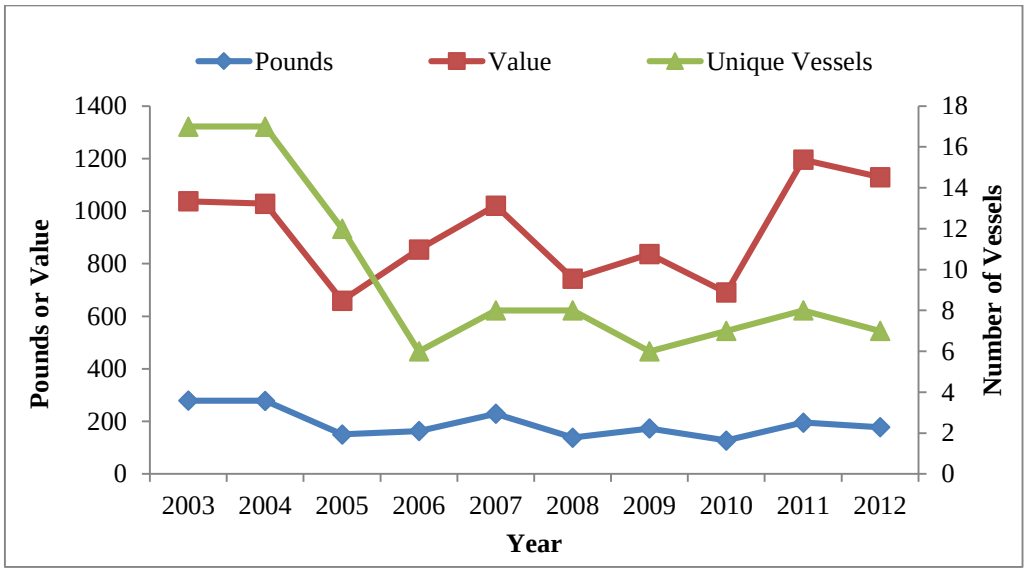

Figure 3.5.1. Average pounds and value of royal red shrimp landings and the number of vessels landing royal red shrimp (2003-2012).
Source: Shrimp Database, SEFSC-Galveston.

Communities Landing Royal Red Shrimp

The majority of royal red shrimp landings in the Gulf are in Alabama. Within Alabama there are several communities with landings: the majority of landings are made in Bon Secour, while Coden ranks second. The community of Bayou La Batre also has landings, but not nearly the amount compared with the other two communities. For confidentiality reasons due to the small number of communities where royal red shrimp are landed, we are unable to display the regional quotient for each community. Rather, we have provided the local quotient (LQ) for the top 15 commercial species landed within Bon Secour and Coden, for the years 2011 and 2012. The LQ provides a ranking of each species landed in the community in terms of pounds and value, among all landed marine products for that community.

In Bon Secour, royal red shrimp rank third in terms of the LQ for pounds and value of landings in 2011, with just over 10% of all commercial landings value attributed to royal red shrimp (Figure 3.5.2). In 2012, royal red shrimp represented 15% of the value of all marine product landings in Bon Secour (Figure 3.5.3). For both 2011 and 2012, the top three landed species in Bon Secour remain the same (white, brown, and royal red shrimp), but the proportion of landings and value for each of the species varies by year.

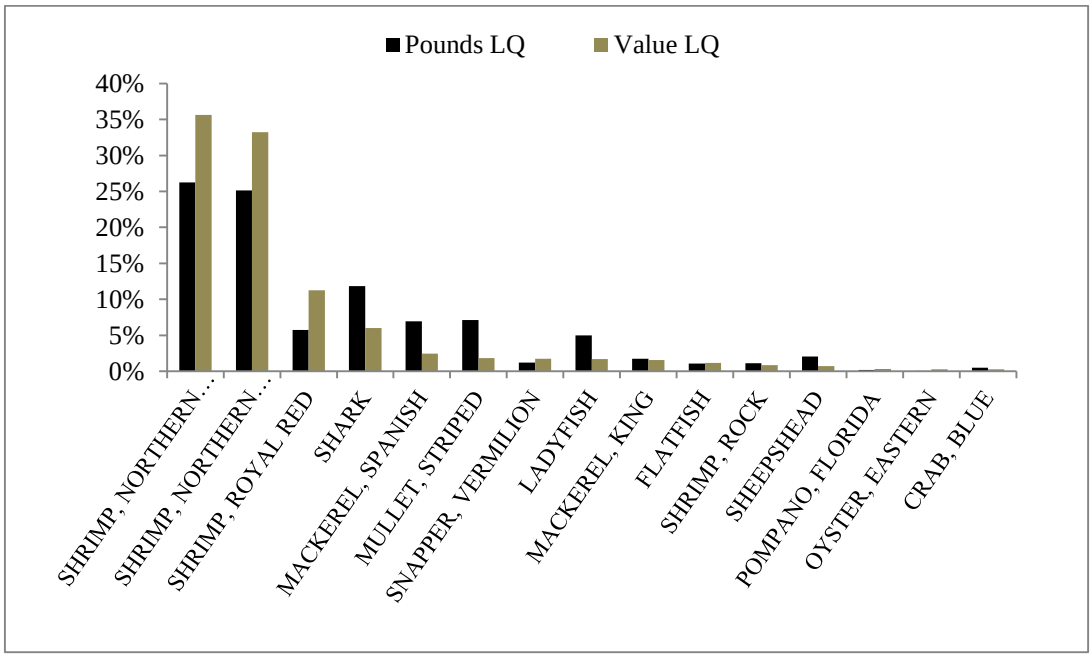

Figure 3.5.2. Top 15 species landed in Bon Secour, Alabama, in terms of pounds and value (LQ) in 2011.
Source: Southeast Regional Office, Community Accumulated Landings System (2011).

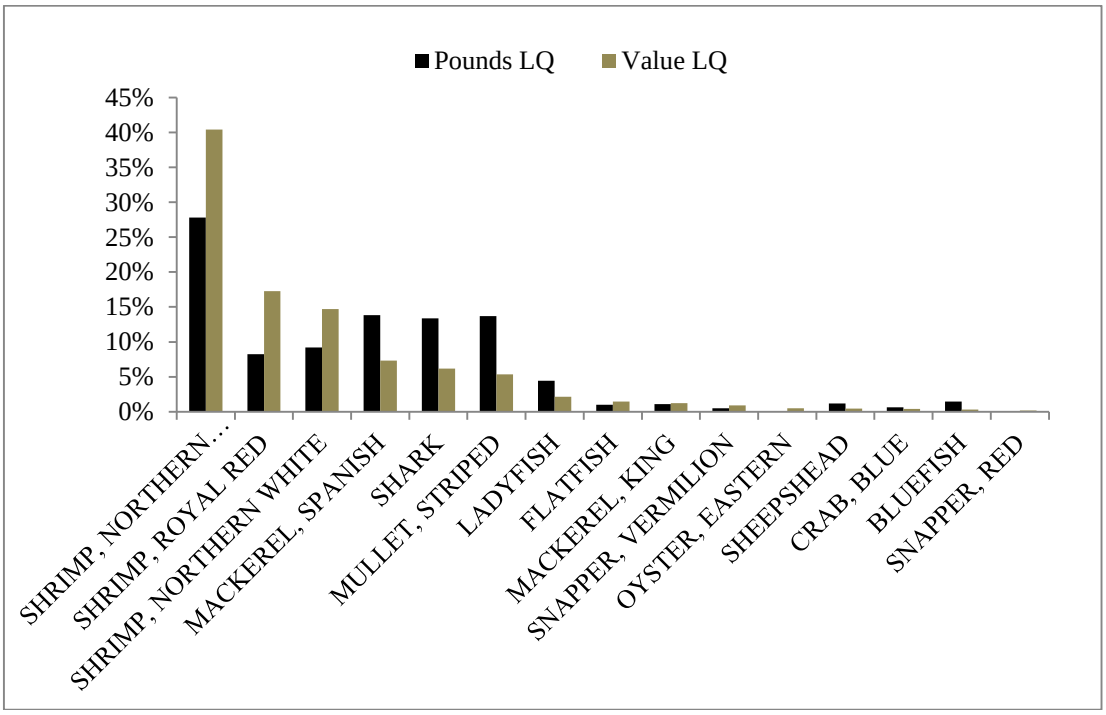

Figure 3.5.3. Top 15 species landed in Bon Secour, Alabama, in terms of pounds and value (LQ) in 2012.
Source: Southeast Regional Office, Community Accumulated Landings System (2012).

Coden, Alabama had the second largest amount of landings in the Gulf. For both 2011 and 2012, royal red shrimp is the fifth most important species landed based on pounds and value (Figures 3.5.4 and 3.5.5), representing an average of 10% of the value of marine products landed in Coden for those years.

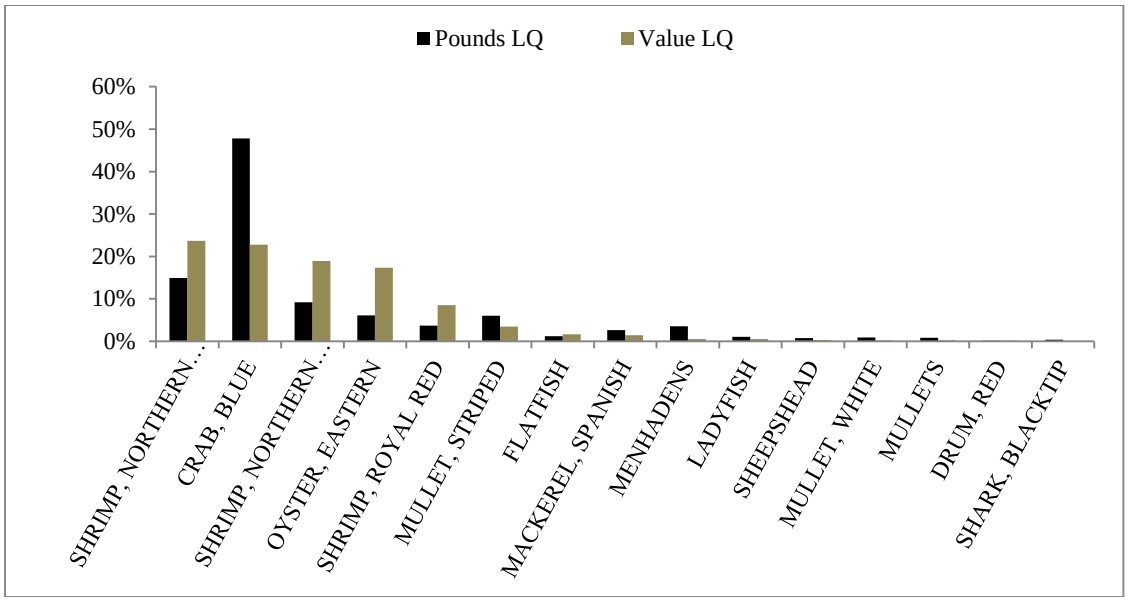

Figure 3.5.4. Top 15 species landed in Coden, Alabama, in terms of pounds and value (LQ) in 2011.
Source: Southeast Regional Office, Community Accumulated Landings System (2011).

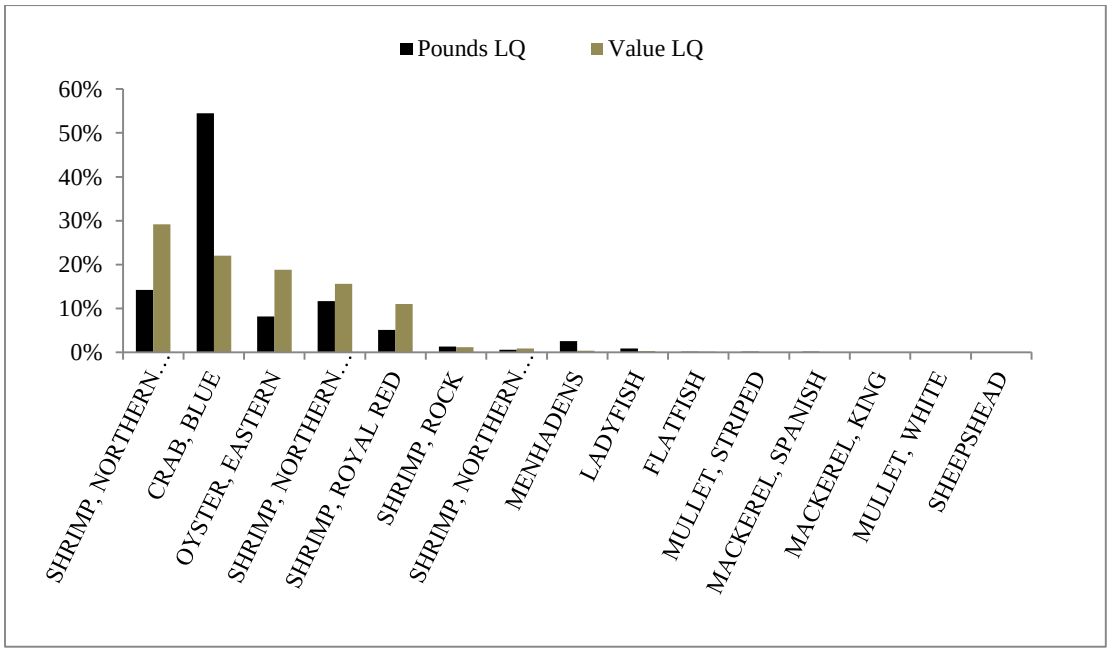

Figure 3.5.5. Top 15 species landed in Coden, Alabama, in terms of pounds and value (LQ) in 2012.
Source: Southeast Regional Office, Community Accumulated Landings System (2012).

Fleet Characteristics
There have been relatively few, if any, recent socio-cultural descriptions of the Gulf shrimp fishery and none for royal red shrimpers specifically. Liese and Travis (2010) have provided the most recent economic analysis of fleet-wide economic performance, but there is little information concerning the demographic makeup or characterization of the fleet. Miller and Isaac (2012) conducted similar research on the Gulf inshore shrimp fishery. A slight improvement in the economics of the overall shrimp fleet in 2008 was reported; however, many vessels still report negative rates of return for both the 2008 and 2009 fishing years (Liese and Travis 2010; updated in 2011). In 2009, there were more vessels reporting positive returns, yet this rate of return varied considerably by state and whether inshore or offshore fishing. In any case, the overall economic performance of the Gulf shrimp fleet is still not good and has been following a downward trend for some time. Those who fish primarily for royal red shrimp do seem to be better off regarding their vessel economics (see Section 3.4), although this may not be true for all vessels that land royal red shrimp. Nevertheless, the small number of vessels that land royal red shrimp also receive a higher ex-vessel price compared to the other shrimp species in the fishery.

The financial situation for Gulf shrimp fishermen overall has been repeatedly called unsustainable; however, this does not take into consideration other types of financial income households may have relied on during these austere economic times for the shrimp fleet. Although vessels are often considered business entities, many fishing households have multiple wage and income earners who contribute to an overall household economy that may be able to withstand downward economic trends. Because we do not have information from fishing households, we are unable to project whether this is the case or whether the resilience of some sectors of the shrimping fleet may be due to these circumstances.

3.5.1 Environmental Justice Considerations

Executive Order 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. This executive order is generally referred to as environmental justice (EJ).

While the recent social indicators developed for fishing communities along the Gulf have been utilized in other amendments, the two primary ports described here do not have census data attributable to them at the Census Designated Place level and, therefore, have no social indicators to report. Related to the lack of social indicators, the absence of Census Designated Place data also reflects our inability to provide measures on the number in poverty or the number of minorities living within the above communities. We are only able to provide a general discussion of the number of Indochinese within the Gulf shrimp fishery without specifics for the two communities with the majority of royal red shrimp landings. Unfortunately, similar types of exercises have not been completed for other minorities.

While we do not have demographics for captains and crew, we can identify a proxy for the number of vessels that may have some minorities associated with the vessel by looking at surnames from the permit file and counting those that are Indochinese in their origin. This technique was first utilized in a memorandum from Gulf of Mexico Fishery Management Council Executive Director Dr. Wayne Swingle to the Shrimp Management Committee dated March 28, 2003. In that memorandum, Dr. Swingle indicated that of the 1,836 federally permitted shrimp vessels, 524 (or 28.7%) had owners with Indochinese surnames or corporate names. A similar count conducted by the Southeast Regional Office (SERO) in 2009 resulted in 484 out of 1853[6] (or 26.1%) of permit owners with Indochinese surnames. Unfortunately, we do not know if these are active vessels, whether the crew is of Indochinese ethnicity, and if so, how crew members self-identify. However, this does give a rough indication of the participation rate of those of Indochinese descent within the Gulf shrimp fishery overall. We cannot say that this same percentage of captains and crew of royal red shrimp vessels are of Indochinese descent or self-identify as such, nor are we able to suggest what percentage of royal red shrimp vessel owners are of Indochinese descent or self-identify as such.

While some form of subsistence fishing most likely occurs along all coasts and in many fisheries, the scope and extent depends entirely upon the type of fishery and its accessibility. While the activity is very similar to both recreational and commercial fishing, there are several aspects regarding the disposition of the catch that make it very different. While both recreational and commercial fishermen may use some of their catch for personal consumption, the role of consumption for a subsistence fisherman is likely to have a more important role in its contribution to the overall household economy; the difficulty in defining the activity comes in making that distinction. However, it is highly likely that subsistence fishing occurs more often among those populations identified as having some environmental justice concerns.

The number of individuals involved in the royal red shrimp fishery is small; an average of nine vessels a year have made royal red shrimp landings in the last 10 years. There are no known claims for customary usage of royal red shrimp by any population including tribes or indigenous groups. The harvest of royal red shrimp is a capital intensive activity conducted in deep waters (140 to 300 fathoms) requiring larger vessels and heavier gear than used for shallow-water penaeid shrimp. Royal red shrimp also command a higher ex-vessel price than shallow-water penaeid shrimp. Thus, it is unlikely that there would be any EJ concerns resulting from the actions in this amendment which would not disproportionately affect minorities or those in poverty.

[6] This is a snapshot of permits at one point in time and not exclusive to shrimp vessels, so numbers may vary at different points in time. This is a very rough estimate of the number of vessels with owners of Indochinese background. It is not a precise count of persons involved in the fishery who may be Indochinese or other minorities.

3.6 Description of the Administrative Environment

3.6.1 Federal Fishery Management

Federal fishery management is conducted under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.), originally enacted in 1976 as the Fishery Conservation and Management Act and reauthorized in 2007. The Magnuson-Stevens Act claims sovereign rights and exclusive fishery management authority over most fishery resources within the EEZ, an area extending 200 nautical miles from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the EEZ.

Responsibility for federal fishery management decision-making is divided between the Secretary of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act, and with other applicable laws summarized in Appendix B. In most cases, the Secretary has delegated this authority to NMFS.

The Council is responsible for fishery resources in federal waters of the Gulf. These waters extend to 200 nautical miles offshore from the nine-nautical-mile seaward boundary of the states of Florida and Texas, and the three-nautical-mile seaward boundary of the states of Alabama, Mississippi, and Louisiana. The Council consists of 17 voting members: 11 public members appointed by the Secretary; one each from the fishery agencies of Texas, Louisiana, Mississippi, Alabama, and Florida; and one from NMFS. Non-voting members include representatives from the U.S. Fish and Wildlife Service, the U.S. Coast Guard (USCG), and the Gulf States Marine Fisheries Commission.

The Council uses its Science and Statistical Committee to review data and science used in assessments and fishery management plans/amendments. Regulations contained within FMPs are enforced through actions of NMFS' Office for Law Enforcement, the USCG, and various state authorities.

The public is involved in the fishery management process through participation at public meetings, on advisory panels and through Council meetings that, with few exceptions for discussing personnel matters, are open to the public. The regulatory process is in accordance with the Administrative Procedures Act, in the form of "notice and comment" rulemaking, which provides extensive opportunity for public scrutiny and comment, and requires consideration of and response to those comments.

3.6.2 State Fishery Management

The purpose of state representation at the Council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations

in state and federal waters. The state governments have the authority to manage their respective state fisheries including enforcement of fishing regulations. Each of the five states exercises legislative and regulatory authority over their states' natural resources through discrete administrative units. Although each agency listed below is the primary administrative body with respect to the state's natural resources, all states cooperate with numerous state and federal regulatory agencies when managing marine resources. The states are also involved through the Gulf States Marine Fisheries Commission in management of marine fisheries. This commission was created to coordinate state regulations and develop management plans for interstate fisheries.

NMFS' State-Federal Fisheries Division is responsible for building cooperative partnerships to strengthen marine fisheries management and conservation at the state, inter-regional, and national levels. This division implements and oversees the distribution of grants for two national programs (Inter-jurisdictional Fisheries Act and Anadromous Fish Conservation Act). Additionally, it works with the commission to develop and implement cooperative State-Federal fisheries regulations.

More information about these agencies can be found from the following web pages:
Texas Parks & Wildlife Department - http://www.tpwd.state.tx.us
Louisiana Department of Wildlife and Fisheries http://www.wlf.louisiana.gov/
Mississippi Department of Marine Resources http://www.dmr.state.ms.us/
Alabama Department of Conservation and Natural Resources http://www.outdooralabama.com/
Florida Fish and Wildlife Conservation Commission http://www.myfwc.com

CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

4.1 Action 1 – Adjust the annual catch limit (ACL) and quota for royal red shrimp

Alternative 1. No Action.
Retain the 334,000-lbs of tails commercial ACL.
Retain the 392,000-lbs of tails quota.

Alternative 2.
Retain the 334,000-lbs of tails commercial ACL.
Remove the 392,000-lbs of tails quota.

Preferred Alternative 3.
Remove both the 334,000-lbs of tails ACL and the 392,000 lbs of tails quota.
Change the ACL to 337,000 lbs of tails.

4.1.1 Direct and Indirect Effects on the Physical and Biological Environments

Action 1 is in response to an updated acceptable biological catch (ABC) and the need to reconcile a quota that exceeds the ACL. The scientific and statistical committee (SSC) had set the ABC to 334,000 lbs of tails based on looking at a graphical representation of landings, when the actual highest landings were 336,810 lbs of tails. When informed, the SSC re-evaluated the ABC and reset it to 337,000 lbs of tails.

Currently, trawls are the primary gear used for shrimping. Trawling is recognized for its impacts to benthic environments because the heavy doors drag along the bottom and the tickler chains scrape along the sea floor. The shrimp fishery is prosecuted primarily over soft substrates, such as mud or silt, which are more resilient to disturbance than other bottom types. Though the shrimp fishery is prosecuted in depths and near areas that are likely to contain deep-sea coral communities, these deep-sea coral areas are avoided because entanglement and loss of gear is likely. There are also several protected areas, many that contain deep-sea corals, discussed in Section 3.2. Areas that have been closed to shrimp trawling seasonally, such as the Texas closure, are not as physically altered relative to areas continuously open to shrimp trawling, and longer term parameters such as currents and storms may have more effects on the physical characteristics of an area (Sheridan and Doerr 2005). The proposed actions will not modify the way the fishery is prosecuted but will update the regulations and rectify inconsistencies in the regulations.

Alternative 1 would leave the quota higher than the ACL. This is inconsistent with the Magnuson-Stevens Act and the National Standard 1 Guidelines. The fishery would continue to be prosecuted with the impacts to the physical environment described above. Impacts to the biological environment would not differ from those currently caused by the fishery. These include potential bycatch of non-targeted species, potential removal of benthic organisms by trawls, and changes to the bottom habitat.

Effort in the fishery is currently below historical levels. Given the shrimp permit moratorium, increased fuel costs, and decreased number of vessels prosecuting the fishery, it is unlikely that the ACLs for either **Alternative 2** or **Preferred Alternative 3** would result in additional physical impacts unless the number of permitted vessels and effort increases to the levels observed in the 1990s. **Alternative 2** keeps the ACL at the level that was instituted in the Generic ACL/accountability measures (AM) Amendment (GMFMC 2011). **Preferred Alternative 3** increases the ACL to the value of the ABC. Neither the ACL proposed in **Alternative 2** nor the ACL proposed in **Preferred Alternative 3** is likely to affect the physical, biological, or ecological environment any differently than from how the fishery is currently prosecuted because effort is not expected to increase. However, if effort and landings did increase, the higher ACL in **Preferred Alternative 3** would allow slightly more effort than **Alternative 2**, and, therefore, slightly more potential for impacts on the physical and biological environments.

4.1.2 Direct and Indirect Effects on the Economic Environment

Alternative 1 would not be consistent with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) because the royal red shrimp quota would be greater than the ACL. Although this administrative inconsistency needs to be corrected, **Alternative 1** is not expected to result in effects on the economic environment because royal red shrimp landings have been far below the quota and the ACL.

Alternative 2 and **Preferred Alternative 3** would both be consistent with the Magnuson-Stevens Act and remove the quota which was set above the ACL. Based on the reduced number of vessels targeting royal red shrimp and the steady decline in the pounds of tails landed during the last 10 years, it is unlikely that royal red shrimp harvests would approach the ACL that would be set by **Alternative 2** or **Preferred Alternative 3.** Therefore, economic effects are not expected to result from **Preferred Alternative 3** or **Alternative 2.** In the future, should royal red shrimp harvests increase and reach the ACL, **Preferred Alternative 3** would be more beneficial to the industry because it sets a slightly higher ACL than **Alternative 2.**

4.1.3 Direct and Indirect Effects on the Social Environment

Social effects may be expected to result from modifying catch limits (ACLs or quotas), should total landings reach or exceed the existing catch limit, triggering other actions. Effects would be direct if the modified catch limit reduces the amount of fishing opportunities, such as by shortening the fishing season. Effects would be indirect if landings exceed the modified catch limit and trigger a post-season accountability measure. These indirect effects would be negative in the short term, as fishing opportunities could be reduced in a subsequent season, but positive over the long-term, if the triggered accountability measure succeed in protecting the stock, enabling more fishing opportunities in the future.

In the case of royal red shrimp, commercial landings have exceeded the current ACL of 334,000 lbs of tails (**Alternatives 1** and **2**) only once (in 1994, by 2,810 lbs of tails). Over the past 50 years, commercial landings have never exceeded 337,000 lbs of tails (**Preferred Alternative 3**).

In the last ten years (2004-2013), royal red shrimp landings were less than 200,000 lbs of tails in all but two years, with landings declining overall (Figure 2.1.1). Because of this downward trend in landings, small size of the fleet (estimated at less than 20 vessels), and depth and location where royal red shrimping occurs, it is unlikely that the commercial royal red shrimp landings will exceed any of the catch limits in the alternatives. Thus, none of the impacts described in the previous paragraph would be expected to result from modifying the ACL and quota in this action.

The difference between the ACLs in **Alternative 2** and **Preferred Alternative 3** is 3,000 lbs of tails per year. This small difference in ACLs would only be expected to result in minor differential impacts. Should the ACL of **Alternative 2** be exceeded, **Preferred Alternative 3** may likely be exceeded as well. Thus, the difference in effects between the alternatives would likely be minimal. Nevertheless, the Council's SSC recommended an ABC (set equal to the ACL by the Council) of 337,000 lbs of tails, and an overfishing limit of 392,000 lbs of tails. Selecting the slightly higher ACL (**Preferred Alternative 3**), although not likely to be reached, would be expected to provide some additional benefits compared to **Alternative 2** by setting the ACL at the maximum allowed by the SSC recommendation.

4.1.4 Direct and Indirect Effects on the Administrative Environment

The Magnuson-Stevens Act requires that a fishery management plan specify objective and measurable criteria, or reference points, for determining when a stock is subject to overfishing or is overfished. Since 1996, the National Marine Fisheries Service (NMFS) has reported on the status of stocks quarterly (http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries/).

Alternative 1 would keep the quota and be inconsistent with the national standard guidelines which state that the quota cannot be higher than the ACL. **Alternative 2** and **Preferred Alternative 3** would remove the quota and set an ACL that is either lower than (**Alternative 2**) or equal to (**Preferred Alternative 3**) the ABC and would make the regulations consistent with the national standard guidelines. Although it is unlikely that either ACL would be met, the ACL in **Preferred Alternative 3** allows for more shrimp to be caught which makes it less likely that AMs will go into effect; therefore, it is less burdensome on the administrative environment.

4.2 Action 2 – Adjust the accountability measure (AM) and closure procedures for royal red shrimp

Alternative 1. No Action.

Retain the AM set through the Generic ACL/AM Amendment.*
Retain the in-season closure set through the revised 1981 FMP.

Preferred Alternative 2.

Retain the AM set through the Generic ACL/AM Amendment.*
Remove the in-season closure set through the revised 1981 FMP.

Alternative 3.

Remove the AM set through the Generic ACL/AM Amendment.*
Retain the in-season closure set through the revised 1981 FMP, which would then serve as the AM.

** If commercial landings, as estimated by the Science and Research Director, exceed the commercial ACL, then during the following fishing year, if commercial landings reach or are projected to reach the commercial ACL, the NMFS will file a notification with the Office of the Federal Register to close the commercial sector for the remainder of that fishing year.*

4.2.1 Direct and Indirect Effects on the Physical and Biological Environments

Accountability measures are management controls that ensure ACLs are not exceeded or provide corrective measures if overages occur. According to the national standards guidance, AMs can be in-season actions that prevent overages during the current fishing season or post-season actions that "correct the operational issue that caused the ACL overage, as well as any biological consequences to the stock or stock complex resulting from the overage." The impacts on the physical and biological environments would only differ among these alternatives if the ACL was exceeded.

Alternative 1 is not a viable option as it would retain two closure procedures that are in conflict. One AM would be to close royal red shrimp fishing only if landings exceed the ACL in one year and then reach or are projected to reach the ACL the following year, while the other would close royal red shrimp fishing if landings reach or are projected to reach the quota in a single year. Given the ACL equal to the quota, in practice **Alternative 1** would function the same as **Alternative 3** because in-season monitoring would occur every year; therefore, the impacts would be the same. If landings reach the ACL in a year, continued fishing for royal red shrimp would be prohibited and the stock would be protected from overfishing. However, because the AM is not likely to be triggered, those impacts are not expected to occur.

Preferred Alternative 2 would retain the AM that closes royal red shrimp fishing only if landings exceed the ACL in one year and then reach or are projected to reach the ACL the following year. This was the Council's preferred alternative from the Generic ACL/AM Amendment. The alternative combines in-season AMs with post-season AMs. Should it be determined through post-season review that the ACL was exceeded in one year, this alternative invokes in-season measures to halt harvest in the subsequent year if it appears that the ACL would be reached again. This option could allow an overage in a year before the AM would be triggered which would have increased negative impacts on the physical and biological environments. Those impacts would include additional fishing mortality and impacts to habitat from fishing gear. However, average annual landings for the last ten years have been well below any proposed ACL in Action 1, and landings have never reached the preferred alternative ACL in Action 1 since 1962 (Table 3.1.1). Therefore, the probability of an overage is expected to be very small, and any additional impacts on the physical and biological environments would be unlikely.

Although an in-season closure (**Alternative 3**) has the greatest potential biological benefit by preventing overages, any proposed ACL is unlikely to be exceeded and the added benefit of continual in-season monitoring should be insignificant.

4.2.2 Direct and Indirect Effects on the Economic Environment

Alternative 1 would retain the AM set through the Generic ACL/AM Amendment and the in-season closure set through the revised 1981 FMP. In conjunction with the AM set through the Generic ACL/AM Amendment, the in-season closure is redundant. **Preferred Alternative 2** would retain the AM set through the Generic ACL/AM Amendment and would eliminate the redundant in-season closure set through the revised 1981 FMP. **Alternative 3** would retain the in-season closure set through the revised 1981 FMP and remove the AM set through the Generic ACL/AM Amendment. **Preferred Alternative 2** or **Alternative 3** are not expected to affect royal red shrimp harvests or other customary uses of the resource, mainly because the ACL, which would trigger the application of AMs if exceeded, is unlikely to be reached in the near future. Therefore economic effects are not expected to result from **Preferred Alternative 2** or **Alternative 3.**

4.2.3 Direct and Indirect Effects on the Social Environment

As noted, given effort and landings of royal red shrimp in recent years, it is unlikely for landings to exceed the quota or ACL, triggering an AM. Nevertheless, conflicting AMs in the federal regulations are in place for royal red shrimp (**Alternative 1**). Reconciling the conflicting regulations by removing one of the AMs would benefit royal red shrimpers by clarifying the regulations. Although unlikely to be triggered, **Preferred Alternative 2** would provide greater social benefits than **Alternative 3** by delaying an in-season closure until the year following a quota overage. In-season closures are disruptive to fishermen, particularly when there is little notice preceding a closure.

4.2.4 Direct and Indirect Effects on the Administrative Environment

Alternative 1 would have no immediate direct or indirect effect on the administrative environment. In-season monitoring would continue as currently. **Alternative 3** would maintain the same burden on NMFS staff to collate and verify landings information, file a notification of a closure, and enforce closures.

Preferred Alternative 2 should ease the burden on the administrative environment because landings would not need to be monitored in-season every year. On the other hand, the administrative environment may be negatively affected by **Preferred Alternative 2** if harvest is not sufficiently constrained and leads to overfishing of the royal red shrimp stock. This could increase the burden on the Council and NMFS to develop amendments in the future to address overfishing and constrain harvest.

4.3 Cumulative Effects Analysis

As directed by the National Environmental Policy Act (NEPA), federal agencies are mandated to assess not only the indirect and direct impacts, but cumulative impacts of actions as well. NEPA defines a cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). Cumulative effects can either be additive or synergistic. A synergistic effect occurs when the combined effects are greater than the sum of the individual effects. The following are some past, present, and future actions that could affect the environment in the area where the Gulf of Mexico (Gulf) royal red shrimp fishery is prosecuted.

The cumulative effects of setting an ACL and an AM for royal red shrimp were analyzed in the Generic ACL/AM Amendment (GMFMC 2011). That analysis is incorporated by reference herein and the changes proposed in the current amendment are not expected to alter those conclusions. The expected cumulative effects are summarized below and updated with new information since the development of the Generic ACL/AM Amendment.

Past Actions

In 2003, regulations were instituted requiring vessels to possess a federal shrimp permit when fishing for penaeid shrimp in the Gulf exclusive economic zone (EEZ). Subsequently, a moratorium on the issuance of new federal shrimp permits was established in 2006. Currently, vessels must possess a federal Gulf shrimp moratorium permit when fishing for shrimp in the Gulf EEZ and a royal red shrimp endorsement when fishing for royal red shrimp. During 2006 through 2010, an average of 4,582 vessels fished for shrimp in the Gulf, of which 20% were federally permitted vessels and the rest not federally permitted vessels. Despite being fewer in number, federally permitted vessels accounted for an average of 67% of total shrimp landings and 77% of total ex-vessel revenues. As of July 25, 2014, there were 1,486 valid or renewable permits and 295 valid endorsements for royal red shrimp. These numbers are much smaller than the pre-moratorium federally permitted 2,385 vessels and the 1,933 that qualified for a permit when the moratorium was implemented.

Joint Reef Fish Amendment 27/Shrimp Amendment 14 (effective 2008) established a target effort-reduction goal of 74% less than the benchmark years of 2001-2003 as a proxy for juvenile red snapper mortality reduction. The amendment established a closure procedure for the northern and western Gulf within the 10- to 30-fathom zone in conjunction with the beginning of the annual Texas closure if fishing effort does not meet the reduction target. However, effort has remained below the target level and NMFS was able to relax the effort restrictions to a 67% reduction in 2012 because the red snapper stock was rebuilding on schedule.

On April 20, 2010, an explosion occurred on the Deepwater Horizon MC252 (DWH) oil rig, resulting in the release of millions of barrels of oil into the Gulf. In addition, over a million gallons of Corexit 9500A dispersant were applied as part of the effort to constrain the spill. The cumulative effects from the oil spill and response may not be known for years. The oil spill

affected more than one-third of the Gulf area from western Louisiana east to the Panhandle of Florida and south to the Campeche Bank in Mexico. The impacts of the DWH oil spill on the physical environment are expected to be significant and may be long-term. Oil was dispersed on the surface, and because of the heavy use of dispersants, oil was also documented as being suspended within the water column, some even deeper than the location of the broken well head. Floating and suspended oil washed onto shore in several areas of the Gulf as well as non-floating tar balls. Whereas suspended and floating oil degrades over time, tar balls are more persistent in the environment and can be transported hundreds of miles.

In a study by Murawski, et al. (2014), researchers found a higher frequency of skin lesions on fish in the northern Gulf in the area of the 2010 oil spill compared to other areas. Studies are continuing to check whether the sick fish suffer from immune system and fertility problems. Indirect and inter-related effects on the biological and ecological environment of the shrimp fishery in concert with the DWH oil spill are not well understood. Changes in the population size structure could result from shifting fishing effort to specific geographic segments of populations, combined with any anthropogenically induced mortality that may occur from the impacts of the oil spill. The impacts on the food web from phytoplankton, to zooplankton, to mollusks, to top predators may be significant in the future. Effects on shrimp from the oil spill may affect other species that prey upon shrimp.

Sections of the Gulf were closed to all fishing during the DWH oil spill event. These areas were opened after the well was capped and testing determined seafood from each area was safe for human consumption. In November 2010, a fisherman reported tarballs in his net while trawling for royal red shrimp in an area opened five days prior. NMFS re-closed the area and conducted additional seafood sampling. NMFS re-opened the area in February after testing shrimp and finfish from the area and finding that all seafood samples passed both sensory and chemical testing.

The DWH oil spill and BP’s responses had a confounding effect on the economics of the Gulf shrimp fishery in 2010. The majority of vessels (66%) reported receiving oil spill-related revenue. The two primary sources of this revenue are damage claims (passive income) and revenue generated by participation in BP's vessel of opportunity program (VOOP) where vessels were hired to clean up oil. Of the surveyed vessels, 28% participated in the VOOP. Both sources provided substantial revenue for participating vessels, thereby obscuring the economics of the fishery. Further, vessels participating in VOOP incurred non-negligible costs unrelated to commercial fishing.

Bycatch reduction devices (BRDs) have been required for use since 1998 in the western Gulf and 2004 in the eastern Gulf, but shrimp trawls fishing for royal red shrimp seaward of the 100-fathom contour are exempt from the requirement for BRDs. Since 2010, some new BRDs were certified while others were decertified. The intent of these modifications to BRD regulations was to provide additional flexibility to the fishery. BRDs may have different capabilities according to different fishing conditions, and having a wider variety of BRDs for use in the fisheries allows fishermen greater flexibility to choose the most effective BRD for the specific local fishing conditions. Regulations for turtle excluder devices (TEDs) were first implemented

in 1987 and have been expanded in the years since. Currently, if a trawl is fishing for and catching more than 90% royal red shrimp, it is not required to use a TED.

Since 2001, there has been a decrease in effort in southeast U.S. shrimp fishery. The decline has been attributed to low shrimp prices, rising fuel costs, competition with imported products, and the impacts of 2005 and 2006 hurricanes in the Gulf of Mexico. This was exacerbated by the financial meltdown and consequent recession in the U.S. economy in 2007-2008. The economy has started to recover, though slowly, in the last few years. In addition, shrimp prices have increased in the last two years, partly due to reductions in shrimp imports as shrimp farms in some of the major exporting countries were affected by diseases. Reductions in shrimp imports, however, may be temporary and imports could recover to their previous high levels in the future. Given that the shrimp fishery still faces many of the challenges that contributed to the effort declines, effort is not expected to increase substantially in the near future.

Present Actions

In December 2013, NMFS implemented a rule outlining a cost share plan between NMFS and shrimp vessel permit holders to support the electronic logbook (ELB) program. The ELB program provides data on Gulf shrimp fishing effort that is critical to both the Council and NMFS in performing annual assessments of the status of shrimp stocks, obtaining accurate estimates of juvenile red snapper mortality attributable to the shrimp fishery, and generating mortality estimates on a number of other species captured as bycatch in the shrimp fishery. The operational cost per vessel is approximately $240 per year. Because the average vessel in the Gulf shrimp fishery has been in poor financial condition, an additional cost item that would not improve the vessel's operations could have a material adverse impact on the operations and solvency of an average vessel. The SEFSC has selected 500 vessels to participate in the program for 2014 and is in the process of distributing and activating the ELB units.

The shrimp fishery is closed annually in state waters off Texas to allow brown shrimp to reach a larger and more valuable size prior to harvest and to prevent waste of brown shrimp that might otherwise be discarded because of small size. The closing and opening dates of the Texas closure are based on the results of biological sampling by the Texas Parks and Wildlife Department. Historically, the closure is from about May 15 to July 15. NMFS closes federal waters off Texas concurrent with this action each year, at the request of the Council. The Texas closure does not generally affect the ability to fish for royal red shrimp because they are found in the eastern Gulf. However, because of the closure, royal red shrimp may be more heavily fished when areas used to trawl for penaeid shrimp are closed.

Reasonably Foreseeable Future Actions

- Amendment 15 would modify the framework procedure for the Shrimp FMP to allow greater flexibility in modifying accountability measures for royal red shrimp and to update terminology.
- Amendment 17 will address the expiration of the shrimp permit moratorium in October 2016. The Council will determine if the moratorium should be extended, allowed to lapse, or converted to a permanent limited access system.
- The Council is considering addressing coral essential fish habitat and potential coral habitat areas of particular concern (HAPCs) or designating deep-sea coral areas. The Council will

determine if there are areas that are HAPCs and what fishing regulations, if any, would be required. If areas are closed to fishing, it may affect where the royal red shrimp fishery can be prosecuted and alter efforts to other areas.

The Environmental Protection Agency's climate change webpage (http://www.epa.gov/climatechange/) provides basic background information on measured or anticipated effects from global climate change. A compilation of scientific information on climate change can be found in the United Nations Intergovernmental Panel on Climate Change's Fifth Assessment Report (IPCC 2013). Those findings are incorporated here by reference and are summarized. Global climate change can affect marine ecosystems through ocean warming by increased thermal stratification, reduced upwelling, sea level rise, and through increases in wave height and frequency, loss of sea ice, and increased risk of diseases in marine biota. Decreases in surface ocean pH from the absorption of anthropogenic carbon dioxide emissions may affect a wide range of organisms and ecosystems, particularly organisms that absorb calcium from surface waters, such as corals and crustaceans. These influences could affect biological factors such as migration, range, larval and juvenile survival, prey availability, and susceptibility to predators. These climate changes could have significant effects on southeastern fisheries; however, the extent of these effects is not known at this time (IPCC 2007).

In the southeast, general effects of climate change have been predicted through modeling, with few studies on specific effects to species. Warming sea temperature trends in the southeast have been documented, and animals must migrate to cooler waters, if possible, if water temperatures exceed survivable ranges (Needham et al. 2012). Higher water temperatures may also allow invasive species to establish communities in areas they may not have been able to survive previously. An area of low oxygen, known as the dead zone, forms in the northern Gulf each summer. Climate change may contribute to this dead zone by increasing rainfall that in turn increases nutrient input from rivers. This increased nutrient load causes algal blooms that, when decomposing, reduce oxygen in the water (Kennedy et al. 2002; Needham et al. 2012). Other potential effects of climate change in the southeast include increases in hurricanes, decreases in salinity, altered circulation patterns, and sea level rise. The combination of warmer water and expansion of salt marshes inland with sea-level rise may increase productivity of estuarine-dependent species in the short term. However, in the long term, this increased productivity may be temporary because of loss of fishery habitats due to wetland loss (Kennedy et al. 2002). Actions from this amendment are not expected to significantly contribute to climate change through the increase or decrease in the carbon footprint from fishing.

Hurricane season is from June 1 to November 30, and accounts for 97% of all tropical activity affecting the Atlantic Basin. These storms, unpredictable in their annual occurrence, can devastate areas when they occur. However, while these effects may be temporary, those fishing-related businesses whose profitability is marginal may go out of business if a hurricane strikes.

The cumulative biological, social, and economic effects of past, present, and future actions as described above may be described as limiting fishing opportunities in the short-term, with some exceptions of actions that alleviate some negative social and economic impacts. The intent of this amendment is to improve prospects for sustained participation in the respective fisheries

over time and the proposed actions in this amendment could result in some important long-term benefits to the commercial fleet, as well as fishing communities and associated businesses, if effort for royal red shrimp increases. The proposed changes in management for the Gulf royal red shrimp fishery are not related to other actions with individually insignificant but cumulatively significant impacts.

Mitigation and Monitoring
The process of managing the royal red shrimp stock could have a negative short-term effect on the social and economic environment, but the actions in this amendment are not expected change those effects. No alternatives are being considered that would avoid negative effects because they are a necessary cost associated with managing this stock.

Based on National Standard 1guidelines, if royal red shrimp landings exceed the ACL more than once in four years, the system of ACLs and AMs will be re-evaluated, and modified if necessary, to improve its performance and effectiveness. The effects of the proposed action are, and will continue to be, monitored through collection of landings data by NMFS, annual stock assessments and stock assessment updates, life history studies, economic and social analyses, and other scientific observations.

4.4 Other Effects

4.4.1 Unavoidable Adverse Effects

Exceeding the ACL and triggering the AM may result in negative short-term effects on the social and economic environments, if those limits constrain catch below recent levels. However, these effects are unlikely because recent landings are well below any catch level proposed.

4.4.2 Relationship Between Short-Term Uses and Long-Term Productivity

The objectives of this amendment are to prevent overfishing while helping to achieve optimum yield, reconcile conflicting regulations, and comply with requirements of the Magnuson-Stevens Act. In achieving these objectives, there is a slight chance of royal red shrimp fishermen encountering short-term economic impacts if the ACL is reached and accountability measures are triggered, but experiencing long-term economic productivity from the protection of the resources, as discussed in previous sections.

The process of managing the royal red shrimp stock could have a negative short-term effect on the social and economic environment, and could create a burden on the administrative environment. The alternatives have varying degrees of economic costs and administrative burdens, but the differences are minor.

4.4.3 Mitigation, Monitoring, and Enforcement Measures

The proposed actions would apply equally to all fishery participants regardless of minority or income status, and no information has been identified that would indicate differential costs on or benefits to minority or low income persons distinct from those expected to accrue to other constituencies involved in the fishery. Therefore, no environmental justice issues have been identified and no mitigation measures in response to environmental justice issues have been considered.

If the ACL is exceeded, NMFS would close royal red shrimp fishing, either the first year or after two years of overages, depending on the alternative chosen in Action 2. National Standard 1 guidelines state that if catch exceeds the ACL for a given stock or stock complex more than once in four years, the system of ACLs and AMs should be re-evaluated, and modified if necessary, to improve its performance and effectiveness. Additionally, NMFS annually reports on the status of stocks in its Report to Congress.

4.4.4 Irreversible and Irretrievable Commitments of Resources

No irreversible or irretrievable commitments of agency resources are proposed herein. The actions to modify the ACL and AM are readily changeable by the Council in the future. There may be some loss of immediate income (irretrievable in the context of an individual not being able to benefit from compounded value over time) to some sectors from the potential limitation of harvest due to the AM, if triggered. No irreversible or irretrievable commitment of natural resources is anticipated.

4.5 Any Other Disclosures

CEQ guidance on environmental consequences [40 CFR 1502.16] indicates the following elements should be considered for the scientific and analytic basis for comparisons of alternatives. These are:

a) Direct effects and their significance.
b) Indirect effects and their significance.
c) Possible conflicts between the proposed action and the objectives of federal, regional, state, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned.
d) The environmental effects of alternatives including the proposed action.
e) Energy requirements and conservation potential of various alternatives and mitigation measures.
f) Natural or depletable resource requirements and conservation potential of various alternatives and mitigation measures.
g) Urban quality, historic and cultural resources, and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures.
h) Means to mitigate adverse environmental impacts.

Items a, b, d, e, f, and h are addressed in Sections 2, 3, and 4. Items a, b, and d are directly discussed in Sections 2 and 4. Item e is discussed in the economic analyses. Alternatives that encourage fewer fishing trips would result in energy conservation. Item f is discussed throughout the document as the royal red shrimp stock is a natural and depletable resource. A goal of this amendment is to make this stock a sustainable resource for the nation. Mitigation measures are discussed in Section 4.3. Because this amendment concerns the management of the royal red shrimp stock, it is not in conflict with the objectives of federal, regional, state, or local land use plans, policies, and controls (Item c).

Urban quality and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures (Item g), are not factors in this amendment. The actions taken in this amendment will affect a marine stock and its fishery, and should not affect land-based, urban environments. The proposed actions are not expected to result in substantial impacts to unique or ecologically critical areas. As stated in Section 4.1.1, the shrimp fishery is prosecuted in depths and near areas that are likely to contain deep-sea coral communities; however, these areas are avoided because trawls are likely to catch on corals, resulting in entanglement and loss of gear.

In the Gulf, the *USS Hatteras* is isolated in federal waters off Texas and is listed in the National Register of Historic Places. Shipwrecks in the Florida Keys and Dry Tortugas include *USCG Cutter Duane*, *USS Alligator*, *San Pedro*, *Windjammer*, and *Bird Key*. Fishing activity already occurs in the vicinity of these sites, but actions within this amendment would have no additional impacts on the above listed historic resources, nor would they alter any regulations intended to protect them.

With respect to the Endangered Species Act, fishing activities pursuant to the shrimp fishery should not affect endangered and threatened species or critical habitat in any manner not considered in prior consultations on this fishery. The most recent Bi Op on the southeastern shrimp fishery was completed on April 18, 2014. The Bi Op stated the continued operation of the Gulf shrimp fishery is not likely to jeopardize the continued existence of threatened or endangered species (NMFS 2014). However, measures are needed to ensure any sea turtle or smalltooth sawfish incidentally caught by the fishery is handled in such a way as to minimize stress to the animal and increase its survival rate. Reasonable and prudent measures to minimize the impact of these incidental takes were specified, along with terms and conditions to implement them.

The shrimp fishery is classified in the 2014 List of Fisheries as a Category II fishery (79 FR 14418, March 14, 2014). This classification indicates the annual mortality and serious injury of a marine mammal stock is greater than 1% but less than 50% of the stocks potential biological removal (PBR), not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. This fishery was elevated to Category II from Category III (mortality or serious injury to <1% of the PBR) in 2011 based on increased interactions reported by observers, strandings, and fisheries research data. The proposed actions are not expected to alter existing fishing practices in such a way as to alter the interactions with marine mammals .

The proposed action relates to the harvest of an indigenous species in the Gulf and Atlantic, and the activity being altered does not itself introduce non-indigenous species and is not reasonably expected to facilitate the spread of such species through depressing the populations of native species. Additionally, it does not propose any activity, such as increased ballast water discharge from foreign vessels, which is associated with the introduction or spread on non-indigenous species.

CHAPTER 5. REGULATORY IMPACT REVIEW

5.1 Introduction

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: 1) it provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action; 2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem; and, 3) it 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 the regulations are a "significant regulatory action" under the criteria provided in Executive Order (E.O.) 12866. This RIR analyzes the impacts this action would be expected to have on the Gulf of Mexico shrimp fishery.

5.2 Problems and Objectives

The problems and objectives addressed by this framework action are discussed in Sections 1.1 and 1.2.

5.3 Description of Fisheries

A description of the Gulf of Mexico shrimp fishery is provided in Sections 3.1 and 3.4.

5.4 Impacts of Management Measures

5.4.1 Action 1: Adjust the annual catch limit (ACL) and quota for royal red shrimp

A detailed analysis of the economic effects expected to result from this action is provided in Section 4.1.2 and is incorporated herein by reference. **Alternative 1** would continue to set the royal red shrimp quota above the ACL. Although not consistent with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), **Alternative 1** is not expected to result in effects on the economic environment because royal red shrimp landings have been far below the quota and the ACL. **Preferred Alternative 3** and **Alternative 2** would both be consistent with the Magnuson-Stevens Act and remove the quota which was set above the ACL. **Alternative 2** and **Preferred Alternative 3** would maintain the 334,000 lbs of tails ACL and change the ACL to 337,000 lbs of tails, respectively. Based on the reduced number of vessels targeting royal red shrimp and the steady decline in the pounds of tails landed during the last 10 years, it is unlikely that royal red shrimp harvests would approach the ACL that would be

set by **Alternative 2** or **Preferred Alternative 3.** Therefore, economic effects are not expected to result from **Preferred Alternative 3** or **Alternative 2.** In the future, if royal red shrimp harvests increase and reach the ACL, **Preferred Alternative 3** would be more beneficial to the industry because it sets a slightly higher ACL than **Alternative 2.**

5.4.2 Action 2: Adjust the accountability measure (AM) and closure procedures for royal red shrimp

A detailed analysis of the economic effects expected to result from this action is provided in Section 4.2.2 and is incorporated herein by reference. **Alternative 1** would retain the AM set through the Generic ACL/AM Amendment and the in-season closure set through the revised 1981 FMP. **Preferred Alternative 2** would retain the AM set through the Generic ACL/AM Amendment and would eliminate the redundant in-season closure set through the revised 1981 FMP. **Alternative 3** would retain the in-season closure set through the revised 1981 FMP and remove the AM set through the Generic ACL/AM Amendment. **Preferred Alternative 2** or **Alternative 3** are not expected to affect royal red harvests or other customary uses of the resource, mainly because the ACL, which would trigger the application of AMs if exceeded, is unlikely to be reached in the near future. Therefore, economic effects are not expected to result from **Preferred Alternative 2** or **Alternative 3.**

5.5 Public and Private 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 associated with this action include:

Council costs of document preparation, meetings, public hearings, and information dissemination…….. $20,000

NMFS administrative costs of document preparation, meetings and review ….....$10,000

TOTAL ….....$30,000

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.

5.6 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, this action has been determined to not be economically significant for the purposes of E.O. 12866.

CHAPTER 6. REGULATORY FLEXIBILITY ACT ANALYSIS

6.1 Introduction

The purpose of the Regulatory Flexibility Act Analysis (RFAA) is to establish a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure such proposals are given serious consideration. The Regulatory Flexibility Act (RFA) does not contain any decision criteria; instead the purpose of the RFA is to inform the agency, as well as the public, of the expected economic impacts of various alternatives contained in the fishery management plan (FMP) or amendment (including framework management measures and other regulatory actions) and to ensure the agency considers alternatives that minimize the expected impacts while meeting the goals and objectives of the FMP and applicable statutes.

The RFA requires agencies to conduct an RFAA for each proposed rule. The RFAA is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. An RFAA is conducted to primarily determine whether the proposed action would have a "significant economic impact on a substantial number of small entities." The RFAA provides: 1) A description of the reasons why action by the agency is being considered; 2) a succinct statement of the objectives of, and legal basis for, the proposed rule; 3) a description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; 4) a description of the projected reporting, record-keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; 5) an identification, to the extent practicable, of all relevant federal rules, which may duplicate, overlap, or conflict with the proposed rule; 6) a description and estimate of the expected economic impacts on small entities; and 7) an explanation of the criteria used to evaluate whether the rule would impose "significant economic impacts".

6.2 Statement of the need for, objective of, and legal basis for the proposed action

The need for and objective of this proposed action are provided in Chapter 1. The purpose of this action is to determine the annual catch limit and accountability measures for royal red shrimp, and consider the continued use of the royal red shrimp quota. The need for this action is to prevent overfishing while helping to achieve optimum yield, reconcile conflicting regulations, and comply with requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The Magnuson-Stevens Fishery Conservation and Management Act provides the statutory basis for this proposed action.

6.3 Description and estimate of the number of small entities to which the proposed action would apply

This proposed rule is expected to directly affect commercial fishermen holding valid or renewable federal Gulf shrimp permits with an accompanying royal red shrimp endorsement. The Small Business Administration established size criteria for all major industry sectors in the U.S. including fish harvesters and for-hire operations. A business involved in shellfish harvesting is classified as a small business if independently owned and operated, is not dominant in its field of operation (including its affiliates), and its combined annual receipts are not in excess of $5.5 million (NAICS code 114112, shellfish fishing) for all of its affiliated operations worldwide.

The federal shrimp permit for the commercial harvest of penaeid shrimp in the Gulf EEZ has been placed under a moratorium since 2006. At the start of the moratorium, 1,933 vessels qualified and received the shrimp permits. Over time the number of shrimp permitted vessels declined, and in 2013 there were 1,546 such permitted vessels. The Gulf royal red shrimp permit, which is an endorsement on a federal shrimp permit, is an open access permit that allows permit holders to commercially harvest royal red shrimp in the Gulf EEZ. From 2008 through 2013, the total number of Gulf royal red shrimp permits averaged at 344, and as of July 25, 2014, there were 295 such permits.

During 2008-2013, the number of vessels with Gulf royal red shrimp endorsements that actually landed royal red shrimp ranged from four to nine and averaged at six, which is significantly less than the number of permitted vessels for those years. On average, a vessel with Gulf royal red shrimp endorsement annually landed 29,688 lbs of royal red shrimp tails and 101,430 lbs of other shrimp species valued at $170,073 and $428,079, respectively. The average vessel generated revenues of $598,152 from all shrimp species. For the period 2008-2013, royal red shrimp accounted for about 17.0% to 35.9% of all shrimp landings and about 18.7% to 44.7% of revenues from all shrimp species landed by vessels with royal red shrimp endorsements. All landings are heads off and all dollar values are in 2011 dollars.

Based on the revenue figures above, all vessels expected to be directly affected by this proposed rule are determined for the purpose of this analysis to be small business entities.

6.4 Description of the projected reporting, record-keeping and other compliance requirements of the proposed action, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for the preparation of the report or records

The proposed rule is not expected to change current reporting, record-keeping and other compliance requirements.

6.5 Identification of all relevant federal rules, which may duplicate, overlap or conflict with the proposed action

No duplicative, overlapping, or conflicting Federal rules have been identified with this proposed rule.

6.6 Significance of economic impacts on a substantial number of small entities

Substantial number criterion
This proposed action would be expected to directly affect all shrimp vessels that possess a valid or renewable Gulf shrimp permit with royal red shrimp endorsement. As a result, this proposed action is determined to meet the substantial number criterion

Significant economic impacts criterion
The outcome of "significant economic impact" can be ascertained by examining two issues: disproportionality and profitability.

Disproportionality: Do the regulations place a substantial number of small entities at a significant competitive disadvantage to large entities?

All entities that are expected to be affected by this proposed rule are considered small entities, so the issue of disproportional effects on small versus large entities does not presently arise.

Profitability: Do the regulations significantly reduce profit for a substantial number of small entities?

Since the recording of Gulf royal red shrimp landings started in 1962, the proposed ACL of 337,000 lbs of tails has never been exceeded. In more recent years (2008-2013), royal red shrimp landings averaged at about 168,000 lbs of tails annually. It is then very unlikely that the proposed ACL would be reached or exceeded. As a consequence, the AM for royal red shrimp would also be unlikely to be triggered. By eliminating the regulatory provision of a royal red shrimp quota while maintaining the ACL for triggering the AM, consistency is achieved with a previous amendment regarding the ACL and AM for royal red shrimp.

In essence, the measures contained in this proposed rule would have no effects on the profits of all affected shrimp vessels. Therefore, it is concluded that the proposed rule would not have significant economic impacts on a substantial number of small entities in the Gulf shrimp harvesting sector.

6.7 Description of the significant alternatives to the proposed action and discussion of how the alternatives attempt to minimize economic impacts on small entities

Because the measures contained in this proposed rule are not expected to have significant impacts on a substantial number of small entities, the issue of significant alternatives to the proposed action is not pertinent.

CHAPTER 7. LIST OF PREPARERS AND REVIEWERS

PREPARERS

Name	Expertise	Responsibility	Agency
Morgan Kilgour	Fishery Biologist	Co-Team Lead – Amendment development, biological analyses, cumulative effects analysis	GMFMC
Susan Gerhart	Fishery Biologist	Co-Team Lead – Amendment development, biological analyses, bycatch practicability analysis	SERO
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Tony Lamberte	Economist	Economic analyses, RFAA	SERO
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GMFMC = Gulf of Mexico Fishery Management Council; SEFSC= Southeast Fishery Science Center; SERO = Southeast Regional Office of the National Marine Fisheries Service

REVIEWERS

Name	Discipline/Expertise	Role in EA Preparation
Mara Levy, NOAA GC	Attorney	Legal review
Noah Silverman, NMFS SERO	Natural resource management specialist	NEPA review
Carrie Simmons	Fishery Biologist	Document review
Steve Branstetter	Fishery Biologist	Document review

NOAA GC = NOAA General Counsel

CHAPTER 8. LIST OF AGENCIES, ORGANIZATIONS AND PERSONS CONSULTED

National Marine Fisheries Service
- Southeast Fisheries Science Center
- Southeast Regional Office
- Office for Law Enforcement

NOAA General Counsel

Environmental Protection Agency
United States Coast Guard
United States Fish and Wildlife Services
United States Department of the Interior
United States Department of State
Marine Mammal Commission

Alabama Department of Conservation and Natural Resources/Marine Resources Division
Florida Fish and Wildlife Conservation Commission
Louisiana Department of Wildlife and Fisheries
Mississippi Department of Marine Resources
Texas Parks and Wildlife Department

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APPENDIX A. ALTERNATIVES CONSIDERED BUT REJECTED

REMOVED AT APRIL 2014 COUNCIL MEETING:

One alternative from **Action 1 –** Adjust annual catch limit (ACL) and quota for royal red shrimp
Alternative 3.

Remove the 334,000-lbs of tails commercial annual catch limit.
Retain the 392,000-lbs of tails quota and set it equal to the commercial catch limit.

Alternative 3 would remove the ACL of 334,000 lbs of tails and set the quota at 392,000 lbs of tails. This proposed alternative is not reasonable because the ABC has been set at 337,000 lbs of tails and under the Magnuson-Stevens Act, the quota or ACL cannot exceed the ABC. Further, an ACL is required by the reauthorized Magnuson-Stevens Act for species that do not have an annual life cycle, such as the royal red shrimp.

APPENDIX B. OTHER APPLICABLE LAW

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.) provides the authority for fishery management in federal waters of the Exclusive Economic Zone. However, fishery management decision-making is also affected by a number of other federal statutes designed to protect the biological and human components of U.S. fisheries, as well as the ecosystems that support those fisheries. Major laws affecting federal fishery management decision-making include the Endangered Species Act (Section 4.5), E.O. 12866 (Regulatory Planning and Review, Chapter 5) and E.O. 12898 (Environmental Justice, Section 3.5). Other applicable laws are summarized below.

Administrative Procedures Act

All federal rulemaking is governed under the provisions of the Administrative Procedure Act (APA) (5 U.S.C. Subchapter II), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Under the APA, the National Marine Fisheries Service (NMFS) is required to publish notification of proposed rules in the *Federal Register* and to solicit, consider, and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day waiting period from the time a final rule is published until it takes effect. Proposed and final rules will be published before implementing the actions in this amendment.

Coastal Zone Management Act

Section 307(c)(1) of the federal Coastal Zone Management Act of 1972 (CZMA), as amended, requires federal activities that affect any land or water use or natural resource of a state's coastal zone be conducted in a manner consistent, to the maximum extent practicable, with approved state coastal management programs. The requirements for such a consistency determination are set forth in NOAA regulations at 15 C.F .R. part 930, subpart C. According to these regulations and CZMA Section 307(c)(1), when taking an action that affects any land or water use or natural resource of a state's coastal zone, NMFS is required to provide a consistency determination to the relevant state agency at least 90 days before taking final action. Upon submission to the Secretary, NMFS will determine if this plan amendment is consistent with the Coastal Zone Management programs of the states of Alabama, Florida, Louisiana, Mississippi, and Texas to the maximum extent possible. The determination will then be submitted to the responsible state agencies administering approved Coastal Zone Management programs for these states.

Data Quality Act

The Data Quality Act (DQA) (Public Law 106-443) requires the government to set standards for the quality of scientific information and statistics used and disseminated by federal agencies. Information includes any communication or representation of knowledge such as facts or data, in any medium or form, including textual, numerical, cartographic, narrative, or audiovisual forms (includes web dissemination, but not hyperlinks to information that others disseminate; does not include clearly stated opinions).

Specifically, the DQA directs the Office of Management and Budget (OMB) to issue government wide guidelines that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by

federal agencies." Such guidelines have been issued, directing all federal agencies to create and disseminate agency-specific standards to: 1) ensure information quality and develop a pre-dissemination review process; 2) establish administrative mechanisms allowing affected persons to seek and obtain correction of information; and 3) report periodically to OMB on the number and nature of complaints received.

Scientific information and data are key components of fishery management plans (FMPs) and amendments and the use of best available information is the second national standard under the Magnuson-Stevens Act. To be consistent with the Magnuson-Stevens Act, FMPs and amendments must be based on the best information available. They should also properly reference all supporting materials and data, and be reviewed by technically competent individuals. With respect to original data generated for FMPs and amendments, it is important to ensure that the data are collected according to documented procedures or in a manner that reflects standard practices accepted by the relevant scientific and technical communities. Data presented in this amendment has undergone quality control prior to being used by the agency and will be subject to a pre-dissemination review.

Executive Orders

E.O. 12630: Takings

The Executive Order on Government Actions and Interference with Constitutionally Protected Property Rights requires each federal agency prepare a Takings Implication Assessment for any of its administrative, regulatory, and legislative policies and actions that affect, or may affect, the use of any real or personal property. Clearance of a regulatory action must include a takings statement and, if appropriate, a Takings Implication Assessment. The NOAA Office of General Counsel will determine whether a Taking Implication Assessment is necessary for this amendment.

E.O. 13089: Coral Reef Protection

The Executive Order on Coral Reef Protection requires federal agencies whose actions may affect U.S. coral reef ecosystems to identify those actions, utilize their programs and authorities to protect and enhance the conditions of such ecosystems, and, to the extent permitted by law, ensure actions that they authorize, fund, or carry out do not degrade the condition of that ecosystem. By definition, a U.S. coral reef ecosystem means those species, habitats, and other national resources associated with coral reefs in all maritime areas and zones subject to the jurisdiction or control of the United States (e.g., federal, state, territorial, or commonwealth waters).

Regulations are already in place to limit or reduce habitat impacts within the Flower Garden Banks National Marine Sanctuary. Additionally, NMFS approved and implemented Generic Amendment 3 for Essential Fish Habitat, which established additional HAPCs and gear restrictions to protect corals throughout the Gulf of Mexico. There are no implications to coral reefs by the actions proposed in this amendment.

E.O. 13132: Federalism

The Executive Order on Federalism requires agencies in formulating and implementing policies, to be guided by the fundamental federalism principles. The Order serves to guarantee the division of governmental responsibilities between the national government and the states that was intended by the framers of the Constitution. Federalism is rooted in the belief that issues not national in scope or significance are most appropriately addressed by the level of government closest to the people. This Order is relevant to FMPs and amendments given the overlapping authorities of NMFS, the states, and local authorities in managing coastal resources, including fisheries, and the need for a clear definition of responsibilities. It is important to recognize those components of the ecosystem over which fishery managers have no direct control and to develop strategies to address them in conjunction with appropriate state, tribes and local entities (international too). No Federalism issues have been identified relative to the action proposed in this amendment. Therefore, consultation with state officials under Executive Order 12612 is not necessary.

APPENDIX C. SUMMARIES OF PUBLIC HEARING COMMENTS RECEIVED

Summary of Public Hearings

October 22, 2014- Gulf of Mexico Fishery Management Council Meeting, Mobile, Alabama.

No comments received.

Summary of written comments received by the Gulf of Mexico Fishery Management Council

No comments received.

See Appendix F for comments on the Draft Supplemental Environmental Impact Statement.

APPENDIX D. BYCATCH PRACTICABILITY ANALYSIS

Overview

The Gulf of Mexico Fishery Management Council (Council) is required by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) Section 303(a)(11) to establish a standardized bycatch reporting methodology for federal fisheries and to identify and implement conservation and management measures that, to the extent practicable and in the following order, a) minimize bycatch and b) minimize the mortality of bycatch that cannot be avoided. The Magnuson-Stevens Act defines bycatch as "fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards. Such term does not include fish released alive under a recreational catch-and-release fishery management program" (Section 3(2)). Economic discards are fish that are discarded because they are undesirable to the harvester. This category of discards generally includes certain species, sizes, and/or sexes with low or no market value. Regulatory discards are fish that are required by regulation to be discarded, but also include fish that may be retained but not sold.

Guidance provided at 50 CFR 600.350(d)(3) identifies ten factors to consider in determining whether a management measure minimizes bycatch or bycatch mortality to the extent practicable. These are:

1. Population effects for the bycatch species.
2. Ecological effects due to changes in the bycatch of that species (effects on other species in the ecosystem).
3. Changes in the bycatch of other species of fish and the resulting population and ecosystem effects.
4. Effects on marine mammals and birds.
5. Changes in fishing, processing, disposal, and marketing costs.
6. Changes in fishing practices and behavior of fishermen.
7. Changes in research, administration, and enforcement costs and management effectiveness.
8. Changes in the economic, social, or cultural value of fishing activities and non-consumptive uses of fishery resources.
9. Changes in the distribution of benefits and costs.
10. Social effects.

The Council is encouraged to adhere to the precautionary approach outlined in Article 6.5 of the Food and Agriculture Organization of the United Nations Code of Conduct for Responsible Fisheries when uncertain about these factors.

Background

Bycatch practicability for the Gulf of Mexico (Gulf) shrimp fishery was first addressed in the Generic Sustainable Fisheries Act Amendment (GMFMC 1999). That amendment contained a bycatch practicability analysis and evaluated the biological, ecological, social, economic, and administrative impacts associated with a wide range of alternatives including those required for

achieving the bycatch mandates of the Magnuson-Stevens Act. In summary, four alternatives including a "No Action" alternative were presented and impacts were described regarding bycatch reporting and are included herein by reference. Also, measures were included to minimizing bycatch and bycatch mortality to the extent practicable. The analysis of the practicability of these measures is provided in Section 7.0 of that amendment and is incorporated herein by reference.

In July 2007, a mandatory federal observer program was implemented to characterize the Gulf penaeid shrimp fishery. However, only 2% of days at sea are covered by the observer program; therefore, the number of trips for royal red shrimp that are sampled each year is too small for reasonable conclusions (Scott-Denton et al. 2012). The following summary is for penaeid shrimp trips which make up the majority of trips in the fishery.

Scott-Denton et al. (2012) summarized catch from 348 observer trips in the Gulf representing 4,763 days at sea in 2007-2010. They identified 185 species. By weight, approximately 57% of the catch was finfish, 29% was commercial shrimp, and 12% was invertebrates. The species composition changes somewhat depending on the area and depth fished, but for the Gulf overall, Atlantic croaker, sea trout, and longspine porgy are the dominant finfish species taken in trawls, comprising approximately 26% of the total catch by weight. Other commonly occurring species include portunid crabs, mantis shrimp, spot, inshore lizardfish, searobins, and Gulf butterfish. Red snapper represent approximately 0.3% of the total catch either by weight. Although red snapper comprise a very small percentage of overall bycatch, the mortality associated with this bycatch impacts the recruitment of older fish (age 2 and above) to the directed fishery, and ultimately the recovery of the red snapper stock.

The shrimp fishery is also a substantial source of bycatch mortality on sea turtles. During the four-year study period, 55 sea turtles were captured in shrimp trawls; 80% were released alive and conscious (Scott-Denton et al. 2012). Other protected species captured aboard shrimp trawlers in the Gulf and South Atlantic combined and recorded by observers included seven Atlantic sturgeon, one Gulf sturgeon, seven small-tooth sawfish, two marine birds, and five dolphin. The most recent biological opinion concluded the continued operation of the Gulf shrimp fishery is not likely to jeopardize the continued existence of threatened or endangered species (NMFS 2014).

To address finfish bycatch issues, especially bycatch of red snapper, the Council initially established regulations requiring bycatch reduction devices (BRDs), specifically to reduce the bycatch of juvenile red snapper. In 1998, all shrimp trawlers operating in the exclusive economic zone (EEZ), inshore of the 100-fathom contour, west of Cape San Blas, Florida, were required to use BRDs. To be certified for use in the fishery, a BRD had to demonstrate a 44% reduction in fishing mortality for age 0 and age 1 red snapper from the baseline years of 1984-1989. Subsequently, in 2004, BRDs were required in the eastern Gulf (east of Cape San Blas, Florida). BRDs used in this area had to demonstrate a 30% reduction in the total finfish biomass. Only two Gulf states (Florida and Texas) require the use of BRDs in state waters. Shrimp trawls fishing for royal red shrimp seaward of the 100-fathom contour are exempt from the requirement for BRDs.

To address sea turtle bycatch and associated mortality, NMFS implemented regulations requiring turtle excluder devices (TEDs) in 1987, which were phased in over 20 months. Originally, TEDs were required on a seasonal basis, and no TEDs were required if the fisherman followed restricted tow times. Subsequent rulemaking in 1992 required TEDs in all shrimp trawls from North Carolina to Texas, but phased in these requirements to the inshore fishery over a two-year period. Over time, TED regulations have been modified to change the allowable configurations with the intent of improving turtle exclusion. TEDs are required in both state and federal waters. Royal red shrimp trawls are not required to have TEDs if the catch is 90% or greater royal red shrimp because the fishery is prosecuted in depths that are unlikely to capture sea turtles.

Practicability Analysis

The Generic Annual Catch Limits/Accountability Measures Amendment included a bycatch practicability analysis which is incorporated by reference and summarized below. No new studies have been conducted that would change this analysis. Further, any changes implemented through Amendment 16 will be minor and will not appreciably alter how the fishery is prosecuted or the level bycatch; therefore a new practicability analysis is not needed.

The modification of the annual catch limit and accountability measure may have an indirect but slight impact on minimizing bycatch. The reduction from the quota to the annual catch limit may increase the likelihood of the accountability measure being triggered and fishing for royal red shrimp prohibited; however, the probability of that occurring is very low given historic harvest levels. Fisherman may shift effort to a different geographic area to catch other shrimp species, thereby reducing the amount of bycatch associated with royal red shrimp fishing. The effects of such an effort shift on the ecosystem are very difficult to predict. As a population of one species increases, it may have negative effects on prey species, and vice versa.

Bycatch is currently considered to be reduced to the extent practicable in the Gulf shrimp fishery. However, placing additional limits on the harvest of these species will have impacts on bycatch should the catch limit be reached, however unlikely. The precise impacts of these limits are currently unknown, but any potential increase in bycatch in believed to be outweighed by the benefits associated with setting catch limits. Further, bycatch levels and associated implications will continue to be monitored in the future and issues will be addressed based on new information.

References

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APPENDIX E. EPA COMMENTS ON THE DSEIS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

September 30, 2014

Roy E. Crabtree, Ph.D.
Regional Administrator
Southeast Regional Office
National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701

Subject: EPA NEPA Review Comments on NMFS's DSEIS for "Draft Amendment 16 to the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, U.S. Waters - Adjustments to the Annual Catch Limit and Accountability Measures for Royal Red Shrimp"; CEQ #20140232

Dear Dr. Crabtree:

The U.S. Environmental Protection Agency (EPA) has reviewed the subject National Marine Fisheries Service (NMFS) Draft Supplemental Environmental Impact Statement (DSEIS) in accordance with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. EPA understands that this DSEIS analyzes the impacts of a reasonable range of alternatives intended to: 1) set the commercial annual catch limit for royal red shrimp and determine if the use of a commercial quota should continue, and 2) choose a commercial accountability measure for royal red shrimp. This DSEIS is a supplement to the EIS for the 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.[1]

EPA has the responsibility to review and comment on major Federal actions significantly affecting the quality of the human environment, including FMPs and FMP Amendments (Amendments) as developed, approved, and implemented under the MSA where those Plans and Amendments are subject to the EIS requirement of NEPA, but it should be clear that we defer to NMFS and the Council as to the development of fishery statistics and the relative importance of the commercial and recreational fisheries for each species.

Based on our review, we offer the following comments for the preferred alternatives for the two actions covered within the DSEIS.

[1] p. I of DSEIS

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Environmental Justice Analysis
EPA appreciates the NMFS including an Environmental Justice discussion in Section 3.5.1 of the DSEIS. We understand that data relating to the demographics of the fishing community that may be impacted by this Federal action is limited. As demographic data becomes available EPA recommends more detailed EJ analyses be included in future NEPA documents. We expect minimal impact on subsistence fishing associated with this action, but we recommend NMFS include a brief discussion in the FSEIS of the proposed amendment's impact on subsistence fishing in the Gulf region.

Data Collection for Royal Red Shrimp Landings
It is stated in the DSEIS that "NMFS only receives data from selected dealers with royal red shrimp landings through the Commercial Landings System twice per month. The system then uses historical landings of royal red shrimp to calculate expansions for non-reporting dealers, and to project closure dates. These practices lead to high uncertainty for in-season monitoring."[2] EPA assumes that the system of estimating landings for non-reporting dealers will continue under the preferred alternative for Action 2. EPA recommends discussion of why data is not collected from all dealers and how estimating landings using extrapolations for non-reporting dealers impacts overall estimates of landings in the FSEIS.

EPA DSEIS Rating:

Although we offer some clarifying comments on this DSEIS, EPA supports NMFS on Amendment 16 and gives deference to its fishery expertise. Therefore, EPA rates this DSEIS as "LO" (Lack of Objections). Nevertheless, we request that NMFS respond to our comments in a dedicated section of the FSEIS.

EPA appreciates the opportunity to review this DSEIS. Should NMFS have questions regarding our comments on the Amendment actions, please feel free to contact Dan Holliman at 404/562-9531 or holliman.daniel@epa.gov of my staff.

Sincerely,

Heinz J. Mueller
Chief, NEPA Program Office

[2] p. 21 of DSEIS

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APPENDIX F. RESPONSE TO DSEIS COMMENTS

Including comments from the Environmental Protection Agency (EPA), nine comments were received from individuals and organizations during the 45-day comment period on the DSEIS. The following is a response to comments relating to the actions in Amendment 16. Some comments received addressed other topics, such as allowing states to manage royal red shrimp, prohibiting shrimping to protect bycatch and habitat, removing all management, and setting a spawning season.

The EPA classified the DSEIS and proposed actions as "LO" (Lack of Objections) and will publish these findings in the Federal Register. All comments received were posted to Federal e-Rulemaking Portal (http://www.regulations.gov, docket number: **NOAA-NMFS-2014-0030**).

EPA comments (see Appendix E):

Response:
Environmental Justice Analysis – Text was added to note that there is no known subsistence consumption of royal red shrimp in the Gulf of Mexico.

Data Collection – Only a few dealers receive royal red shrimp on a regular basis and those dealers are selected by the Science and Research Director to report. Requiring all dealers to report royal red shrimp landings would place an unnecessary burden on a large number of dealers, because "no catch" reports would need to be submitted continuously. Language explaining this was added to the amendment.

Comment 1: Support Preferred Alternative 3. Little biological information is available about this species. It is not known if they are overfished or if the Deepwater Horizon oil spill has impacted them. The Council and NMFS should remain conservative.

Response: NMFS agrees. The annual catch limit in Preferred Alternative 3 is less than the previous quota and equals the acceptable biological catch. This more conservative approach will help ensure any increase in effort for royal red shrimp will not harm the stock with excessive harvest.

Comment 2: The number of permitted vessels for royal red shrimp is very high. The new annual catch limit could be too high if all of these vessels fished.

Response: Regardless of the number of vessels, the annual catch limit caps harvest. The two-year accountability measure could allow an exceedance of the limit in one year, before in-season monitoring is triggered and a closure in the second year is possible. However, although there are a large number of vessels with royal red shrimp endorsements, less than ten vessels have recorded landings in in any one year of the last ten years. Thus, landings would likely increase over several years, giving the Council time to implement further restrictions if needed.