Addressing the Expiration of the Shrimp Permit Moratorium

Draft Options for Amendment 17
to the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, U.S. Waters

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Gulf of Mexico Shrimp 17

Responsible Agencies:

National Marine Fisheries Service
(Lead Agency)
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701
727-824-5305
727-824-5308 (fax)
http://sero.nmfs.noaa.gov
Contact: Susan Gerhart
Susan Gerhart@noaa.gov

Gulf of Mexico Fishery Management Council
2203 North Lois Avenue, Suite 1100
Tampa, Florida 33607
813-348-1630
813-348-1711 (fax)
http://www.gulfcouncil.org
Contact: Morgan Kilgour
Morgan.Kilgour@gulfcouncil.org

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ABBREVIATIONS USED IN THIS DOCUMENT

ACL	annual catch limit
AM	accountability measure
AP	advisory panel
BRD	bycatch reduction device
CPUE	catch per unit effort
Council	Gulf of Mexico Fishery Management Council
EA	Environmental Assessment
EEZ	exclusive economic zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ELB	electronic logbook
ESA	Endangered Species Act
FMP	Fishery Management Plan
GMFMC	Gulf of Mexico Fishery Management Council
Gulf	Gulf of Mexico
lbs	pounds
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MSY	maximum sustainable yield
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
RA	Regional Administrator
Reserve Pool	Gulf Shrimp Vessel Permit Reserve Pool
SEFSC	Southeast Fisheries Science Center
SEIS	Supplemental Environmental Impact Statement
SERO	Southeast Regional Office of NMFS
SPGM	federal Gulf commercial shrimp permit

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[This statement is completed after selection of all preferred alternatives.]

CHAPTER 1. INTRODUCTION

1.1 Background

The Gulf of Mexico Fishery Management Council (Council) and the National Marine Fisheries Service (NMFS) began managing the shrimp fishery in the Gulf of Mexico (Gulf) in 1981. Four species are included in the fishery management plan: brown shrimp, *Farfantepenaeus aztecus*; pink shrimp, *Farfantepenaeus duorarum*; white shrimp, *Litopenaeus setiferus*; and royal red shrimp, *Pleoticus robustus*.

In 2001, the Council established a federal commercial permit for all vessels harvesting shrimp from federal waters of the Gulf through Amendment 11. Approximately 2,951 vessels had been issued these permits by 2006. After the establishment of the permit, the shrimp fishery experienced economic losses, primarily due to high fuel costs and reduced prices from competition with imports. These economic losses resulted in the exodus of vessels from the fishery, and consequently, reduction of effort. The Council determined that the number of vessels in the offshore shrimp fleet would likely decline to a point where the fishery again became profitable for the remaining participants, and new vessels might want to enter the fishery. That additional effort could negate or at least lessen profitability for the fleet as a whole. Consequently, the Council established a 10-year moratorium on the issuance of new federal shrimp vessel permits through Amendment 13 (GMFMC 2005). The final rule implementing the moratorium was effective October 26, 2006; permits became effective in March 2007.

To be eligible for a commercial shrimp vessel permit under the moratorium, vessels must have been issued a valid permit by NMFS prior to and including December 6, 2003. An exception was made for owners who lost use of a qualified vessel, but who obtained a valid commercial shrimp vessel permit for the same vessel or another vessel prior to the date of publication of the final rule. NMFS estimated 285 of the 2,951 vessels would not meet the control date; thus, the number of permitted vessels under the moratorium would be 2,666. Of those 285 ineligible vessels, 126 were inactive during 2002 (the last year of data available during the time the Council deliberated on this issue). Of the remaining 159 active vessels, only 72 operated in federal waters and were excluded under the moratorium. Of those 72 vessels, 45 were large and 27 were small. The large vessels were expected to be the most affected because the small vessels could continue to fish in state waters.

Vessel owners had one year to obtain the new permit; NMFS issued 1,933 moratorium permits in that time. As of December 31, 2014, 1,470 moratorium permits were valid or renewable (within one year of expiration); therefore, the number of permits has decreased by 463 since the moratorium began (Table 1.1.1). These permits have been permanently removed and are no longer available to the fishery. A permit is valid if it has been renewed; a permit is renewable one year from its expiration. After a year with no renewal, a permit is permanently removed from the permit pool.

Table 1.1.1. Number of valid, surrendered, and terminated Gulf commercial shrimp permits as of December 31 each year since implementation of the moratorium. Valid permits are those that were fishable at least one day each year. Surrendered permits are those that were voluntarily returned to NMFS by the permit holder – these permits were valid for part of the year, before being lost from the fishery. Terminated permits are those that were lost from the fishery due to non-renewal by the permit holder.

Year	Number of Valid Permits Each Year	Number of Surrendered Permits Each Year	Number of Permits Terminated Each Year*	Cumulative Number of Permits Lost from the Fishery
2007	1,933	0	NA	NA
2008	1,907	0	26	26
2009	1,722	1	184	211
2010	1,633	1	88	300
2011	1,582	0	51	351
2012	1,534	0	48	399
2013	1,501	0	33	432
2014	1,470	0	31	463

Source: NMFS Southeast Regional Office (SERO) Permits Database

The permit moratorium will expire October 26, 2016. The Council may choose to: 1) allow the moratorium to expire and revert all federal shrimp permits to open access; 2) extend the moratorium for another period of time; or 3) establish a permanent limited access system for Gulf shrimp permits. The Council may also consider creating reserve permits instead of allowing permits to expire, establishing qualification requirements to eliminate latent permits, and changing the status of the royal red shrimp endorsement.

1.2 Purpose and Need

Purpose for Action

The purpose of this amendment is to determine if limiting access to federal permits is necessary to prevent overcapacity, promote economic efficiency and stability, and to protect federally managed Gulf shrimp stocks. Another purpose is to determine if the endorsement to harvest royal red shrimp is still necessary to monitor participation and activity in that component of the fishery.

Need for Action

The need for this action is to maintain increases in catch efficiency while preventing overfishing and to obtain the best available information with which to manage the fishery.

1.3 History of Management

The Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, U.S. Waters (FMP), supported by an environmental impact statement (EIS), was implemented on May 15, 1981. The FMP defined the shrimp fishery management unit to include brown shrimp, white shrimp, pink shrimp, royal red shrimp, seabobs (*Xiphopenaeus kroyeri*), and brown rock shrimp (*Sicyonia brevirostris*). Seabobs and rock shrimp were subsequently removed from the FMP. The actions implemented through the FMP and its subsequent amendments have addressed the following objectives:

1. Optimize the yield from shrimp recruited to the fishery.
2. Encourage habitat protection measures to prevent undue loss of shrimp habitat.
3. Coordinate the development of shrimp management measures by the Gulf of Mexico Fishery Management Council (Council) with the shrimp management programs of the several states, when feasible.
4. Promote consistency with the Endangered Species Act and the Marine Mammal Protection Act.
5. Minimize the incidental capture of finfish by shrimpers, when appropriate.
6. Minimize conflict between shrimp and stone crab fishermen.
7. Minimize adverse effects of obstructions to shrimp trawling.
8. Provide for a statistical reporting system.

The purpose of the plan was to enhance yield in volume and value by deferring harvest of small shrimp to provide for growth. The main actions included: 1) establishing a cooperative Tortugas Shrimp Sanctuary with Florida to close a shrimp trawling area where small pink shrimp comprise the majority of the population most of the time; 2) a cooperative 45-day seasonal closure with Texas to protect small brown shrimp emigrating from bay nursery areas; and 3) a seasonal closure of an area east of the Dry Tortugas to avoid gear conflicts with stone crab fishermen.

Amendment 1/environmental assessment (EA)(1981) provided the Regional Administrator (RA) of the NMFS Southeast Regional Office (SERO) with the authority (after conferring with the Council) to adjust by regulatory amendment the size of the Tortugas Sanctuary or the extent of the Texas closure, or to eliminate either closure for one year.

Amendment 2/EA (1983) updated catch and economic data in the FMP.

Amendment 3/EA (1984) resolved a shrimp-stone crab gear conflict on the west-central coast of Florida.

Amendment 4/EA (1988) identified problems that developed in the fishery and revised the objectives of the FMP accordingly. The annual review process for the Tortugas Sanctuary was simplified, and the Council and RA review for the Texas closure was extended to February 1. A provision that white shrimp taken in the exclusive economic zone (EEZ) be landed in accordance with a state's size/possession regulations to provide consistency and facilitate enforcement with Louisiana was to have been implemented at such time when Louisiana provided for an incidental catch of undersized white shrimp in the fishery for seabobs. This provision was disapproved by

NMFS with the recommendation that it be resubmitted under the expedited 60-day Secretarial review schedule after Louisiana provided for a bycatch of undersized white shrimp in the directed fishery for seabobs. This resubmission was made in February of 1990 and applied to white shrimp taken in the EEZ and landed in Louisiana. It was approved and implemented in May of 1990.

In July 1989, NMFS published revised guidelines for FMPs that interpretatively addressed the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (then called the Magnuson Fishery Conservation and Management Act) National Standards (50 CFR 602). These guidelines required each FMP to include a scientifically measurable definition of overfishing and an action plan to arrest overfishing should it occur.

In 1990, Texas revised the period of its seasonal closure in Gulf waters from June 1 to July 15 to May 15 to July 15. The FMP did not have enough flexibility to adjust the cooperative closure of federal waters to accommodate this change, thus an amendment was required.

Amendment 5/EA (1991) defined overfishing for Gulf brown, pink, and royal red shrimp and provided measures to restore overfished stocks if overfishing should occur. Action on the definition of overfishing for white shrimp was deferred, and seabobs and rock shrimp were removed from the management unit. The duration of the seasonal closure to shrimping off Texas was adjusted to conform to the changes in state regulations.

Amendment 6/EA (1992) eliminated the annual reports and reviews of the Tortugas Shrimp Sanctuary in favor of monitoring and an annual stock assessment. Three seasonally opened areas within the sanctuary continue to open seasonally, without need for annual action. A proposed definition of overfishing of white shrimp was rejected by NMFS because it was not based on the best available data.

Amendment 7/EA (1994) defined overfishing for white shrimp and provided for future updating of overfishing indices for brown, white, and pink shrimp as new data become available. A total allowable level of foreign fishing for royal red shrimp was eliminated; however, a redefinition of overfishing for this species was disapproved.

Amendment 8/EA (1995), implemented in early 1996, addressed management of royal red shrimp. It established a procedure that would allow total allowable catch for royal red shrimp to be set up to 30% above maximum sustainable yield (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 defined overfishing as a fishing level that jeopardizes the capacity of a stock to maintain MSY, and does not allow OY to exceed MSY.

Amendment 9, supported by a supplemental environmental impact statement (SEIS) (1997), required the use of a NMFS certified bycatch reduction device (BRD) in shrimp trawls used in the EEZ from Cape San Blas, Florida (85° 30' W. Longitude) to the Texas/Mexico border, and provided for the certification of BRDs and specifications for the placement and construction. The purpose of this action was to reduce the bycatch mortality of juvenile red snapper by 44%

from the average mortality for the years 1984 through 1989. This amendment exempted shrimp trawls fishing for royal red shrimp seaward of the 100-fathom contour, as well as groundfish and butterfish trawls, from the BRD requirement. It also excluded small try nets and no more than two ridged frame roller trawls of limited size. Amendment 9 also provided mechanisms to change the bycatch reduction criterion and to certify additional BRDs.

Amendment 10/EA (2002) required BRDs in shrimp trawls used in the Gulf east of Cape San Blas, Florida. Certified BRDs for this area are required to demonstrate a 30% reduction by weight of finfish.

Amendment 11/EA (2001) required owners and operators of all vessels harvesting shrimp from the EEZ of the Gulf to obtain a federal commercial vessel permit. This amendment also prohibited the use of traps to harvest royal red shrimp from the Gulf and prohibited 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 (2005) 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; defined maximum sustainable yield and optimum yield for the penaeid shrimp stocks in the Gulf; 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 by vessels with federal shrimp permits; established a moratorium on the issuance of federal commercial shrimp vessel permits; and required reporting and certification of landings during the moratorium.

Amendment 14/EIS (2007) 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 also established a framework procedure to streamline the management of shrimp fishing effort in the western Gulf.

The Generic Annual Catch Limit (ACL)/Accountability Measures (AMs) Amendment/EIS (2011) set an ACL and AM for royal red shrimp. Penaeid shrimp were not included in this amendment because their annual lifecycles exempt them from the Magnuson-Stevens Act requirement for these management measures.

The Shrimp Electronic Logbook (ELB) Framework (2013) established a cost-sharing system for the ELB program, and described new equipment and procedures for the program.

Amendment 16/SEIS (2015) eliminated duplicative accountability measures and the quota for royal red shrimp. It set the ACL equal to the acceptable biological catch and established a post-season AM.

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1 – Address the Expiration of the Federal Shrimp Permit Moratorium in the Gulf of Mexico

Alternative 1- No Action. The moratorium on the issuance of new Gulf of Mexico (Gulf) federal commercial shrimp vessel permits expires on October 26, 2016. With expiration of the federal Gulf commercial shrimp permit moratorium, the commercial shrimp vessel permits would become open access permits, as they were prior to the moratorium, and therefore be available to any eligible applicants.

Alternative 2 – Extend the moratorium on the issuance of federal Gulf commercial shrimp vessel permits. The moratorium would be extended for:

Option a. 5 years
Option b. 10 years

Alternative 3 – Create a federal limited access permit for commercial shrimp vessels in the Gulf. To be eligible for a commercial shrimp vessel permit under the limited access system, vessels must have a valid or renewable federal Gulf commercial shrimp vessel permit on October 26, 2016. Federal Gulf commercial shrimp vessel permits will need to be renewed every year and all previous renewal, transfer, and reporting requirements would still be in effect.

*NOTE: Action 2.1, Action 2.2, Action 2.3 are relevant only if **Alternative 2** or **Alternative 3** in Action 1 is selected by the Council*

Discussion: The moratorium on the issuance of federal Gulf commercial shrimping permits (SPGM) was established in Shrimp Amendment 13 (GMFMC 2005). The purpose of the amendment was to help stabilize the shrimp fishery. Increasing fuel costs, decreasing shrimp prices and increasing foreign shrimp imports all contributed to the overcapitalization of the commercial shrimp fleet. Since the implementation of the SPGM, the number of permits has decreased each year with terminations peaking in 2009, when initially issued SPGMs were terminated due to non-renewal (Table 1.1.1). Vessels were expected to continue to exit the fishery until the reduced number of permits allowed the resource to be harvested profitably (GMFMC 2005). Effort in the offshore fishery has decreased, and landings have slightly declined (Figure 2.1.1). Additionally, the catch per unit effort (CPUE) for the offshore fishery has remained relatively constant since the implementation of the SPGM.

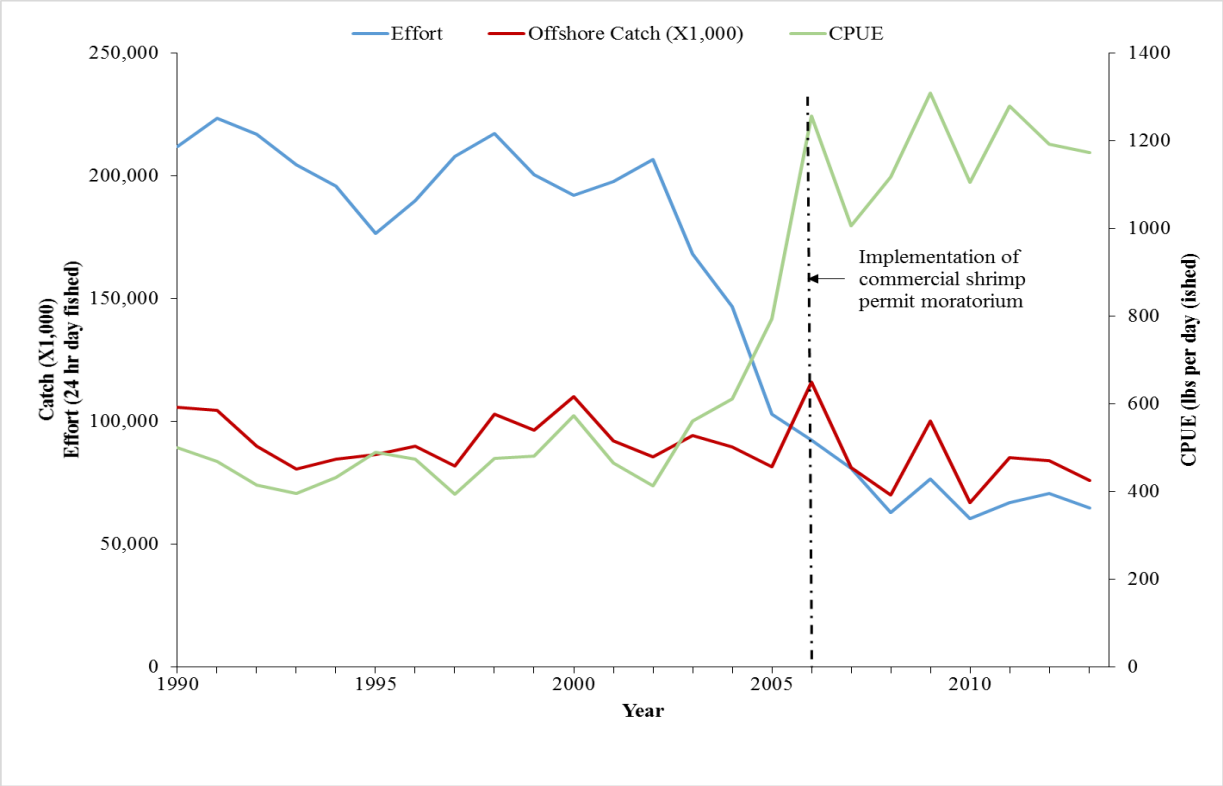

Figure 2.1.1. Catch, effort and CPUE from 1990-2013 for all shrimp caught in offshore waters[1] and landed in Gulf ports.

Alternative 1 would allow the moratorium to expire and federal Gulf shrimp permits would be open access. This would allow new entrants into the commercial shrimp fishery and could have negative effects if the fishery became overcapitalized. This (overcapitalization and/or effort increases) could lead to increases in protected resources bycatch and potentially result in additional requirements for bycatch reduction. This action could undo any positive effects of the moratorium and revert the fishery back to an open access fishery. Under this alternative permits would no longer be transferrable.

Alternative 2 would extend the permit moratorium for a specified number of years. This could contract the fishery more if additional permits are terminated. Extending the moratorium for an additional 5 years (**Option a**) would require the Council to review the status of the fishery sooner than if the 10 year option (**Option b**) was selected. **Option a** gives the least flexibility as the time required to produce an amendment to address yet another expiration would be between 18 and 24 months, thus not allowing for more than 3 or 4 years of data to be incorporated before re-

[1] Offshore waters are waters outside the COLREGS lines. The COLREGS lines are the set of demarcation lines that have been established by the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (commonly called COLREGS). COLREGS define boundaries across harbor mouths and inlets for navigation purposes.

evaluating the expiration of the SPGM extension. **Option b** would allow for more data collection and may result in a stable number of permits if fewer fishermen exit the fishery. The number of permits that have been terminated declined from 2010 until 2014, but the number of permits has not yet reached a minimum as the number of terminated permits per year has not reached zero.

Alternative 3 would create a federal limited access permit for commercial shrimp vessels in the Gulf. Current permit holders would receive the limited access permit if their vessel has a valid or renewable federal Gulf commercial shrimp permit on October 26, 2016. Federal Gulf commercial shrimp vessel permits would need to be renewed every year and all previous renewal, transfer, and reporting requirements would still be in effect. This alternative would make the federal commercial shrimp fishery a limited access fishery until the Council takes action to change that status, unlike the moratorium which has an expiration date. Additionally, the number of permits could continue to decline due to non-renewal of permits unless the Council implemented other measures (such as Action 2.1). For both **Alternative 2** and **Alternative 3**, persons wishing to enter the fishery could purchase a valid permit from another permit holder. Permits that have expired but are still renewable cannot be transferred unless and until they are renewed prior to termination; a permit must be valid to be transferred.

2.2 Action 2 – Disposition of Non-Renewed Commercial Shrimp Permits

Action 2-1. Target Number of Gulf Shrimp Vessel Permits and Creation of a Gulf Shrimp Vessel Permit Reserve Pool

Alternative 1. No Action. Any Gulf shrimp vessel permit not renewed within one year of the expiration date on the permit will be terminated and no longer available for purchase or use.

Alternative 2. Set a target number of Gulf shrimp vessel permits (number of permits to be determined) based on effort needed to attain aggregate maximum sustainable yield (MSY) in the offshore fishery. If the number of permits reaches the target number, any permits that are not or were not renewed within one year of the expiration date on the permit will go into a Gulf Shrimp Vessel Permit Reserve Pool.

Alternative 3. Set a target number of Gulf shrimp vessel permits based on the number of valid or renewable permits at the beginning of the moratorium (1,933 permits). Any permits that are not or were not renewed after December 31, 2007, will go into a Gulf Shrimp Vessel Permit Reserve Pool.

Alternative 4. Set a target number of Gulf shrimp vessel permits based on the number of valid or renewable permits at the end of 2014 (1,470 permits). Any permits that are not or were not renewed after December 31, 2014, will go into a Gulf Shrimp Vessel Permit Reserve Pool.

Alternative 5. Set a target number of Gulf shrimp vessel permits based on the number of valid or renewable permits at the end of the initial moratorium (number of permits unknown). Any permits that are not or were not renewed after October 26, 2016, will go into a Gulf Shrimp Vessel Permit Reserve Pool.

Alternative 6. Set a target number of Gulf shrimp vessel permits (number of permits to be determined) based on effort needed to maintain the gains in catch per unit effort (CPUE) in the offshore fishery during the moratorium without substantially reducing landings. If the number of permits reaches the target number, any permits that are not or were not renewed within one year of the expiration date on the permit will go into a Gulf Shrimp Vessel Permit Reserve Pool.

Alternative 7. Set a target number of Gulf shrimp vessel permits (number of permits to be determined) based on the number of active permitted vessels (those with landings from offshore waters) when effort was highest during the moratorium in the area monitored for red snapper juvenile mortality but without reaching the bycatch reduction target and triggering closures. If the number of permits reaches the target number, any permits not renewed within one year of the expiration date on the permit will go into a Gulf Shrimp Vessel Permit Reserve Pool.

Discussion: Currently any federal permit issued by the NMFS Southeast Regional Office is only valid for one year. After the expiration date, the holder of a limited access or moratorium permit has an additional year to renew the permit. If a permit is not renewed within one year of the expiration date, it is terminated; i.e., it is no longer renewable or transferable, and effectively ceases to exist. Through non-renewal, 463 Gulf shrimp permits have been terminated during the moratorium. This action is only appropriate if Alternative 2 (continue the moratorium) or Alternative 3 (create a limited access permit) is chosen in Action 1, because Alternative 1 (no action) would result in the permit becoming an open access permit, for which anyone can apply and does not need to be renewed.

A decrease in the number of permits is an inherent part of a moratorium or limited access permit. The federal Gulf commercial shrimp permit moratorium was based on the likelihood that, at some point in time, the number of vessels in the offshore shrimp fleet would decline to a point where the fishery again became profitable for the remaining participants, and there was a need to prevent new effort from entering the fishery and thus negating, or at least lessening, profitability when that time came. Various members of the Council, the Council's Shrimp Advisory Panel (AP), and the public have suggested that the fishery has reached that point, and the decline in permits should end. Others have suggested that the time is past, or that it is in the near future. In any case, the Council may decide to set a target number of permits for the Gulf shrimp fishery. If so, when that target is reached, NMFS would need a way to maintain permits that would normally be terminated.

Alternative 1 would continue the practice of terminating permits that were not renewed within one year of the expiration date. The number of Gulf shrimp permits would be expected to continue to decrease over time, although the rate of decrease would be expected to slow as fewer inactive permits are left. The AP was concerned that the fleet would also continue to shrink because of vessel age and the high cost of replacement. New U.S. Coast Guard (USCG) requirements for certification may be difficult and expensive to meet for anyone building a new vessel. These factors could cause the rate of attrition to increase in the future.

Alternatives 2-7 would set a target number of permits for the shrimp fishery and create a Gulf Shrimp Vessel Permit Reserve Pool (Reserve Pool). If the number of permits reaches the target, permits that normally would be terminated, revoked, or surrendered would instead be transformed into "reserved" permits that could be re-issued. The NMFS Pacific Islands Regional Office maintains a similar pool for the American Samoa longline limited access permits, wherein if a permit is relinquished, revoked, or not renewed, the Regional Administrator makes that permit available for re-issuance. Action 2-2 addresses the issuance of Gulf shrimp permits from the reserve pool, if created. **Alternatives 2-4** would be expected to set a target number of permits above the number expected to be valid or renewable when measures in this amendment would be implemented, and would require NMFS to create new permits for the Gulf Shrimp Vessel Permit Reserve Pool. **Alternatives 5-7** would be expected to set a target number of permits below the current number, which would delay the creation of the Gulf Shrimp Vessel

Permit Reserve Pool until the target is reached. Any reserved permit in the Reserve Pool would not have a landings history associated with it, regardless of whether it was newly created or transformed from a regular permit; in other words, permits in the Reserve Pool will act as new permits without associated catch history.

Alternatives 3-5 and **7** base the target number of permits on the number of permits at a certain period of time or under certain conditions; **Alternatives 2** and **6** base the target number of permits on a level of effort needed to achieve a specific management goal. The Council does not directly control effort in the offshore fishery, so the relationship between permits and/or vessels and effort needs to be determined. That is, it would be helpful to know how many permits/vessels are needed to achieve alternative levels of effort that may be desired by the Council. Research into this relationship is not yet complete. However, some preliminary findings are available and are discussed below.

Alternative 2 is an attempt to calculate the maximum number of permits that could harvest the aggregate MSY for the offshore shrimp fishery. The estimated yield curve for the offshore fishery produced by the model indicates that aggregate MSY is 109,767,035 pounds (tails) and effort at MSY is 145,012 days fished.[2] The model results should only be used within the range of the observed data, and thus should not be used to predict what catch/landings would be at effort levels above or below observed levels, as they are subject to year to year variations in the abundance of shrimp stocks.

The level of effort needed to achieve aggregate MSY in the offshore fishery was most closely observed in 2004. Recent levels of effort have been well below the level needed to achieve aggregate MSY in the offshore fishery. Based on observed effort in 2013, effort would need to increase by more than 126% from current levels to achieve aggregate MSY. The number of vessels needed to attain this effort is not available at this time, but would be calculated if this alternative remains in the amendment. However, this alternative would be expected to have the highest target number of permits.

Alternative 3 presumes the number of permits at the beginning of the moratorium (1,933) was, in fact, the appropriate number of permits to maintain in the shrimp fishery, and the decrease in permits since then was undesirable. Many of the lost permits may have been inactive permits, but how many has not been determined at this time. The highest number of terminated permits was in 2009. This was two years after initial issuance of the moratorium permits and is when those initial permits would have terminated if they never were renewed. This suggests that those vessels were not actively fishing in offshore or federal waters. This situation will be explored further with development of this amendment.

[2] Personal communication, Rick Hart, NMFS Galveston Laboratory, May 12, 2015. Aggregate MSY calculated using : Catch = 1513.903389 * effort + -0.005219927 * effort. Please note that aggregate MSY is not equal to the sum of each species' MSY

Alternative 4 presumes the number of permits at the end of 2014 (1,470) was the appropriate number of permits to maintain in the shrimp fishery. This represents a 24% decrease from the number of permits at the beginning of the moratorium. The Council will need to provide rationale for why this is the appropriate target number of permits.

Alternative 5 presumes the number of permits at the end of the moratorium will be the appropriate number of permits to maintain in the shrimp fishery. This represents an unknown decrease from the number of permits at the beginning of the moratorium. In the last two years, the number of permits lost has leveled at around 32 permits per year. If we assume a similar loss in 2015 and 2016, the number of permits at the end of 2016 would be around 1,406, a decrease of 27% from the beginning of the moratorium. Again, the Council will need to provide rationale for why this is the appropriate target number of permits.

Alternative 6 is an attempt to calculate the number of permits needed to maintain the level of effort that has produced the high CPUE values attained during the moratorium, without allowing total landings to decrease substantially. Economic conditions have led to substantial consolidation in this industry creating significant efficiency gains for the remaining participants. This consolidation and the resulting efficiency gains for fishermen would be locked in by maintaining the number of vessels that could harvest at a high CPUE. This was the objective of the moratorium as stated in Amendment 13 (GMFMC 2005). However, the average observed landings from 2004-2006 (95.75 mp) compared to the average during the moratorium (80.51 mp) show a 16% reduction in offshore landings. Landings reductions would be expected to cause adverse economic impacts in the onshore sector (i.e., dealers and processors) as profitability in that sector is mainly determined by physical volume and total sales value.

Observed CPUE and observed landings during the moratorium were highest in 2009 (Table 2.2.1); however, care must be exercised in relying on trends in observed landings as they are subject to year to year variations in abundance of the shrimp stocks. For example, although observed landings were highest in 2006, this was due to abundance being above the long-term average. The level of effort in 2006 would not be expected to generate that level of landings under long-term average levels of abundance. Thus, observed levels should not be used to predict what would be expected under average abundance conditions in the future. The same caution applies to using observed levels of CPUE. Although observed CPUE was highest in 2009, this result was similarly driven by above average abundance. It is not prudent to expect or rely on above average abundance conditions in the future.

Table 2.2.1. Effort, landings, CPUE, predicted CPUE, and predicted landings for offshore landings are in pounds.

Year	Effort	Observed Landings	Observed CPUE	Predicted Landings	Predicted CPUE
2000	192,073	110,035,005	573	98,206,293	515
2001	197,644	91,972,896	465	95,306,890	486
2002	206,621	85,433,710	413	89,954,177	439
2003	168,135	94,372,801	561	106,975,942	640
2004	146,624	89,637,517	611	109,753,463	751
2005	102,840	81,611,212	794	100,483,450	979
2006	92,372	115,991,846	1,256	95,303,048	1,034
2007	80,733	81,228,888	1,006	88,199,291	1,094
2008	62,797	70,084,487	1,116	74,484,336	1,187
2009	76,508	100,070,591	1,308	85,271,120	1,116
2010	60,518	66,782,194	1,104	72,501,053	1,199
2011	66,777	85,357,173	1,278	77,817,764	1,167
2012	70,505	84,071,805	1,192	80,789,736	1,147
2013	64,764	75,992,480	1,173	76,152,288	1,177

Models for landings and CPUE can be used to generate predicted values[3] that account for changes in abundance over time and thus are more reliable with respect to determining the actual trends in those values and expected values in the future. Predicted CPUE was at its highest level in 2010, but this finding must be viewed with caution given the effects of the Deepwater Horizon event on fishing behavior in 2010. It would be safer to conclude that CPUE was at its maximum in 2008. The highest level of predicted landings was in 2007, the first year of the moratorium. However, average predicted landings during the moratorium (79.32 mp) were 22% less than average predicted landings in 2004-2006 (101.80 mp). These results suggest that additional effort reductions would be expected to further reduce landings. The number of vessels needed to attain this effort is not available at this time, but will be calculated if this alternative remains in the amendment.

Alternative 7 takes into account the target effort level in specific areas of the western Gulf (10-30 fathoms) to protect juvenile red snapper. This target was set in Amendment 14 (GMFMC 2007) as 74% less than the effort in the benchmark years of 2001-2003. That target was reduced in 2012 to 67% less than the benchmark years because the red snapper rebuilding plan was proceeding as planned. If effort in the area increases above this target, selected areas of the EEZ would be closed to shrimp fishing. In 2011, the effort level for the area was very near to exceeding the target effort level (Figure 2.2.1). Therefore, the number of active vessels in that

[3] Personal Communication, Rick Hart, NMFS Galveston Laboratory, May 12, 2015. Regression of CPUE versus effort: $y = -0.0052x + 1513.9$, $R^2 = 0.9116$.

year could be considered a reasonable target for the maximum number of permits in the shrimp fishery. This alternative is expected to produce the lowest number of permits because it is based on active vessels only.

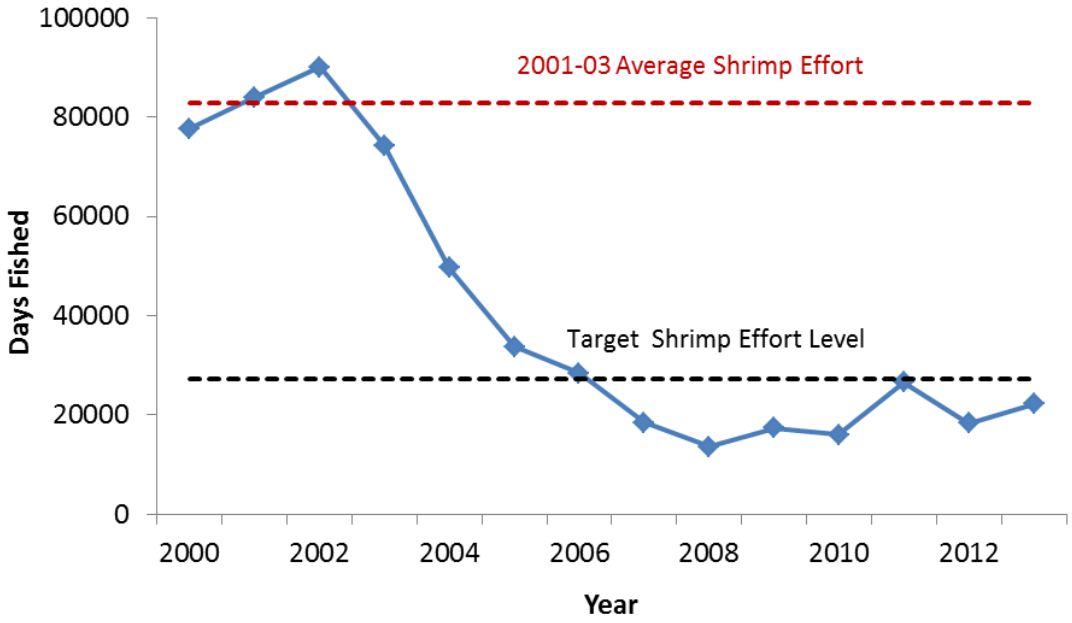

Figure 2.2.1. Offshore Gulf shrimp effort in Statistical Zones 10-21, 10-30 fathoms relative to target effort levels to reduce red snapper juvenile mortality.
Source: SEFSC, Galveston.

Alternatives 2-4 would increase the number of Gulf shrimp permits above where they are expected to be when the measures in this amendment are implemented. This could allow effort to increase, which could provide a greater chance of harvesting more shrimp. On the other hand, increased effort increases the risk of exceeding the target bycatch mortality of juvenile red snapper and protected species in shrimp trawls. The effort[4] in 2009 was the baseline effort level used for the most recent biological opinion to evaluate the present and future effect of the shrimp fishery on ESA-listed species (NMFS 2014). The biological opinion concluded that this level of effort would not jeopardize the continued existence of protected sea turtles, small-tooth sawfish, and sturgeon. If effort levels are expected to increase above this level, a new biological opinion would be needed; and if captures of protected species increase, additional requirements for bycatch reduction could result.

Alternatives 5-7 would allow a passive reduction in the number of permits from where they are now. Fewer permits could result in a lower number of vessels actively fishing, decreasing bycatch and impacts on the environment. If fewer vessels could maintain the same level of total

[4] Effort from otter trawls only, in onshore and offshore waters.

landings, each remaining vessel would have more landings and greater benefit. However, the data in Table 2.2.1 suggests vessels cannot increase CPUE and landings have been declining as the effort has decreased in recent years. If the number of vessels is severely limited, shrimp harvest may not be able to support the industry infrastructure.

The expected effects of these alternatives are dependent on changes in fishing effort, which may or may not change based on the number of permits. Inactive permits during the moratorium years have provided an opportunity for increased effort, either by the owners of those vessels starting to fish or by transferring permits to new entrants that intended to fish. Yet effort has not increased. Reasons to maintain a permit that is not being used to harvest shrimp include waiting for fishing to be more economical, to account for bycatch of shrimp when trawling for other purposes, or speculating that the value of the permit will increase in the future. This last reason would be negated by a permit pool as reserve permits could be purchased from NMFS for only $25 each.

Action 2-2. Issuance of Reserved Gulf Shrimp Vessel Permits

Note: Action 2-2 presumes Alternative 2 or Alternative 3 in Action 2-1 is chosen. If Alternative 1 in Action 2-1 is chosen, Action 2-2 is not applicable.

Alternative 1. No action. Individuals must submit a completed application to NMFS to be issued a Reserved Gulf Shrimp Vessel Permit. Eligible applicants will receive a Gulf Shrimp Vessel Permit Reserve Pool permit if one is available.

Alternative 2. The Reserved Gulf Shrimp Vessel Permits will be available from NMFS once per year and will be issued to eligible applicants in the order in which applications are received. Individuals must submit a completed application to NMFS to be issued a Reserved Gulf Shrimp Vessel Permit. To be eligible for a Reserved Gulf Shrimp Vessel Permit the applicant must also:

Option a - be a U.S. citizen or business

Option b - assign the permit to a vessel that is of at least X length on the application

Option c - assign the permit to a vessel with a USCG Certificate of Documentation on the application (five net ton minimum)

Alternative 3. The Reserved Gulf Shrimp Vessel Permits will be available from NMFS once per year. If the number of applicants is greater than the number of Reserved Gulf Shrimp Vessel Permit, NMFS will conduct a lottery to determine which individuals may be issued the available permits. Individuals must submit a completed application to NMFS to be eligible for the lottery. To be eligible for a Reserved Gulf Shrimp Vessel Permit the applicant must:

Option a - be a U.S. citizen or business

Option b - assign the permit to a vessel that is of at least X length

Option c - assign the permit to a vessel with a USCG Certificate of Documentation on the application (five net ton minimum)

Note: *All current permit renewal/transferability and recordkeeping/reporting requirements would remain in place regardless of the alternative chosen. These requirements can be found in detail in 50 CFR 622.4 and 622.51.*

Discussion: If a reserve pool for Gulf shrimp permits is created through Action 2-1, distribution of those permits must also be considered. That distribution could follow the regular permit application process with no additional restrictions with **Alternative 1**. The Reserved Gulf Shrimp Vessel Permits would be distributed as any open access permit by submitting a completed application and the appropriate application fee (currently $25 for the first permit, $10 for each additional permit on the application). If a Reserved Gulf Shrimp Vessel Permits is available, it would be assigned to the applicant.

With **Alternative 2**, NMFS would hold all Reserved Gulf Shrimp Vessel Permits in the pool until a specific date, when a notice would be published in the *Federal Register* announcing the availability of those permits. NMFS would also distribute a Southeast Fisheries Bulletin. The permits would be distributed to entities submitting a completed application and the appropriate fee ($25/$10) on a first come, first served basis. If one or more of the options are selected, NMFS would only accept applications from certain entities. The AP suggested these options to help prevent people from obtaining reserve permits on speculation.

Alternative 3 is similar to **Alternative 2** in that NMFS would hold all Reserved Gulf Shrimp Vessel Permits in the pool until a specific date, when a notice would be published in the *Federal Register* announcing an application period for those permits. NMFS would also distribute a Southeast Fisheries Bulletin announcing the application period. Applications would be held until the end of the announced application period before being issued. If NMFS received more completed applications and fees ($25/$10) than the number of available Reserved Gulf Shrimp Vessel Permits, a lottery would be conducted to determine which qualified applicants would receive a permit. As with **Alternative 2**, if one or more of the options are selected, NMFS would only accept applications from applicants who met the eligibility requirements.

The AP was concerned that if Reserved Gulf Shrimp Vessel Permits were available to anyone for $25 from NMFS, some people might buy all available permits to control the cost of permits on the market. A permit must be attached to a vessel, but the vessel could be of any size, such as a canoe. To help ensure Reserved Gulf Shrimp Vessel Permits are only issued to entities intending to use them for fishing, the AP suggested qualifications be established, such as U.S. citizenship (**Alternatives 2** and **3**, **Option a**) and a minimum vessel size (**Alternatives 2** and **3**, **Options b** and **c**).

The AP considered various minimum vessel lengths, but deferred making a recommendation until information about vessel lengths associated with current permits could be available. Two

methods of classifying vessels by length are presented in Table 2.2.2. Method 1 is based on a longstanding distinction between large and small vessels in historical economic analyses as a proxy between vessels used to harvest shrimp in offshore versus inshore waters. Method 2 separates vessels into four classes by 25-foot lengths to allow a finer distinction. The Council should choose which method to use for **Alternatives 2** and **3**, **Option b**.

Table 2.2.2. Proportion of vessels with valid or renewable SPGM permits in each size class (as of January 6, 2015). Methods are explained in the text.

	Method 1			
Vessel Length	**< 60 ft**	**≥ 60 ft**		
Proportion of Vessels	24.3%	75.7%		
	Method 2			
Vessel Length	**<25 ft**	**25 - <50 ft**	**50 - <75 ft**	**≥75 ft**
Proportion of Vessels	2.8%	13.6%	42.8%	40.8%

Source: NMFS SERO permits database.

The AP also discussed USCG regulations certifying only vessels of five net tons or larger. Vessel documentation (**Option c**) is a national form of vessel registration issued by the USCG. Vessels which engage in either coastwise trade or the fisheries on navigable waters of the U.S. or in the EEZ, must be documented, subject to certain exclusion or exemption provisions. Vessels of less than five net tons are excluded from such documentation. Thus, **Option c** would only allow applications for vessels of at least five net tons. However, vessels not engaged in commercial fishing or owned by foreign entities may also be certified, so the Council may wish to use this option in conjunction with another option. Currently, federally permitted vessels can be registered with the USCG or a state, and the state-registered vessels are not required to submit the tonnage; therefore, the number of current federally permitted vessels below five net tons cannot be determined.

Additional options the Council may consider:

Option d - have X lb shrimp landings associated with the vessel via a state permit or another federal permit (e.g. South Atlantic) – This option would restrict Reserved Gulf Shrimp Vessel Permits to vessels already harvesting shrimp elsewhere.

Option e - include a vessel that has not been issued a SPGM permit during the last 5 years (unless the current owner purchased the vessel in a market or arms-length transaction during this time) – This option would prevent a current permit holder from moving their permit to a small vessel, then applying for a Reserved Gulf Shrimp Vessel Permits with the original vessel, circumventing Option b or c.

2.3 Action 3 – Royal red shrimp endorsement

Alternative 1 – No Action. Continue to require a royal red shrimp endorsement to the federal Gulf shrimp vessel permit to harvest royal red shrimp from the Gulf EEZ. Endorsements are open access for entities with a federal Gulf shrimp vessel permits

Alternative 2 – Discontinue the royal red shrimp endorsement. Only the Gulf shrimp vessel permit will be required to harvest royal red shrimp.

Alternative 3 – To renew a royal red shrimp endorsement, the applicant must have had a minimum royal red shrimp landings during one of the three calendar years preceding the application

Option a: 300 lbs
Option b: 1,000 lbs
Option c: 10,000 lbs

Discussion:
In Amendment 13 to the FMP for the Shrimp Fishery in the Gulf of Mexico (GMFMC 2005), an endorsement for royal red shrimp was required to conduct commercial harvest. The purpose was to help inform data collectors about who the royal red shrimpers were and collect better information about the fishery. Royal red shrimp are primarily harvested from deep waters, so historically, only a small number of boats has been engaged in harvesting them. Information for the fishery was lacking particularly for catch, effort, operating costs and maximum sustainable yield estimates. With the extensive number of endorsements (Table 2.3.1) and the limited number of actively royal red shrimping vessels (Table 2.3.1), it is unclear if the establishment of the endorsement has helped with collecting the desired data outlined in Shrimp Amendment 13.

Table 2.3.1. Number of royal red shrimp endorsements and the number of vessels actively landing royal red shrimp (as of May 26, 2015).

Year	Number of Royal Red Shrimp Endorsements	Number of Unique Vessels Actively Landing Royal Red Shrimp
2003		17
2004		17
2005		12
2006		6
2007	369	8
2008	388	8
2009	339	6
2010	325	7
2011	331	8
2012	351	7
2013	332	15
2014	323	7

Source: NMFS Southeast Fisheries Science Center (SEFSC).

Alternative 1 would continue the royal red shrimp endorsement requirement. This would require anyone with a federal Gulf commercial shrimp permit to also have a royal red shrimp endorsement to shrimp for royal red shrimp. These endorsements are available to anyone with a federal commercial shrimp permit. This alternative would continue to provide a readily accessible royal red shrimp database.

Alternative 2 would eliminate the requirement for a royal red shrimp endorsement; however, a federal Gulf commercial shrimp permit would still be required to harvest royal red shrimp. This would mean that an economic database specific to royal red shrimp would not be created unless the current survey was modified. This may hinder data collection in the future on this fishery. However, royal red shrimp landings are still collected.

Alternative 3 would require landings to be eligible to be issued a royal red shrimp endorsement. **Option a** is the minimum landings that have been recorded from a vessel in the past 5 years. **Options b** and **c** are larger values that indicate that the fisher is targeting royal red shrimp at least sometime during the year. In 2013, the landings for royal red shrimp were below 200,000 lbs of tails (GMFMC 2014). The maximum landings recorded for royal red shrimp (from the years 1962-2013) was 336,710 lbs of tails in 1994. **Alternative 3** would prevent new entrants into the fishery from gaining a royal red endorsement and would eliminate latent endorsements.

CHAPTER 3. REFERENCES

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GMFMC. 2007. Amendment 27 to the reef fish fishery management plan and Amendment 14 to the shrimp fishery management plan. Gulf Fishery Management Council, 2203 N. Lois Ave, Tampa, Florida 33607. http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Final%20RF%20Amend%2027-%20Shrimp%20Amend%2014.pdf

GMFMC. 2014. Amendment 16 to the fishery management plan for the shrimp fishery of the Gulf of Mexico, U.S. Waters. Gulf of Mexico Fishery Management Council, 2203 N. Lois Ave, Tampa, Florida 33607. http://gulfcouncil.org/docs/amendments/Shrimp%20Amendment%2016.pdf

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