

Abbreviated Overview of Select Actions from Shrimp Amendments 15, 17A, and 17B

Amendment 15¹

https://gulfcouncil.org/wp-content/uploads/Shrimp-Amendment-15-FINAL_508Compliant.pdf

2.1 Action 1 – Modify Stock Status Determination Criteria for Penaeid Shrimp Stocks (Brown, White, and Pink)

Action 1.1 – Modify the Maximum Sustainable Yield (MSY) for Penaeid Shrimp

Preferred Alternative 2. The MSY values for the penaeid shrimp stocks are values produced by the stock synthesis model approved by the Science and Statistical Committee (SSC). Species specific MSY values will be recomputed during updated assessments, but only among the years 1984-2012. The values for each species will be updated every 5 years through the framework procedure, unless changed earlier by the Gulf of Mexico Fishery Management Council (Council).

Currently, the stock synthesis model produces the following values:

- Brown shrimp: MSY is 146,923,100 lbs of tails
- White shrimp: MSY is 89,436,907 lbs of tails
- Pink shrimp: MSY is 17,345,130 lbs of tails

Abbreviated Discussion: Preferred Alternative 2 would establish MSY in terms of the current model, the Stock Synthesis model. The new Stock Synthesis model produces MSY in monthly time steps for pink shrimp and white shrimp, and is an annual model with seasons for brown shrimp. Therefore, the outputs of the model for pink shrimp and white shrimp are multiplied by 12 to get an annual MSY. For brown shrimp, an annual MSY is produced, so no multiplication factor is used (Hart et al. 2014). This alternative is based on the best available science and was supported by the SSC.

¹ Action 2 [Modify the Shrimp Fishery Management Plan (Shrimp FMP) Framework Procedure] from Amendment 15 is not included in this overview.

Action 1.2 – Modify the Overfishing Threshold for Penaeid Shrimp

Preferred Alternative 4. The overfishing threshold is defined as the MFMT. The MFMT for each penaeid shrimp stock is defined as the fishing mortality rate at MSY (FMSY). Species specific FMSY values will be recomputed during the updated assessments, but only among the fishing years 1984-2012. The values for each species will be updated every 5 years through the framework procedure, unless changed earlier by the Council.

Currently, the values are:

- Brown shrimp: 9.12
- White shrimp: 3.48
- Pink shrimp: 1.35

Response to Possible Overfishing: If the MFMT is exceeded for two consecutive years, the appropriate committees and/or panels (e.g. stock assessment panels, advisory panels, SSCs) would convene to review changes in apparent stock size, changes in fishing effort, potential alterations in habitat or other environmental conditions, fishing mortality and other factors that may have contributed to the decline.

Abbreviated Discussion: **Preferred Alternative 4** would establish F in terms of MSY produced by the Stock Synthesis model. For pink and white shrimp, a monthly output is multiplied by twelve to calculate the yearly FMSY. It is appropriate to multiply by 12 to convert the value from a monthly output to an annual value for the FMSY because this is the FMSY for all years, not the highest value; thus, such a multiplication would not artificially inflate the FMSY. Brown shrimp had a seasonal output, so no multiplication factor was used. These values are not comparable to **Alternatives 2** and **3** as those are based on the apical monthly outputs of the stock synthesis model. Additionally, **Alternatives 2** and **3** are based on the highest monthly outputs from the time series. Just as in **Alternatives 2** and **3**, the FMSY value should be re-evaluated periodically to account for variability in the model.

Action 1.3 – Modify the Overfished Threshold for Penaeid Shrimp

Preferred Alternative 4: The overfished threshold is defined as the MSST. The MSST for each penaeid shrimp stock is defined as the minimum spawning stock biomass at MSY (SSB_{MSY}). SSB_{MSY} values for the penaeid shrimp stocks are values produced by the stock synthesis model. Species specific SSB_{MSY} values will be recomputed during the updated assessments, but only among the fishing years 1984-2012. The values for each species will be updated every 5 years through the framework procedure, unless changed earlier by the Council.

Currently, the stock synthesis model produces the following values:

- Brown shrimp: SSB_{MSY} is 6,098,824 lbs of tails
- White shrimp: SSB_{MSY} is 365,715,146 lbs of tails
- Pink shrimp: SSB_{MSY} is 23,686,906 lbs of tails

Abbreviated Discussion: **Preferred Alternative 4** would establish the overfished threshold in terms of spawning stock biomass based on the MSY produced by the stock synthesis model. For pink and white shrimp a monthly output is multiplied by twelve to calculate the yearly SSB_{MSY} . An annual SSB_{MSY} is appropriate because it is a number based on all years of data, not based on the minimum monthly value from all years of data. Brown shrimp had a seasonal output, so no multiplication factor was used. These values are not comparable to **Alternatives 2** and **3** as those are based on the minimum monthly outputs of the stock synthesis model. Additionally, **Alternatives 2** and **3** are based on the lowest monthly outputs from the time series. Just as in **Alternatives 2** and **3**, the SSB_{MSY} value should be re-evaluated periodically to account for variability in the model.

The Shrimp Advisory Panel recommended that values below MSST for two years in a row designate the stock as overfished, as a solitary year below MSST might be indicative of environmental conditions and not necessarily an overfished condition. Unlike for overfishing, the SFA did not have a two-year provision for responding to an overfished determination (GMFMC 1999). In the Magnuson Stevens Act, if a stock is determined to be overfished, NMFS must notify the Council, and the Council must begin developing conservation and management measures to rebuild the stock. The Council is required to implement management measures within two years of being notified. Because of the biology of the shrimp stock, variability in environmental conditions, and the two-year timeframe to implement these measures, the stock may no longer be considered overfished by the time management measures are in effect. However, if the spawning biomass is below MSST for second consecutive year, then the Council would already have management measures in development.

Amendment 17A²

https://gulfcouncil.org/wp-content/uploads/Final-Shrimp-Amendment-17A_508Compliant.pdf

Action 1 – Address the Expiration of the Federal Shrimp Permit Moratorium in the Gulf of Mexico³

Preferred Alternative 2: Extend the moratorium on the issuance of federal Gulf commercial shrimp vessel permits; the moratorium will be extended for:

Option a. 5 years

Preferred Option b. 10 years

Abbreviated Discussion: **Preferred Alternative 2** would extend the permit moratorium for a specified number of years. This could reduce the number of federal permits 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 (**Preferred Option b**) was selected. **Option a** gives less flexibility as the time required to produce an amendment to address an additional expiration date would be between 18 and 24 months, thus not allowing for more than 3 or 4 years of data to be incorporated before re-evaluating the expiration of the federal Gulf commercial shrimp permit extension. The recent/current instability of shrimp and fuel prices and the resulting uncertainty regarding future profitability would require more years of data collection to be properly evaluated. **Preferred 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 terminated has 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.

² Action 2 [Royal Red Shrimp Endorsement] from Amendment 17A is not included in this overview.

³ Prior to implementation of Amendment 17A, the moratorium on the issuance of new Gulf of Mexico federal commercial shrimp vessel permits was set to expire on October 26, 2016.

Amendment 17B⁴

https://gulfcouncil.org/wp-content/uploads/Final-Shrimp-Amendment-17B_508Compliant.pdf

Action 1 – Aggregate Maximum Sustainable Yield (MSY) for the Gulf of Mexico (Gulf) Shrimp Fishery

Note: Aggregate means for all shrimp species combined. MSY for each species is already established. Aggregate MSY does not equal the sum of the individual species MSYs.

Preferred Alternative 2. Establish aggregate MSY using the method developed by the Shrimp Effort Working Group (SEWG). For the federal Gulf shrimp fishery, aggregate MSY = 112,531,374 lbs of tails.

Abbreviated Discussion: The aggregate MSY for the offshore fishery (a proxy for the federal shrimp fishery) is less than the summation of all individual species' Gulf-wide MSYs because aggregate MSY only uses offshore landings, while the individual species' MSYs are based on the total fishery; the two are not comparable.

Aggregate MSY is needed to determine aggregate OY, which is the yield that National Standard (NS) 1 requires the fishery achieve on a continuing basis and takes into account economic, social, and ecological factors.

⁴ Action 5 [Transit Provisions for Shrimp Vessels without a Federal Permit] from Amendment 1B is not included in this overview.

Action 2 – Aggregate Optimum Yield for the Gulf Shrimp Fishery

Note: Aggregate means for all shrimp species combined. OY for each species is already established. Aggregate OY does not equal the sum of the individual species OYs.

Preferred Alternative 2. For the federal Gulf shrimp fishery, aggregate OY = 85,761,596 lbs of tails which is aggregate MSY reduced for certain ecological, social, and economic factors.

Abbreviated Discussion: The OY is the amount of a managed species that will provide the greatest overall benefit to the nation with respect to food production and recreational opportunities and is prescribed on the basis of MSY as it may be reduced by any relevant social, economic, or ecological factor. The NS 1 guidelines for the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) state that OY cannot exceed, but may be equal to, MSY target levels. The guidelines continue to note that the Councils should adopt a precautionary approach and set OY levels safely below limit reference points so they are “explicitly” risk averse.

The Aggregate MSY-OY working group determined that there were four important factors to consider when establishing aggregate OY: landings, catch per unit effort (CPUE), sea turtle bycatch threshold, and juvenile red snapper bycatch. The Aggregate MSY-OY working group concluded that the effort and associated predicted landings in 2009 balanced all of these criteria relative to observed levels in other years (Appendices A and B). It should be noted that the juvenile red snapper bycatch threshold only pertains to effort exerted in the juvenile red snapper bycatch area (statistical zones 10-21, 10-30 fathoms; Figure 2.2.1) established in Shrimp Amendment 14, and the sea turtle bycatch effort threshold applies to all Gulf waters (i.e., inshore and offshore combined). Based on the definition of OY in the NS1 guidelines and the economics of the shrimp fishery, the Aggregate MSY-OY working group determined that an aggregate OY equal to the aggregate MSY is not appropriate.

Action 3 – Minimum Threshold Number of Gulf Shrimp Vessel Permits

NOTE: This action does not actively remove any Gulf shrimp permits. The minimum threshold is only for purposes of monitoring changes in fishery participation and determining if additional management measures should be established.

Preferred Alternative 2. Set a minimum threshold number of valid or renewable Gulf shrimp vessel permits at 1,072. This number is based on the predicted number of active permitted vessels (see text box for definitions) needed to attain aggregate OY in the offshore fishery. Aggregate OY accounts for relatively high CPUE and landings while reducing the risk of exceeding sea turtle and juvenile red snapper bycatch.

Abbreviated Discussion: Preferred Alternative 2 bases the minimum threshold number of valid and renewable permits on the predicted number of active permitted vessels that could harvest the aggregate OY in the offshore component of the shrimp fishery under average shrimp abundance, as determined in Action 2. NS 1 of the Magnuson-Stevens Act says that management measures shall prevent overfishing while achieving, on a continuing basis, the OY from each fishery. Federal permits only apply to fishing in federal waters, but effort in only federal waters cannot be estimated with a high degree of scientific certainty because some state trip tickets do not require dealers to report whether landings come from federal or state waters. Therefore, the effort needed to harvest the aggregate OY for the offshore component is the best proxy to base the minimum threshold number of permits on to manage for OY. Because the effort includes state offshore waters, the estimates are most likely overestimates of what is actually occurring in federal waters. The actual number of permits set by this alternative depends on the aggregate OY chosen in Action 2. For example, Alternative 2 in Action 2 is the OY recommended by the working group based on predicted effort in 2009. As stated in Action 2, the 2009 effort maintained fairly high landings and CPUE, while still remaining below the thresholds for sea turtle and juvenile red snapper bycatch; thus this level of effort balances these factors to produce a yield that is optimal for the fishery. The effort in 2009 was the threshold level of effort used to develop the sea turtle incidental take statement in the 2014 bi op (NMFS 2014). By setting the minimum threshold number of permits at the number of predicted active permitted vessels in 2009, the Council could indirectly control offshore effort and prevent exceeding the effort levels used in the bi op, thereby reducing the risk of fishery closures.

Action 4 – Response When Threshold Number of Shrimp Moratorium Permits is Reached

Preferred Alternative 4. When the number of valid or renewable shrimp moratorium permits reaches 1,175, the Council will form a review panel to review the details of a permit pool and other options. The panel would consist of Shrimp AP members, Science and Statistical Committee (SSC) members, NMFS and Council staff. If the number of permits reaches the threshold set in Action 3, any permits that are not renewed within one year of the expiration date on the permit will go into a Reserve Pool.

Abbreviated Discussion: **Preferred Alternative 4** would have the Council form and convene a review panel before the threshold from Action 3 was reached, to review the threshold and details of the Reserve Pool or other management measures. The Shrimp AP continued to support the idea of the Reserve Pool for permits, but believed a review of the threshold should be conducted before implementation of the Reserve Pool is triggered. The Shrimp AP suggested the review panel should meet if only 1,300 valid and renewable permits remain, which is approximately 150 permits less than the number of valid permits at the end of 2015. The Council felt that the review panel should meet when the number of permits was closer to the threshold set in Action 3, and revised the wording of **Preferred Alternative 4** such that the number of permits that would initiate a review panel be set at 1,175; at its February 2017 meeting, the Shrimp AP concurred with this number. The rate of permit terminations in 2015 and 2016 was around 15 permits per year, so the review panel would not meet for more than 10 years from implementation of this amendment if the termination rate stays the same.