

# DECISION DOCUMENT

## for Shrimp Amendment 9

to the Shrimp Fishery Management Plan of the South  
Atlantic Region

## September 2012

This document is intended to serve as a SUMMARY for the actions and alternatives in Amendment 9 to the Fishery Management Plan for the Shrimp Fishery of the South Atlantic Region (Amendment 9). It also provides background information and includes a summary of the expected biological and socio-economic effects from these proposed management measures.

**\*NOTE: Decisions the Committee / Council need to make are highlighted in yellow**



## Why is the South Atlantic Council taking Action?

Currently, the process to request a closure of the exclusive economic zone (EEZ) concurrent with state waters for shrimp species due to cold weather requires a state to provide data to demonstrate an 80% decrease in abundance of overwintering white shrimp to a review panel, and the panel's recommendations are reviewed at the next South Atlantic Fishery Management Council (South Atlantic Council) meeting (usually in March). After approval by the South Atlantic Council, a letter is drafted to the NOAA Fisheries Regional Administrator requesting that the EEZ for the states be closed to penaeid shrimp harvest. The Regional Administrator then publishes an official notice of closure. Although the process takes only about a week to implement the closure after the South Atlantic Council approves the state's request, it is likely that the severe weather event has occurred weeks or even months earlier. The South Atlantic Council is concerned that the length of the closure process may not be as helpful in protecting the overwintering stock affected by cold weather as it could be and is considering action to improve the timeliness and effectiveness of the concurrent closures.

For the action to revise the  $B_{MSY}$  proxy for pink shrimp, the South Atlantic Council discussed that the biological parameters used in pink shrimp management can be improved through different surveys and modification to the  $B_{MSY}$  proxy that is used in the minimum stock size threshold (MSST) definition for an overfished status. Currently, data from the Southeast Area Monitoring and Assessment Program (SEAMAP) survey are used to determine the  $B_{MSY}$  proxy for pink shrimp. According to SEAMAP sampling data, the stock of South Atlantic pink shrimp has been below the  $B_{MSY}$  proxy (0.461 shrimp/hectare) in recent years, which translates into an overfished status for pink shrimp. However, the Shrimp Review Panel (a group made up of scientists from North Carolina Division of Marine Fisheries, South Carolina Department of Natural Resources (SC DNR), Georgia Department of Natural Resources, Florida Fish and Wildlife Conservation Commission, and NOAA Fisheries) reviewed information about pink shrimp and discussed that environmental factors likely are affecting the pink shrimp stock rather than fishing mortality. Further, the SEAMAP survey does not have adequate coverage south of Cape Canaveral, Florida and north of Cape Hatteras, North Carolina. The Shrimp Review Panel has recommended other surveys to be considered in monitoring the pink shrimp population status in addition to or in replacement of SEAMAP.



## ***Purpose for Action***

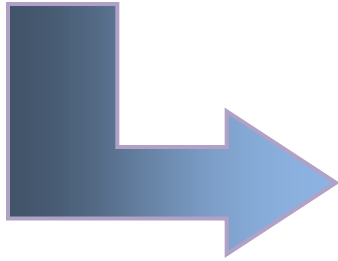
The ***purpose*** of Amendment 9 is to modify the criteria for South Atlantic states requesting a concurrent closure to protect overwintering white shrimp, streamline the process by which a state can request a concurrent closure, and establishing  $B_{MSY}$  proxy for pink shrimp, which is used in determining the overfished status.

## ***Need for Action***

The ***need*** for action in Amendment 9 is to allow for a more efficient process to facilitate timely concurrent closure requests to maximize protection of overwintering white shrimp during cold weather events, and to improve the accuracy of the biological parameters for pink shrimp management.

# What Are the Proposed Actions?

There are three actions being proposed in Amendment 9. Each *action* has a range of *alternatives*, including a ‘no action alternative’ and a ‘preferred alternative’.



## *Proposed Actions in Amendment 9*

1. Specify criteria that triggers states’ ability to request a concurrent closure of the overwintering white shrimp fishery in the adjacent EEZ during severe winter weather
2. Modify the process for a state to request a concurrent closure of the overwintering white shrimp fishery in the adjacent EEZ during severe winter weather
3. Revise the overfished status determination criteria ( $B_{MSY}$  proxy) for the pink shrimp stock

# What Are the Alternatives?

## **Action 1. Specify criteria that triggers a states' ability to request a concurrent closure of the overwintering white shrimp fishery in the adjacent EEZ during severe winter weather**

Note: The IPT recommends the Council consider changing the wording of this action to state: Action 1. Specify criteria that triggers a states' ability to request a concurrent prohibition on the harvest of South Atlantic penaeid stocks in the adjacent EEZ during severe winter weather

**Alternative 1. No Action.** Currently, as defined under the fishery management plan for the South Atlantic shrimp fishery, states may request a concurrent closure of the EEZ adjacent to their closed state waters following severe winter weather upon providing information that demonstrates an 80 % or greater reduction in the population of overwintering white shrimp.

**Alternative 2.** A state may request a concurrent closure upon providing information that demonstrates an exceeded threshold for water temperature. Water temperature must be 7°C (45°F) or below for at least one week.

**Preferred Alternative 3.** A state may request a concurrent closure upon providing information that demonstrates an exceeded threshold for water temperature. Water temperature must be 8°C (46°F) or below for at least one week.

**Alternative 4.** A state may request a concurrent closure upon providing information that demonstrates an exceeded threshold for water temperature. Water temperature must be 9°C (48°F) or below for at least one week.

### *Proposed Actions in Amendment 9*

- 1. Specify criteria that triggers states' ability to request a concurrent closure of the overwintering white shrimp fishery in the adjacent EEZ during severe winter weather**
2. Modify the process for a state to request a concurrent closure of the overwintering white shrimp fishery in the adjacent EEZ during severe winter weather
3. Revise the overfished status determination criteria ( $B_{MSY}$  proxy) for the pink shrimp stock

## **Action 1: Summary of Effects**

**Biological:** The lower the temperature threshold is set, the less likely the temperature criterion would be met for requesting a concurrent closure. Therefore, the option with the lowest temperature threshold (**Alternative 2**) would be expected to have the smallest biological benefit to shrimp species of the action alternatives considered. Alternately, **Alternative 4** would be most biologically beneficial because it is the highest temperature option under consideration, and the concurrent closure criteria would more easily be met than under **Alternative 2** and **Preferred Alternative 3**. **Preferred Alternative 3** represents a mid-point between **Alternatives 2** and **4**, and would likely result in biological benefits greater than **Alternative 2**, but less than **Alternative 4**. Not all states collect temperature data using the same methods. Limiting the criteria for when concurrent closures may be requested by states to temperature only may result in some states having to modify their temperature data collection methods. Additionally, shrimp mortality may be caused by any number of reasons such as how quickly the temperature drops, winds, tides, etc. Therefore, temperature alone may not be the most appropriate criterion to use for states requesting concurrent closures of federal waters for the penaeid shrimp fishery.

**Economic:** Status quo, **Alternative 1 (No Action)** has the least negative, short term economic effects. However, the requirement to show a reduction in biomass takes more time to determine than measuring and reporting water temperature. Keeping the season open longer allows fishermen to catch shrimp longer. However, the negative long term effects are greatest under this alternative. Presumably, the higher the temperature for the closure, the sooner fishing pressure on the stock will end. **Alternative 4, Preferred Alternative 3, and Alternative 2**, in that order have greater potential to reduce negative long term effects. All of these alternatives would speed up the process for closing the fishery compared to **Alternative 1 (No Action)**. While this might have short-term negative economic consequences for fishermen, preserving the remaining biomass for the next fishing season would have greater, positive economic impact the following season.

**Social:** The social effects from **Alternative 1 (No Action)** would depend upon whether shrimp stocks were significantly affected by the present closure system, which may not be as timely as that outlined in other alternatives. **Alternative 2** uses a water temperature threshold that would make the determination easier and more timely and may reduce the risk of negative social effects by protecting the shrimp stock. **Preferred Alternative 3** and **Alternative 4** each use a one-degree centigrade increase in temperature threshold respectively and the social effects would be determined by the ability of the alternative to provide sufficient protection to the stock. Overall, if the preferred alternative provides increased protection for the shrimp stock there should be positive social effects in the long-term that should outweigh any short-term negative impacts.

**Administrative:** The specification of criteria as identified through **Alternatives 2-4** would not result in increased administrative impacts on the agency from the status quo (**Alternative 1 No Action**). A state would bear most of the administrative burden associated with this measure. Under **Alternatives 2-4**, states would be required to demonstrate that data (from a state-level monitoring program) indicate an exceeded threshold in water temperatures. With a change in the

required criterion that a state would need to demonstrate to request a closure in federal waters concurrent with state waters (**Alternatives 2-4**), modifications may occur at the state-level in how such a request is administered.

### **Advisory Panel Recommendations**

The SC DNR representative on the Shrimp Review Panel discussed that a 46°F (8°C) temperature is a suitable temperature threshold criterion for requesting a closure in federal waters and that with prolonged 8°C water temperatures, mortality rates of shrimp species are high. However, the Shrimp Review Panel did not recommend a preferred alternative for this action.

The Shrimp and Deepwater Shrimp APs endorse **Preferred Alternative 3**. During their September 2011 meeting, the APs received a presentation from SC DNR about 8°C being used as the agency's critical level. SC DNR presented that in years where inshore water temperatures fell below 8°C, they observed high mortality rates. The APs prefer for a temperature threshold criteria to replace the current requirement for this measure.

### **Scientific and Statistical Committee (SSC) Input**

During their August 2012 meeting, the SSC recommended that additional information on mortality associated with each of the temperature thresholds needs to be included in the document. The SSC discussed that more data and analysis for this action are needed, and requested review of this information at their October 2012 meeting.

(NOTE: please see Table 1)

### **Public Hearing Input**

One comment was received speaking favorably of the Council moving forward with Action 1, Action 2, and the alternatives identified. The comment discussed that the current method works to protect the stock, however it takes too long and a lot of small shrimp are killed in federal waters by other fishermen during cold weather events. The preferred alternative would improve how the states can take action, and the commenter discussed this would be a valuable tool in ensuring a better fall crop.

Another commenter spoke in support of the Council moving forward with this Action, and noted there appears to be no opposition to this measure by fishermen in Florida.

## **Council Decisions: Action 1**

Do you want to accept the IPT recommendation for modifying the wording of this Action?

GA DNR is interested in changing the required criteria a state must demonstrate to request a concurrent closure during a cold weather event to be based on an 80 % or greater reduction in the population of overwintering white shrimp (Alternative 1 No Action) OR an exceeded threshold for water temperature ((Preferred Alternative 3) 8°C or below for at least one week. Under this scenario, a state would have 2 options and could request a concurrent closure upon demonstrating biomass data or temperature data. Do you want to add a new alternative that would incorporate both options for states?

Do you want to change your preferred alternative?



**Table 1.** SC DNR history of winter temperatures and related white shrimp catch per unit effort (CPUE) from 1976-2011 (SC DNR 2012).

	Highlighted years are those with low CPUE's (<10 shrimp per tow)						
			Charleston Harbor Water Temperature				
	March Fishery Independent CPUE	Spring White Shrimp Landings x 1000 lbs	Number of Days < 7.0 °C	Number of Days < 8.0 °C	Number of Days < 8.3 °C	Number of Days < 10 °C	Number of Days < 12 °C
1976	504	666	1	3	4	31	54
1977	0	0	28	41	44	65	91
1978	0	0	20	38	45	63	93
1979	1	28	1	16	18	49	77
1980	163	243	3	8	10	26	84
1981	0	2	19	35	41	53	64
1982	6	35	1	6	10	31	81
1983	174	230	0	4	6	35	68
1984	1	1	8	32	33	49	71
1985	0	3	10	16	23	39	54
1986	3	21	0	4	6	21	64
1987	98	304	0	0	1	19	71
1988	9	5	6	14	17	38	64
1989	159	398	0	0	0	2	39
1990	29	25	12	16	17	28	49
1991	177	837	0	0	0	2	23
1992	692	618	0	0	0	3	40
1993	432	826	0	0	0	6	54
1994	37	92	2	7	8	37	63
1995	346	890	0	0	1	11	42
1996	52	62	0	1	6	34	71
1997	208	462	0	0	0	6	45
1998	775	800	0	0	0	0	32
1999	276	600	0	0	0	2	21
2000	698	875	0	6	7	18	34
2001	0	1	6	16	17	37	69
2002	90	296	0	0	0	6	20
2003	56	100	2	5	6	31	72
2004	129	400	0	0	2	31	76
2005	74	80	0	9	10	32	69
2006	404	458	0	0	0	0	33
2007	175	364	0	0	0	4	31
2008	315	352	0	0	0	7	26
2009	177	320	0	0	0	4	49
2010	76	202	3	8	9	44	74
2011	0	20	4	20	26	61	74
2012	210	627	0	0	0	0	11
cpue <10	Averages	10.5	9.4	21.6	25.5	46	72.9
cpue >10	Averages	420	0.9	2.7	3.5	16.8	49.6

## **Action 2. Modify the process for a state to request a concurrent closure of the overwintering white shrimp fishery in the adjacent EEZ during severe winter weather**

Note: The IPT recommends the Council consider changing the wording of this action to state: Action 2. Modify the process for a state to request a concurrent prohibition on the harvest of South Atlantic penaeid stocks in the adjacent EEZ during severe winter weather

**Alternative 1. No Action.** Currently, the process requires any state requesting a concurrent closure to provide data to demonstrate an 80% decrease in abundance of overwintering white shrimp to a review panel, and the panel's recommendations are reviewed at the next South Atlantic Council meeting. After approval by the South Atlantic Council, a letter is sent to the NOAA Fisheries Regional Administrator requesting that the EEZ adjacent to the state be closed to penaeid shrimp harvest. The Regional Administrator then publishes an official notice of closure in the *Federal Register*.

**Preferred Alternative 2.** Any state requesting a concurrent closure would send a letter directly to NOAA Fisheries with the request and necessary data to demonstrate that criterion has been met.

**Alternative 3.** Any state requesting a concurrent closure would send a letter directly to NOAA Fisheries with the request and necessary data to demonstrate that criterion has been met. The requesting state would also submit data to the Shrimp Review Panel, who would review data and make a recommendation to NOAA Fisheries. This option would require a notice to be published in the *Federal Register* at least 23 days prior to the convening of the Shrimp Review Panel.

### ***Proposed Actions in Amendment 9***

1. Specify criteria that triggers states' ability to request a concurrent closure of the overwintering white shrimp fishery in the adjacent EEZ during severe winter weather
2. **Modify the process for a state to request a concurrent closure of the overwintering white shrimp fishery in the adjacent EEZ during severe winter weather**
3. Revise the overfished status determination criteria ( $B_{MSY}$  proxy) for the pink shrimp stock

## **Action 2: Summary of Effects**

**Biological:** Preferred Alternative 2 represents the most streamlined process by which South Atlantic states may request concurrent closures of federal waters to protect overwintering shrimp stocks. Preferred Alternative 2 would, theoretically also require the least amount of time to implement the concurrent closure and is thus considered the most biologically beneficial alternative under this action.

**Economic:** Action 2 is largely an administrative action, however, the timeliness of implementing a closure could have economic effects. Given the Council's current meeting schedule, Alternative 1 (No Action) prohibits a closure prior to March each year, frequently long after the cold weather event has occurred. The longer the delay in closing the fishery, the greater the potential for negative long term economic impacts. Preferred Alternative 2 would

have the shortest delay between the time of a cold weather event and a closure as the state could make a direct request to NMFS immediately to close the fishery, and thus has the greatest potential for long term economic gain. The negative economic impacts of **Alternative 3** fall between those of **Alternative 1 (No Action)** and **Preferred Alternative 2**. As with **Action 1**, long term economic gains come potentially with greater short term economic losses due to a season that would be closed sooner than otherwise might have occurred.

**Social:** Under **Alternative 1 (No Action)** the current process may not provide sufficient protection and therefore could have negative social effects. Under **Alternative 3**, review by the Shrimp Review Panel could delay the action more than **Preferred Alternative 2** that would be a more direct and timely approach. The social effects would depend upon the effect of any delay of a closure and its impact upon the stock. It is assumed that a more timely closure would have beneficial effects upon the stock which should have positive long-term social effects.

**Administrative:** Under **Preferred Alternative 2**, convening the Shrimp Review Panel following a state's concurrent closure request would no longer be required. From an administrative perspective for the agency, this often lengthy and multi-step process would be streamlined under **Preferred Alternative 2**. **Preferred Alternative 2** would also eliminate the need for discussion and review of this issue during the Shrimp Committee at a South Atlantic Council meeting.

Under **Alternative 3**, the agency would still be required to develop and publish a notice in the *Federal Register* to convene a meeting of the Shrimp Review Panel in order for a state's data to be reviewed, but the need to wait for review and discussion during a South Atlantic Council meeting would be eliminated. The intent of Action 2, to expedite the current process, would likely still be achieved under **Alternative 3**, but the process would require additional administrative steps compared to those identified in **Preferred Alternative 2**.

### **Advisory Panel Recommendations**

The Shrimp Review Panel would only be interested in remaining a part of the process in reviewing state data as identified in **Alternative 3**, if it is more expeditious than what is currently in place (i.e., no requirement to notice the convening of the Shrimp Review Panel to review state data in the *Federal Register*).

The Shrimp and Deepwater Shrimp APs are in support **Preferred Alternative 2** for this measure. The APs discussed their interests in streamlining the process as quickly as possible to allow the states appropriate protection of the penaeid stocks when necessary without a lapse in time awaiting a South Atlantic Council meeting or the convening of the Shrimp Review Panel.

### **Scientific and Statistical Committee (SSC) Input**

During their August 2012 meeting, the SSC discussed the administrative nature of this action and did not provide a specific recommendation.

## **Public Hearing Input**

One comment was received speaking favorably of the Council moving forward with Action 1, Action 2, and the alternatives identified. The South Carolina fisherman discussed that the current method works to protect the stock, however it takes too long and a lot of small shrimp are killed in federal waters by other fishermen during cold weather events. The preferred alternative would improve how the states can take action, and the commenter discussed this would be a valuable tool in ensuring a better fall crop.

## **Council Decisions: Action 2**

Do you want to accept the IPT recommendation for modifying the wording of this Action?

Do you want to change the preferred alternative for this Action?

**Action 3. Revise the overfished status determination criteria ( $B_{MSY}$  proxy) for the pink shrimp stock**

**Alternative 1. No Action.** A proxy for  $B_{MSY}$  (0.461 individuals per hectare) has been established for pink shrimp using CPUE information from SEAMAP-SA data as the lowest values in the 1990-2003 time period that produced catches meeting MSY the following year.

**Table 2.** Annual CPUE (nos/ha) estimates derived from the SEAMAP Shallow water Trawl Survey.

Year	Pink Shrimp
1990	0.566
1991	0.872
1992	0.511
1993	0.671
1994	0.594
1995	1.725
<b>1996</b>	<b>0.461</b>
1997	0.949
1998	0.853
1999	0.450
2000	0.211
2001	0.502
2002	0.908
2003	0.418

**Alternative 2.** Establish a proxy for  $B_{MSY}$  for pink shrimp using average CPUE values from SEAMAP-SA data during the 2007-2011 time period (0.273 individuals per hectare).

**Table 3.** Annual CPUE (nos/ha) estimates and average CPUE derived from the SEAMAP Shallow water Trawl Survey for the years of 2007-2011.

Year	Pink Shrimp
<b>2007</b>	<b>0.149</b>
<b>2008</b>	<b>0.340</b>
<b>2009</b>	<b>0.296</b>
<b>2010</b>	<b>0.089</b>
<b>2011</b>	<b>0.490</b>
<b>Average</b>	<b>0.273</b>

**Proposed Actions in Amendment 9**

1. Specify criteria that triggers states' ability to request a concurrent closure of the overwintering white shrimp fishery in the adjacent EEZ during severe winter weather
2. Modify the process for a state to request a concurrent closure of the overwintering white shrimp fishery in the adjacent EEZ during severe winter weather
- 3. Revise the overfished status determination criteria ( $B_{MSY}$  proxy) for the pink shrimp stock**

**Alternative 3.** Establish a proxy for  $B_{MSY}$  for pink shrimp using average CPUE values from SEAMAP-SA during the 2009-2011 time period (0.292 individuals per hectare).

**Table 4.** Annual CPUE (nos/ha) estimates and average CPUE derived from the SEAMAP Shallow water Trawl Survey for the years of 2009-2011.

<b>Year</b>	<b>Pink Shrimp</b>
2009	0.296
2010	0.089
2011	0.490
<b>Average</b>	<b>0.292</b>

**Alternative 4.** Establish a proxy for  $B_{MSY}$  for pink shrimp using the lowest CPUE value from SEAMAP-SA during the 1990-2011 time period (0.089 individuals per hectare).

**Table 5.** Annual CPUE (nos/ha) estimates and the lowest CPUE for 1990-2011 derived from the SEAMAP Shallow water Trawl Survey.

<b>Year</b>	<b>Pink Shrimp</b>
1990	0.566
1991	0.872
1992	0.511
1993	0.671
1994	0.594
1995	1.725
1996	0.461
1997	0.949
1998	0.853
1999	0.450
2000	0.211
2001	0.502
2002	0.908
2003	0.418
2004	0.383
2005	0.103
2006	0.218
2007	0.149
2008	0.340
2009	0.296
<b>2010</b>	<b>0.089</b>
2011	0.490

**Alternative 5.** Establish a proxy for  $B_{MSY}$  for pink shrimp using average CPUE values from Pamlico Sound Survey data during the 2007-2011 time period (5.143 individuals per hectare).

**Table 6.** Annual CPUE estimates and average CPUE (#/ha) for pink shrimp derived from the Pamlico Sound Survey from 2007-2011.

Year	Pink Shrimp
2007	3.352
2008	17.786
2009	3.465
2010	0.584
2011	0.528
<b>Average</b>	<b>5.143</b>

**Alternative 6.** Establish a proxy for  $B_{MSY}$  for pink shrimp using average CPUE values from Pamlico Sound Survey data during the 2009-2011 time period (1.526 individuals per hectare).

**Table 7.** Annual CPUE estimates and average CPUE (#/ha) for pink shrimp derived from the Pamlico Sound Survey from 2009-2011. The annual Pamlico Sound Survey CPUE is the arithmetic weighted mean of the number per tow, a tow equates to 1.951 hectares (NC Division of Marine Fisheries, 2012).

Year	Pink Shrimp
2009	3.465
2010	0.584
2011	0.528
<b>Average</b>	<b>1.526</b>

**IPT Recommendation:**

Include a new alternative that develops a proxy for  $B_{MSY}$  for pink shrimp using CPUE information from Pamlico Sound data as the lowest values in the 1990-2011 time period. This alternative would complement the approach that was used to develop the current proxy for  $B_{MSY}$  that uses the SEAMAP data.

**Alternative 7.** Establish a proxy for  $B_{MSY}$  for pink shrimp using CPUE information from Pamlico Sound Survey data as the lowest value in the 1990-2011 time period that produced catches meeting MSY the following year (0.492 #/hectare).

**Table 8.** Annual CPUE estimates (#/ha) for pink shrimp derived from the Pamlico Sound Survey. The annual Pamlico Sound Survey CPUE is the arithmetic weighted mean of the number per tow; a tow equates to 1.951 hectares (NC Division of Marine Fisheries, 2012).

Year	Pink Shrimp
1990	1.030
1991	3.624
1992	9.810
1993	4.695
1994	9.231
1995	18.309
1996	9.462
1997	0.964
1998	13.060
1999	15.141
2000	4.367
2001	1.902
2002	11.266
2003	1.133
2004	2.225
<b>2005</b>	<b>0.492</b>
2006	6.986
2007	3.352
2008	17.786
2009	3.465
2010	0.584
2011	0.528

**Biological:** None of the alternatives under consideration address the issue of survey data not capturing the entire geographical range of pink shrimp abundance; however, **Alternatives 2, 3, 5 and 6** do use the most recent data available, which is a more accurate representation of current stock conditions relative to how pink shrimp is prosecuted now between Cape Hatteras, North Carolina and Cape Canaveral, Florida. The higher the  $B_{MSY}$  proxy, the greater the chance that catch per unit effort (CPUE) would fall below  $B_{MSY}$  in any given year and require administrative action to limit harvest. Therefore, if the  $B_{MSY}$  proxy is set too high, the probability of implementing corrective action when it may not be biologically necessary is higher relative to other alternatives with low  $B_{MSY}$  values. Conversely, if the  $B_{MSY}$  proxy is set very low, the risk



that CPUE would fall below  $B_{MSY}$  and corrective action may not be triggered when it is actually needed would be greater. **Alternatives 2-4** would use a different time series of data from the SEAMAP survey than currently used to define the  $B_{MSY}$  proxy for pink shrimp. As the Shrimp Review Panel has indicated low CPUE in recent years is a function of environmental conditions rather than fishing pressure, these alternatives may be a more accurate representation of current stock conditions relative to how the shrimp fishery is prosecuted today between Cape Hatteras, North Carolina, and Cape Canaveral, Florida. Despite the limitations of the SEAMAP survey, it captures a broader geographic area in deeper water than the Pamlico Sound Survey, and may better represent the pink shrimp stock. Furthermore, the Pamlico Sound Survey shows much more variability (**Table 5**) in CPUE than the SEAMAP survey (**Table 8**) suggesting the Pamlico Sound Survey may not represent pink shrimp abundance as well as the SEAMAP survey and could unnecessarily trigger an overfished/overfishing determination or fail to trigger such a determination when needed. The most accurate representation of biomass is likely to fall somewhere between the lowest and the highest  $B_{MSY}$  proxy alternatives (**Alternatives 4 and 5**, respectively), and a  $B_{MSY}$  proxy that is closer to a mid-point between the highest and lowest CPUE averages is less likely to trigger corrective action when it would not be needed, or fail to trigger corrective action when it is needed.

**Economic: Action 3** is a biological action that has indeterminate economic effects. Presumably, any alternative that would set an overfished level for pink shrimp that would lead to subsequent measures that might close the fishery early could have a short term negative economic effect. The lower the overfished threshold is set, the greater the probability the fishery could close early. However, such negative economic effects theoretically would only be short lived. Setting a lower overfished threshold could have positive economic effects for future fishing seasons.

**Social:** Utilizing SEAMAP-SA data (**Alternatives 2-4**) could add additional confidence regarding the proxy  $B_{MSY}$  for pink shrimp. While primarily a biological decision, it could improve the overall assessment and be beneficial to the overall process that could result in positive social effects by ensuring the most accurate information to base management decisions. **Alternative 5** would provide an alternative perspective and offers a higher threshold than **Alternative 6**. Whichever alternative chosen as preferred, as long as it reflects the best estimate of stock status, it should have beneficial social effects in the long-term as mentioned in previous alternatives.

**Administrative: Alternatives 2-4** establish a new proxy for  $B_{MSY}$  based on more recent time series data from the SEAMAP program. **Alternatives 5 and 6** establish a new proxy for  $B_{MSY}$  based on more recent time series data from the Pamlico Sound Survey data. The South Atlantic Council has the option to add the Pamlico Sound Survey data into consideration of the  $B_{MSY}$  proxy for pink shrimp, or reference these data in replacement of the SEAMAP program data. For the agency, administrative impacts associated with **Alternatives 2-4** would not differ from the status quo (**Alternative 1 (No Action)**). **Alternatives 5-7** would require agency review of the Pamlico Sound Survey data potentially in addition to the SEAMAP data on an annual cycle.

## **Advisory Panel Recommendations**

The Shrimp Review Panel recommends the inclusion of the Pamlico Sound Trawl Survey as an additional data source in development of a  $B_{MSY}$  proxy for pink shrimp. During the last several meetings of the Shrimp Review Panel, they have concluded that the pink shrimp stocks in some areas along the southeast coast have diminished due to factors other than fishing such as environmental and climatic factors. The panel also discussed that the overfished criteria for pink shrimp needs to be based on a more appropriate data set than the SEAMAP survey data alone (because pink shrimp occur mostly north of Cape Hatteras, North Carolina and south of Cape Canaveral, Florida), and one that is more geographically inclusive of pink shrimp areas of abundance. The Shrimp Review Panel recognizes that currently a fishery-independent survey does not exist in Florida waters that could potentially provide better data on pink shrimp south of Cape Canaveral, Florida. If the issue continues to occur with the pink shrimp stock falling below the overfished threshold, the Shrimp Review Panel recommends they revisit discussion of applying a new assessment model for penaeid stocks (and pink shrimp, primarily) in the South Atlantic similar to Stock Synthesis Model used for pink shrimp in the Gulf of Mexico.

The Shrimp and Deepwater Shrimp APs support the Shrimp Review Panel's identification of additional sources of shrimp abundance data to either supplement or replace the SEAMAP survey. The APs made the following recommendations for this Action during their April 2012 meeting:

- Any new MSST/maximum sustainable yield (MSY) definition for pink shrimp must achieve the objective of preventing the triggering of statutory requirements to rebuild stocks through fishing mortality controls whenever fishing mortality is not the cause for the pink shrimp stock abundance to fall below the MSST/MSY.
- Any proposed MSST/MSY definition for pink shrimp must be submitted for review and comment by the Shrimp and Deepwater Shrimp APs and the public at large prior to final South Atlantic Council consideration.
- Consider whether the current definition of MSY for pink shrimp is appropriate and if a revision of the MSY definition should be part of the process to redefine MSST.
- Consider and, if appropriate, incorporate new modeling methodologies developed by the NOAA Fisheries Southeast Fisheries Science Center for pink shrimp in the Gulf of Mexico which were specifically designed to address a similar problem.
- Ensure that data used for determining annual pink shrimp abundance relative to the MSST include the full range of the stock and is otherwise of sufficient quantity and quality to achieve the objective set forth in item 1 above.

## **Scientific and Statistical Committee (SSC) Input**

The SSC provided recommendations for Action 3 during their August 2012 meeting. They discussed that if there are no immediate consequences for leaving the status quo (No Action) in place, the South Atlantic Council should wait to see the analytical results of the new stock synthesis 3 (SS3) assessment model for penaeid shrimp species in the Gulf of Mexico (results due in fall 2012). During their October 2012 meeting, the SSC will receive a presentation of the SS3 assessment model and will discuss assessment possibilities for shrimp in the South Atlantic.

The SSC also discussed that this trigger should be looked at for the other South Atlantic penaeid shrimp species.

### **Public Hearing Input**

One commenter spoke on behalf of this Action and recommended the Council re-examine the survey methodology used to determine the  $B_{MSY}$  proxy. The fisherman suggested that the pink shrimp stock is in good condition and that environmental factors influence the status of the stock.

### **Council Decisions: Action 3**

Do you want to accept the IPT recommendation to add Alternative 7?

Select a preferred alternative.

### **Other Council Decisions**

- A. Approve the modified Shrimp Amendment 9 for formal Secretarial review.
- B. Defer final approval until December to allow the SSC further discussion and recommendations at their October 2012 meeting.
- C. Other?