



# Southern Shrimp Alliance, Inc

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November 14, 2008

Karyl Brewster-Geisz  
HMS Management Division F/SF1  
National Marine Fisheries Service  
1315 East West Highway  
Silver Spring, MD 20910

RE: Scoping Comments on Amendment 3 to the HMS FMP

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The Southern Shrimp Alliance (SSA) appreciates the opportunity to provide the following scoping comments on Amendment 3 to the Highly Migratory Species (HMS) Fishery Management Plan (FMP).

SSA has enjoyed a very constructive relationship with the National Marine Fisheries Service (NMFS) in addressing difficult conservation challenges facing the US shrimp fisheries. Working together we have achieved a number of mutually beneficial results including red snapper bycatch conservation in the Gulf of Mexico and deep sea coral habitat protection in the South Atlantic. Like those issues, we look forward to working cooperatively with the Agency in addressing the blacknose shark conservation issues raised by the Agency's determination that this stock is overfished and overfishing is occurring.

Although a product of peer review, we have a number of concerns with the data inputs, assumptions and analyses associated with the 2007 SEDAR stock assessment for blacknose sharks. These issues relate both to the estimates of bycatch attributed to the shrimp fishery and some elements of the stock assessment itself. These issues do not appear trivial and if carefully revisited by the Agency's scientific staff, may well result in significant changes to these bycatch estimates and the resulting status determination of the stock. Before addressing any management options that may be required for the shrimp fisheries, we feel strongly that a cooperative effort to reconsider these scientific issues is warranted. Therefore, we urge that Agency to enter into such a cooperative effort among government and non-government scientists with the objective of reaching consensus.

There follows an informal outline of a number of the scientific issues we have identified and which we hope will be addressed by such a scientific review. We appreciate your consideration and look forward to working with you.

Sincerely,

A handwritten signature in cursive script that reads "John Williams".

John Williams,  
Executive Director

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## ELEMENTS OF BLACKNOSE SHARK ASSESSMENT THAT WARRANT RECONSIDERATION

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### DATA INPUTS

- **SEAMAP Data**
  - Seasonal
    - Bycatch estimates are performed on a trimester basis but standard SEAMAP cruises are performed only in the 2<sup>nd</sup> and 3<sup>rd</sup> trimesters. There has been some sparse sampling in winter, but the winter estimate may not be very good.
  - Geographical
    - Blacknose shark abundance is highest in the eastern GOM (stat areas 1-9). However, SEAMAP cruises are not routinely conducted in stat areas 1-9, but are conducted in the western GOM areas 10-21. This raises question as to the validity of SEAMAP data to this species.
    - The author of the SEAMAP abundance indices (Nichols) indicated that his model was not “as satisfactory” for species such as blacknose sharks which occur mainly in the eastern GOM as compared to the western GOM where SEAMAP cruises are typically conducted. He also discusses the high cost of imbalanced sampling where the entire range is not sampled. This seems to cast uncertainty on the blacknose shark assessment.
  - Day/Night data
    - Blacknose sharks were taken at depths between 10 and 40 fathoms in the fall SEAMAP studies and between 5 and 50 fathoms in the summer SEAMAP studies. . In the western GOM, these depths are fished by the brown shrimp fishery which is a night fishery. In the eastern GOM, these depths are used by the pink shrimp fishery which is also a night fishery.
    - The SEAMAP data used in the assessment combines catch data for trawls conducted at both night and day. The SEAMAP day trawl blacknose shark catch rate was stated to be 15 times greater than the night trawl catch rate. Only the night trawl data is applicable to the fisheries in question. Therefore, the catch rates used in the assessment are likely much higher than what actually occur in the fisheries.
  - Bycatch reduction from TEDs
    - The Georgia Bulldog video strongly suggests that TEDs are effective in excluding a substantial number of the sharks entering the net. It appears that the video includes portions during which the net was equipped with the older small TED and portions

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with the newer larger TED now required for use in our fisheries. Our preliminary review indicates that of the portion where the new larger TED was used, approximate 12 out of 17 sharks (70%) were excluded from the net. This is critical information because SEAMAP nets are not equipped with any TED design and yet SEAMAP data was a major source of data used in the assessment. All shrimp trawl nets operating in the brown and pink shrimp fisheries are equipped with TEDs. Therefore, the number of takes of blacknose sharks in the SEAMAP cruises used in the assessment are likely much higher than what actually occur in the fisheries. (See section on “shrimp trawl video” below)

- Sample size
  - The assessment uses a correlation between a very small sample size of SEAMAP takes (273) and observed takes (27) as a predictor of shrimp trawl bycatch. Validity?
- **Observer Data**
  - Relevance of data to current fishery (age of data)
    - The NMFS observer data used in the assessment is primarily from the 1970s and 1980s shrimp trawl fishery. Only 11 takes of blacknose sharks have been observed in that past 16 years (since 1992). Validity of observer data?
- **Shrimp Trawl Fishing Effort Data**
  - Most Current ?
    - It does not appear that the stock assessment used the most current shrimp trawl fishing effort data.
    - What was the benchmark period used in the assessment for the bycatch estimates?
    - Shrimp trawl fishing effort in the 10-30fm zone in the western GOM (stat areas 10-21) has been reduced by approximately 78 to 80 percent since 2001-2003. Shrimp trawl fishing effort in the eastern GOM has also been reduced by 79 percent. Therefore, the estimates of shrimp trawl bycatch used in the assessment may be significantly higher than what is actually occurring in the fisheries.

## LIFE HISTORY ASSUMPTIONS

- **Fecundity**
  - The assessment notes that blacknose sharks in the South Atlantic reproduce every 2 years and that blacknose sharks in the GOM reproduce every year. This is confirmed in the scientific literature.
  - The assessment further notes there were difficulties in running the model using the 2 year assumption for the South Atlantic. Consequently, the assessment scientists chose to use an average of the two and thereby assumed that blacknose sharks reproduce every 1.5 years in both the GOM and South Atlantic.

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- The assumption that reproduction occurs every 1.5 years instead of 1 year in the GOM is likely to have a substantial impact on the intrinsic rate of population increase ( $r$ ) for the stock. This represents a 33% reduction in the spawning stock fecundity which is a principal measure used for the stock status determination. In other words, the population rate of growth and recruitment used in the assessment is likely to be much lower than what is actually occurring in the GOM population. Consequently, the assessment's conclusions about the status of the blacknose shark are likely to be overly pessimistic.
- **Distribution**
  - SEAMAP data indicates that since 1972 only 273 blacknose sharks were caught in 15,652 tows and that blacknose sharks were present in less than 1 percent of the SEAMAP stations. SEAMAP cruises are conducted in the western GOM. This low number of interactions indicates that the western GOM is not within the primary range of this species. This calls into question the validity of using SEAMAP data for this assessment.

## CHOICE OF ASSESSMENT MODEL AND METHODS

The assessment indicates that different models/methods produced different results. The figure of page 16 of the SEDAR Review Panel report indicates that one method resulted in the stock status determination of overfished and overfishing is occurring and the other did not. The model chosen was that which resulted in the overfished/overfishing determination. Neither model produced good fits to the abundance indices. There is also discussion in the Review Panel Report regarding how the age-structured approach fit all of the catch data well except the shrimp bycatch data. And, there are a number of points made about how the results of this assessment may change considerably in the next assessment. This lack of consistency between models begs explanation and suggests uncertainty.

## OTHER DATA & ANALYTICAL ISSUES

- **Fish Size & Mortality Assumptions**
  - The assessment appears to use an assumption that blacknose sharks taken in all commercial fisheries average 4.97 lbs dw, and that blacknose sharks taken in all recreational fisheries average 1.5 lbs dw.
    - What is the source of these average fish size assumptions for both commercial and recreational fisheries?
    - The assessment presents data indicating that the recreational fisheries landed (killed) 10,408 blacknose sharks. Why would recreational anglers land (kill) sharks that only weigh 1.5 lbs instead of releasing them? Is this

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really happening or is a product of extrapolation? This really calls into question the validity of the average fish size assumption for recreational fisheries.

- Does the Georgia Bulldog video confirm that a reasonable estimate of the average size of sharks which pass through the TED into the cod end of the net is 4.97 lbs? Our preliminary review suggests that the sharks that pass through the TED and into the net are smaller than 4.97 lbs dw. If the average size of sharks is significantly smaller than 4.97 lb dw, this could have a major impact on the fishing mortality rate for shrimp trawl bycatch. This, in turn, could have a significant impact on the stock status determination.
- The assessment appears to assume that catch = 100% mortality in the commercial fisheries. Does catch = 100% mortality in the commercial fisheries including the shrimp trawl fishery? What is the post-release survival of discarded sharks in these fisheries? If survival is greater than 0 percent than the assessment may be overly pessimistic.
- Does the assessment assume the same fishing mortality rate (F) for 1.5 lb fish taken in the recreational fisheries and 4.97 lb fish taken in the commercial fisheries? In reality, there is likely to be a substantial difference in the F rate associated with these different average sizes (ages).
- What is the sensitivity of the model to differences in each of the assumptions discussed above?

- **SEDAR 13 Review Panel Report Issues**

- Natural Mortality
  - On page 14 of the Report there is a discussion of the natural mortality rate assumption being the highest pup survival (ie. low M). Is this a valid or reasonable assumption? The choice of M can have a major impact on the assessment results in terms of stock status. Sensitivity analyses need to be conducted using a plausible range of M values.
- Indices of Abundance
  - The discussion at the bottom of page 14 of the Report seems to suggest that there are serious problems with the selected indices because they cannot all account for the condition of the stock. There is a question of whether the stock unit is properly defined and a recommendation for using subsets in the future.

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- Gear Selectivity
    - The Report indicates that the method used to estimate gear selectivity was “relatively crude” and there was insufficient information for the reviewers to determine if this approach was adequate or not. (see top of p. 15)
  
  - In General
    - How do the following statements in the SEDAR 13 Review Panel Report support the need for a timely review and revision of the current stock assessment? (bold added)
- (1) **“Executive Summary:** For **blacknose sharks**, appropriate standard assessment methods based on general production models and on age-structured modeling were used to derive management benchmarks. The current assessment indicates that spawning stock fecundity (SSF) in 2005 and during 2001-2005 is smaller than SSF<sub>msy</sub>, i.e. that blacknose shark are overfished. The estimate of fishing mortality rate in 2005 and the average for 2001-2005 is greater than F<sub>msy</sub>, and the ratio is substantially greater than 1 in both cases. Thus, overfishing was occurring and is likely still occurring. **However, because of uncertainties in indices, catches and life history parameters, the status of blacknose shark could change substantially in the next assessment in an unpredictable direction.”** (See p. 2)
- (2) **“Schedule for the next assessment of blacknose:** the current stock status indicates that blacknose shark is being overfished and that overfishing is occurring. Thus, **it would be wise to reassess this stock within two or three years. Users of the assessment results should be aware that major differences in the estimated status could be expected in the next assessment if consistent subsets of stock size indices were used. In the current assessment, the stock size indices used are conflicting, and the assessment model takes an average of all the indices. If separate assessments were done with the indices that indicated increases, those that indicated stability, and those that indicated decreases, this would show greater uncertainty in stock status and stock trends.”** (See p.19)

## SHRIMP TRAWL VIDEO

- NMFS HMS Division has distributed a video as part of their scoping presentations to the Councils as supporting evidence that sharks are caught as bycatch in the shrimp trawl fisheries.

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- According to NMFS HMS Division:

“The footage was shot off the coast of Georgia from the R/V Georgia Bulldog. It is a confiscated shrimp trawler operated by the University of Georgia Marine Extension Service. Most of the footage was within 10 miles of shore, in water depths less than 40 feet. All the footage was using TEDs with less than 4 inch bar spacing. There has been no analysis of the shark catch. This work was primarily done to test these TEDs for wild turtle exclusion, and the SEFSC was not working up or identifying the bycatch. However, the SEFC noted that most of these sharks appear to be approximately 2 ½ feet long.”

- The video appears to indicate that a very significant number (~70% ) of the sharks that enter the net are expelled through the new, large TED opening.
- The SEDAR assessment of blacknose shark (and other coastal sharks) relied heavily on SEAMAP data to estimate shark bycatch in shrimp trawl fisheries. The SEAMAP trawl net is not equipped with a TED. Thus, it appears that the assessment did not account for what appears to be a very substantial shark bycatch reduction effect of TEDs used in 100% of the current brown and pink fisheries where blacknose shark bycatch can occur. If this is true, then the assessment is likely to be overly pessimistic.
- The SEDAR assessment also assumed the average weight of sharks caught in shrimp trawl fisheries was 4.97 lb dw. Is it possible to estimate size of sharks that passed through the TED bars into the cod end of the net used in the video to confirm if that is consistent with 4.97 lb dw assumption in assessment?
- Is there any data that can be retrieved from the Georgia Bulldog testing cruises to determine the mortality/survival rates of sharks found in the cod end? Any species identification possible?