

## **History of Atlantic Spanish Mackerel Stock Assessments**

(for SEDAR 17)

Full stock assessments of the Atlantic group Spanish mackerel were conducted by Powers et al. (1996), Legault et al. (1998) and Sustainable Fisheries Division (2003). Historically, the Mackerel Stock Assessment Panel (MSAP) met regularly to oversee and review these assessments and provide advice to the SAFMC and GMFMC. The most recent full stock assessment for Atlantic group Spanish mackerel was conducted in 2003 through the Mackerel Stock Assessment Panel (MSAP), which included data through the 2001/2002 fishing year (Sustainable Fisheries Division 2003). Estimated fishing mortality for Atlantic group Spanish mackerel was found to be below FMSY and FOY since 1995. Estimated stock abundance has increased since 1995 and was found to be at a high for the analysis period. Stock biomass increased from about 19 million to 24 million fish. Probabilities that the Spanish mackerel was overfished were less than 1% and that overfishing had occurred in the most recent fishing year of the assessment were 3%; therefore, the MSAP concluded that Atlantic group Spanish mackerel were not overfished and overfishing did not occur in 2002/2003. Although all measures of stock status are well within desirable ranges, the median estimate of MSY dropped from 6.4 million pounds in the last full assessment in 1998 to 5.2 million pounds in the 2003 assessment. Much of the decline is believed to be due to the lower estimates of recruitment between the most recent assessment (2003) and the previous stock assessment (Legault et al. 1998). The MSAP recommended an Acceptable Biological Catch (ABC) as the median estimate of catch at F 40% SPR, which was 6.7 million pounds (20th – 80th percentile range = 5.2-8.4 million pounds).

Natural mortality (M) was assumed to be 0.3 as selected by the MSAP based upon longevity and growth rates. A stochastic analysis was conducted allowing M to vary between 0.25 and 0.35. Spawning stock biomass was used to represent age specific fecundity of Atlantic Spanish mackerel, estimated as the biomass of females times the probability of maturity by age times 0.5. Although it is not clearly stated, presumably commercial and recreational landings are divided into Atlantic and Gulf groups according to Amendment 2 (1987) to the Coastal Migratory (Mackerel) FMP. Consideration has been given to including shrimp trawl bycatch estimates for Atlantic Spanish mackerel beginning with Powers et al. (1996). Several Atlantic Spanish mackerel indices of abundance were considered for the 2003 assessment, including: (1) Florida Fish and Wildlife Conservation Commission (FWC) Marine Fisheries Trip Ticket Program, (2) MRFSS Recreational, (3) NMFS Beaufort Laboratory Headboat Survey, (4) North Carolina Division of Marine Fisheries Pamlico Sound Survey, (5) North Carolina Division of Marine Fisheries (NCDENR) Trip Ticket Program, and (6) Southeast Area Monitoring and Assessment South Atlantic (SEAMAP-SA). These data are summarized in Table 12 (Sustainable Fisheries Division 2003). See Figure 13 in this report for a comparison of these indices with the indices used in the previous assessment by Legault et al. (1998). All three stock assessments referenced below were based on the tuned VPA (FADAPT) method (Powers and Restrepo 1992, Restrepo 1996) to obtain statistical estimates of population parameters.

**References Cited:**

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