**Gulf of Mexico Fishery Management Council**
**Standing and Special Mackerel SSC**
**Review of SEDAR 38 Stock Assessment**
**Tampa, Florida**
**January 6-8, 2015**

The meeting of the Standing and Special Mackerel SSC was held on January 7, 2015.

## SEDAR 38 King Mackerel Benchmark Assessment

Dr. Michael Schirripa presented the SEDAR 38 king mackerel benchmark assessment. New information for this assessment includes a new definition of the winter mixing zone, which is now defined to be south of the Florida Keys out to the shelf edge from Monroe County, Florida in the east to the Dry Tortugas in the west. Fish caught in this zone during November 1st to March 31st are assigned 50:50 to the Atlantic and Gulf stocks. This resulted in an annual average increase in landings in weight of 6% in the Atlantic and a decrease of 7% in Gulf.

The base assessment model was constructed in Stock Synthesis 3 (SS3). It was initially configured to replicate the earlier VPA assumptions, and then reconfigured according to new data assumptions/best practices. Additional investigative model runs were made to evaluate the effects of length-based selectivity, estimated constant growth from age-at-length data, and the effect of allowing annual deviations in male and female $L_\infty$ (asymptotic maximum size) and k (growth coefficient). A second model using the VPA-2Box model was constructed for a continuity run. All four SS3 model runs showed similar trends in SSB but with different levels of uncertainty. A plot of the stock-recruit data indicated no discernable stock-recruit relationship and likelihood profiling did not indicate a steepness value different than 0.99. Therefore, steepness was fixed at 0.99 based on the recommendation of the review panel. The implicit assumption under such an approach is that future recruitment projected in the near term will resemble recruitment in the recent past.

The results of a Jitter analysis was not as stable as some other models, which is likely due to error in catch or estimation of historic fishing mortality. A retrospective analysis showed no patterns. Several model runs were made to examine the effect of excluding selected data. All model runs showed that stock biomass estimates remain above $B_{MSY}$ (Figure 7) and fishing mortality estimates remain below $F_{MSY}$ (figure 8), indicating that the Gulf king mackerel stock is neither overfished nor undergoing overfishing.

Figure 7. King mackerel biomass trends.

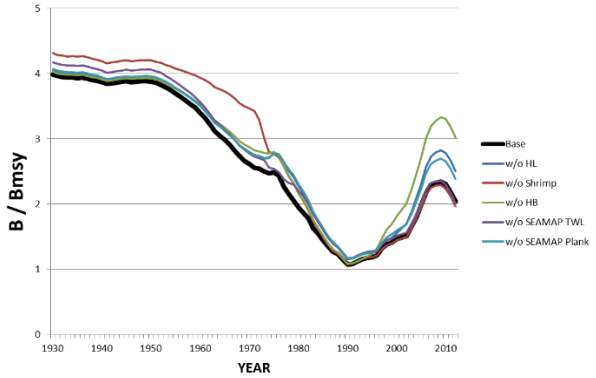
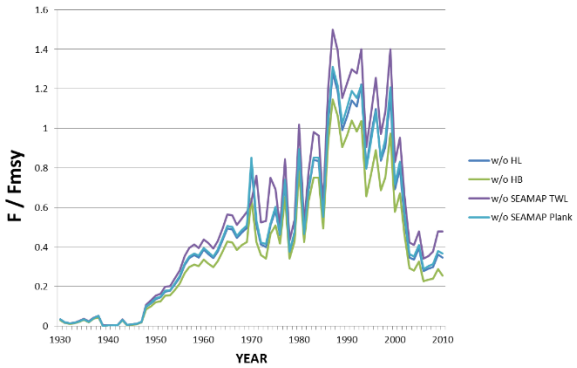



Figure 8. King mackerel fishing mortality trends.




Following the presentation and discussion, the SSC passed the following motion.

**The SSC moves that the SEDAR 38 king mackerel base assessment model is the best scientific information available and is acceptable for management purposes. The stock is estimated not to be overfished or undergoing overfishing.**

**Motion passed 11-1.**

The SSC reviewed a PDF table based on an $F_{MSY}$ proxy of $F_{SPR30\%}$. OFL is the yield at which P* = 0.50. For ABC, the SSC employed the ABC control rule Tier 1 spreadsheet to estimate P*. The result of the Tier 1spreadsheet analysis was P* = 0.434. The yields for these P* values are shown in Table 6.

Table 6. Gulf king mackerel yield streams in millions of pounds whole weight at P* = 0.50 and P* = 0.43

| P* | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.50 | 10.11 | 9.61 | 9.27 | 9.11 | 8.95 | 8.81 | 8.68 | 8.60 | 8.58 | 8.60 |
| 0.43 | 9.62 | 9.21 | 8.88 | 8.71 | 8.55 | 8.43 | 8.29 | 8.20 | 8.19 | 8.23 |

Since this stock is neither overfished nor undergoing overfishing, the SSC felt comfortable making OFL and ABC yield recommendations for a five year period.

**The SSC moves that the OFL for king mackerel in the Gulf of Mexico be set as the yield stream at $F_{SPR20\%}$.**
**2015 - 10.11 mp ww**
**2016 - 9.61 mp ww**
**2017 - 9.27 mp ww**
**2018 - 9.11 mp ww**
**2019 - 8.95 mp ww**

**Motion passed unanimously.**

**The SSC moves that the ABC for king mackerel in the Gulf of Mexico be set at P* 0.43 applied to the PDF.**
**2015 - 9.62 mp ww**
**2016 - 9.21 mp ww**
**2017 - 8.88 mp ww**
**2018 - 8.71 mp ww**
**2019 - 8.55 mp ww**

**Motion passed unanimously.**

Council staff noted that the Council has requested a constant catch ABC for other stocks in order to avoid declining catch limits. The SSC discussed this but felt that the Council could choose to set a constant catch ACL within the limits of the ABC yield stream. They noted that the equilibrium yield at $F_{SPR30\%}$ was 8.53 mp, and considered recommending this as a constant catch ACL level. However, most SSC members felt that the ACL was a management decision and that the SSC should not offer management advice, only scientific advice. A motion was made to recommend that, should the Council prefer a constant catch scenario, then the equilibrium yield at $F_{SPR30\%}$ (8.53 mp) is recommended as the ACL. The motion failed by a vote of 4 to 8.