

## PRESENTATION AT THE SEDAR 16 REVIEW WORKSHOP

I attended the SEDAR 16 King Mackerel Data and Review workshops as a panel member in the DW and an appointed observer at the RW.

I have been commercial fishing for Atlantic king mackerel for over 40 years. I have seen this stock at its best in the late 1960's through the mid 1980's and have witnessed the stock's worst condition in the late 1980's through the early 1990's. Since that time, I have watched a steady recovery to the stock's present status, which rivals abundance in the earlier time period.

I have been extensively involved in State and Federal fisheries management since the early 1980's. I have been past member and chair of the Snapper/Grouper AP, past member and chair of the South Atlantic Fisheries Management Council (SAFMC), current chair of the mackerel AP and I serve on two other council AP's. I am a member of the Oculina HAPC Evaluation Team. I have just finished working on a cooperative research proposal with Dr. Will Patterson and Kate Shepard, which examined stock mixing among winter sampling zones off South Florida with otolith shape and otolith stable isotope analysis.

During SEDAR 16, there were four base VPA model runs, which evolved through time as different model and data choices were made. The first run indicated Atlantic king mackerel in good shape with no overfishing occurring and the stock not overfished. This was in line with what I had observed through time. The corresponding Gulf run was not as optimistic, although this was not unexpected given the new 50/50 mixing zone addition to the model.

I received a call after the AW that the analysts had rerun the base model with a number of changes, which made the Gulf look much better but now the Atlantic was overfishing. I was told that the main driver for this result was the low level of recruitment that had been occurring. It just happened to be the time of year when we catch our smaller king mackerel, so I started measuring all kings on each trip on six trips. I also measured fish from two other fishermen's catches on August 1<sup>st</sup>. There were a total of 630 king mackerel measured from the 9<sup>th</sup> of July through August 1<sup>st</sup>, 2008 (Fig. 1). This figure represents the length frequency distribution for both males and females. Males averaged 75.9 cm fork length, while females averaged 80.8 cm. These are some of the smallest spawning king mackerel to make the April through September South Florida spawning migration.

In 2003, SEDAR 5 also indicated low levels of recruitment. If recruitment had actually been as low as predicted in these assessments, the higher catch levels that the commercial fishery has displayed in recent years would not have been possible.

Observed recruitment in the spawning stock, which migrates to South Florida, has actually been rather flat with a slight increasing trend. We have observed a steady increase across all size ranges in the spawning stock over time. However, we had not seen the large year (size) classes that had supported the fishery in the late 1960's through the mid 1980's. That all changed in 2006. In June of 2006, we fished on a large area of small king mackerel in the 4 to 6 pound range. Most were probably first time spawners. King mackerel in the same size range were caught from Jupiter to Cape Canaveral over about

a three week period. Another group of spawning kings showed up in July. These were in the 5 to 7 pound range and covered the same geographic area. These two size classes represent the largest increase in recruitment that we've observed since the late 1980's.

Not only has this surge in recruitment been observed in the spring and summer fishery, it has been increasingly evident in the mixing zone during winter off the east, central Florida coast. In the 2006/07 winter fishery, the quota was approximated for the first time in recent history. In 2007/08, the quota was caught near the end of February, leaving the entire month of March closed to king mackerel production in this area.

At the RW, I was also able to present my catch history for Atlantic Kings from 1980 through 2008 (Fig. 4 and 5). These landings were made over a rather small geographic area within a 20 mile radius of Jupiter Inlet, Florida. These landings represent catches during the months of April through September. The majority of king mackerel landings from Florida during this time come from this general area. A significant portion of the Atlantic stock migrates to South Florida to spawn during spring and summer.

My intention initially was to have my catch history available for the DW for possible inclusion in the model as a CPUE index but was unable to meet the deadline.

Previous assessments had indicated that part of the problem with assessing Atlantic Kings stems from the fact that total landings are relatively flat over time without much contrast. I knew that my landings contained significant contrast but even I was surprised at the magnitude of change over time in the graphic representation of the data (Fig. 4 and 5).

Total landings during the April through September timeframe and catch per trip are shown in Figure 4. In the early to mid 1980's, catch per trip was relatively higher due to the high abundance of king mackerel and the lack of regulatory restrictions. By 2003, the total catch had rebounded to the higher levels seen in the mid 1980's. However, it took more trips to land the same amount of catch. Implementation of restrictive trip limits (50 fish) was the main reason for the catch per trip differential in the more recent years. The take home message is that abundance or, in this case, spawning stock biomass has increased to produce the same levels of catch observed in the 1980's in spite of the implementation of restrictive trip limits.

The same landings pattern is represented in Figure 5 where total catch is compared to total trips. It takes more trips to produce comparable harvest levels in the more recent years.

The significant decline in landings beginning in 1987 was caused by the introduction of drift gillnets into the fishery in 1985. Total catch from this gear was about 86,000 pounds or 3.5% of total commercial harvest in 1985. Landings more than tripled the next year to about 278,000 pounds or 10% of commercial catch. By 1988, drift gillnets were responsible for about 779,000 pounds or 24.6% of the commercial take. Drift gillnet landings declined to 694,000 pounds in 1989, while the contribution to total commercial landings continued its increasing trend to 28%.

In a contentious and controversial decision, the SAFMC prohibited drift gillnets in 1990. This decision was based on testimony from recreational and hook-and-line commercial fishermen, regarding significant declines in king mackerel catch and abundance. These were also significant issues with by catch and cryptic mortality.

During deliberations at the NMFS level, we were told that the main issue driving the argument was the competition between the gear types. If this was true once the gear was removed from the water, our catches should have rebounded to some semblance of the early 1980's. As you can see in Figure 4 and 5, they did not! In fact, catches from the spawning stock continued to decline to their lowest level of catch in 1992.

You might question why the stock continued to decline after the gear was prohibited. Also, why did it take 10 years to discern significant spawning stock rebuilding? During drift gillnet deliberations, I reviewed a number of scientific papers concerning fallout rates and cryptic mortality in the salmon drift gillnet fishery off the Pacific Northwest. All of those papers reported significant cryptic mortality and several reported a 50% or more loss of resources. I compared the soak and haulback times of the salmon and king mackerel driftnet fisheries. It became obvious that losses of king mackerel were significantly higher due to the longer soak and haulback times. In my opinion, it was not unrealistic to approximate cryptic mortality at 75% or more of the landings. This possibility becomes an important point when considering the long term sustainable commercial production available for Atlantic group king mackerel.

I will have a short addendum to this presentation at the SSC meeting in December.

Ben C. Hartig, III  
9277 Sharon Street  
Hobe Sound, Florida 33455  
Phone: 772-546-1541  
Email: [bhartig@bellsouth.net](mailto:bhartig@bellsouth.net)

Past Member and Chair Snapper/Grouper AP  
Past Member and Chair SAFMC  
Current Chair Mackerel AP  
Current Member Marine Protected Area AP  
Current Member Protected Resources AP  
Current Member Oculina Evaluation Team  
Panel and Observer SEDAR 5 King Mackerel  
Panel and Observer SEDAR 16 King Mackerel  
Panel and Observer SEDAR 17 Spanish Mackerel

