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ATLANTIC STATES MARINE FISHERIES COMMISSION

SCIAENIDS MANAGEMENT BOARD

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Proceedings of the Sciaenids Management Board
May 2022

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ATTENDANCE

Board Members

Joe Cimino, NJ (AA)
Peter Clarke, NJ, proxy for T. Fote (GA)
John Clark, DE, proxy for D. Saveikis (AA)
Roy Miller, DE (GA)
Lynn Fegley, MD, Administrative proxy, Chair
Russell Dize, MD (GA)
David Sikorski, MD, proxy for Del. Stein (LA)
Pat Geer, VA, Administrative proxy
Shanna Madsen, VA, proxy for Sen. Mason (LA)
Chris Batsavage, NC, proxy for K. Rawls (AA)
Jerry Mannen, NC (GA)
Bill Gorham, NC, proxy for Sen. Steinburg (LA)
Malcolm Rhodes, SC (GA)
Chris McDonough, SC, proxy for Sen. Cromer (LA)
Doug Haymans, GA (AA)
Spud Woodward, GA (GA)
Hannah Hart, FL, proxy for J. McCawley (AA)
Andy Strelcheck, NMFS
John Carmichael, SAFMC

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Dawn Franco, Chair, Atl. Croaker Technical Committee
Joey Ballenger, Red Drum SAS Chair
Harry Rickabaugh, Chair, Black Drum & Spot Technical Committees

Staff

Robert Beal
Toni Kerns
Tina Berger
Kristen Anstead
Tracey Bauer
Katie Drew
Emilie Franke
Lisa Havel
Chris Jacobs
Jeff Kipp
Dustin Colson Leaning
Sarah Murray
Mike Rinaldi

Guests

Max Appelman, NOAA
Pat Augustine, Coram, NY
Alan Bianchi, NC DENR
Karen Bradbury, Ofc of Sen. Whitehouse
Bill Brantley, NC DENR
Jeff Brust, NJ DEP
Mike Celestino, NJ DEP
Richard Cody, NOAA
Margaret Conroy, DE F&W
Heather Corbett, NJ DEP
Derek Cox, FL FWC
Steve Doctor, MD DNR
John Duane
Lauren Dolinger Few, NMFS
Anthony Friedrich, SGA
Lewis Gillingham, VMRC
Angela Giuliano, MD DNR
Helen Takade-Heumacher, US FWS
Harry Hornick, MD DNR
Adam Kenyon, VMRC
Kathy Knowlton, GA DNR
Tom Lilly
Mike Luisi, MD DNR
Dee Lupton, NC DMF
Genine McClair, MD DNR
Jack McGovern, NOAA
Thomas Newman
George O'Donnell, MD DNR
Willow Patten, NC DENR
Jill Ramsey, NYS DEC
Kathy Rawls, NC (AA)
Amy Schueller, NOAA
Alexei Sharov, MD DNR
Ethan Simpson, VMRC
Somers Smott, VMRC
Renee St. Amand, CT DEEP
Justin Yost, SC DNR
Chris Wright, NOAA
Eric Zlokovitz, MD DNR

The Sciaenid Management Board of the Atlantic States Marine Fisheries Commission convened in the Jefferson Ballroom of the Westin Crystal City Hotel, Arlington, Virginia, a hybrid meeting, in-person and webinar; Monday, May 2, 2022, and was called to order at 2:15 p.m. by Chair Chris Batsavage.

CALL TO ORDER

CHAIR CHRIS BATSAVAGE: Good afternoon, everyone. I would like to call the Sciaenid Management Board meeting to order. My name is Chris Batsavage; I'm the Administrative Proxy from North Carolina. I'll be serving as Chair for this Board. I would like to thank Lynn Fegley, the past Board Chair for her leadership the last couple of years, especially as this Board kind of transitioned from being part of the South Atlantic Board to splitting out the sciaenid's from the coastal pelagics. Thank you for that.

APPROVAL OF AGENDA

CHAIR BATSAVAGE: Everyone has seen the agenda, just looking for an Approval of the Agenda. Are there any changes or modifications to the agenda? All right, seeing no changes we'll consider the agenda approved.

APPROVAL OF PROCEEDINGS

CHAIR BATSAVAGE: Next is approval of the proceedings from the August, 2021 meeting. Are there any changes or modifications to those proceedings? Okay, seeing none, then we'll consider those proceedings approved.

PUBLIC COMMENT

CHAIR BATSAVAGE: Next up is public comment. This is an opportunity for the public to comment on any sciaenid board related information that is not on the agenda today. Is there any public either online or in the room that would like to comment? Okay, seeing none, we'll then move on with the main parts of the agenda.

CONSIDER THE RED DRUM SIMULATION ASSESSMENT AND PEER REVIEW REPORT

CHAIR BATSAVAGE: Next up will be, Consider the Red Drum Simulation Assessment and Peer Review Report. Joey Ballenger from South Carolina will be giving us a presentation on that very comprehensive work, done over the last couple years to get us to this place. Joey, it's all yours.

PRESENTATION OF RED DRUM SIMULATION ASSESSMENT REPORT

MR. JOEY BALLENGER: All right, guys, thanks for having me here today to talk about the cumulative effort of a number of folks for the last couple of years, doing a bit of a new approach for simulating a population, and trying to determine what estimation models, assessment models would be best to move forward, given the life history of red drum.

First of all, I just wanted to acknowledge a couple of folks, Jeff Kipp from Atlantic States Marine Fisheries Commission, who pretty much led this process and oversaw the development of operating models. Thom Teears from North Carolina DMF, at least at that time, and Jared Flowers from Georgia DNR, who were primarily devoted to the traffic light analysis approach.

Angela Giuliano from Maryland DNR, who worked with our statistical catch at age model, and Chris Swanson from Florida FWC, who primarily developed our stock synthesis model. With that, as you all know, red drum are one of the most targeted recreational fish throughout the U.S. South Atlantic Region, with a majority of southern states reserving their harvest strictly for recreational anglers. Red drum also have a unique life history, particularly with the shifts in habitat used by fish of different sizes. Juveniles, this being those fish up to a few inches in length, generally being found over a wide salinity range and habitat types, though they tend to inhabit smaller protected water bodies.

These habitats are felt to offer protection from predators for these small and vulnerable size

classes. Juveniles again leave their shallow and nursery habitats at approximately 200 millimeters total length, or about ten months of age, at which time their distribution tends to vary seasonally as individuals grow and begin to disperse.

They become much more common in the proximity of main estuaries salt marsh, and oyster reef habitats, and are predominantly found in lower estuarine habitat. It is at this time, which we will come back to, that they are most vulnerable to exploitation. It is also this period when they are using the widest variety of estuarine habitats overall.

That said, individual fish tend to have very small home ranges forming local schools. Adults tend to spend more time in coastal waters after reaching sexual maturity, though they do continue to frequent inshore waters on a seasonal basis, particularly in association with spawning season. In general, we know a little less about the habitat preference of these fish.

That said, adults again can exhibit high seasonal site fidelity to specific locations around the miles of estuaries during the spawning season, returning to specific locations across years in the same season. Over time the fishery has evolved to primarily target the inshore, coastal salt marsh edge habitats, which are commonly occupied by sub-adult red drum.

These habitats have been targeted by anglers for a number of reasons, including their accessibility to a wide range of recreational anglers, their preference, as far as table fare for red drum, et cetera. Further, particularly getting that this targeting of sub-adult fish has been formalized in management of the species, through the adoption of size slot limits across the region.

This isn't to say there hasn't been and doesn't continue to be targeting of an adult population. The slot limits do not preclude the targeting of adults in catch and release fisheries, which may be coming more popular. They do preclude the direct harvest of adult fish. Based on this, we have generally felt this segment of the population, the adults, has been less vulnerable to fishing activities.

These age-specific shifts in vulnerability to the fishery due to management regulations and shifts in habitat use has historically led to uncertainty in stock status determinations. This is because the size or age-specific shifts in habitat utilization makes it difficult to disentangle mortality from emigration rates in the transition from inshore habitats to offshore habitats, which also coincides with the transition from immature to mature fish.

Reduced vulnerability in the offshore environment impacts fishery dependent and fishery independent data collection, creating data limitations. These have been addressed in previous assessments using influential assumptions. Further, as we have seen a rise in a rate of catch and release fishing, there are increasing impacts of these data limitations, particularly in regards to the size and age composition of discarded fish. These discards and subsequent dead discards, are increasingly representing a larger proportion of annual removals. Previous assessments demonstrated these management quantities were sensitive to these data limitations and assumptions, leading to generally high uncertainty in overfishing determinations, and no estimates of the reproductive capacity of the stocks being considered reliable for management.

As such, we did not have a status determination relative to the level of depletion of the stock. In other words, we were not be able to determine whether the stock is overfished or not overfished. Given these limitations of previous assessments, high uncertainty on overfishing status determinations, no status determination regarding stock reproductive potential, and scaling issues through the strong model assumption.

The Board tasked the Assessment Science Committee with writing a roadmap for future red drum assessments. The resultant roadmap recommended by weighing three potential assessment frameworks through the use of simulation analyses to overcome limitations. The

developed road map recommended using simulation models to simulate red drum stocks, with known population dynamics subjected to various exploitation patterns.

These in our terminology are known as our Operating Models. We then would sample the simulated stocks, to mimic the data streams in regards to trends over time and variability from year to year, available to assess the real red drum stocks, using the data streams to assess the simulated stocks to evaluate the reliability of candidate frameworks.

In our terminology, we refer to these as our Estimation Models. The goal of this process was to identify a preferred framework or frameworks for providing management advice during subsequent assessments of the real population. We will try to identify framework to accurately and precisely reproduce stock status determinations of the simulated populations, in terms of fishing mortality rates and spawning stock biomass.

Those that performed well could be reasonably expected to perform well at characterizing the status of the real stocks in future benchmark assessments. With that in mind, I wanted to briefly touch upon how the Stock Assessment Subcommittee developed our Operating Models. Operating Models were constructed from available information on red drum stocks that simulate dynamics of red drum like populations through time, and provide sampling data replicating the data available from the true stocks for stock assessments.

We developed separate Operating Models for each stock of red drum defined in previous Atlantic States Marine Fisheries Commission's assessments, as these stocks differ in terms of life history characteristics and types of fisheries.

Just to highlight some of the main differences in life history between the two stocks: the northern stock has a higher maximum age, which translates to lower natural mortality rates, a larger average length at maximum age, and a younger age at 50 percent maturity, though the northern stock achieves female maturity at larger sizes, owing to their faster growth rates. Each stock's Operating Models were parameterized using information from supporting analyses, the published literature, and past stock assessments, with stock-specific parameters used where possible. For the Operating Models, all parameters were fixed, and therefore treated as known with a specified F time series being used to provide that time series a true population parameter for the simulated stocks.

In other words, with all variables fixed, we have a true time series of fishing mortality rates, spawning stock biomass recruitment, et cetera, that we could compare our performance of our Estimation Models to. Before finalizing the operating models, the fixed parameters were tuned, such that the trends and magnitudes of changes observed in the simulated populations roughly match the trends and magnitudes observed in the real red drum datasets, with roughly equivalent potential annual variability.

I'm just showing a couple of examples here showing the real observed data, this being a northern commercial gill net beach seine catch, retained catch in black, with the yellow simulated data from one of our operating model iterations. Same thing on the right is the Florida recreational catch. They are trying to make sure that simulated data match the trend in overall magnitude of annual variability from year to year, for each of these datasets going in.

Once the Operating Models were finalized, we then sampled each Operating Model 100 times, to create iterations for analysis in the estimations modeling approach. We introduced process errors in these Operating Models, by basically having unique recruitment deviations for each iteration. We then used sampling algorithms to sample the simulated stocks, which we know the status of without error, to generate the datasets we have available to assess our real-world red drum populations, our catch series, our indices of abundance, our age composition, size composition, et cetera.

We have roughly the same levels of variability and uncertainty. Once the Operating Models and scenarios were developed, we then could fit the sample data from the simulated stocks to different estimation modeling frameworks to estimate population parameters and assess model performance.

Three of the assessment approaches were selected as candidate estimation models based on their past use, or consideration for red drum assessment, and their suitability to three assessment frameworks recommended in the road map for future red drum stock assessments: a traffic light analysis approach, a custom statistical catch at age model, and an integrated stock synthesis model.

The first of these, a red drum traffic light analysis developed during the assessment, and selected as a model-free indicator assessment framework. For the simulation analysis, the Stock Assessment Subcommittee focused our attention on three traffic light analysis indicators: recruitment condition, which could be assessed using young of the year and Age 1 indices of abundance; spawning stock biomass status, which is assessed using longline survey indices of adult red drum abundance; and fishing mortality status, which was assessed through the use of a relative exploitation metric, which is calculated at the annual harvest of slot size fish divided by index of abundance of slot sized fish.

The major drawback of such a traffic light analysis approach is it only provides categorical estimates of status or condition. It is not a framework that can provide quantitative estimate of stock status, which is the primary goal of most assessments. The Statistical Catch at Age Models used for management advice in the most recent assessment were selected as assessment framework intended to provide estimates primarily the juvenile and sub-adult portions of the stock.

This model lumps all ages older than Age 6 into a plus group, and do not estimate spawning stock biomass or a link between adults and productivity. In other words, there is no relationship or no stock recruit relationship, spawner-recruit relationship. That said, the model does fit the fishery catch data, age composition data, and fishery dependent and independent indices of abundance.

The primary drawback of this model, particularly for the northern stock, being its reliance on some unique tag-based fishing mortality and catch and release discard selectivity estimates available from a Bacheler et al. paper from 2008. Another drawback to this modeling framework, owing to the lack of a spawner recruit relationship, is that there is no estimate of recruitment condition, which we mentioned was available from the TLA, and is also available from the third modeling framework stock synthesis.

The third and final class of estimation model is an integrated assessment framework implemented in stock synthesis. This modeling framework was intended to estimate population dynamics of all life stages of the stocks, meaning recruitment, sub-adult abundance, and adult abundance. These models also fit to observed fishery catch at age data, as well as fishery dependent and fishery independent indices of abundance, as well as fitting to both length and age composition data for indices and fisheries too, allow the analyst to track all age classes in the stock.

Develop annual estimates of spawning stock biomass, and it also links adult productivity to recruitment through an estimated stock recruit relationship. To evaluate the performance of the estimation models across a variety of alternative population dynamics likely to be encountered in future red drum assessments, we developed a number of different operating model scenarios, from which each could be sampled to generate datasets for the estimation model.

Using the scenario testing approach allows for a unique understanding of the estimation models of different assessment modeling frameworks performance under potential structural differences between a true population, what's occurring in true population being assessed, and the modeling framework being implemented. They might be

experiencing a benchmark stock assessment. In other words, it addresses that critical question of model misspecification that we generally did not know when we were dealing with a real-world population.

This type of scenario also allowed us for an evaluation of respective estimation models performance, relative to other models with their own structural differences that are being considered. We developed four classes of operating model scenarios, each with their own purpose. Those being: Developmental Scenarios, Core Population Dynamic Scenarios, Additional Structural Scenarios, and Data Prioritization Scenarios. For the sake of time in this presentation, I'm just providing detail on the Core Population Dynamic Scenarios, since they were the priority for performance evaluation for your Estimation Model. For these Core Population Dynamic Scenarios, six scenarios with alternative population dynamics were prioritized for estimation model performance evaluations.

Each of these scenarios included the assumption of status quo monitoring of the fishery. In other words, unchanged dataset structure moving into the future. One of the current monitoring programs available for the real-world red drum stocks. What ultimately became our base scenario was a scenario that assumed that we had an increasing F early in the projection period, followed by a decrease in F to target levels following a presumed management action.

This scenario was developed as a proxy for recovering stock, and long-term management of the population at target levels. Just to give you a sense of what the population trajectory under this base scenario looked like, here I'm showing the northern stock spawning stock biomass on the left, and the southern stock spawning stock biomass on the right.

With everything being identical, up until that gray shaded region, which is where we begin our projection period. At that period of time, we saw a relatively short increase in the F period, which caused both of those populations to become depleted, following below that solid dotted line, followed by management action causing the recovery of the stock over the long term.

The heavy black line represents the median estimates from all 100 of those operating model scenarios I mentioned earlier. Each one of those squiggly lines in behind it is one of those 100 different iterations I mentioned earlier, showing that we had slightly different dynamics, depending on the iteration used.

Based off of that, we then developed our additional core population dynamic scenario so it addressed different potential questions regarding the trajectory of the stock based off of either common uncertainties we have in most assessment models, or either future uncertainty in regards to fishing mortality rates.

The first of these was a high F scenario, which is basically the base model minus the decrease in fishing mortality, following that ramp period. In other words, in this model F stabilized at high levels, with a high F being postulated to be maintained due to increased participation in the fishery, which allow you to maintain high Fs through time, despite management action.

The third core scenario was an increase in selectivity scenario. It was a base model once again, but with assuming an increase in vulnerability of adults to catch and release mortality. This was a scenario designed to address the question of whether it's increased targeting of adults, and how in fact it could impact our ability to assess the stocks if the assessment model was misspecified with regards to this.

Then there was a misspecified natural mortality scenario, once again with the base dynamics but with lower natural mortality at age. This was a scenario developed to evaluate a primary uncertainty in stock assessment models in general. Next it was a depressed recruitment scenario, which was once again the base model, but will decrease to new lower productivity regime

coastwide, with this decrease in stock productivity likely being due to environmental changes, with some evidence that this may be occurring in certain areas today. Then finally we have our 2023 terminal year scenario, which is simply the base model, though the data for assessment models only through 2023.

This was to evaluate the short-term performance of estimation models, which is likely the scenario we'll have in the upcoming benchmark stock assessment, with the data only through 2023 terminal year. Before going into the results, I wanted to also indicate how the performance of the estimation models were evaluated.

We the Assessment Team thought a consistent framework for the evaluation would be key to fairly judging the different assessment approaches. To start with we investigated several metrics related to performance, including convergence rate. The first of these convergence rates was used as a metric that could be used to judge estimation, model stability, and ease of convergence.

I'll just note the percent convergence could only be assessed for the statistical catch at age and stock synthesis estimation models, as the TLA approach is a model-free assessment approach. Just quickly going to the results of the convergence rate. In general, we saw that the stock synthesis model seemed to have a higher convergence rate across all those core population dynamic scenarios, with either a southern or the northern population relative to the statistical catch-at-age model.

This was a bit of a concern for the SCA, given that it hinted at model instability and convergent issues. For the rest of the performance metrics, we initially developed a comprehensive suite of population parameters. It could be calculated from the assessment models. With each of these being potentially used by fisheries managers to evaluate stock status, and thought to evaluate the ability of each estimation model to accurately estimate the population parameter.

However, we ultimately chose to focus estimation model comparisons using eight population parameters, identified as the highest priority based on their importance to fisheries managers. One of these was recruitment condition, which could not be evaluated using the statistical catch at age estimation model, as productivity or recruitment was not related to spawning stock biomass through a spawner recruit relationship in this model.

We then had a population status to match the latest to biomass status, SSB status, which could be calculated from all estimation models. Next, we focused our attention on four fishing mortality status parameters, three-year average spawning potential ratio, or spawners per recruit, which was not available from the TLA, a three-year average SPR status, which could be calculated from all estimation models, a three-year average of F ratios, once again not available from a TLA, and three-year average of status.

Last but not least, the last two population parameters of interest, regarding performance were related to Escapement to the adult population, those being Age 4 Escapement and Age 6 Escapement. For these population parameters we evaluated the ability of the estimation model to match the true estimates from the Operating Model using two performance metrics. The first of these was relative error, with this relative error being viewed at the estimation of model stability to accurately estimate each of our focal population parameters. The relative error represents the estimated value, say spawning stock biomass from the assessment modeling framework, minus the true value from the Operating Model, divided by the true value. As such, positive relative error indicates that parameter was overestimated by the estimation model, while vice versa for negative relative error.

As with the convergence rates, relative error could only be calculated from the statistical catch at age and stock synthesis models. Once again, the TLA was a model-free assessment technique. That said, where available we looked at the distributions of relative error across iterations through time, to

investigate the potential for consistent bias, changes in bias, and precision at the individual parameter estimates. If you look through the assessment report, you'll see a number of figures that sort of look like this, the example I'm showing up here on the screen right now.

As the Assessment Team was concerned, what we were looking for is small interquartile ranges, those shaded regions between those two different colors, which was indicative of precision estimation of population parameters by a given estimation modeling framework. We were also looking at median relative errors, which in this figure or all these figures in the report represent those dashed lines.

We were wanting to see those dashed lines to be centered around zero, and be very close to zero in general. Then we also wanted to see no trend in bias, just relative error with time. We didn't want to see it to be varying quite a bit through time. The reason I chose this example is because it indicates several features we were actually not looking for when we were looking at performance in the estimation model.

For example, the yellow shaded region and a yellow line is from statistical catch at age model, and in this example the SCA estimates of relative error in the early part of the time series for the northern stock, spawning potential per recruit, we see a strong trend and a relative error, with a statistical catch at age underestimating SPR relative to true population early on in the time series.
This we now know, based on further investigation, is due to the reliance on northern models SCA on the Bacheler et al. F estimates and B2 selectivity patterns in the early part of the time series. We were also looking for consistency and scale of bias estimates through time. Not seeing a change in those bias estimates through time.

Would this be an example of parameter where the scale of the bias often changed through time, particularly for the SCA model? In this figure, this is observed by the rapid changes and relative error across time, as pointed out in some cases with the arrow here. What we wanted to see is relatively consistent errors throughout the time series, regardless of changes in underlying population dynamics due to changes of fishing mortality rates.

Here while we see some changes in scale for both models, once again we see more inconsistency and scale estimation across the scenarios for the statistical catch at age, compared to the stock synthesis model. The final class of performance characteristics, or performance metrics to the Stock Assessment Subcommittee, evaluated across estimation models where error rates, where error rate was calculated to the frequency of an error type divided by the number of estimates. Whether those estimates are within a single year, say as you'll see, Type I error divided by 100 if all 100 converged, or across all years, which would be number of years times number of iterations of 50 times 100 or whatever it may be. These are the only class of performance metrics that could be calculated across all estimation models for some key parameters. We define two types of error rates that we are interested in, a Type I error, which was defined as an incorrect status determination, when the true status or condition was deemed favorable.

For example, the estimation model, the assessment models say the stock is experiencing overfishing when the true population is not experiencing overfishing. If you think about that, this suggests the estimation model is more conservative in status determination. The assessment model is more conservative.
This implies another type of error, which was redefined as a Type II error, where Type II error was defined as an incorrect estimate when true status or condition is unfavorable. For example, the estimation model says a stock is not experiencing overfishing when the true population is experiencing overfishing.

If you think about that, that means that the estimation model, the assessment model is more conservative in status estimation. It should be less likely to suggest that you are in an undesirable situation than what you really are. Here is a typical figure we would be investigating when trying to

summarize Type I and Type II error rates of the different estimation models.

While you probably can't read all that, the top row represents the Type I error rate, with each of the sub-plots representing a different core population dynamics scenario. The bottom row represents the Type II error rates. What we would hope to see is relatively low Type I and Type II error rates for a well-performing model across time, particularly during periods when you have a change in stock status. We move from not overfishing to overfishing, or from a not overfished to an overfished state, or vice versa. Further, as the Stock Assessment Subcommittee, we generally put more emphasis on Type II error rates than Type I error rates when making conclusions.

We did this because Type II error, saying a population is in a good place when it really isn't, is more problematic from a stock sustainability point of view. For this example, here I'm showing the spawning stock biomass error rates for the northern population. We tended to see to the SCA, the blue line, overestimated spawning stock biomass for the northern population, leading to generally low Type I error rates, saying it is depleted when it isn't depleted, a very high Type II error rate, saying it's not depleted when it really is depleted.

This would be undesirable in a true assessment framework. Overall, we concluded based on this figure for this example that the stock synthesis estimation model performs best with scenarios with misspecified natural mortality. Best in scenarios without misspecified natural mortality or stock recruit relationships.

It's starting to show up very well that the green box area on the bottom left, whereas the TLA performed better in these latter scenarios, misspecified natural mortality would depress recruitment. One thing that was consistent when evaluate error rates, is that we saw trending as the models catch up the true status estimates. That leads to the peak and Type II error rates during the beginning of the projection period, in all our core population dynamic scenarios. This is because we were forcing that population to go from a non-depleted status, not experiencing overfishing, to experiencing overfishing and depleted situation.

In most instances the error rates eventually caught up with the stock status, though there was a period of lag. Obviously, we were having eight performance metrics along with six different core population dynamic scenarios, plus a number of other scenarios, and we as an assessment team needed a way to summarize this information into some performance evaluation tables.

To do this we summarized the relative error and error rates of the eight prioritized population parameters to guide final recommendations. Focusing on their performance and the relatively near future, what we've termed the ramp period, which is the period from 2020, we've got to have real data through 2019 for the simulation approach, to 2034, so 2020 through 2034 was our ramp period.

We then summarized relative error as absolute values, with the average scenario specific median values across the ramp period being used as a measure of overall bias from a given estimation model, and the average scenario specific standard deviation across the ramp period being a measure of precision.

Once again, as I mentioned, we prioritized Type II error rates as this represents more risk to the stocks, and coming to general conclusions. I don't remember exactly what table number this is in the assessment report. This is two tables directly available in the stock assessment report, summarizing those performance metrics across all of the different core population dynamic scenarios, with the bolded and italicized and underlined values being the lowest value for a given estimation model and population.

The top table being the average scenario-specific absolute median relative error or Type II error rate, and the bottom table being the average scenario-specific standard deviation. You'll notice that we only have estimates for all three of those category

variables, because that was the only ones, we could get from TLA.

Based off of all of this, we came to some general modeling recommendations. For the development of recommended approaches to characterize the red drum stock status in future benchmark stock assessments, we used the performance of our estimation models, traffic light analysis, statistical catch at age, and stock synthesis models for each stock, as measured using the eight prioritized population parameters mentioned earlier. The evaluations to conduct once again primarily using our core population dynamic scenarios.

That's the reason I focused on those here. However, we used the totality of all the scenarios explored to form our overall conclusions. Herein we summarized the major conclusions, based on the totality of the results from the estimation models. Due to differences in performance of the considered estimation models between stocks, we developed stock-specific recommendations for characterizing stock status in future benchmark stock assessments. We were viewing these recommendations as a guide to workloads, in preparation for the upcoming benchmark. Thought ultimately, we note the preferred approach will depend upon fits to the observed data from in situ stocks available in the benchmark. I'm going to summarize our recommendations by stock to start with. For the northern stock we recommend pursuing both the stock synthesis and traffic light assessment approaches.

Our analyses identified concerns with specific estimation models. However, we recommend pursuing both the stock synthesis and TLA assessment approach in the upcoming assessment. Note, we do not recommend further pursuing the statistical catch at age model for the northern stock. More specifically, we recommend prioritizing the development of the stock synthesis model.

While this decision was based on many factors, some of the factors that were preeminent in this recommendation was that it generally was a more consistent and accurate performer, and the other estimation models across all population parameters of interest, as well as it generally performed fairly well under the 2023 terminal year scenario, not showing a lack of decrease in precision or bias estimates.

Another big advantage that holds for both the northern stock and the southern stock is the flexibility of the stock synthesis modeling approach, particularly its ability to incorporate additional datasets not considered in the simulation assessment. Most notably, its ability to directly incorporate tag/recapture data into the modeling framework.

We were hoping to be able to incorporate the abundance of tag recapture data available from across the region into our simulated modeling framework. Unfortunately, that was not an option that was made available in the simulation package at this time. As time allows, the Stock Assessment Subcommittee also recommends further development of the traffic light analysis as a supplementary analysis, and as a potential tool for monitoring the stock between assessments.

The TLA was comparable to the stock synthesis model in making spawning stock biomass determinations. It's the second row in that table on the bottom right. Though the assessment team did note caution being need to be used when using a TLA to characterize the F status for the northern stock. It did not seem to perform very well at characterizing overfishing status.

One particularly strong point for the TLA that generally outperformed the stock synthesis model when characterizing recruitment conditions, that being the top row in that table on the bottom right. For the southern stock, the Stock Assessment Subcommittee recommended pursuing all assessment approaches considered during the upcoming benchmark. While the SAS still noted concerns with individual estimation models, overall, they had generally very similar performance across the primary population parameters considered.

It was generally more consistent in performance among models as seen in the northern stock, which is shown here in this table on the bottom right. Further, it appeared all models were appropriate for the development of both fishing mortality status and spawning stock biomass status. This in our view, previously you've got to remember we were not using the statistical catch at age model for SSB status determination. The results suggest it may be useful for SSB status determination in the southern stock. That said, the SAS is still recommending using the traffic light analysis only as a supplementary analysis, and as a potential tool for monitoring the stock between assessments. I'll just note, the Review Panel recommended discontinuing development of statistical catch at age model assessment model during the review workshop for the southern stock as well, with more information on the reasoning behind this during the Review Panel reports following this.

Finally, it became apparent in review of the results that models specifically for the southern stock generally provided accurate trends in fishing mortality, spawning stock biomass, and recruitment, even if they did not provide good absolute estimates. As such, this suggested potential alternative management approach for red drum could be developed based on the trends, and spawning stock biomass fishing mortality, et cetera, relative to a referenced time period.

But it is deemed to be a desirable condition. This is similar to the approach used for the development of stock status recommendations for the ASMFC managed Atlantic menhaden, but that said, we know that work would be needed to define an appropriate time period to develop such a set of reference points, including input from the Board.

We did find some surprising outcomes of the simulation modeling work, and we recommend exploring the cost for trends and bias, one of those being trends and bias of models during periods of big changes in stock dynamics. When we saw change from overfishing to not overfishing or not overfishing to overfishing status, or large changes in the fishing mortality rates in general.

These big changes in stock dynamics were associated with large changes in fishing mortality, leading to changes in performance for estimating stock status across most of the estimation modeling approaches. We just noted that during these real-world shifts, from one stock status to another, it's most crucial to obtain accurate and precise estimates of stock status, and we want it felt as SAS team we would need a further evaluation of why we're getting poor performance in these periods.

We also were asked to develop a prioritized list of recommendations on future monitoring, to improve assessments based off the results of the simulation work. We recommend conducting additional simulations to better understand the model's general insensitivity to longline survey data. This was a bit of an unexpected result.

I haven't spent a whole lot of time in here, but it is something that seems counterintuitive at this point in time. Also, a big concern of previous red drum stock assessments has been the treatment of growth. We did a lot of exploration, trying to determine how influential assumptions of growth patterns for red drum were on the stock assessment estimation models performance.
Those generally suggested that developing custom growth models, which we had previously identified as a very high priority for red drum, may be a lower priority than other tasks such as exploration of tagging data during the upcoming benchmark. The results also strongly indicate that we need to continue to prioritize the collection of recreational discard size composition data. Inclusion of high-quality discard composition data generally improved the precision of parameter estimates, as one would expect. Last but not least, we anticipate the inclusion of tag/recapture data in a stock synthesis model would improve parameter estimates. As I mentioned earlier, this is a limitation of current operating model and simulation framework we used to develop those operating models, because it had the inability to generate tag/recapture datasets.

In conclusion, this simulation assessment framework was designed to provide guidance to help prioritize workloads during the upcoming benchmark stock assessment. It provides informational uncertainty, not available in traditional stock assessments. But once again I'll note that ultimately, the preferred model or models coming out of the benchmark will depend on diagnostics during the benchmark assessment itself. With that I'd be happy to answer any questions.

CHAIR BATSAVAGE: Thank you, Joey. I appreciate the presentation on the work conducted over the last couple years. I think as you mentioned, this took a lot of people. It was not a light lift by any means. Thank you for that. I'll go ahead and ask if the Board has any questions at this point.

There was a lot of information Joey provided, so I'll give the Board an opportunity for questions now, before going into the Peer Review Report. Then I'll give another opportunity for questions after that. Any question from the Board on Joey's presentation? Yes, John Carmichael, yes, go ahead.

MR. JOHN CARMICHAEL: I'm not on the Board, but I have a question for Joey. I found it interesting that in the northern stock the stock synthesis and statistical catch at age didn't perform equally, recommending sticking with stock synthesis. But then in the southern, so they both performed equally.

They're saying stick with both, and then discuss like workload prioritization. I would think if you have two models that perform equally, couldn't you just pick one of them to help offset the workload, or are you afraid there might be some added risk, or you may lose some information, not having that comparison?

MR. BALLENGER: Yes, I'll take a stab at trying to address that. I think as the Assessment Team we were a little bit surprised at how comparable the performance of the statistical catch at age model was to the SAS model for southern stock. That said, Amy is going to follow up with the Review Panel. Some of the investigations there shows there was some inherent bias in the SCA that could not be resolved, even with perfect fitting to the data, like no error in the data still suggests there was some bias. We think we picked up on that a little bit more for the northern stock, because they have those built-in assumptions and reliance on the Bacheler et al. data. It was a little bit freer for the southern population.

Hey, if anybody remembers and was involved with the previous assessment, it had really high uncertainty estimates coming out, and that was a pattern we continued to see for that southern stock SCA. But ultimately, I believe the Review Panel recommended also discontinuing the use of SCA for the southern stock as well, which I think further helps with workload moving forward.

CHAIR BATSAVAGE: Any other questions from the Board?

RED DRUM SIMULATION ASSESSMENT PEER REVIEW REPORT

CHAIR BATSAVAGE: Okay, what we'll go do now is we'll move on to the Peer Review Report presentation. Amy Schueller will be giving that presentation, so Amy, whenever you're ready.

DR. AMY SCHUELLER: I'm going to present the Red Drum Simulation Assessment Peer Review Report. I'm representing as the Chair of the group of folks that reviewed this assessment. I would just like to start off by saying thank you to the Stock Assessment Subcommittee for red drum, they did a great job answering all our questions during the Workshop, and we really appreciate that.

The Red Drum Technical Committee and Stock Assessment Subcommittee developed this new simulation assessment framework to look at their different estimation models and make recommendations. This work was put together in a report, which was then reviewed during March 28th to the 30th in Raleigh, North Carolina.

The review was a scientific review. We really focused on the data inputs, the models themselves, both the simulation and estimation models, and then results and sensitivities from that, looking at the overall quality of the simulation assessment and the ability of the estimation models to fit to data, given the operating models, which I'll use the operating model and estimation model, just as Joey introduced in the last presentation.

Products, the Assessment Report is available as well as the Peer Review Report. The Peer Review Panel consisted of a Chair and three additional reviewers with expertise in red drum ecology and population dynamics, expertise in simulation and stock assessment modeling, as well as stock synthesis expertise.

There is myself, I'm Amy Schueller, I'm from the Southeast Fisheries Science Center of NOAA Fisheries, or the National Marine Fisheries Service. In addition to myself there was Dr. Mike Allen from the University of Florida, Nature Coast Biological Station, Dr. Jie Cao from North Carolina State University at CMAST, and then Dr. Dan Hennen from the NMFS or NOAA Fisheries Northeast Fisheries Science Center.
The overall take home points from the Review Panel are as follows. The operating model appropriately simulated red drum population dynamics, and generated datasets that were useful to assess red drum. I will note that the Review Panel did request the generation of what we're calling, and you'll see in this presentation, perfect data, to use in estimation models.

That was the first request that really came in, which was, please simulate perfect data. Then, how did the estimation models do at getting close to that perfect data, meaning take out the noise and did they perform as we expect them to, which we would expect them to be unbiased, in order to try to look at some of the other sensitivity runs to see if they are robust to that or not. Our other take home was stock synthesis should move forward for the estimation model of choice, to assess both the northern and southern stocks, while the SCA models should not be used. I'll note, stock synthesis is a statistical catch at age model, SCA is a statistical catch at age model, and they are just configured differently and have different properties. In general, the SS fit to the perfect data from the Operating Model for the north, with little and no bias, which is what we hoped for and expected.

In the south, more work is needed to address what is going on in the southern model, and I'll address that later. Then we recommended that the traffic light approach or TLA should be used as an accessory model between assessments, which is what the Stock Assessment Subcommittee also recommended.

I'm just going to walk through each of the Terms of Reference for the assessment. I think there are nine total terms of reference. Basically, I'm going to start off with, what does the Term of Reference refer to, our general panel conclusions, and then whether or not there were any specific recommendations from the Panel moving forward.

Term of Reference 1 looks at the data used in the models and the data uncertainty. The Panel conclusions were generally that there was an excellent job done analyzing large and complex datasets, although there is some room for improvement in growth estimation index selection, tagging data analysis, and discard mortality.

We've made a few recommendations here with respect to that. Recommendation Number 1, which is something the Stock Assessment Subcommittee mentioned that they are interested in looking at further is, consider alternative growth curve formulations. We gave some examples of some options they might consider, one of which is bias correcting the growth curves.

Another is modeling pre-maturation separately, so those individuals that are mature versus immature separately. Then modeling size increment data. This is expanded upon within the Review Panel Report. The second recommendation was with respect to the indices, so consider combining indices of abundance using the Conn method, VAST

hierarchical modeling, or some sort of dynamic factor analysis.

Particularly in the southern model there are several indices of abundance, and so when you put those into the estimation model it basically splits the difference in the information. We're saying, please consider combining those if they are providing information on the same sizes and/or ages of fish in the model.

This is still Term of Reference 1. Recommendation 3 is to encourage new analyses of the tagging data to obtain estimates of harvest rate information. We have F here in parentheses, so fishing mortality. Estimates of F obtained independently from the assessment could improve model fit and could influence the effects of selectivity curves on the fit to the perfect data.

It's worth additional analysis of existing tagging data, as well as collection of new data using some sort of high-reward tagging programs. Finally, recommendation Number 4 was to improve collection of discard information, specifically of discard numbers and sizes of individuals. The second Term of Reference was looking at the model parameterization for the simulation model. The general Panel conclusions are that there was a thorough job done parameterizing the simulation model, including difficult parameters such as natural mortality and recruitment compensation. Some uncertainty still exists with respect to the selectivity. Mostly when you look at the regulation changes over time and space, it's a complex matrix and it's hard to summarize that well when you're trying to simulate, basically models are all abstractions of reality, and so we're basically simplifying what's happening in reality, and that can be difficult when we have changes in regulations that are occurring by state or in time.

That leads to Recommendation Number 1 here, which is do some sensitivity analyses to explore how changes in the selectivity curves influence the model predictions when given perfect data. Term of Reference Number 3 is with respect to the simulation model. There are no particular recommendations from this.

But the Panel conclusions were as follows. The Stock Synthesis simulation package, (SSsim) which was what was used for the operating model, is an appropriate method or tool for simulating red drum populations, and generating datasets for use in the estimation models. The Panel felt that it was a good tool, it provided the data that were needed to assess the estimation models appropriately.

The Stock Assessment Subcommittee applied it properly and appropriately and well. We also concluded that the uncertainty in the operating model represented the observed uncertainty that we would see for the population. Therefore, we didn't make any specific recommendations moving forward, with respect to the simulation model for the operating model.

I just commented on the uncertainty here in Term of Reference 3, but Term of Reference 4 is the uncertainty in the simulated population models, and so the Panel concluded that uncertainty was handled appropriately, and was well described. The Stock Assessment Subcommittee ran several different scenarios to assess key uncertainties.

Some of those things were things that Joey just talked about, increased fishing pressure, changes in selectivity at age, natural mortality and time varying recruitment. The Panel felt like this was addressed appropriately. The sensitivities that were chosen were the key ones, and we didn't make any further recommendations with respect to this Term of Reference.

Term of Reference Number 5 was with respect to the candidate assessment models. The Panel concluded that the SCA model has limited configurations compared to SS. Give an example here, which was the recruitment. In addition to that, Joey mentioned the SCA model is a 0-6 plus model, and so it's not tracking those adults in the same way that SS would be.

We determined that the application of the assessment methods was appropriate in general, and we did make some further recommendations to consider some of the decisions, I guess that were made in parameterizing and formulating the base run. Recommendation Number 1 was further examination of the estimation of the stock recruitment curve if data are insufficient to inform the estimation of steepness, then fix that at 0.99.

That's just to look at how good that stock recruitment curve is, and whether or not it's reliable. If it's not reliable sort of going to a default assumption. Recommendation Number 2 is to consider alternative start years for the model, such as 1950 or 1991, to assess the impact on robustness of model outcomes. Joey pointed out in his presentation there was some bias in one of the models with respect to the start year. There is some concern that that might be influenced by the tagging data, which started in 1989.

If you skip maybe the first two years of those data and started in 1991, that might reduce some of the bias or if you gave the model longer time series of landings values, such as starting in 1950, that might also help it with its initialization. The second recommendation is basically looking at robustness of the initialization of the model, in order to see if it has an impact on the overall outcomes.

Term of Reference Number 6 is with respect to the reference points that were provided and chosen, and the Panel conclusions are that the reference points selected were appropriate. We're making the statement that escapement is particularly vital as a reference point given the juvenile-based fishery.

The Review Panel did have some questions with respect to monitoring on an annual versus a three-year basis to sort of look at, does the response metric change substantially if we're smoothing over it in three years or not? We did make the recommendation to monitor both an annual and a three-year moving average of SPR status.

That would hopefully allow you to not make knee-jerk reactions by using sort of that smoothed three-year value. But then if something was going wrong all of a sudden, you would know about it sooner than waiting for that three-year average to come out. Recommendation Number 2 was that the SSB or Spawning Stock Biomass status could be turned into a trend-based reference point, which was something Joey just mentioned.

However, more work needs to be done to identify an appropriate reference period, and to assess the bias in the southern estimation model using the perfect data from the operating model, meaning more work needs to be done on that southern model, to make sure that it is running with the perfect data with no bias.

Once that's done, then there should be input from multiple sources as to what an appropriate reference period should be, and the Review Panel made the statement that that is outside the scope of the Review Panels purview. Term of Reference Number 7 is with respect to the performance metrics used to assess the models.
The choice of performance metrics was appropriate, and represented standard reference points and metrics used in simulation modeling. We did make the statement, 100 simulations were completed for each model to produce relative error and Type I and II error rates, which may be adequate.

But we really thought that it needed a little bit more exploration to ensure that it was giving the results that were robust. We made a couple recommendations here. One is to increase the number of iterations to 200 and compare that to 100 iterations. Typically, when you're doing assessment simulation framework, you're going to run more simulations than you need, and then sort of assess where the change in the standard error of the outputs is coming to some sort of asymptote. You could run 5,000 and say, oh I only really needed 1,000. In this case we're saying run the 200 and see if the 100 is sufficient.

The second recommendation was to perform several runs of 100 and look at the variability in the relative error and error rates. It's sort of two different ways to look at the question of, is 100 simulations enough to get at how robust these estimation models are for estimating the metrics of this type of a population.

Term of Reference Number 8. This is a preferred assessment model, so there are recommendations here for the SCA, the SS model and then on the next slide there will be recommendations for the TLA. The SCA model seems to be intrinsically biased, even when using perfect data from the operating model. I'll come back to that.

The request by the Review Panel was, provide me perfect data from the Operating Model, stick it in the Estimation Models, and see if we're producing unbiased results. The SCA had difficulty doing that, and so there seems to be some sort of mismatch. The SS model alternatively appears to be unbiased for the northern region. When the perfect data were included from the Operating Model it produced unbiased estimates that we expected to see.

Then the SS model for the southern region needs further work to provide an unbiased fit to those perfect data. We made some recommendations. Recommendation 1 is do not use the SCA model further. There are some statements in the Review Panel that say things like, with further time and work the SCA model would likely be able to be configured to produce unbiased results.

However, given the restrictions in time and resources, it seems most appropriate to move forward with the SS model. In addition to that, the SS model has more options and configurations for use, which might be useful for red drum. Thus, the recommendation, do not further pursue the SCA model. The second recommendation is to use the SS model to assess the northern and southern stocks, but further work is needed to finalize the model for the southern stock.

In particular, we suggested some look at the growth curve analyses and selectivity, and then there were some counterintuitive results I'll talk about in future slides. This is Term of Reference Number 8 continued. The Review Panel had concern regarding some unexpected outcomes from the sensitivity runs that the Stock Assessment Subcommittee did. In particular in the north the inclusion of discard composition data should have improved the characterization of discards, but ended up resulting in an increased bias.

That didn't make sense, and so that needs to be explored further. In addition, in the southern model of SS, the use of the true growth model meaning the Operating Model was given a specification for growth, and then when the Estimation Model was set up, it was given the same specification, and it resulted in increased bias in the results, which doesn't make sense.

Further exploration of that is needed, which leads me to Recommendation Number 3, determine why counterintuitive results are occurring. The final conclusion under this Term of Reference was that the TLA or the traffic light approach can be used as an interim accessory tool. We did make a recommendation for TLA in particular as well, which is TLA used a grid search to look at the reference points, and it used that projection time period in addition. The Review Panel recommended repeating the grid search for TLA using only the pre-2023 years to determine the reference points. Term of Reference Number 9 is the future monitoring. The Panel made the statement that it's difficult to assess future monitoring needs, given the counterintuitive results regarding the longline survey data and the composition information for discards.

Meaning, the improvement and information in those two data sources did not improve the performance of the models, which was confusing. It was difficult for the Review Panel to make recommendations that they felt strongly would improve the outcomes here. The one recommendation we did make is to collect data on individuals in the 70-to-90-centimeter range.

There was an apparent lack of data in that range, meaning if you looked across the data sources that were available, there were a lot of data sources below or above those, that sort of slot but not a lot of data within that range. This data would help to inform age, trends in abundance, selectivity across gears, and hopefully more robust growth analyses.

I guess this brings me to general overall conclusions. It's a high-level overview of the Review Panel Report. The first next step really is that the Stock Assessment Subcommittee needs to work on fitting the SS southern model to the perfect data from the Operating Model, in order to ensure that the estimation model can reproduce the truth. There needs to be work to make sure that that bias is small or 0, and figure out what's going on there.

Once that happens, then the Committee can move forward considering the other recommendations. Specifically, I would suggest or the Review Panel suggests, once the models are behaving properly, looking at counterintuitive results in the northern and southern region, and why those things are happening. Then adding additional sensitivity runs and additional data analyses looking at growth, tagging data, selectivity, et cetera. I think next slide. I think that leads me to a question slide.

CHAIR BATSAVAGE: Thank you, Amy, appreciate the Peer Review Report. Any questions from the Board on the Peer Review Panel Report? Lynn Fegley.

MS. LYNN FEGLEY: Thank you for that great presentation, there is a lot to unpack. I'm just curious about the recommendation to improve discard estimates. I guess I have a two-part question. Is the recommendation to improve discard estimates, is the thought that that would help with some of the biases that you're seeing? Then I also wondered if the Review Panel or the Assessment Committee discussed at all how discard estimates might be improved.

CHAIR BATSAVAGE: Yes, Amy, and I guess Joey, if you have anything to add to that too. But I'll give it to Amy to answer that for starters.

DR. SCHUELLER: That's a good question, Lynn. We did talk about discards. Let me look at the report again. Some of the members of the Review Panel felt that it was possible that the discard mortality rate might even be a bit high. It was set at 0.08. It says the key need to better quantify the number and sizes of the discarded catch, particularly given the apparent recent increase in anglers targeting large spawning fish offshore. I think this has to do with the fact that it seems to be, or it was characterized to us that there is an increasing catch and release fishery, and what the impacts of that may be. But then there was also comments about, you know if they're fishing in shallow water the discard rate, the discard mortality rate maybe isn't as high. Just getting a better handle on the differences across space and types of fisheries would help. Does that answer your question? Joey or Jeff can feel free to chime in as well.

CHAIR BATSAVAGE: Yes, Joey, anything to add?

MR. BALLENGER: Yes, I think Amy does a fair job, but I think in the previous assessments of red drum we've identified this rise in the catch and release fishery, a larger component of the overall total removals each year is from this dead discards. While we assumed an 8 percent dead discard rate, we haven't had a whole lot of information of what the size composition of those discarded fish looks like.

If we had a mechanism put into place to where we could get some information from the size composition of those discards, and may better allow us to decrease on the uncertainties in stock status. At least in some areas there is perception that the size composition of the discards may have shifted through time, to where you're seeing more targeting of the adult fish, relative to what you might have seen 10, 15, 20 years ago.

But we really don't have data streams that can really show that very well. If they could institute some type of program to get that information, it could be extremely valuable to the assessment of red drum, just as it would be valuable to the assessment of a number of other species as well. I

don't think that's anything new, as far as discard composition information. I think in the regions that I'm most familiar with we're talking about 70-90 percent of the red drum caught are released upon capture. That is a huge component of the fishery.

CHAIR BATSAVAGE: Thanks for that, Joey, Lynn does that answer your question? Great, thanks. Any other questions from Board members? Okay, the Action Item today is to approve this Simulation Assessment and Peer Review Report, to basically get things moving along for the next step, which would be the Benchmark Assessment.

I think at this point I'll be looking for a motion to that effect. Actually, yes. Before I do that, Tracey Bauer, the Plan Coordinator just wants to kind of get next steps, road map so to speak, as far as where we go after this, assuming that we pass this. Tracey.

MS. TRACEY BAUER: Basically, what we had here, because this is such a new process doing the Simulation Assessment, it's never been done before. We just wanted to walk through what our road map or timeline looks like here. We just did the Simulation Assessment. It evaluates performance of the Assessment approaches using the simulation analysis, which was what was just gone over today.

We got a recommendation for preferred assessment approaches for the red drum assessment. As discussed today, we're hoping completion this year, 2022, after our external ASMFC Peer Review that was held. Moving forward, now the Simulation Assessment is wrapping up, we're looking towards the traditional benchmark stock assessment for red drum. This assessment will apply the assessment approaches recommended, hopefully by the Peer Review Panel, which is looking to be assessed in a traffic light analysis to red drum datasets. Once it's completed it will provide assessment results for management advice. At this time, we're estimating that the terms of reference and a timeline will be provided by summer of 2022, so later this year, at the next Sciaenids Board meeting, when you will review the spot and croaker traffic light analyses, or through an e-mail vote later. This Benchmark Stock Assessment is scheduled for completion in 2024, with a SEDAR Peer Review.

CHAIR BATSAVAGE: Any questions on the road map from kind of where we are now to eventually a Benchmark Stock Assessment? There are no questions. I'll look for a motion. Spud Woodward.

MR. A. G. "SPUD" WOODWARD: I'll move to accept the Red Drum Simulation Assessment and Peer Review Report.

CHAIR BATSAVAGE: Thank you, Spud, second by Malcolm Rhodes. Any discussion on the motion? No discussion, is there any objection by the Board to this motion? **Seeing no objection, then the motion passes by unanimous consent.** Thank you for that, and again, thanks to everyone again for the hard work on this.

Look forward to this as it progresses over the next couple years, as we move forward to a benchmark assessment. This is a pretty big change in the assessment techniques we have for red drum, so this is good. I think Tracey that's everything for this agenda item, okay for red drum.

PROGRESS UPDATE ON THE BLACK DRUM BENCHMARK STOCK ASSESSMENT

CHAIR BATSAVAGE: Great, so next up for the meeting today is a Progress Update on the Black Drum Benchmark Stock Assessment. Jeff Kipp will be giving us an update on that, so Jeff, whenever you're ready, please go ahead.

MR. JEFF J. KIPP: For those I don't know, I'm Jeff Kipp. I'm the Science Staff Member here at the Commission on black drum. I'll just be giving an update on where we are with the stock assessment on black drum. It's roughly halfway through the process. The Technical Committee and Stock Assessment Subcommittee met for a data workshop back in December of last year and a Methods Workshop in February of this year.

Since the Methods Workshop, a Working Group of SAS and TC members have been working on identifying and structuring indicators that will be recommended in the stock assessment for providing annual updates on the stock condition between assessment years, which was a new unique term of reference added for this black drum assessment.

Additionally, the Stock Assessment Subcommittee has been working on development of several assessment methods identified and discussed during the Methods Workshop, and will be meeting actually in a few weeks for a progress webinar, to check on the progress of those assessment methods.

The next major milestone for this assessment will be our Assessment Workshop, which is tentatively set for July, and the assessment is scheduled to be completed and peer reviewed in December of this year, and presented to the Board at the ASMFC winter meeting in 2023. That concludes my update on the black drum assessment, and I would be happy to answer any questions on that assessment.

CHAIR BATSAVAGE: Any questions on the progress of the black drum benchmark stock assessment? Seeing no questions, definitely quite a few stock assessments heading our way in the coming next couple years for this Board. That's great.

REVIEW AND POPULATE THE ADVISORY PANEL MEMBERSHIP

CHAIR BATSAVAGE: Next up is to review and populate the Advisory Panel membership. I'll turn it to Tina Berger for the nomination for the Advisory Panel. Tina.

MS. TINA L. BERGER: I offer the Board one nominee to the South Atlantic Species Advisory Panel, and that is Mary Ellon Balance, a commercial pound netter from North Carolina. While she primarily targets summer flounder, she also often incidentally catches black drum, red drum and sometimes spotted sea trout and Spanish mackerel. The nomination form was in your packet of materials under supplemental, and I offer her for your approval.

CHAIR BATSAVAGE: Thanks, any questions on the nomination? Is that a motion or a question?

MR. JOHN CLARK: I just had a question, Chris. Is it still called the South Atlantic Advisory Panel, even though we've broken it up? Oh, okay, just checking.

CHAIR BATSAVAGE: Yes, John, yes, it is. Still a lot of connectivity in the fisheries between the sciaenid's and the coastal migratory species. They're keeping that as a single Advisory Panel, so that's a great question, thank you for that. If there are no further questions, I'll look for a motion. Jerry Mannen.

MR. JERRY MANNEN: I move to approve the nomination to the South Atlantic Advisory Panel, Mary Ellon Balance from North Carolina.

CHAIR BATSAVAGE: Can I get a second? Marty Gary. Any discussion on the motion? Any opposition to the motion? **Okay, then Mary Ellon is approved by unanimous consent.** Thank you. All right, last up is any additional business for the Sciaenid Board? Is there any additional business to bring up today? That concludes our business for today.

Before we conclude, I meant to do this earlier, but I wanted to introduce and welcome Tracey Bauer, ASMFCs one of the newest FMP Coordinators. She's FMP Coordinator for the Sciaenid's Board and you probably couldn't see in online, or even in the room. She was working to make sure that she kept me straight here, and did a good job of that. I appreciate the support she provided during the meeting today.

ADJOURNMENT

CHAIR BATSAVAGE: With no other business, I will call this meeting adjourned. Thanks everyone.

(Whereupon the meeting adjourned at 3:45 p.m. on Monday, May 2, 2022)