MEMORANDUM

TO: Finfish Advisory Committee, Northern Regional Advisory Committee, Southern Regional Advisory Committee

CC: N.C. Marine Fisheries Commission, Southern Flounder Fishery Management Plan Advisory Committee

FROM: Michael S. Loeffler and Anne L. Markwith, Southern Flounder Fishery Management Plan Co-Leads

SUBJECT: Southern Flounder Fishery Management Plan Amendment 2

Issue
The draft Southern Flounder Fishery Management Plan (FMP) Amendment 2 containing the Department of Environmental Quality, Division of Marine Fisheries and the FMP advisory committee initial positions is ready to be presented to the commission’s standing advisory committees for their comment and recommendations. The division and FMP advisory committee have developed management measures for the commission’s consideration to meet statutory requirements to achieve a sustainable harvest* in the southern flounder fishery, to end overfishing by 2021 and rebuild the spawning stock biomass* (SSB) by 2028.

Findings
• The most recent coast-wide stock assessment determined the stock* is overfished* and overfishing* is occurring.
• Reductions in total coast-wide removals* are necessary to end overfishing within two years and recover the stock from an overfished state within a 10-year period.
• To reach the fishing mortality* (F) threshold* and end overfishing, a 31% reduction in removals is necessary, while a 51% reduction is necessary to reach the fishing mortality target*. Neither of these levels of reduction would rebuild the spawning stock biomass (SSB) by 2028.
• For the SSB to reach the threshold by 2028 and end the overfished status a 52% reduction in total removals coast-wide will be required. To reach the SSB target by 2028 a 72% reduction in total removals coast-wide will be required.
• Static quota, dynamic quota, slot limits, changes in the size limit, and gear changes related to size limit changes are not considered feasible options to address sustainable harvest in draft Amendment 2 due to the accelerated timeline and the need to implement management measures before the fall 2019 fishing season.

Action Needed
At their June 3, 2019 meeting, the committees are scheduled to review the 2019 Stock Assessment of Southern Flounder in the South Atlantic, draft Amendment 2, and vote on their preferred management strategies.
Overview
Southern flounder is a commercially and recreationally important fishery currently managed under Amendment 1 and Supplement A to Amendment 1, as modified by the Aug. 17, 2017 settlement agreement, of the N.C. Southern Flounder FMP.

Amendment 2 Goal and Objectives
The goal and objectives for draft Amendment 2 to the N.C. Southern Flounder FMP were reviewed and approved by the commission at its May 17, 2019 meeting. The goal and objectives for the FMP are:

Goal
Manage the southern flounder fishery to achieve a self-sustaining population that provides sustainable harvest using science-based decision-making processes. The following objectives will be used to achieve this goal.

Objectives
1. Implement management strategies within North Carolina and encourage interjurisdictional management strategies that maintain/restore the southern flounder spawning stock with multiple cohorts and adequate abundance to prevent recruitment overfishing.
2. Restore, enhance, and protect habitat and environmental quality necessary to maintain or increase growth, survival, and reproduction of the southern flounder population.
3. Use biological, environmental, habitat, fishery, social, and economic data needed to effectively monitor and manage the southern flounder fishery and its ecosystem impacts.
4. Promote stewardship of the resource through increased public awareness and interjurisdictional cooperation throughout the species range regarding the status and management of the southern flounder fishery, including practices that minimize bycatch and discard mortality.

Stock Assessment
Southern flounder is assessed as a single biological unit stock occurring from North Carolina through the east coast of Florida. Based on life history information, a multi-state cooperative group performed a stock assessment with a terminal year* of 2017 that determined the stock is overfished and overfishing is occurring.

• The stock assessment estimated biological reference points of $F_{35\%}$ (fishing mortality target) as 0.35 and $F_{25\%}$ (fishing mortality threshold) as 0.53. Estimated $F$ in the terminal year of 2017 is 0.91, which is higher than the threshold and indicates overfishing is occurring.
• The stock assessment estimated an SSB target of 5,452 metric tons (approximately 12.0 million pounds) and threshold of 3,900 metric tons (approximately 8.6 million pounds). Estimated SSB in the terminal year of 2017 is 1,031 metric tons (approximately 2.3 million pounds), which is lower than the threshold and indicates the stock is overfished.

Statutory Requirements
North Carolina General Statute 113-182.1 mandates that fishery management plans shall: 1) specify a time period not to exceed two years from the date of adoption of the plan to end overfishing, 2) specify a time period not to exceed 10 years from the date of adoption of the plan for achieving a sustainable harvest, and 3) must also include a standard of at least 50% probability of achieving sustainable harvest for the fishery. Sustainable harvest is defined in North Carolina General Statute...
113-129 as “the amount of fish that can be taken from a fishery on a continuing basis without reducing the stock biomass of the fishery or causing the fishery to become overfished.”

In accordance with North Carolina General Statute 143B-289.52(e1) a supermajority of the Commission shall be six members. A supermajority shall be necessary to override recommendations from the Division of Marine Fisheries regarding measures needed to end overfishing or to rebuild overfished stocks.

**Projections**

To meet statutory requirements, calculations were made to determine coast-wide reductions in total removals necessary to end overfishing within the two-year period and recover the stock from an overfished state within the 10-year period. These projections estimate necessary changes to $F$ when compared to the 2017 terminal year fishing mortality estimates identified in the stock assessment. In addition, the projections assumed management would start in 2019 and so the 10-year rebuilding period would need to be met by 2028.

Projections assume all four states implement measures for the reductions required to rebuild SSB. In addition, projections detailing changes in SSB assume the shrimp trawl fleet removals will continue in all scenarios. However, the partial moratorium projection also assumes no removals from the commercial or recreational fisheries, whereas less restrictive scenarios account for the specified volume of removals including harvest and dead discards. These projections provide a mathematically optimistic rebuilding schedule for SSB and are unlikely to be fully achieved given the disparity of regulating commercial and recreational gear removals and without comparable management action from the other southeastern states. For further information on the interjurisdictional nature of this species, please see the *Interjurisdictional Management* sub-section found in Section VI, Management Strategies for Sustainable Harvest of Draft Amendment 2.

To reach the fishing mortality threshold and end overfishing, a 31% reduction in total removals is necessary, while a 51% reduction is necessary to reach the fishing mortality target. However, while both of these reductions are sufficient to end overfishing in two years, neither are sufficient to achieve a sustainable harvest and end the overfished status within the 10-year period.

To reach the SSB threshold and end the overfished status by 2028, as is statutorily required, a fishing mortality of 0.34 achieved via a 52% reduction in total removals is needed. To reach the SSB target by 2028, fishing mortality would need to be lowered to 0.18 by reducing total removals by 72%. All projections are associated with at least a 50% probability of success. Both scenarios for rebuilding SSB meet the requirement to end overfishing in two years.

The projections are based on coast-wide reductions (North Carolina to Florida) necessary for coast-wide rebuilding. However, in developing necessary management measures, the division has applied the reductions for total removals only to North Carolina’s portion. To do this, the percent reduction was applied to the total removals for North Carolina from the 2017 terminal year of the assessment. In North Carolina, the commercial fishery accounted for 71.8% of the total removals in pounds while the recreational fishery total removals (from hook-and-line and gigs) accounted for 28.2% in 2017. In addition, commercial removals that occurred through means of “other gears,” those non-targeted flounder gear such as fyke nets, crab pots, and trawls are subtracted from the total removals prior to analysis. The impacts from these other gears are approximately 0.6% of the overall removals. While draft Amendment 2 will not impact other states' removals, continued cooperation
among the state agencies involved with the stock assessment and their willingness to enact management measures to rebuild the stock within their jurisdictional boundaries is of the upmost importance for the stock.

**Proposed Management Options**
The list of proposed management options, including the positives and negatives for each option, can be found in Section VII, Proposed Management Options of draft Amendment 2. Department and Division recommendations are in *bolded italicized* font below, and additional information on these recommendations, can be found in Section VIII, Recommendations of Draft Amendment 2. The FMP advisory committee recommendations are summarized below and found in Section VIII, Recommendations of Draft Amendment 2.

The Department and the Division recognize that these reductions are significant but necessary to increase the probability of successfully rebuilding this important recreational and commercial resource.

**Commercial Fishery Options**

A. Establish seasonal closures by area for the commercial fishery to reduce $F$ to the fishing mortality threshold (31% reduction)
B. Establish seasonal closures by area for the commercial fishery to reduce $F$ and allow the SSB to rebuild to the threshold (52% reduction)
C. Establish seasonal closures by area for the commercial fishery to increase SSB between the threshold and target (62% reduction)
D. Establish seasonal closures by area for the commercial fishery to reduce $F$ and allow the SSB to rebuild to the target (72% reduction)
E. Establish a partial moratorium for the commercial fishery

*Establish seasonal closures by area for the commercial fishery to reduce $F$ and increase SSB to rebuild between the threshold and the target in 2019 (Option C, 62% reduction) and establish seasonal closures by area for the commercial fishery to reduce $F$ and allow the SSB to rebuild to the target in 2020 (Option D, 72% reduction).*

**Recreational Fishery Options**

A. Establish a season for the recreational fishery to reduce $F$ to the fishing mortality threshold (31% reduction)
B. Establish a season for the recreational fishery to reduce $F$ and allow the SSB to rebuild to the threshold (52% reduction)
C. Establish seasonal closures by area for the recreational fishery to increase SSB between the threshold and target (62% reduction)
D. Establish a season for the recreational fishery to reduce $F$ and allow the SSB to rebuild to the target (72% reduction)
E. Establish a partial moratorium for the recreational fishery

*Establish seasonal closures by area for the recreational fishery to reduce $F$ and increase SSB to rebuild between the threshold and the target in 2019 (Option C, 62% reduction) and establish seasonal closures by area for the recreational fishery to reduce $F$ and allow the SSB to rebuild to the target in 2020 (Option D, 72% reduction).*
Additional Management Options: Non-Quantifiable Harvest Restrictions
These options can be implemented in conjunction with seasons to minimize the potential for overages in total removals by mitigating probable effort changes due to shortened seasons.

A. Trip Limits
   i. Limiting numbers per trip for the commercial gig fishery
   ii. Limiting pounds per trip for the commercial pound net fishery
B. Limiting days per week allowed in the Neuse River, Tar/Pamlico River and the Albemarle Sound areas that have previously been exempt from set restrictions
C. Reducing fishing times allowed in the Neuse River, Tar/Pamlico River and the Albemarle Sound areas that have previously been exempt from time restrictions
D. Gear Modifications
   i. Prohibit the use of picks when harvesting fish from pound nets
   ii. Reducing the maximum yardage allowed in the large mesh gill net fishery

Management measures from Amendment 1 and Supplement A to Amendment 1 will be incorporated into Amendment 2 (see Section VIII, Recommendations in Draft Amendment 2). Additionally, the recreational bag limit of no more than four flounder is maintained in Amendment 2. This bag limit is required through the N.C. FMP for Interjurisdictional Fisheries to maintain compliance with the Atlantic States Marine Fisheries Commission Summer Flounder, Scup, and Black Sea Bass FMP Addendum XXVIII. The December commercial closure period from Amendment 1 would no longer be in effect, as it is encompassed by the seasonal closure periods implemented by the adoption of Amendment 2.

The NCDMF recommendation includes that the adoption of Amendment 2 authorizes continued development of Amendment 3 and more robust management strategies. Amendment 3 will be completed as quickly as possible with the ongoing contributions of the Southern Flounder FMP Advisory Committee members. This will best serve to assist the division in development of Amendment 3, by building on the knowledge, expertise, and cooperation already underway and continue the work uninterrupted from meetings that began in January 2018.

Southern Flounder FMP Advisory Committee Recommendation
At the April 2, 2019 Southern Flounder FMP Advisory Committee meeting, the following recommendation was approved by the committee for the 2019 and 2020 fishing year and forward. For further information, including proposed seasons, see Section VIII, Recommendations of Draft Amendment 2. The committee voted to establish a season for the commercial and recreational fisheries to reduce \( F \) to the fishing mortality threshold in 2019 (Option A, 31\% reduction) and establish a season for the commercial and recreational fisheries to reduce \( F \) and allow the SSB to rebuild to the threshold in 2020 (Option B, 52\% reduction) with the following additional modifications.

FMP AC Management Option for 2019
Implement a 31\% reduction for all commercial sectors in 2019. Implement a 33\% reduction for the recreational hook-and-line fisheries to best align with the MRIP estimates for reductions; the recreational gig fishery will coincide with the hook-and-line season with a 69\% reduction.

FMP AC Management Option for 2020 and forward
Starting Jan. 1, 2020 adopt the Division of Marine Fisheries recommendation for a 52\% reduction for the commercial and recreational fisheries with the following changes for the commercial fishery, calculated by the northern, central, and southern areas proposed by the division:
• Commercial pound net fishery, 40% reduction
• Commercial gig fishery, 40% reduction
• Commercial large-mesh gill net fishery, a reduction of approximately 70% would be needed to make up the difference to yield a 52% reduction for the commercial fishery overall. The AC recognizes that the division proposal for the Recreational Commercial Gear License large mesh gill net season of Sept. 15-Sept. 30 may be changed by this final percent reduction.

In addition, as of Jan. 1, 2020, implement a 1,500-yard limit for large mesh gill nets in Management Unit A, and implement a 1,000-yard limit for large mesh gill nets in Management Units B, C, D, and E.

**Timeline**

**June 3, 2019**
The commission approved sending draft Amendment 2 out for public comment and advisory committee review, it will be presented to the Finfish, Northern Regional, and Southern Regional advisory committees at a joint meeting the afternoon of June 3. A public comment period will be held during the meeting and the meeting will occur within the comment period for the public to submit comments in writing. Written comments must be received by midnight June 3 via an online format that can be accessed from the division’s website or by mail. The Southern Flounder FMP Advisory Committee will meet in the evening after the joint meeting for final approval of its recommendation based on input from the public and other committees; no public comment period will be held during the FMP Advisory Committee meeting.

**June 6, 2019**
At the Marine Fisheries Commission special meeting the division will detail advisory committee and public input and the commission will vote to select its preferred management strategy and vote to send a revised draft Amendment 2 to the Department of Environmental Quality secretary, the Joint Legislative Oversight Committee on Agriculture and Natural and Economic Resources, and the Fiscal Research Division for review and comment.

**August 2019**
The commission will receive any departmental and legislative input provided. The commission is scheduled to vote on final approval of Amendment 2. If approved, management measures will be implemented via the proclamation authority of the division director following the meeting.

**Definitions**

*Sustainable Harvest* – The amount of fish (in weight) that can be taken from a stock at a given fishing intensity and the stock biomass does not change year to year.

*Spawning Stock Biomass* – Total weight of mature females in the stock.

*Stock* – A group of fish of the same species in a given area. Unlike a fish population, a stock is defined as much by management concerns (jurisdictional boundaries or harvesting locations) as by biology.

*Overfished* – State of a fish stock that occurs when a stock size falls below a specific threshold.

*Overfishing* – Occurs when the rate that fish that are harvested or killed exceeds a specific threshold.

*Total removals* – In the commercial fishery, the sum of the landings and dead discards; in the recreational fishery, the sum of the observed harvest and dead discards.

*Fishing Mortality (F)* – Rate at which southern flounder are removed from the population due to fishing.

*Threshold* – The maximum values of fishing mortality or minimum values of the biomass, which must not be exceeded. Otherwise, it is considered that it might endanger the capacity of self-renewal of the stock.

*Target* – The level of fishing mortality or of the biomass, which permit a long-term sustainable exploitation of the stock, with the best possible catch.

*Terminal Year* – The final year of estimates being used in an analysis.