



*Southern Flounder Fishery Management Plan
Draft Amendment 2*

DEPARTMENT OF ENVIRONMENTAL QUALITY

Marine Fisheries

Marine Fisheries Commission | Michael S. Loeffler and Anne L. Markwith | May 17, 2019



Southern Flounder Stock Assessment History

- Assessments completed in 2005, 2009, and 2014
- The 2005 and 2009 assessments concluded the stock was overfished and overfishing was occurring.
- The 2014 assessment was not approved for management use by the N.C. Division of Marine Fisheries due to the definition of unit stock.
- Recommendation to expand unit stock based on genetics and tagging data from North Carolina to the east coast of Florida
- The current stock assessment (coast-wide data through 2017) passed peer review and was approved for management use by the division.
- Concluded stock is overfished and overfishing is occurring



Reference Points

- Stock status determined by using reference points against current stock trends
- Determined by the stock assessment committee prior to development of stock assessment
- Based on life history characteristics of the species
- Fishing Mortality (F)
 - $F_{25\%}$ - Threshold
 - $F_{35\%}$ - Target
- Female Spawning Stock Biomass (SSB)
 - SSB estimate based on $SPR_{25\%}$ - Threshold
 - SSB estimate based on $SPR_{35\%}$ - Target



Determining Stock Status

- Fishing Mortality (F)
 - If current $F >$ threshold ($F_{25\%}$), then overfishing is occurring
 - Reference point threshold for current assessment is $0.53 F$
 - Current F is 0.91, which is higher than 0.53
 - **Overfishing** is occurring
 - Target is $0.35 F$
- Female Spawning Stock Biomass (SSB)
 - If current stock size $<$ threshold ($SSB_{25\%}$), then stock is overfished
 - Reference point threshold for current assessment is 3,900 metric tons (8.6 million pounds)
 - Current SSB is 1,031 metric tons (2.2 million pounds), which is lower than 3,900 metric tons (8.6 million pounds)
 - Stock is **overfished**
 - Target is 5,452 metric tons (12 million pounds)



Current Stock Status

- Lack of age classes and few older fish in landings
- No evidence of recent high recruitment
- The probability that the stock (terminal year 2017) is experiencing overfishing is 96.4%.
- The probability that the stock (terminal year 2017) is overfished is 100%.



Statutory Requirements (G.S. 113-182.1)

- **Fishery Management Plan Review**
 - Each plan must be reviewed at least once every five years.
 - The review begins with conducting a stock assessment.
 - The coast-wide southern flounder stock assessment determined the stock is overfished and overfishing is occurring.
- **Fishery Management Plan Required Contents***
 - Specify a time period not to exceed two years from the date of adoption of the plan to end overfishing.
 - Specify a time period not to exceed 10 years from the date of adoption of the plan for achieving a sustainable harvest.
 - Include a standard of at least 50% probability of achieving sustainable harvest for the fishery.

* Unless the division director determines the biology of the fish, environmental conditions, or lack of sufficient data makes implementing the requirement incompatible with professional standards for fisheries management.



Amendment 2 Purpose, Goal and Objectives

- Purpose: To achieve sustainable harvest in the southern flounder fishery, to end overfishing by 2021, and rebuild the spawning stock by 2028
 - Management measures can be implemented in 2019 to begin stock rebuilding.
 - Allows for other management strategies to be developed and considered in Amendment 3
- Goal: Manage the southern flounder fishery to achieve a self-sustaining population that provides sustainable harvest using science-based decision-making processes.



Amendment 2 Purpose, Goal and Objectives

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.



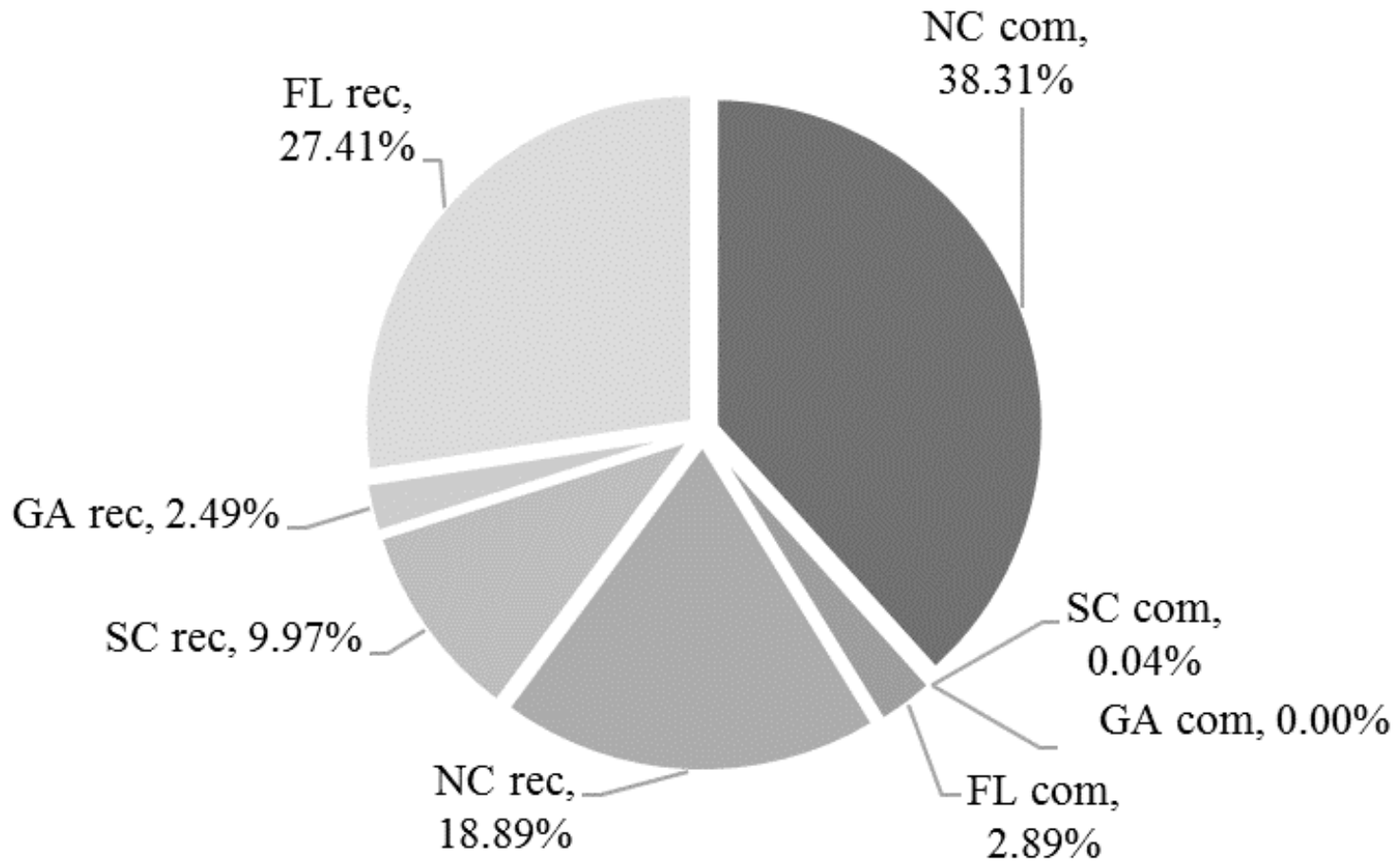
Ending Overfishing and Rebuilding the Stock

- Ending overfishing requires reducing F by reducing coast-wide total removals.
- Ending the overfished status requires rebuilding SSB by reducing F through reductions in coast-wide total removals.
- Projections of the coast-wide stock were used to understand how the SSB will respond to changes in F .
- Reductions proposed in draft Amendment 2 are North Carolina's portion of the overall required reductions.

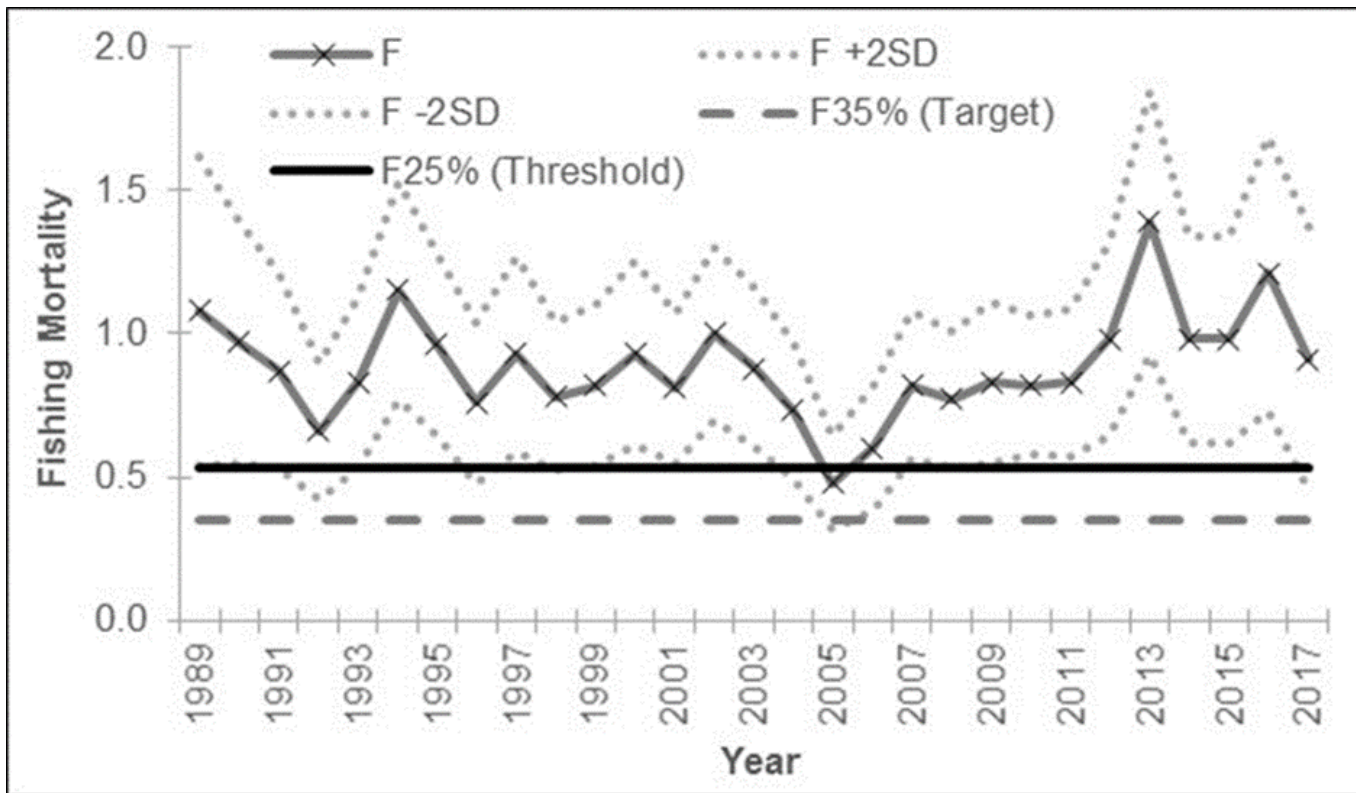


Total Removals by State

Average 2008-2017



Overfishing Determination

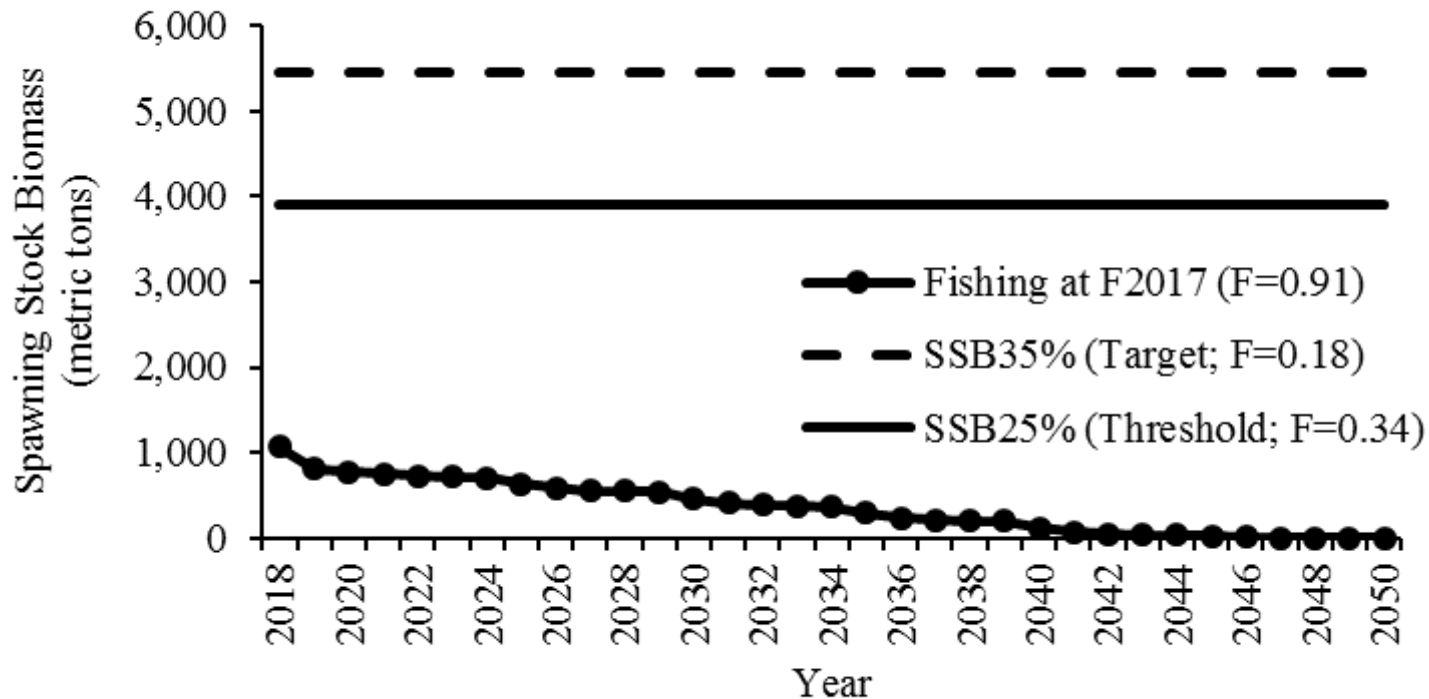


- $F_{2017} = 0.91$
- $F_{25\%}$ (Threshold) = 0.53 31% reduction
- $F_{35\%}$ (Target) = 0.35 51% reduction



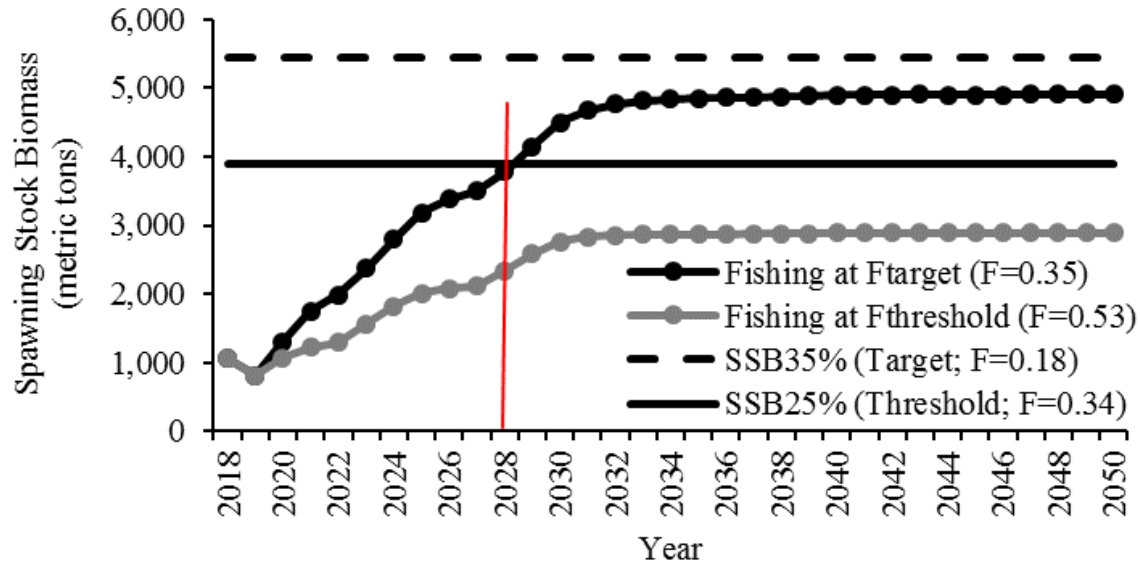
Ending Overfishing

If the combined F that accounts for all states continues at the 2017 rate, spawning stock biomass will continue to decline.



Ending Overfishing

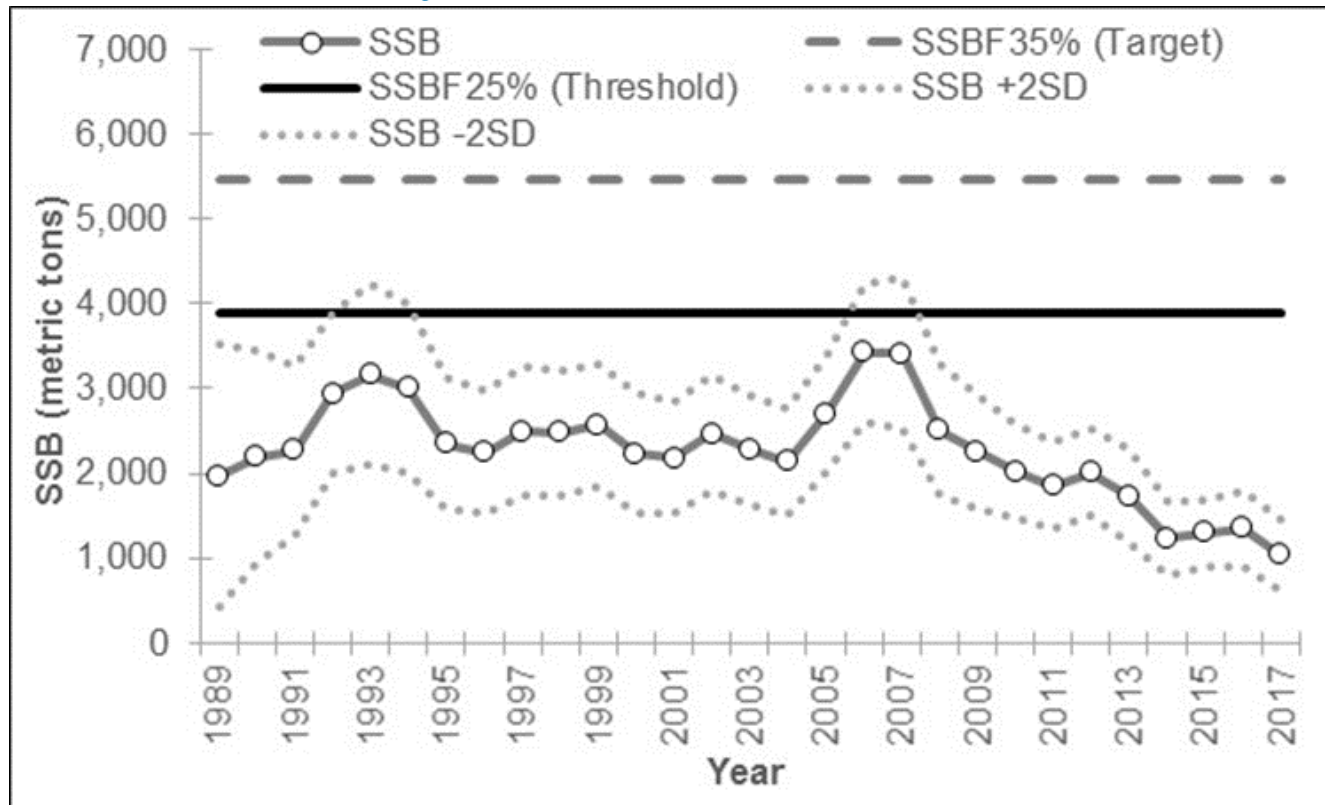
Neither coast-wide reduction level in F (31% threshold reduction or 51% target reduction) provides adequate rebuilding to the spawning stock biomass threshold within the 10-year rebuilding period (end overfished status).



- Vertical red line is the end of the 10-year rebuilding period
- Projections based on all states implementing reductions



Overfished Determination

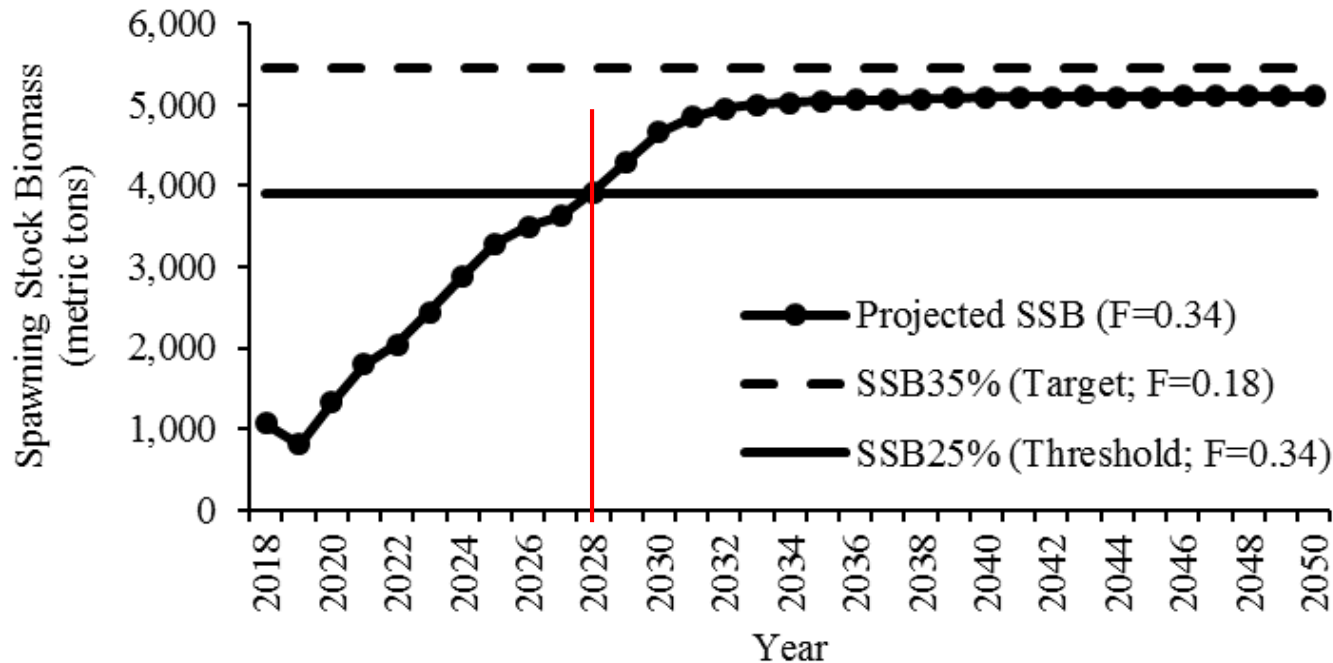


- $SSB_{2017} = 1,031$ metric tons (2.3 million pounds)
- $SSB_{35\%}$ (Target) = 5,452 metric tons (12 million pounds)
- $SSB_{25\%}$ (Threshold) = 3,900 metric tons (8.6 million pounds)



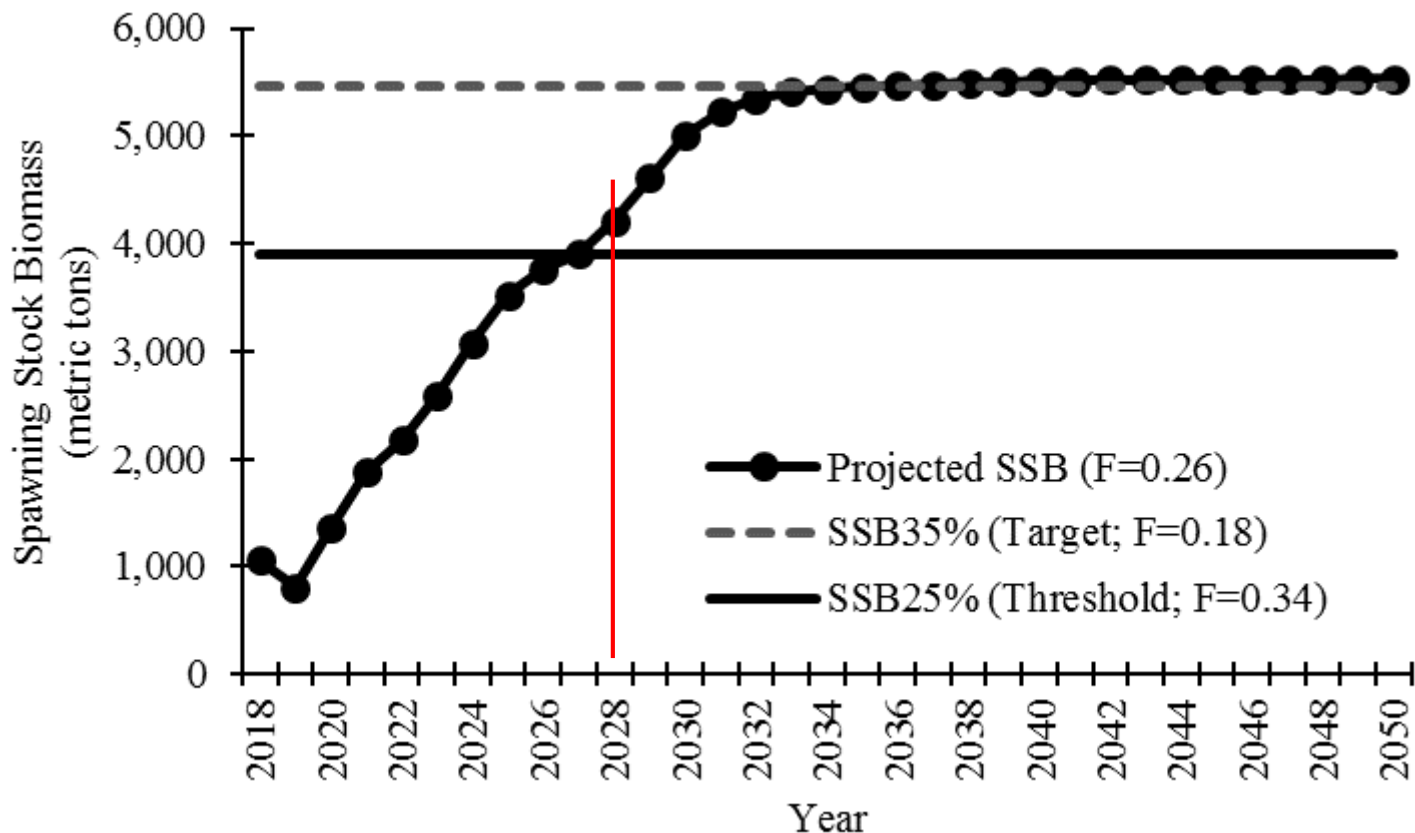
Ending Overfished Status – 52% Reduction

A 52% reduction in F coast-wide is necessary to allow the spawning stock biomass to rebuild to the threshold by 2028 [3,900 metric tons (8.6 million pounds); end overfished status].



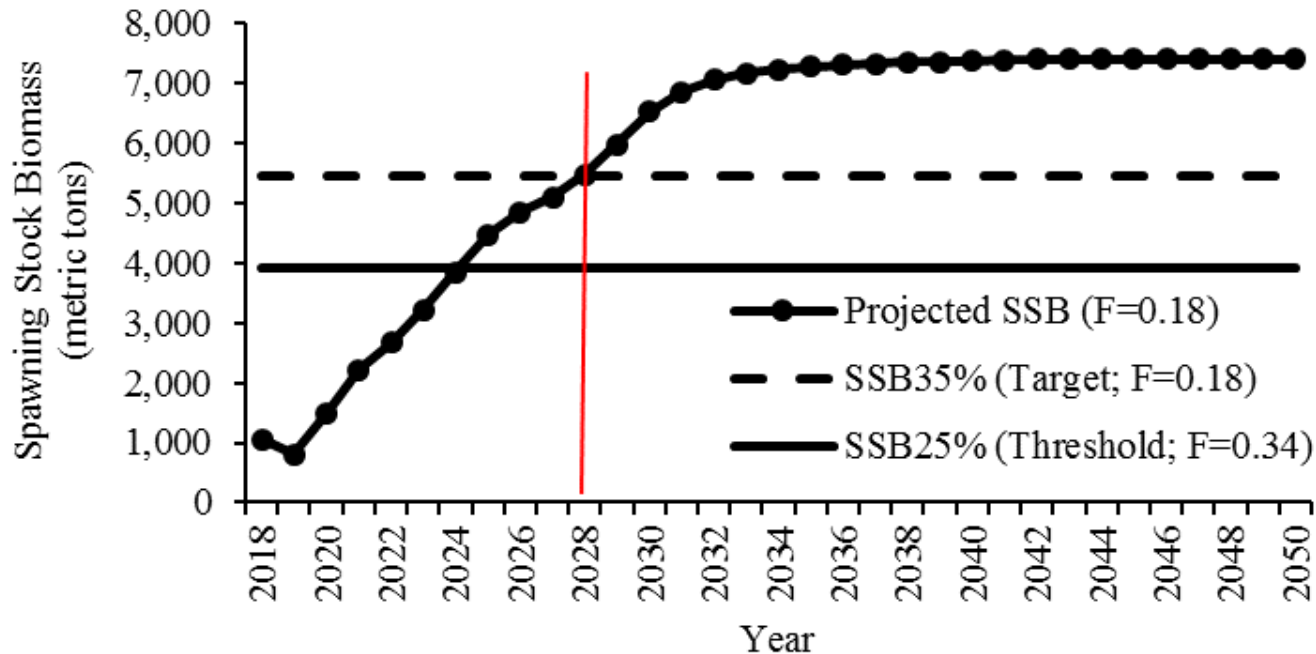
Ending Overfished Status – 62% Reduction

A 62% reduction in F coast-wide will allow the spawning stock biomass to rebuild to a level above the threshold by 2028 [3,900 metric tons (8.6 million pounds); end overfished status].



Ending Overfished Status – 72% Reduction

A 72% reduction in F coast-wide is necessary to allow the spawning stock biomass to rebuild to the target by 2028 [5,452 metric tons (12 million pounds); end overfished status].



Primary Amendment 2 Management Strategy

Best short-term management strategy is a seasonal approach

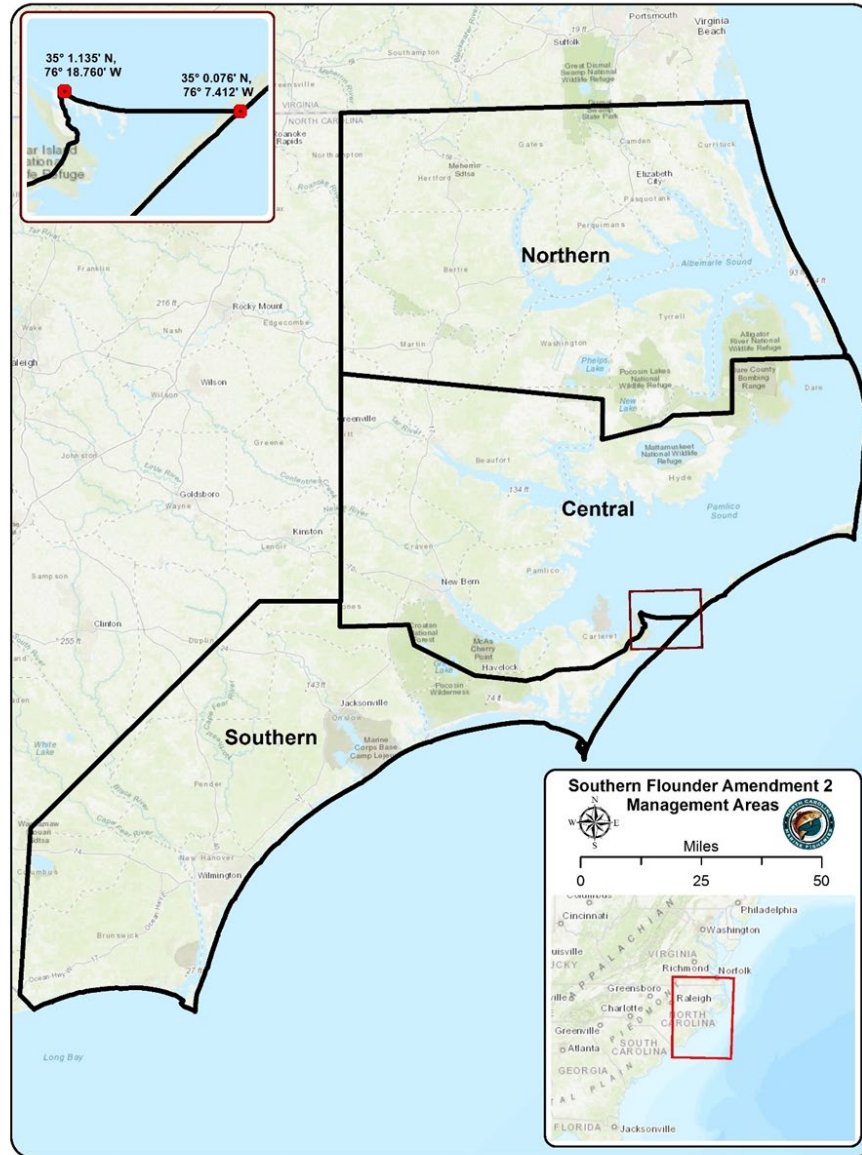
- Can be implemented in 2019 to begin stock rebuilding
- Allows for other management strategies to be developed and considered in Amendment 3
- Need for immediate implementation to reduce total removals due to:
 - Continued overfishing and overfished status
 - Lack of rebuilding success from previous management



Commercial Fishery Reductions

Divide state into three management areas

- Northern
- Central
- Southern



Commercial Fishery Reductions in Pounds

Reduction	Management Area	2017 Landings Value	Dead Discards	2017 Total Removals	After Reduction	"Other" Gear Allocation	Gill Net, Pound Net, Gig Allocation
Overfishing Threshold 31%	Northern	324,779	1,014	325,793	224,797	547	224,250
	Central	700,258	2,203	702,461	484,698	3,644	480,473
	Southern	369,580	1,190	370,770	255,831	4,225	252,187
	Total	1,394,617	4,407	1,399,024	965,326	8,416	956,910
SSB Threshold 52%	Northern	324,779	1,014	325,793	156,381	547	155,834
	Central	700,258	2,203	702,461	337,181	3,644	332,956
	Southern	369,580	1,190	370,770	177,969	4,225	174,325
	Total	1,394,617	4,407	1,399,024	671,531	8,416	663,115
62%	Northern	324,779	1,014	325,793	123,802	547	123,255
	Central	700,258	2,203	702,461	266,935	3,644	262,710
	Southern	369,580	1,190	370,770	140,892	4,225	137,248
	Total	1,394,617	4,407	1,399,024	531,629	8,416	523,213
SSB Target 72%	Northern	324,779	1,014	325,793	91,222	547	90,675
	Central	700,258	2,203	702,461	196,689	3,644	192,464,
	Southern	369,580	1,190	370,770	103,815	4,225	100,171
	Total	1,394,617	4,407	1,399,024	391,726	8,416	383,310



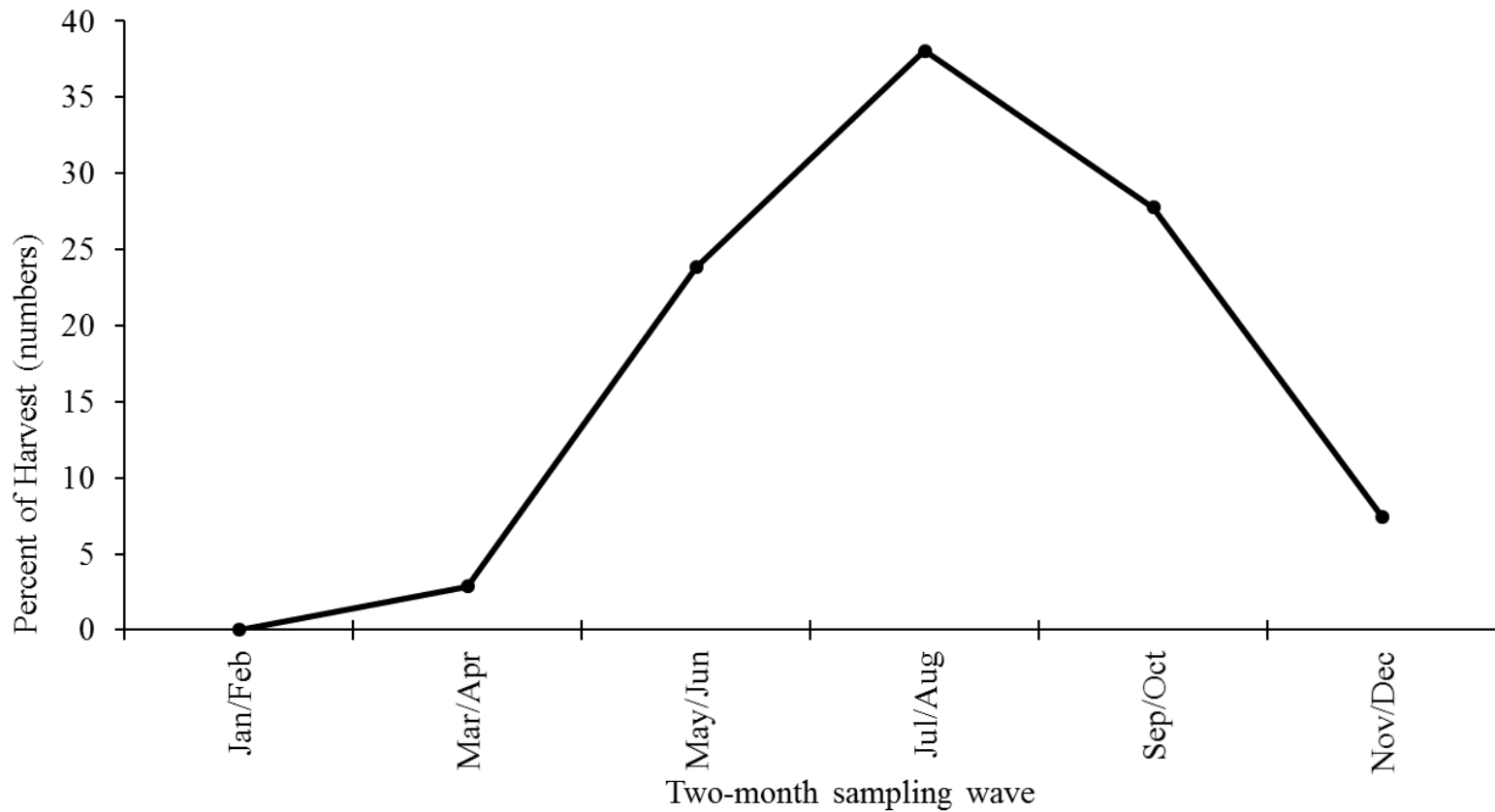
Seasons to Achieve Commercial Fishery Reductions

Reduction	Management Area	Season Start Date					
		1-Aug	1-Sep	15-Sep	1-Oct	Jan. 1, mid-year closure, re-open Sept. 1	Jan. 1, mid-year closure, re-open Sept. 15
		Season End Date					
Overfishing Threshold 31%	Northern	14-Oct	18-Oct	26-Oct	11-Nov	15-Oct	22-Oct
	Central	2-Nov	7-Nov	11-Nov	21-Nov	4-Nov	7-Nov
	Southern	19-Nov	25-Nov	25-Nov	29-Nov	17-Nov	24-Nov
	Statewide	29-Oct	4-Nov	17-Nov	20-Nov	31-Oct	4-Nov
SSB Threshold 52%	Northern	6-Oct	10-Oct	17-Oct	31-Oct	5-Oct	13-Oct
	Central	18-Oct	21-Oct	24-Oct	5-Nov	19-Oct	21-Oct
	Southern	24-Oct	7-Nov	15-Nov	24-Nov	23-Oct	29-Oct
	Statewide	12-Oct	19-Oct	24-Oct	7-Nov	14-Oct	20-Oct
62%	Northern	26-Sep	2-Oct	13-Oct	27-Oct	27-Sep	10-Oct
	Central	10-Oct	14-Oct	17-Oct	26-Oct	11-Oct	14-Oct
	Southern	13-Oct	26-Oct	2-Nov	15-Nov	11-Oct	17-Oct
	Statewide	5-Oct	12-Oct	17-Oct	28-Oct	6-Oct	11-Oct
SSB Target 72%	Northern	20-Sep	27-Sep	6-Oct	22-Oct	12-Sep	21-Sep
	Central	2-Oct	8-Oct	11-Oct	19-Oct	4-Oct	8-Oct
	Southern	1-Oct	14-Oct	20-Oct	2-Nov	29-Sep	7-Oct
	Statewide	26-Sep	3-Oct	9-Oct	21-Oct	27-Sep	3-Oct

Note: Monitoring, reporting, and closure requirements identified through the division's sea turtle and Atlantic sturgeon incidental take permits will remain in effect and may impact dates identified in this table.



Recreational Hook-and-Line Fishery Reductions



Recreational Hook-and-Line Fishery Reductions

- Reduction is based on 2017, the terminal year *F*
- Reduction in total removals (observed harvest and dead releases)

451,126 pounds of observed harvest
+ 37,597 pounds of dead releases
 488,723 pounds of total catch

	% Reduction	Total removals (lbs)
Terminal Year	2017	488,723
Target	72%	136,843
62%	62%	185,715
Threshold	52%	234,587
Overfishing	31%	337,219

Season	% Reduction	Total removals (lbs)
no closure	0%	488,723
May 1 - Sept 30	18%	399,908
Jun 1 - Sept 30	26%	360,813
Jul 1 - Sept 30	41%	286,724
Jul 16 - Sept 30	51%	240,876
Aug 1 - Sept 30	60%	195,868
Aug 16 - Sept 30	72%	138,362
Jul 1 - Oct 15	35%	318,760
Jun 1 - Sept 15	33%	325,691
Jul 1 - Sept 15	48%	253,123
Jun 16 - Sept 15	40%	294,998
Jul 16 - Oct 15	44%	271,391
Aug 1 - Oct 30	49%	249,887
Jul 16 - Oct 30	40%	294,894



Recreational Gig Fishery Reductions

- Reduction is based on 2017, the terminal year *F*
- Reductions in total removals (harvest and dead releases)
- Will follow the same season as the hook-and-line fishery

	Percent Reduction	Total removals (lbs)
Terminal Year	2017	57,019
Target	72%	15,965
62 percent	62%	21,667
Threshold	52%	27,369
Overfishing	31%	39,343

55,512 pounds harvest
+ 1,507 pounds of dead discards
 57,019 pounds of total catch

Season	Percent Reduction	Total Removals (lbs)
Apr 1 - Oct 15	30%	39,759
Apr 1 - Sept 30	36%	36,258
May 1 - Oct 31	40%	34,311
Apr 16 - Sept 30	44%	31,784
May 1 - Oct 15	46%	30,811
May 1 - Sept 30	52%	27,310
Jun 1 - Sept 30	63%	21,374
Jul 16 - Oct 31	64%	20,330
Jul 1 - Oct 15	67%	18,938
Aug 1 - Oct 31	68%	18,221
Jun 1 - Sept 15	69%	17,873
Jul 16 - Oct 15	70%	16,829
Jul 1 - Sept 30	73%	15,438
Jun 16 - Sept 15	74%	14,905
Jul 16 - Sept 30	77%	13,329
Jul 1 - Sept 15	79%	11,937
Aug 1 - Sept 30	80%	11,219
Aug 16 - Sept 30	84%	9,110



Division Recommendation

The following management measures from Amendment 1 and Supplement A to Amendment 1 will be incorporated upon adoption of Amendment 2.

- From the Southern Flounder Fishery Management Plan Amendment 1:
 - Management measures, including restrictions that limit the number of days per week and the amount of yardage allowed for large mesh gill nets in various areas of the state;
 - A minimum distance (area dependent) between gill net and pound net sets, per rule 15A NCAC 03J .0103 (d); and
 - A recreational minimum size limit of 15 inches total length.



Division Recommendation

- From Supplement A to the Southern Flounder Fishery Management Plan Amendment 1:
 - A commercial minimum size limit of 15 inches;
 - A minimum mesh size of 6-inch stretch mesh to harvest southern flounder from a gill net; and
 - A minimum mesh size of 5.75-inch stretch mesh for pound net escape panels.
- From N.C. Fishery Management Plan for Interjurisdictional Fisheries to maintain compliance with the Atlantic States Marine Fisheries Commission Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan Addendum XXVIII:
 - The recreational bag limit of no more than four flounder per person per day is maintained in Amendment 2.



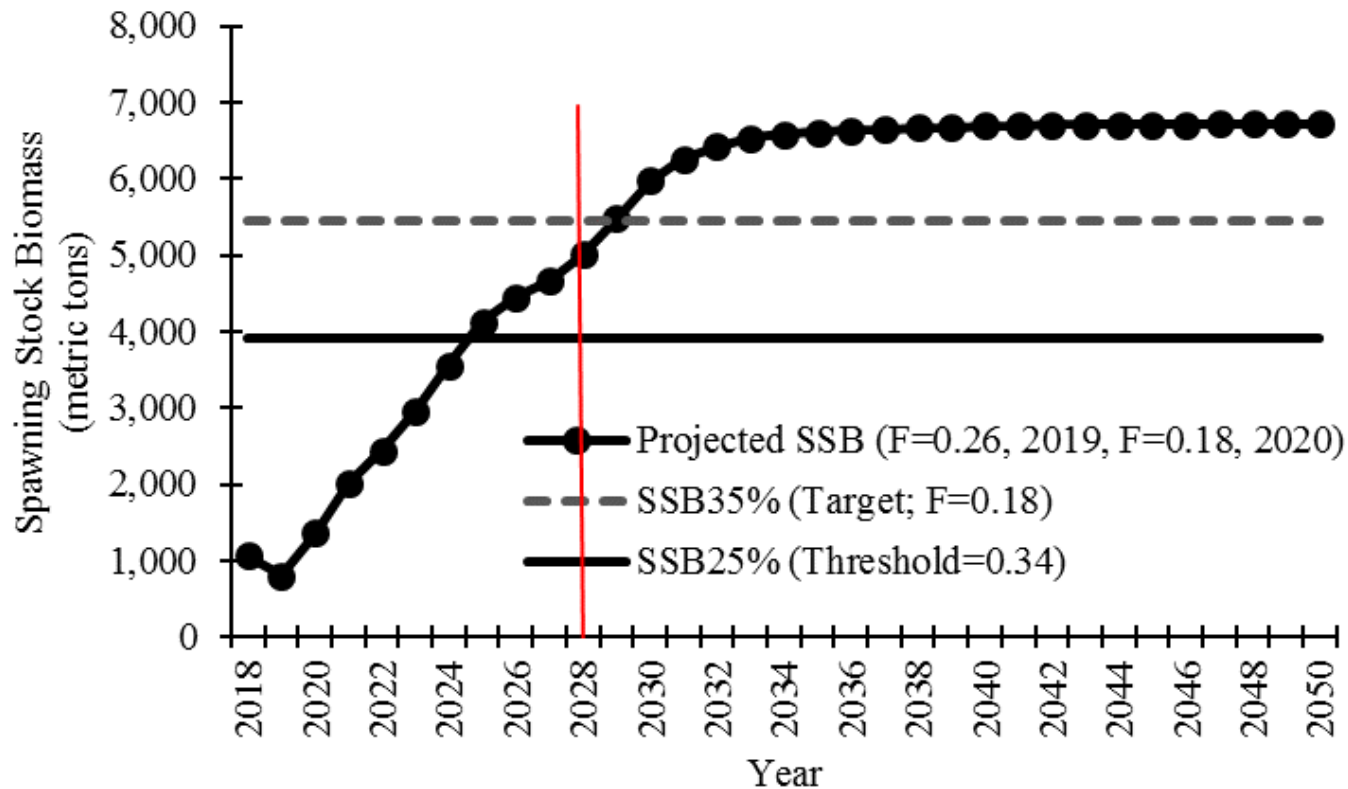
Department and Division Recommendation

- The N.C. Department of Environmental Quality and the N.C. Division of Marine Fisheries recommend a management strategy be implemented in Amendment 2 to reduce fishing mortality in the commercial and recreational fisheries to a level that ends overfishing within two years and allows the SSB to increase to between the threshold and the target within 10 years via a 62% reduction ($F=0.26$) in total removals in 2019 and beginning in 2020, via a 72% reduction ($F=0.18$) in total removals.
- Removal of all gears from the water (e.g., commercial and Recreational Commercial Gear License anchored large mesh gill nets, gigs, and flounder pound nets) is necessary in areas and times outside of seasons implemented where southern flounder discards are likely to occur, with exceptions for the shad and catfish fisheries.
- Adoption of Amendment 2 authorizes concurrent development of Amendment 3 and more robust management strategies.



Department and Division Recommendation

- Meets the statutory requirement of ending overfishing within two years and the overfished status in 10 years (62% - 2019, 72% beginning in 2020)
- SSB is projected to rebuild to a level above the threshold by 2025 and projected to be about one million pounds less than the 5,452 metric ton (12 million pound) target by 2028.



Additional Considerations

The division also recommends considering the following non-quantifiable measures:

- Limiting the daily harvest of the commercial gig fishery;
- Limiting the daily harvest of the commercial pound net fishery;
- Expanding the commercial gill net management by limiting the days per week in the Neuse, Tar/Pamlico rivers and the Albemarle Sound areas that have previously been exempt;
- Expanding the commercial gill net management measures by reducing fishing times in the Neuse, Tar/Pamlico rivers and the Albemarle Sound areas that have previously been exempt;
- Reducing the maximum yardage allowed in the commercial large mesh gill net fishery.



Department and Division Recommendation

Potential strengths (+) and weaknesses (-) of the division recommendation

- + Conservation and resource oriented
- + Can be implemented in 2019
- + Stock rebuilding begins while other management strategies are developed
- + Accounts for seasonal availability (migration) across areas
- +/- Projections were made with the assumption that every state would implement management measures for the necessary rebuilding
- Closures based on past removals and behavior
- Fishing effort may increase during seasonal periods and may lead to higher than predicted removals



Southern Flounder Advisory Committee Recommendation

- The Southern Flounder Advisory Committee recommends that the division implement a 31% reduction ($F=0.53$) for all commercial sectors in 2019, based on fishing areas and gear. Season dates will be:
 - Aug. 1 start date for pound nets, with an open season:
 - Northern - Aug. 1 through Oct. 29;
 - Central - Aug. 1 through Nov. 10; and
 - Southern - Aug. 1 through Nov. 7.
 - Aug. 1 start date for commercial large-mesh gill nets with an open season:
 - Northern - Aug. 1 through Oct. 8;
 - Central - Aug. 1 through Oct. 19; and
 - Southern - Aug. 1 through Nov. 13.
 - April 1 start date for commercial gigs with an open season:
 - Northern - April 1 through Oct. 25;
 - Central - April 1 through Nov. 14. and
 - Southern - April 1 through Sept. 19.
- Implement a 33% reduction for the recreational hook-and-line fishery, in order to best align with the Marine Recreational Information Program estimates for reductions.
 - Recreational hook-and-line and recreational gig fishery seasons: June 1 through Sept. 15.



Southern Flounder Advisory Committee Recommendation

The Southern Flounder Advisory Committee recommends that starting Jan. 1, 2020 the Division of Marine Fisheries recommendation (as presented on April 2, 2019) for a 52% reduction ($F=0.34$) be adopted with the following changes for the commercial fishery, calculated for the Northern, Central, and Southern areas:

- 40% reduction for the pound net fishery, with a start date of Sept. 15:
 - Northern - Sept. 15 through Oct. 28;
 - Central - Sept. 15 through Nov. 2; and
 - Southern - Sept. 15 through Nov. 3.
- 40% reduction for the gig fishery, with a start date of April 1:
 - Northern - April 1 through Oct. 24;
 - Central - April 1 through Nov. 11; and
 - Southern - April 1 through Aug. 25.
- For the large-mesh gill net fishery a reduction to make up the difference to yield a 52% reduction for the commercial fishery overall, with a start date of Sept. 15 recognizing that the division proposal (as presented on April 2, 2019) for the Recreational Commercial Gear License large-mesh gill net season of Sept. 15-Sept. 30 may be changed by this final percent reduction.



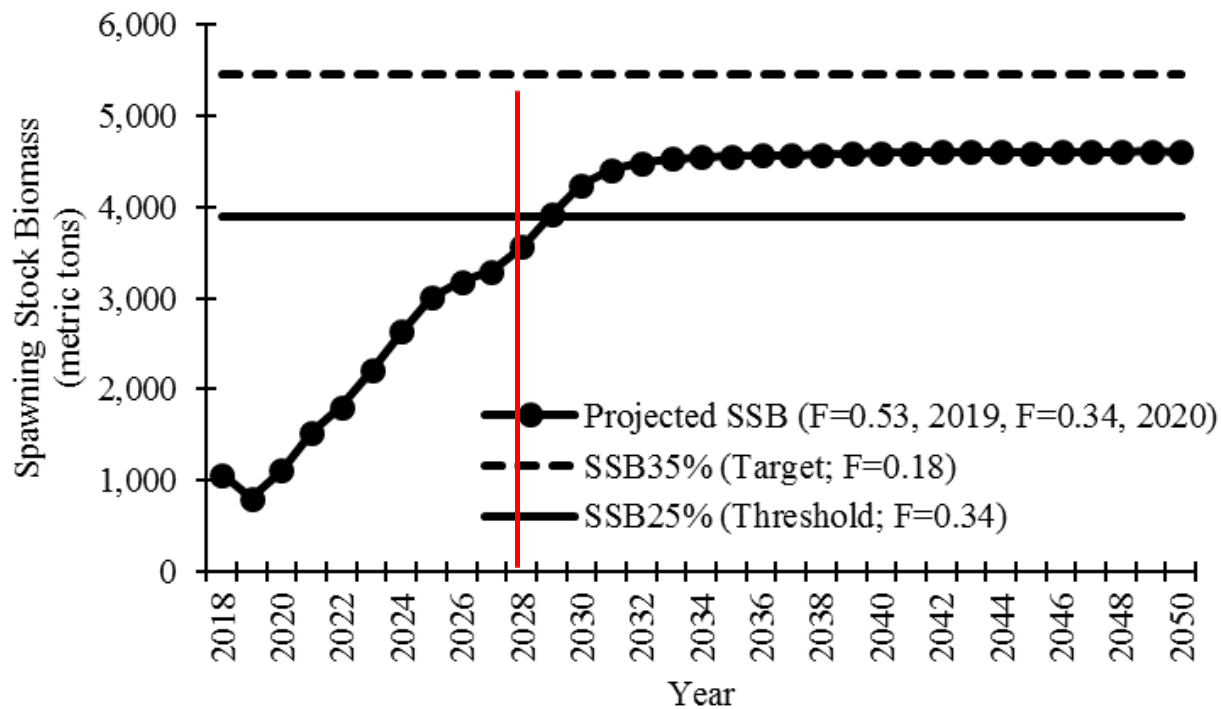
Southern Flounder Advisory Committee Recommendation

- The percent reduction for the large-mesh gill net fishery, based on the Southern Flounder Advisory Committee recommendation, would be approximately 71% compared to the 2017 removals. This reduction to the large-mesh gill net fishery is equal to 162,770 pounds in total removals. A start date of Sept. 15 results in the following seasons:
 - Northern - Sept. 15 through Oct. 12;
 - Central - Sept. 15 through Oct. 5; and
 - Southern - Sept. 15 through Oct. 21.
- In addition, as of Jan. 1, 2020, the committee recommends implementing 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.
- The committee also recommends that starting in 2020 the division season recommendation (as presented on April 2, 2019) be applied to the recreational fisheries. The season for the recreational hook-and-line and gig fisheries will be July 16 through Sept. 30.



Southern Flounder Advisory Committee Recommendation

- Meets the statutory requirement of ending overfishing within two years.
- Fails to meet the statutory requirement of ending the overfished status within 10 years. SSB is projected to rebuild to a level of 3,569 metric tons or (7.9 million pounds) compared to the threshold (minimum rebuilding) of 3,900 metric tons (8.6 million pounds), a projected shortage of 331 metric tons (729,730 pounds).



Proposed Next Steps

- May 15-17 – Marine Fisheries Commission meeting
 - Commission vote to approve goal and objectives for draft Amendment 2
 - Commission vote to send draft Amendment 2 out for advisory committee and public review and comment
- June 3 – Northern and Southern regional and Finfish advisory committees meet
- June 3 – Southern Flounder Fishery Management Plan Advisory Committee meets
- June 6 – Special Marine Fisheries Commission meeting
 - Commission receive public and committee input
 - Commission vote to select preferred management options for draft Amendment 2
 - Commission vote to approve draft Amendment 2 to be sent to the department secretary and legislative committee for review
- Aug. 21-23 – Marine Fisheries Commission meeting
 - Commission receive department and legislative comments
 - Commission vote on final approval of Amendment 2
- If Amendment 2 approved, management measures implemented by Fisheries Director's proclamation authority following August commission meeting



Questions?

