#### **Discussion Document**

# Coastal Migratory Pelagics Joint Amendment 26

(Changes in Allocations, Stock Boundaries and Sale Provisions for Gulf of Mexico and Atlantic Migratory Groups of King Mackerel)

> South Atlantic Mackerel Committee September 2015



**September 14, 2015** 

#### **ACTIONS FOR AMENDMENT 26**

- Modify the management/stock boundary for Gulf and Atlantic migratory groups of king mackerel
- Update the biological reference points and revise the ABC, OY, ACLs and Recreational ACT for Atlantic group king mackerel
- Create an incidental catch allowance of Atlantic group king mackerel caught in the shark gillnet fishery
- Establish a [new] Florida East Coast subzone for Atlantic group king mackerel
  - Boundary
  - Sub-quota of the Southern Zone commercial quota
  - Management Measures
- Update the biological reference points and revise the ACL for Gulf group king mackerel
- Revise the commercial zone quotas for Gulf group king mackerel
- Revise the recreational and commercial allocation of Gulf group king mackerel
- Modify the recreational bag limit for Gulf group king mackerel

#### **TENTATIVE TIMELINE FOR AMENDMENT 26**

- ✓ January 2015- South Atlantic scoping
- ✓ January 2015- Gulf AP reviews potential actions and alternatives
- ✓ April 2015- South Atlantic Mackerel AP reviews actions and alternatives
- ✓ April 2015- Gulf scoping
- ✓ June 2015- Joint Gulf and South Atlantic meeting in Key West- review public input, provide direction on actions and alternatives
- ✓ August 2015- Gulf Council reviews document, selects preferred alternatives and provides direction to staff
- September 2015- South Atlantic Council reviews, modifies and selects preferred alternatives
- October 2015- Gulf Council reviews document, selects preferred alternatives, and approves for public hearings
- December 2015- South Atlantic Council reviews document, selects preferred alternatives, and approves for public hearings
- January/February 2016- Gulf and South Atlantic public hearings
- March 2016- South Atlantic reviews public comments and takes final action
- April 2016- Gulf Council reviews public comments and takes final action
- April/May 2016- Submit for Secretarial review

#### **Background**

SEDAR 38 (SEDAR 2014) was completed in August 2014 and included assessments for Gulf and Atlantic king mackerel. SEDAR 38 used a different approach than the current management stock boundary to designate the Gulf and Atlantic stocks, and the mixing zone. In December 2014, the South Atlantic SSC provided recommendations to the South Atlantic Council for new ABCs for Atlantic king mackerel. The Gulf SSC provided their recommendations for Gulf king mackerel to the Gulf Council in January 2015. The catch limits for both stocks (and zone/subzone quotas) will need to be updated based on SEDAR 38 in addition to changes due to the modified stock boundary. The South Atlantic will establish a new Florida East Coast subzone and associated quotas and management measures. The Gulf Council is also considering revising sector allocations for Gulf king mackerel and modifying the recreational bag limit for Gulf king mackerel.

In addition, the South Atlantic Council is considering a provision to allow fishermen who participate in the shark fishery using gillnets to retain and sell incidental catch of Atlantic king mackerel. Prior to Amendment 20A, fishermen with federal commercial shark permits and federal commercial king mackerel permits would sell small numbers of king mackerel caught on shark gillnet trips. However, because gillnet is not an authorized gear for king mackerel, the king mackerel cannot be sold under the federal king mackerel permit. Currently under the prohibition on bag limit sales, the king mackerel are discarded.

#### Purpose and Need (approved in June 2015)

#### Purpose

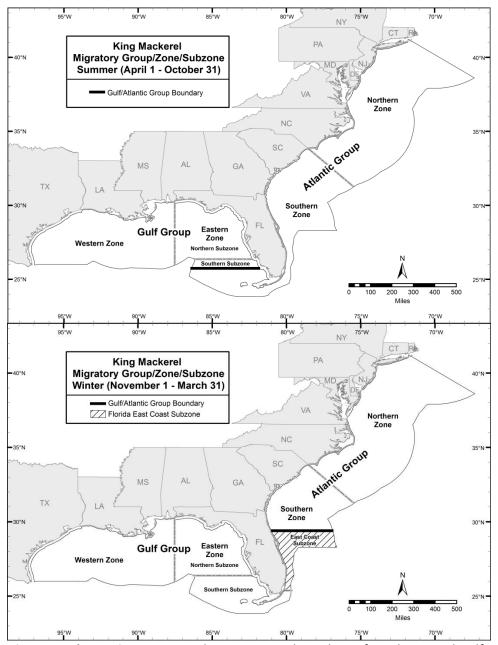
The purpose of this amendment is to modify the stock boundary and revise the ACLs for Atlantic and Gulf migratory group king mackerel; to modify the commercial zone quotas for Gulf migratory king mackerel; to revise recreational and commercial allocations for Gulf migratory king mackerel; to create an incidental catch allowance of Atlantic migratory king mackerel for the shark gillnet fishery; and to revise or create management measures for Atlantic migratory group king mackerel in the Florida East Coast Subzone.

#### Need

The need for this amendment is to ensure annual catch limits are based on the best scientific information available and to ensure overfishing does not occur in the coastal migratory pelagics (CMP) fishery, while increasing social and economic benefits of the CMP fishery through sustainable and profitable harvest of Gulf and Atlantic migratory groups of king mackerel in accordance with provisions set forth in Magnuson-Stevens Conservation and Management Act.

#### <u>ACTION 1. Adjust the Management Boundary for Gulf and Atlantic Migratory</u> Groups of King Mackerel

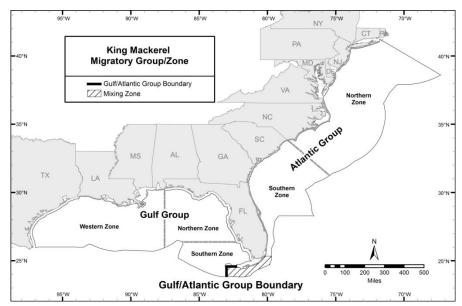
**Alternative 1:** No action - Maintain the current shifting management boundary between the Gulf and Atlantic migratory groups of king mackerel (**Figure 1** (Amendment Figure 2.1.1)).



**Figure 1**. **Alternative 1**: Seasonal management boundaries for Atlantic and Gulf migratory groups of king mackerel.

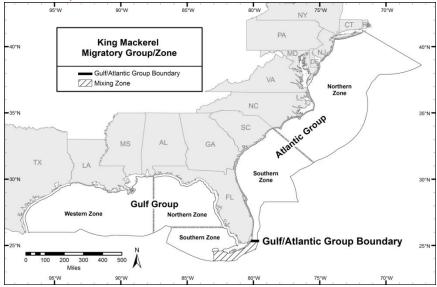
**Alternative 2:** Establish a single year-round boundary for separating management of the Gulf and Atlantic migratory groups of king mackerel at the Gulf/South Atlantic Council boundary (**Figure 2**)

(Amendment Figure 2.1.2)). <u>The South Atlantic Council would be responsible for management</u> measures in the mixing zone.



**Figure 2**. **Alternative 2**: Proposed management boundary for Atlantic and Gulf migratory groups of king mackerel.

**Alternative 3:** Establish a single year-round boundary for separating the Gulf and Atlantic migratory groups of king mackerel at the Miami-Dade/Monroe county line (**Figure 3** (Amendment Figure 2.1.3)). The Gulf Council would be responsible for management measures in the mixing zone. (**Gulf and South Atlantic AP Recommended**)

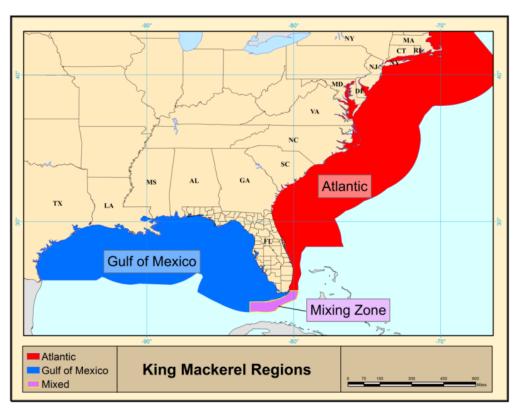


**Figure 3**. **Alternative 3**: Proposed management boundary for Atlantic and Gulf groups of king mackerel.

#### **Discussion**

This action would modify the management boundary so that it is consistent with the stock boundary used in SEDAR 38. The Assessment Report states:

...that the best approach is to establish the management mixing zone in the area south of the Florida Keys and Dry Tortugas, demarcated in the west by a line west from Key West to the Dry Tortugas at 24°35' N. lat, then south at 83° W from the Dry Tortugas (the Gulf of Mexico/South Atlantic Council boundary) to the shelf edge, and in the east from the Dade-Monroe county line to the shelf edge (**Figure 4**). King mackerel captured in this zone from November 1 to March 31 should be assigned 50:50 to Gulf and Atlantic stocks. (SEDAR 38 Atlantic King Mackerel Stock Assessment Report, pp. 16-17)



**Figure 4**. Regions used to aggregate landings for stock assessment of king mackerel in the GMFMC and SAFMC management areas (*Figure 4.2 from the SEDAR 38 Stock Assessment Report*).

**Alternative 2** would set a year-round boundary in which each Council manages within its jurisdiction (which could result in separate management on each side of the Florida Keys). **Alternative 3** would set a year-round boundary so that the Gulf Council would manage all of the Florida Keys.

- 1) Do you want to add or remove any alternatives?
- 2) Do you want to select a Preferred Alternative?

## ACTION 2. Update Reference Points (MSY, MSST, MFMT/OFL), and Revise the Annual Catch Limit (ACL) and Recreational Annual Catch Target (ACT) for Atlantic Migratory Group King Mackerel

The South Atlantic Council has determined that the value for MSY is the value of yield at  $F_{MSY}$  from the most recent stock assessment. Currently MSY = 10.4 million pounds (mp) (SEDAR 16). In October 2014, the SSC recommended a proxy for MSY at 30% SPR (spawning potential ratio), which is 12.7 mp.

The South Atlantic Council has determined that the value for MSST is the value from the most recent stock assessment. Currently MSST = 1,827.5 million hydrated eggs (SEDAR 16). Based on the SEDAR 38 assessment, MSST = 1,991 million hydrated eggs. The South Atlantic Council has determined that the value for MFMT is the value of  $F_{MSY}$  or proxy from the most recent stock assessment. Currently MFMT =  $F_{MSY} = F_{30\%SPR} = 0.256$  (SEDAR 16). Based on the SEDAR 38 assessment, MFMT =  $F_{MSY} = F_{30\%SPR} = 0.157$ .

Table 1. Recommendations from the October 2014 SSC meeting for Atlantic Migratory Group King Mackerel.

| Criteria                    | Deterministic              |
|-----------------------------|----------------------------|
| Overfished evaluation       | No, SSB/SSB30%SPR= 1.86    |
| Overfishing evaluation      | No, $F/F_{30\%SPR} = 0.17$ |
| MFMT                        | $F_{30\%SPR} = 0.157$      |
| SSB30%SPR (unit)            | 2,372 million eggs         |
| MSST (unit)                 | 1,991 million eggs         |
| MSY (1000 lb)               | 12.7 mp                    |
| Y at 75% F30%SPR (1000 lb)  | Not recommended            |
| ABC Control Rule Adjustment | 17.5%                      |
| P-Star                      | 32.5%                      |
| OFL (1000 lb)               | See Table 2                |

The SSC provided the following OFLs at their October 2014 meeting (**Table 2.2.2**).

**Table 2**. Recommendation for OFL from the October 2014 SSC meeting for Atlantic Migratory Group King Mackerel.

| Fishing year | OFL (million pounds whole weight) |
|--------------|-----------------------------------|
| 2016/17      | 19.8                              |
| 2017/18      | 18.3                              |
| 2018/19      | 16.7                              |
| 2019/20      | 15.2                              |

## Action 2-1. Revise the Acceptable Biological Catch (ABC) for Atlantic Migratory Group King Mackerel

**Alternative 1:** No action - Retain the current ABC for Atlantic Migratory Group King Mackerel (10.46 mp).

**Alternative 2:** Revise the ABC for Atlantic Migratory Group King Mackerel for 2016/17 through 2019/20 based on the ABC levels recommended by the SSC for ABC under a high recruitment scenario. (**South Atlantic AP Recommended**)

**Alternative 3:** Revise the ABC for Atlantic Migratory Group King Mackerel for 2016/17 through 2019/20 based on the ABC levels recommended by the SSC for ABC under a medium recruitment scenario.

**Alternative 4:** Revise the ABC for Atlantic Migratory Group King Mackerel for 2016/17 through 2019/20 based on the ABC levels recommended by the SSC for ABC under a low recruitment scenario.

**Table 3**. ABC recommendations from the October 2014 SSC meeting for Atlantic Migratory Group King Mackerel.

| P star= 0.325 | ABC<br>HIGH<br>Recruitment | ABC<br>MED<br>Recruitment | ABC<br>LOW<br>Recruitment      | Buffer between<br>ABC and OFL |     |     |
|---------------|----------------------------|---------------------------|--------------------------------|-------------------------------|-----|-----|
| Fishing year  | Scenario  Alt 2            | Scenario  Alt 3           | Scenario<br><mark>Alt 4</mark> | ні                            | MED | LO  |
| 2016/17       | 17.4 mp                    | 16.5 mp                   | 15.4 mp                        | 12%                           | 16% | 22% |
| 2017/18       | 15.8 mp                    | 14.3 mp                   | 12.9 mp                        | 14%                           | 22% | 29% |
| 2018/19       | 14.1 mp                    | 12.9 mp                   | 11.9 mp                        | 15%                           | 23% | 28% |
| 2019/20       | 12.7 mp                    | 12.1 mp                   | 11.6 mp                        | 17%                           | 21% | 24% |

#### AP RECOMMENDATIONS AND SCOPING COMMENTS

#### South Atlantic AP Recommendation (April 2015):

The South Atlantic AP approved a motion to recommend the ABC under the high recruitment scenario (Alternative 2), with a review after two years to evaluate if it is the appropriate ABC level.

Most of the AP members supported recommending the high recruitment scenario as the preferred alternative because the high recruitment model was an average for projected landings. AP members not supportive of the high recruitment ABC voiced concern about the decrease in recreational landings. All AP members supported a review of the recruitment model within two years to evaluate if the high recruitment ABC is still appropriate for the fishery.

#### **South Atlantic Scoping Comments (January 2015):**

Several commenters that the Council set the ACL at the highest level possible (high recruitment ABC) because of the abundance of small fish and high recruitment in recent years; also some commenters supported the medium recruitment ABC.

- 1) Do you want to add or remove any alternatives?
- 2) Do you want to select a Preferred Alternative?

## Action 2-2. Revise the ACLs, Commercial Quotas, and Recreational ACT for Atlantic Migratory Group King Mackerel

Please see Appendix A for details of how the Northern and Southern Zone quotas will work with the new stock boundary.

**Alternative 1:** No action - Retain the ACL and ACT for Atlantic Migratory Group King Mackerel based on the previous ABC. ACL = OY = ABC.

**Alternative 2:** Revise the ACL based on the ABC levels selected under Action 2-1. ACL = OY = ABC. (South Atlantic AP Recommended)

**Table 4**. Possible outcomes under Alternative 2 based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%. The Northern Zone quota will be 23.04% and the Southern Zone quota allocation is 76.96% (see Appendix F for details on how the Northern and Southern Zone quota allocations were recalculated using the SEDAR 38 boundary). ACT values are calculated based on formula from CMP Amendment 18 using the average PSE from 2005-2009.

ACL = ABC

|       |                 |            | H           | IIGH Recruitment Action 2-1, A |                              |         |         |
|-------|-----------------|------------|-------------|--------------------------------|------------------------------|---------|---------|
| F: 1: | Total           | Commercial |             |                                | Recreational                 |         |         |
|       | Fishing<br>year | • ALIKWI   | Comm<br>ACL | Northern Zone<br>Quota (lbs)   | Southern Zone<br>Quota (lbs) | Rec ACL | Rec ACT |
|       | 2016/17         | 17.4 mp    | 6.5 mp      | 1,497,600                      | 5,002,400                    | 10.9 mp | 10.1 mp |
|       | 2017/18         | 15.8 mp    | 5.9 mp      | 1,359,360                      | 4,540,640                    | 9.9 mp  | 9.2 mp  |

1,198,080

1.082.880

## ACL = ABC MEDIUM Recruitment Scenario Action 2-1, Alt 3

5.2 mp

4.7 mp

| Fishing<br>year | Total<br>Atl KM<br>ACL             | Commercial  |                              |                              | Recreational |         |  |
|-----------------|------------------------------------|-------------|------------------------------|------------------------------|--------------|---------|--|
|                 |                                    | Comm<br>ACL | Northern Zone<br>Quota (lbs) | Southern Zone<br>Quota (lbs) | Rec ACL      | Rec ACT |  |
| 2016/17         | 16.5 mp                            | 6.1 mp      | 1,405,440                    | 4,694,560                    | 10.4 mp      | 9.7 mp  |  |
| 2017/18         | 14.3 mp                            | 5.3 mp      | 1,221,120                    | 4,078,880                    | 9.0 mp       | 8.4 mp  |  |
| 2018/19         | 12.9 mp                            | 4.8 mp      | 1,105,920                    | 3,694,080                    | 8.1 mp       | 7.5 mp  |  |
| 2019/20         | 12.1 mp                            | 4.5 mp      | 1,036,800                    | 3,463,200                    | 7.6 mp       | 7.1 mp  |  |
| Table 4 continu | Table 4 continued on the next page |             |                              |                              |              |         |  |

2018/19

2019/20

14.1 mp

12.7 mp

8.9 mp

8.0 mp

8.3 mp

7.4 mp

4,001,920

3,617,120

## Table 4 continued ACL = ABC LOW Recruitment Scenario Action 2-1, Alt 4

| ,               |               |             |                              |                              |              |         |
|-----------------|---------------|-------------|------------------------------|------------------------------|--------------|---------|
| Eichina         | Total         |             | Commercial                   |                              | Recreational |         |
| Fishing<br>year | Atl KM<br>ACL | Comm<br>ACL | Northern Zone<br>Quota (lbs) | Southern Zone<br>Quota (lbs) | Rec ACL      | Rec ACT |
| 2016/17         | 15.4 mp       | 5.7 mp      | 1,313,280                    | 4,386,720                    | 9.7 mp       | 9.0 mp  |
| 2017/18         | 12.9 mp       | 4.8 mp      | 1,105,920                    | 3,694,080                    | 8.1 mp       | 7.5 mp  |
| 2018/19         | 11.9 mp       | 4.4 mp      | 1,013,760                    | 3,386,240                    | 7.5 mp       | 7.0 mp  |
| 2019/20         | 11.6 mp       | 4.3 mp      | 990,720                      | 3,309,280                    | 7.3 mp       | 6.8 mp  |

**Alternative 3:** Establish ACL = OY = Deterministic equilibrium yield at  $F_{30\%SPR} = 12.7$  mp for fishing years 2016/17 through 2019/20. (Recommended by the South Atlantic SSC)

| Alternative 3              |               |
|----------------------------|---------------|
| Atlantic King Mackerel ACL | 12.7 mp       |
| Commercial ACL             | 4.7 mp        |
| Northern Zone Quota        | 1,082,880 lbs |
| Southern Zone Quota        | 3,617,120 lbs |
| Recreational ACL           | 8.0 mp        |
| Recreational ACT*          | 7.4 mp        |

<sup>\*</sup>ACT value calculated based on formula from CMP Amendment 18, using the average PSE from 2005-2009.

**Alternative 4:** Establish ACL = OY = Deterministic equilibrium yield at 75%  $F_{30\%SPR} = 11.6$  mp for fishing years 2016/17 through 2019/20.

Note: 75% of  $F_{MSY}$  (which is the same as 75%  $F_{30\% SPR}$  because 30% SPR is the proxy for MSY) is usually in the terms of reference (TORs) of all assessments. 75%  $F_{MSY}$  was the old OY, as yield at the long term  $F_{MSY}$  (MSY) was the old OFL. It is still part of the TORs in case the South Atlantic Council wants to choose that strategy to have stable catches rather than following the  $P^*$  recommendation and have changing catch levels each year.

| Alternative 4              |               |  |  |  |  |
|----------------------------|---------------|--|--|--|--|
| Atlantic King Mackerel ACL | 11.6 mp       |  |  |  |  |
| Commercial ACL             | 4.3 mp        |  |  |  |  |
| Northern Zone Quota        | 990,720 lbs   |  |  |  |  |
| Southern Zone Quota        | 3,309,280 lbs |  |  |  |  |
| Recreational ACL           | 7.3 mp        |  |  |  |  |
| Recreational ACT*          | 6.8 mp        |  |  |  |  |

<sup>\*</sup>ACT value calculated based on formula from CMP Amendment 18, using the average PSE from 2005-2009.

**Alternative 5:** Establish ACL = OY = 90% ABC based on the ABC levels selected under Action 2-1.

**Table 5**. Possible outcomes under Alternative 5 based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%. The Northern Zone quota will be 23.04% and the Southern Zone quota allocation is 76.96% (see Appendix F for details on how the Northern and Southern Zone quota allocations were recalculated using the SEDAR 38 boundary). ACT values are calculated based on formula from CMP Amendment 18 using the average PSE from 2005-2009.

| ACL = 90% ABC             |
|---------------------------|
| HIGH Recruitment Scenario |
| Action 2-1, Alt 2         |

| Fishing Tota       |             | Commercial                   |                              |           | Recreational |        |
|--------------------|-------------|------------------------------|------------------------------|-----------|--------------|--------|
| year Atl KM<br>ACL | Comm<br>ACL | Northern Zone<br>Quota (lbs) | Southern Zone<br>Quota (lbs) | Rec ACL   | Rec ACT      |        |
| 2016/17            | 15.7 mp     | 5.8 mp                       | 1,336,320                    | 4,463,680 | 9.9 mp       | 9.2 mp |
| 2017/18            | 14.2 mp     | 5.3 mp                       | 1,221,120                    | 4,078,880 | 8.9 mp       | 8.3 mp |
| 2018/19            | 12.7 mp     | 4.7 mp                       | 1,082,880                    | 3,617,120 | 8.0 mp       | 7.4 mp |
| 2019/20            | 11.4 mp     | 4.2 mp                       | 967,680                      | 3,232,320 | 7.2 mp       | 6.7 mp |

#### ACL = 90% ABC MEDIUM Recruitment Scenario

#### Action 2-1, Alt 3

| Fishing | Total         | Commercial  |                              |                              | Recreational |         |
|---------|---------------|-------------|------------------------------|------------------------------|--------------|---------|
| year    | Atl KM<br>ACL | Comm<br>ACL | Northern Zone<br>Quota (lbs) | Southern Zone<br>Quota (lbs) | Rec ACL      | Rec ACT |
| 2016/17 | 14.9 mp       | 5.5 mp      | 1,267,200                    | 4,232,800                    | 9.4 mp       | 8.7 mp  |
| 2017/18 | 12.9 mp       | 4.8 mp      | 1,105,920                    | 3,694,080                    | 8.1 mp       | 7.5 mp  |
| 2018/19 | 11.6 mp       | 4.3 mp      | 990,720                      | 3,309,280                    | 7.3 mp       | 6.8 mp  |
| 2019/20 | 10.9 mp       | 4.0 mp      | 921,600                      | 3,078,400                    | 6.9 mp       | 6.4 mp  |

#### ACL = 90% ABC LOW Recruitment Scenario Action 2-1, Alt 4

| Fishing Total |         | Commercial  |                              |                              | Recreational |         |  |
|---------------|---------|-------------|------------------------------|------------------------------|--------------|---------|--|
| year          | Au Kw   | Comm<br>ACL | Northern Zone<br>Quota (lbs) | Southern Zone<br>Quota (lbs) | Rec ACL      | Rec ACT |  |
| 2016/17       | 13.9 mp | 5.2 mp      | 1,198,080                    | 4,001,920                    | 8.7 mp       | 8.1 mp  |  |
| 2017/18       | 11.6 mp | 4.3 mp      | 990,720                      | 3,309,280                    | 7.3 mp       | 6.8 mp  |  |
| 2018/19       | 10.7 mp | 4 mp        | 921,600                      | 3,078,400                    | 6.7 mp       | 6.2 mp  |  |
| 2019/20       | 10.4 mp | 3.9 mp      | 898,560                      | 3,001,440                    | 6.5 mp       | 6.0 mp  |  |

**Alternative 6:** Establish ACL = OY = 80% ABC based on the ABC levels selected under Action 2-1.

**Table 6**. Possible outcomes under Alternative 6 based on alternatives in Action 2-1. The recreational allocation is 62.9% and the commercial allocation is 37.1%. The Northern Zone quota will be 23.04% and the Southern Zone quota allocation is 76.96% (see Appendix A for details on how the Northern and Southern Zone quota allocations were recalculated using the SEDAR 38 boundary). ACT values are calculated based on formula from CMP Amendment 18 using the average PSE from 2005-2009.

| ACL = 80% ABC HIGH Recruitment Scenario Action 2-1, Alt 2 |               |             |                              |                              |              |         |  |  |  |
|---|---------------|-------------|------------------------------|------------------------------|--------------|---------|--|--|--|
| Fishing   | Total         | Commercial  |                              |                              | Recreational |         |  |  |  |
| year  | Atl KM<br>ACL | Comm<br>ACL | Northern Zone<br>Quota (lbs) | Southern Zone<br>Quota (lbs) | Rec ACL      | Rec ACT |  |  |  |
| 2016/17   | 13.9 mp       | 5.2 mp      | 1,198,080                    | 4,001,920                    | 8.7 mp       | 8.1 mp  |  |  |  |
| 2017/18   | 12.6 mp       | 4.7 mp      | 1,082,880                    | 3,617,120                    | 7.9 mp       | 7.3 mp  |  |  |  |
| 2018/19   | 11.3 mp       | 4.2 mp      | 967,680                      | 3,232,320                    | 7.1 mp       | 6.6 mp  |  |  |  |
| 2019/20   | 10.3 mp       | 3.8 mp      | 875,520                      | 2,924,480                    | 6.5 mp       | 6.0 mp  |  |  |  |

## ACL = 80% ABC MEDIUM Recruitment Scenario Action 2-1, Alt 3

| Fishing         | Total   |             | Commercial                   |                              |         | Recreational |  |
|-----------------|---------|-------------|------------------------------|------------------------------|---------|--------------|--|
| year Atl KM ACL | -       | Comm<br>ACL | Northern Zone<br>Quota (lbs) | Southern Zone<br>Quota (lbs) | Rec ACL | Rec ACT      |  |
| 2016/17         | 13.2 mp | 4.9 mp      | 1,128,960                    | 3,771,040                    | 8.3 mp  | 7.7 mp       |  |
| 2017/18         | 11.4 mp | 4.2 mp      | 967,680                      | 3,232,320                    | 7.2 mp  | 6.7 mp       |  |
| 2018/19         | 10.3 mp | 3.8 mp      | 875,520                      | 2,924,480                    | 6.5 mp  | 6.0 mp       |  |
| 2019/20         | 9.7 mp  | 3.6 mp      | 829,440                      | 2,770,560                    | 6.1 mp  | 5.7 mp       |  |

#### ACL = 80% ABC LOW Recruitment Scenario Action 2-1, Alt 4

| T7: 1:          | TD 4.1           | Commercial  |                              |                              | Recreational |         |
|-----------------|------------------|-------------|------------------------------|------------------------------|--------------|---------|
| Fishing<br>year | Total Atl KM ACL | Comm<br>ACL | Northern Zone<br>Quota (lbs) | Southern Zone<br>Quota (lbs) | Rec ACL      | Rec ACT |
| 2016/17         | 12.3 mp          | 4.6 mp      | 1,059,840                    | 3,540,160                    | 7.7 mp       | 7.2 mp  |
| 2017/18         | 10.3 mp          | 3.8 mp      | 875,520                      | 2,924,480                    | 6.5 mp       | 6.0 mp  |
| 2018/19         | 9.5 mp           | 3.5 mp      | 806,400                      | 2,693,600                    | 6.0 mp       | 5.6 mp  |
| 2019/20         | 9.3 mp           | 3.5 mp      | 806,400                      | 2,693,600                    | 5.8 mp       | 5.4 mp  |

#### AP RECOMMENDATIONS AND SCOPING COMMENTS

#### **South Atlantic AP Recommendation (April 2015):**

The South Atlantic AP approved a motion to set the ACL = High Recruitment ABC (Alternative 2).

Most AP members supported setting the ACL equal to the high recruitment ABC. Some members had concerns about risk of negative effects on the stock if the high recruitment ABC was not appropriate, so the motion was amended to add the recommendation for an updated recruitment study. Additionally, some AP members expressed concern about how long a framework amendment could take to be developed and implemented, if it was necessary to change the ACL.

#### **South Atlantic Scoping Comments (January 2015):**

Several commenters that the Council set the ACL at the highest level possible (high recruitment ABC) because of the abundance of small fish and high recruitment in recent years; also some commenters supported the medium recruitment ABC.

#### **COMMITTEE ACTIONS**

1) Do you want to add or remove any alternatives?

**Alternative 1:** No action - Retain the ACL and ACT for Atlantic Migratory Group King Mackerel based on the previous ABC. ACL = OY = ABC.

**Alternative 2.** Set ACL = OY = ABC based on the ABC levels selected under Action 2-1.

**Alternative 3**. Establish ACL = OY = Deterministic equilibrium yield at  $F_{30\%SPR} = 12.7$  mp for fishing years 2016/17 through 2019/20.

**Alternative 4**. Establish ACL = OY = Deterministic equilibrium yield at 75%  $F_{30\%SPR} = 11.6$  mp for fishing years 2016/17 through 2019/20.

**Alternative 5**. Establish ACL = OY = 90% ABC based on the ABC levels selected under Action 2-1.

**Alternative 6**. Establish ACL = OY = 80% ABC based on the ABC levels selected under Action 2-1.

2) Do you want to select a Preferred Alternative?

### ACTION 3. Sale of Incidental Catch Allowance for Atlantic Migratory Group King Mackerel Caught in the Shark Gillnet Fishery

- **Alternative 1:** No action Retention and sale of Atlantic migratory group king mackerel caught with drift gillnet as incidental catch in the gillnet portion of the commercial shark fishery remains prohibited.
- Alternative 2: Allow retention and sale of Atlantic migratory group king mackerel caught with drift gillnet as incidental catch in the gillnet portion of the commercial shark fishery for any vessel with a valid shark directed commercial permit AND valid federal king mackerel commercial permit. The king mackerel must be sold to a dealer with the Southeast federal dealer permit. For shark gillnet trips in the EEZ off Florida, no more than 2 king mackerel per crew member can be on board, and no more than 2 king mackerel per crew member can be sold from the trip. For shark gillnet trips in the EEZ north of the GA/FL line, no more than 3 king mackerel per crew member can be on board, and no more than 3 king mackerel per crew member can be sold from the trip.
- **Alternative 3:** Allow retention and sale of Atlantic migratory group king mackerel caught with drift gillnet as incidental catch in the gillnet portion of the commercial shark fishery for any vessel with a valid shark directed commercial permit AND valid federal king mackerel commercial permit. The king mackerel must be sold to a dealer with the Southeast federal dealer permit. For shark gillnet trips in the <u>Southern Zone</u>, no more than 2 king mackerel per crew member can be on board, and no more than 2 king mackerel per crew member can be on board, and no more than 3 king mackerel per crew member can be on board, and no more than 3 king mackerel per crew member can be sold from the trip.

Note: In June 2015, the South Atlantic approved the above language as sub-alternatives, but the IPT reorganized these into two alternatives.

#### AP RECOMMENDATIONS AND SCOPING COMMENTS

#### **South Atlantic AP Recommendation (April 2015):**

The South Atlantic AP approved a motion to recommend [IPT-suggested] Alternative 3, Option 3a.

The South Atlantic AP was supportive of allowing shark gillnet fishermen to retain and sell king mackerel caught on shark gillnet trips. Alternative 3 would reduce dead discards, but the trip limit in Sub-Alternative 1 is low enough to not encourage fishermen to target king mackerel. One AP member noted that the allowance was inconsistent with Amendment 20A (prohibition on bag limit sales). For the trip limit, one AP member preferred 50 lbs and another member preferred number of fish instead of pounds because weight per fish varies. Although this practice is currently only occurring in Florida, Alternative 3 would allow retention and sale of king mackerel in the rest of the region as well, and one AP member pointed out that shark gillnet fishermen working north of Hatteras could switch to trawling to target king mackerel. Additionally, the AP requested that staff compile data on the number of pounds of king mackerel per shark gillnet trip.

#### **South Atlantic Scoping Comments (January 2015):**

Several commenters supported allowing shark gillnet fishermen to sell a small amount of king mackerel.

Table 7. Information on gillnet trips landing shark and king mackerel in Florida from 2010-2014. Source: ACCSP

| Year              | # Gillnet<br>Trips<br>Shark <sup>a</sup> | # Gillnet<br>Trips<br>Shark <u>and</u><br>King<br>Mackerel | # Participants with Shark/KM Gillnet Trips | Total Lbs King Mackerel Landed on Shark Gillnet Trips | Average Lbs King Mackerel Landed on Shark Gillnet Trips |
|-------------------|--|--|--|---|---|
| 2010              | 168                                      | 28   | 5  | 1255.3  | 44.8  |
| 2011              | 382                                      | 21   | 3  | 1039.0  | 49.5  |
| 2012              | 498                                      | 32   | 4  | 923.5   | 28.9  |
| 2013 <sup>b</sup> | 298                                      | 33   | 5  | 2635.4  | 79.9  |
| 2014 <sup>c</sup> | 161                                      | 23   | 4  | 2474.2  | 107.6   |
| TOTAL             | 1507                                     | 137  |  | 8327.3  | 60.8  |

<sup>&</sup>lt;sup>a</sup> Small coastal sharks (SCS)—blacknose, sharpnose, bonnethead, and finetooth

Fisherman info on mesh size and king mackerel size (Florida):

5" mesh catches 8-13 lb king mackerel

6" mesh catches 12-17

7" mesh catches 16-22

8" mesh catches 18-25

- Most use 6-7" for sharks

Note that Alternative 3 would include the Southern Zone (FL, GA, SC) but there are no gillnet trips with shark and king mackerel in GA or SC in the last five years.

- 1) Do you want to add or remove any alternatives?
- 2) Do you want to select a Preferred Alternative/Option?

<sup>&</sup>lt;sup>b</sup>SCS closed in September 30, 2013

<sup>&</sup>lt;sup>c</sup> SCS closed in July 28, 2014

#### <u>ACTION 4. Florida East Coast Subzone for Atlantic Migratory Group King</u> Mackerel

Currently the Florida East Coast (FLEC) Subzone is part of the Gulf king mackerel management zones. Because of the new stock and management boundaries following the stock assessment results, the South Atlantic Council is considering establishing a Florida East Coast (FLEC) subzone for Atlantic king mackerel. The Atlantic FLEC Subzone could be based on the same boundaries, quota, management measures, etc., as the Gulf FLEC Subzone, or could be designed differently with new features.

The Gulf FLEC Subzone (**Figure 5**) is the area from the Flagler/Volusia county line to the Dade/Monroe county line; exists November 1- March 31; and has a commercial sub-quota of the Gulf Commercial ACL (1,102,896 lbs) and specific trip limits.

From April 1- October 31, harvest is counted as Atlantic king mackerel with trip limits of 3,500 lbs for Volusia county, 75 fish from Volusia/Brevard county line to Dade/Monroe, and 1,250 lbs from the Dade/Monroe line to the Council boundary. Commercial harvest during this time is counted under the Southern Zone king mackerel quota.

North of the Flagler/Volusia county line, commercial harvest is counted towards the Southern Zone quota and the trip limit is 3,500 lbs year-round.

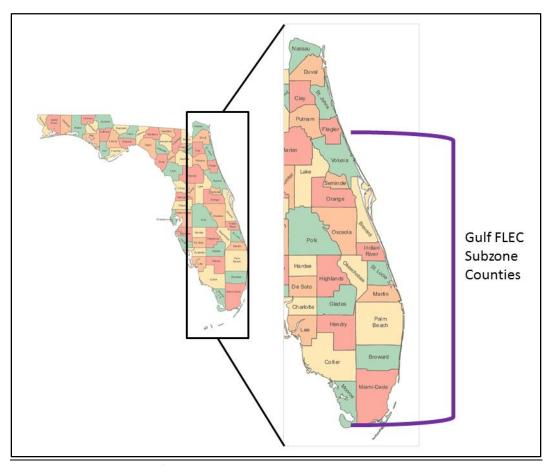
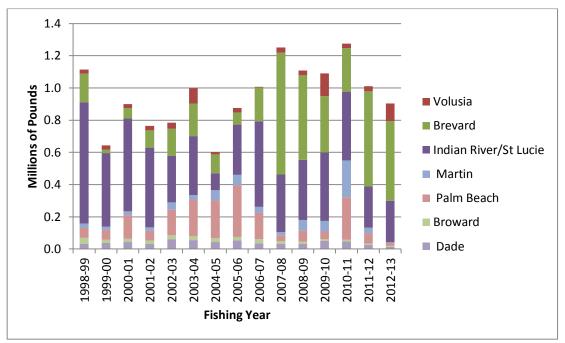


Figure 5. The current Gulf FLEC Subzone.



**Figure 6**. Winter (Nov 1- Mar 31) landings by county in the Florida East Coast subzone for 1998-99 through 2012-13.

#### **SOUTH ATLANTIC AP RECOMMENDATIONS:**

In April 2015, the AP recommended the following for Florida east coast management, from which the IPT drafted potential actions and alternatives:

The Southern Zone quota would have seasonal allocations. The first season would be March 1 — September 30 and would be allocated 60% of the Southern Zone quota. The second season would be October 1- February 28 and would be allocated 40% of the Southern Zone quota plus any unused quota from the first season. There would be no sub-quota for the FLEC subzone. Quota transfers between the Northern Zone and Southern Zone would still be allowed.

#### March 1 through September 30

- The FLEC subzone would be from the Volusia/Brevard county line to the Dade/Monroe county line.
- The commercial trip limit in the FLEC subzone would be 75 fish with a possible step-down to 50 fish on May 1. The step-down could apply for only the month of May or through the summer.
- The commercial trip limit north of the Volusia/Brevard county line could be 3,500 lbs.

#### October 1 through February 28/29

- The FLEC subzone would be from the Flagler/Volusia county line to the Dade/Monroe county line.
- The commercial trip limit in the FLEC subzone would be 50 fish with a possible increase to 75% if X% of the quota has not been met by [date].
- The commercial trip limit north of the Flagler/Volusia county line could be 3,500 lbs.

The AP also suggested exploring the trip limit for the FLEC subzone in pounds, as well as in numbers of fish. There could also be an alternative that was a combination of both. The AP requested that staff provide the expected quotas for the suggested first and second seasons.

#### **South Atlantic Scoping Comments (January 2015):**

- Set a sub-quota for the Florida East Coast subzone.
- Move the Florida East Coast subzone boundary south of the Flagler/Volusia line.
- Wait until the new ACLs are in place before addressing management in the FLEC subzone.
- Change the fishing year for the Florida East Coast subzone to March 1.

#### **Gulf Scoping Comments (April 2015):**

- Opposition to an endorsement to harvest king mackerel in the FLEC because this would exclude some fishermen working in the area.
- Some commenters were not supportive of a sub-quota because this could negatively affect the market, and the system is already complex.

#### Action 4 - Establish a Florida East Coast Subzone and Commercial Quota

## Action 4-1. Establish a Florida East Coast Subzone for Atlantic Migratory Group King Mackerel

Alternative 1: No action - Do not establish a Florida East Coast Subzone.

**Alternative 2:** Establish a Florida East Coast Subzone that exists year-round with boundaries at:

**Option a**: Flagler/Volusia county line and Dade/Monroe county line.

**Option b**: Volusia/Brevard county line and Dade/Monroe county line.

**Option c**: Volusia/Brevard county line and the Council jurisdictional boundary (as designated Action 1).

**Alternative 3:** Establish a Florida East Coast Subzone that exists March 1 through September 30 with boundaries at:

**Option a:** Flagler/Volusia county line and Dade/Monroe county line.

**Option b**: Volusia/Brevard county line and Dade/Monroe county line. (**South Atlantic AP Recommended**)

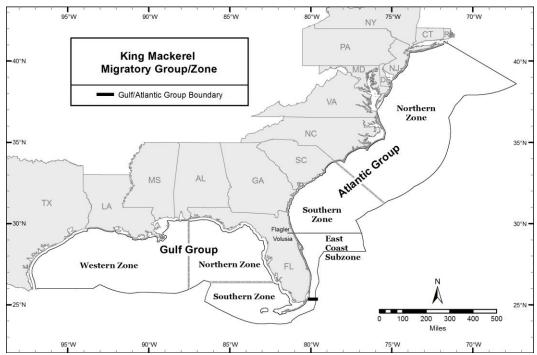
**Option c**: Volusia/Brevard county line and the Council jurisdictional boundary (as designated in Action 1).

**Alternative 4:** Establish a Florida East Coast Subzone that exists October 1 through end of February with boundaries at:

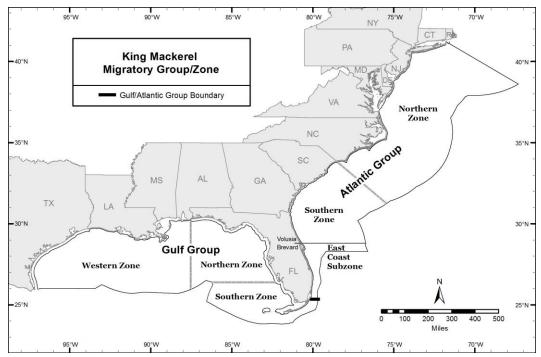
**Option a**: Flagler/Volusia county line and Dade/Monroe county line. (South Atlantic AP Recommended)

**Option b**: Volusia/Brevard county line and Dade/Monroe county line.

**Option c**: Volusia/Brevard county line and the Council jurisdictional boundary (as designated in Action 1).



**Figure 7**. Boundaries for the Florida East Coast Subzone under **Options 2a**, **3a**, and **4a** (Flagler/Volusia county line and Dade/Monroe county line)



**Figure 8**. Boundaries for the Florida East Coast Subzone under **Options 2b**, **3b**, and **4b**; or under **Options 2c**, **3c**, and **4c** if **Action 1/Alternative 3** is selected (Volusia/Brevard county line and Dade/Monroe county line).

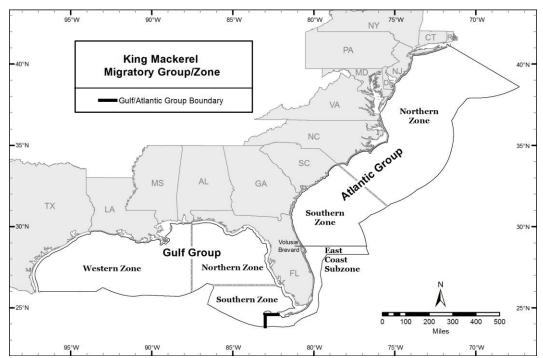


Figure 9 Boundaries for the Florida East Coast Subzone under Options 2c, 3c, and 4c or if Action 1/Alternative 2 is selected (Volusia/Brevard county line and Gulf/South Atlantic Council boundary).

- 1) Do you want to add or remove any alternatives or options?
- 3) Do you want to select a Preferred Alternative/Option?

### Action 4-2. Allocate Quota for the Florida East Coast Subzone within the Atlantic Southern Zone for Atlantic Migratory Group King Mackerel

**Alternative 1:** No action - Do not allocate quota among areas or seasons.

**Alternative 2:** Allocate a proportion of the Southern Zone quota to the Florida East Coast (FLEC) Subzone. Commercial harvest of king mackerel in the area designated as the FLEC Subzone in Action 4-1 will be counted towards the FLEC Subzone sub-quota. When the sub-quota for the season is met or expected to be met, commercial harvest of king mackerel in the FLEC Subzone will be prohibited for the remainder of the fishing year for the FLEC Subzone.

**Option 2a**: Use historic landings in the Southern Zone from the 2009/10 through the 2013/14 fishing seasons (<u>last five years</u>) to calculate the FLEC Subzone quota.

Expected Allocation to FLEC: 93% FLEC Subzone

**Option 2b**: Use historic landings in the Southern Zone from the 2004/05 through the 2013/14 fishing seasons (<u>last ten years</u>) to calculate the FLEC Subzone quota.

Expected: 92.3% FLEC Subzone

**Option 2c**: Use historic landings in the Southern Zone from the 1999/00 through the 2013/14 fishing seasons (<u>last fifteen years</u>) to calculate the FLEC Subzone quota.

Expected: 90.5% FLEC Subzone

**Alternative 3:** Allocate quota for the Southern Zone Atlantic Migratory Group King Mackerel using split fishing seasons, in which 60% of the Southern Zone quota will be allocated to March 1- September 30 and 40% of the Southern Zone quota would be allocated October 1- end of February. When the Southern Zone quota for the season is met or expected to be met, commercial harvest of king mackerel in the Southern Zone will be prohibited for the remainder of the season. (**South Atlantic AP Recommended**)

**Table 8.** Expected calculations of the FLEC Proportion of Total SZ Landings under Alternative 2.

| Year    | SZ Landings (lbs)                             | FLEC Landings (lbs) | Proportion FLEC Landings of Total SZ Landings |  |  |  |
|---------|---|---------------------|---|--|--|--|
| 1999-00 | 1,951,095                                     | 1,725,681           | 88.4%   |  |  |  |
| 2000-01 | 2,094,484                                     | 1,866,354           | 89.1%   |  |  |  |
| 2001-02 | 1,922,460                                     | 1,684,792           | 87.6%   |  |  |  |
| 2002-03 | 2,102,493                                     | 1590781             | 75.7%   |  |  |  |
| 2003-04 | 2,181,464                                     | 2033217             | 93.2%   |  |  |  |
| 2004-05 | 2,622,305                                     | 2,182,780           | 83.2%   |  |  |  |
| 2005-06 | 2,021,140                                     | 1,817,520           | 89.9%   |  |  |  |
| 2006-07 | 2,825,673                                     | 2,662,816           | 94.2%   |  |  |  |
| 2007-08 | 2,709,845                                     | 2,644,651           | 97.6%   |  |  |  |
| 2008-09 | 3,359,877                                     | 3,120,354           | 92.9%   |  |  |  |
| 2009-10 | 4,087,983                                     | 3,718,020           | 90.9%   |  |  |  |
| 2010-11 | 4,255,278                                     | 4,040,925           | 95.0%   |  |  |  |
| 2011-12 | 2,817,705                                     | 2,585,849           | 91.8%   |  |  |  |
| 2012-13 | 2,029,643                                     | 1,899,614           | 93.6%   |  |  |  |
| 2013-14 | 1,489,016                                     | 1,394,322           | 93.6%   |  |  |  |
|         |   |                     |   |  |  |  |
|         |   | Average FLEC Prop   | ortion Last 5 Years = 93.0%                   |  |  |  |
|         | Average FLEC Proportion Last 10 Years = 92.3% |                     |   |  |  |  |
|         |   | Average FLEC Propo  | rtion Last 15 Years = 90.5%                   |  |  |  |

**Table 9.** Examples of possible FLEC Sub-quotas (in lbs) under Alternative 2.

|         | ACL=ABC <sup>1</sup> High Recruitment <sup>2</sup> |           |            | Medi      | ACL=ABC <sup>1</sup> Medium Recruitment <sup>3</sup> |            |           | ACL=Deterministic Equilibrium Yield at F <sub>30%SPR</sub> <sup>4</sup> |            |  |
|---------|--|-----------|------------|-----------|--|------------|-----------|---|------------|--|
| Year    | 2a   | 2b        | <b>2</b> c | 2a        | 2b   | <b>2</b> c | 2a        | 2b  | <b>2</b> c |  |
| 2016/17 | 4,652,232  | 4,627,220 | 4,527,172  | 4,365,941 | 4,333,079  | 4,248,577  | 3,363,922 | 3,338,602 3,2   |            |  |
| 2017/18 | 4,222,795  | 4,200,092 | 4,109,279  | 3,793,358 | 3,764,806  | 3,691,386  |           |   | 2 272 404  |  |
| 2018/19 | 3,721,786  | 3,701,776 | 3,621,738  | 3,435,494 | 3,409,636  | 3,343,142  |           |   | 3,273,494  |  |
| 2019/20 | 3,363,922  | 3,345,836 | 3,273,494  | 3,220,776 | 3,196,534  | 3,134,196  |           |   |            |  |

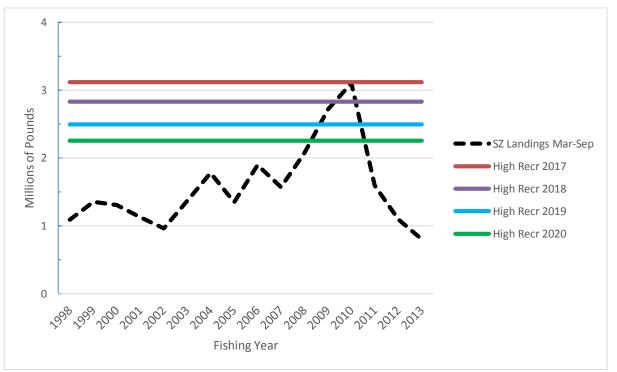
<sup>&</sup>lt;sup>1</sup> Alternative 2 under Action 2-2
<sup>2</sup> Alternative 2 under Action 2-1, ABC under High Recruitment Scenario
<sup>3</sup> Alternative 3 under Action 2-1, ABC under Medium Recruitment Scenario
<sup>4</sup> Alternative 3 under Acton 2-2

Table 10. Examples of possible split season quotas for the Southern Zone (in lbs) under Alternative 3.

|         | ACL=ABC <sup>1</sup><br>High Recruitment <sup>2</sup> |                  | ACL=ABC <sup>1</sup> Medium Recruitment <sup>3</sup> |                  | ACL=Deterministic Equilibrium Yield at F <sub>30%SPR</sub> <sup>4</sup> |                  |
|---------|---|------------------|--|------------------|---|------------------|
|         | Mar-Sept<br>(60%)                                     | Oct-Feb<br>(40%) | Mar-Sept<br>(60%)                                    | Oct-Feb<br>(40%) | Mar-Sept<br>(60%)   | Oct-Feb<br>(40%) |
| 2016/17 | 3,001,440   | 2,000,960        | 2,816,736  | 1,877,824        |   |                  |
| 2017/18 | 2,724,384   | 1,816,256        | 2,447,328  | 1,631,552        | 2,170,272   | 1,446,848        |
| 2018/19 | 2,401,152   | 1,600,768        | 2,216,448  | 1,477,632        |   |                  |
| 2019/20 | 2,170,272   | 1,446,848        | 2,077,920  | 1,385,280        |   |                  |

<sup>&</sup>lt;sup>1</sup> Alternative 2 under Action 2-2

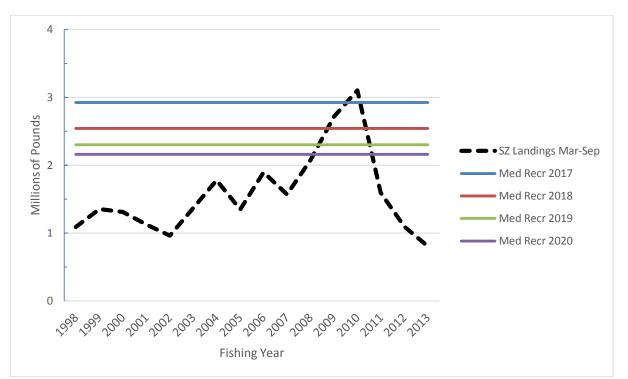
<sup>&</sup>lt;sup>4</sup> Alternative 3 under Acton 2-2



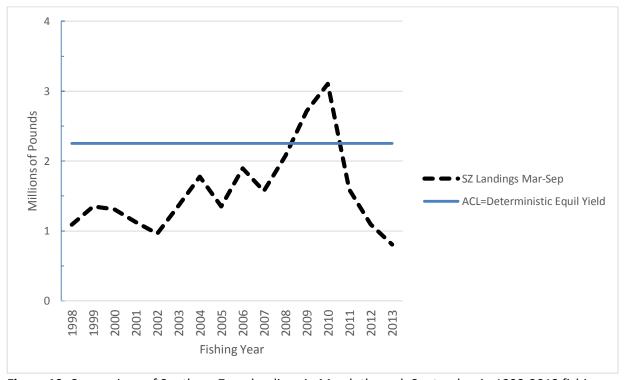
**Figure 8**. Comparison of Southern Zone landings in March through September in 1998-2013 fishing years with possible first season (Mar-Sept- 60%) quota under Alternative 3. In this example, ACL = ABC High Recruitment (Alternative 2 in Action 2-1, and Alternative 2 in Action 2-2).

<sup>&</sup>lt;sup>2</sup> Alternative 2 under Action 2-1, ABC under High Recruitment Scenario

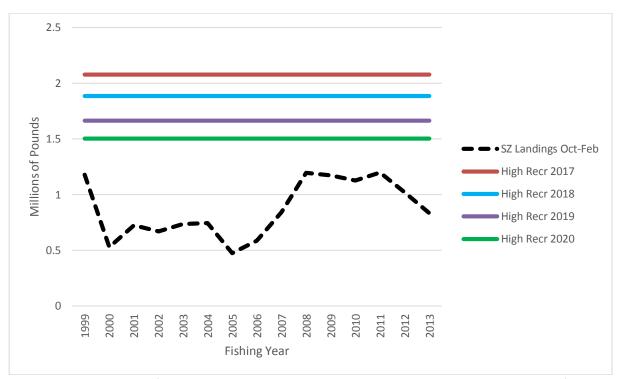
<sup>&</sup>lt;sup>3</sup> Alternative 3 under Action 2-1, ABC under Medium Recruitment Scenario



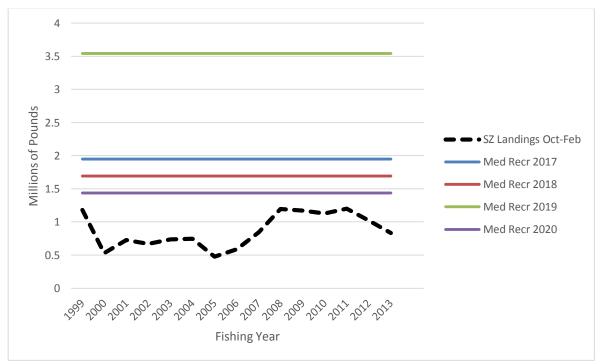
**Figure 9**. Comparison of Southern Zone landings in March through September in 1998-2013 fishing years with possible first season (Mar-Sept- 60%) quota under Alternative 3. In this example, ACL = ABC Medium Recruitment (Alternative 3 in Action 2-1, and Alternative 2 in Action 2-2).



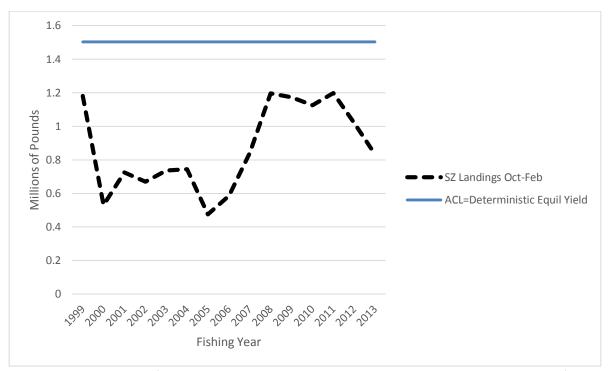
**Figure 10**. Comparison of Southern Zone landings in March through September in 1998-2013 fishing years with possible first season (Mar-Sept- 60%) quota under Alternative 3. In this example, ACL Deterministic equilibrium yield at  $F_{30\%SPR} = 12.7$  mp (Alternative 3 in Action 2-2).



**Figure 11**. Comparison of Southern Zone landings in October through February in 1999-2013 fishing years with possible second season (Oct-Feb - 40%) quota under Alternative 3. In this example, ACL = ABC High Recruitment (Alternative 2 in Action 2-1, and Alternative 2 in Action 2-2).



**Figure 12**. Comparison of Southern Zone landings in October through February in 1999-2013 fishing years with possible second season (Oct-Feb - 40%) quota under Alternative 3. In this example, ACL = ABC Medium Recruitment (Alternative 3 in Action 2-1, and Alternative 2 in Action 2-2).



**Figure 13**. Comparison of Southern Zone landings in October through February in 1999-2013 fishing years with possible second season (Oct-Feb - 40%) quota under Alternative 3. In this example, ACL Deterministic equilibrium yield at  $F_{30\%SPR} = 12.7$  mp (Alternative 3 in Action 2-2).

- 1) Do you want to add or remove any alternatives or options?
- 3) Do you want to select a Preferred Alternative/Option?

## Action 4-3. Modify Trip Limits for the Florida East Coast Subzone for Atlantic Migratory Group King Mackerel

**Alternative 1:** No action - Do not establish trip limits for the Florida East Coast Subzone for Atlantic Migratory Group King Mackerel. The trip limit will remain: from April 1 through October 31

In the area between the Flagler/ Volusia county line and the Volusia/Brevard county line, the trip limit is 3,500 lbs from April 1 through October 31.

In the area from the Volusia/Brevard county line to the Miami-Dade/Monroe county line, the trip limit is 75 fish.;

From November 1 through March 31, no trip limit is in place for Atlantic migratory group king mackerel.

**Alternative 2:** The commercial trip limit in the FLEC Subzone as established in Action 4-1 is 75 fish. The commercial trip limit north of the FLEC Subzone northern boundary is 3,500 lbs.

**Alternative 3:** The commercial trip limit in the Florida East Coast (FLEC) Subzone as established in Action 4-1 is 75 fish with a step-down to 50 fish. The commercial trip limit north of the Florida East Coast Subzone northern boundary is 3,500 lbs.

**Option 3a**: The step-down applies for only the month of May.

Option 3b: The step-down applies from May-August.

**Option 3c**: The step-down applies from April 15- May 15.

**Alternative 4:** The commercial trip limit in the FLEC Subzone as designated in Action 4-1 in summer (as defined in Action 4-1) is 75 fish and in winter (as defined in Action 4-1) is 50 fish.

Option 4a. Beginning on February 1 and continuing through the end of February--

- (1) If 70 % or more of the quota or sub-quota has been taken the trip limit is 50 fish.
- (2) If less than 70 % of the quota or sub-quota has been taken the trip limit is 75 fish.
- Option 4b. Beginning on January 1 and continuing through the end of February--
  - (1) If 70 % or more of the quota or sub-quota has been taken the trip limit is 50 fish.
  - (2) If less than 70 % of the quota or sub-quota has been taken the trip limit is 75 fish.
- Option 4c. Beginning on February 1 and continuing through the end of February--
  - (1) If 80 % or more of the quota or sub-quota has been taken the trip limit is 50 fish.
  - (2) If less than 80 % of the quota or sub-quota has been taken the trip limit is 75 fish.

Current trip limits in the FLEC Subzone area:

| Atlantic King Mackerel  | Apr 1 – Oct 31 | Nov 1 – Mar 31  |  |
|---|----------------|---|--|
| - North of Flagler/Volusia (through Mid-Atlantic)                       | 3,500 lbs      |   |  |
| - Flagler/Volusia to Volusia/Brevard                                    | 3,500 lbs      | See FLEC limits   |  |
| - Volusia/Brevard to Dade/Monroe  | 75 fish        | See FLEC limits   |  |
| - Dade/Monroe to SAFMC line   | 1,250 lbs      | 1,250 lbs (Gulf Southern<br>Subzone)  |  |
| Gulf King Mackerel  | Apr 1 – Oct 31 | Nov 1 – Mar 31  |  |
| - Florida East Coast (FLEC) subzone<br>(Flagler/Volusia to Dade/Monroe) |                | Nov 1- Feb 28: 50 fish Mar 1- Mar 31:  - If 70% or more of the FLEC quota has been met, the trip limit is 50 fish.  - If less than 70% of the FLEC quota is met, the trip limit is 75 fish till Mar 31. |  |

- 1) Do you want to add or remove any alternatives or options?
- 2) Do you want to select a Preferred Alternative/Option?

#### **ACTION 5: Modify the ACL for Gulf Migratory Group King Mackerel**

**Alternative 1:** No action – Do not modify the ACL for Gulf migratory group king mackerel. The ACL of 10.8 million pounds will remain.

[Commercial ACL= 3.456 mp; Recreational ACL= 7.433 mp]

**Alternative 2:** Set the Gulf migratory group king mackerel ACL equal to the ABC recommended by the Gulf Scientific and Statistical Committee for 2015-2019. ABC values are in millions of pounds, whole weight:

| Year | ABC (mp ww) |
|------|-------------|
| 2015 | 9.62        |
| 2016 | 9.21        |
| 2017 | 8.88        |
| 2018 | 8.71        |
| 2019 | 8.55        |

**Alternative 3:** Establish a constant catch scenario for the Gulf migratory group king mackerel ACL for one of the following time periods. The ACL during the selected time period may not exceed the ABC recommended by the Gulf SSC for any year during the selected time period.

Option a: A three-year period (2015-2017) Option b: A five-year period (2015-2019)

It is important to remember that the area attributed to the Gulf migratory group of king mackerel is thought to be smaller than previously described in past stock assessments (see **Action 1**). Even though the OFL and ABC projections are lower than the current ACL, the amount of area for which the *new* OFL and ABC recommendations applies is in fact smaller than the area for which the *old* ACL applies.

#### **Gulf AP Recommendation (March 2015):**

The Gulf AP recommends that the Council set the ACL equal to the ABC for 2015 (9.62 million pounds), and that the SSC annually readdress the ABC every year thereafter.

- 1) Do you want to add or remove any alternatives or options?
- 2) Do you want to select a Preferred Alternative/Option?

## <u>ACTION 6. Revise the Commercial Zone Quotas for Gulf Migratory Group King Mackerel</u>

- Alternative 1: No action Maintain the current commercial zone quotas for Gulf migratory group king mackerel (Western Zone: 31%; Northern Zone: 5.17%; Southern Zone Handline: 15.96%; Southern Zone Gillnet: 15.96%; Florida East Coast Zone: 31.91%).
- **Alternative 2:** Revise the commercial zone quotas for Gulf migratory group king mackerel by dividing the Florida East Coast Zone's quota into four equal parts, to be added to each of the remaining Gulf commercial zones.
- **Alternative 3:** Revise the commercial zone quotas for Gulf migratory group king mackerel by dividing each individual zone's quota percentage by the sum of the quota percentages for all Gulf commercial zones *except* the Florida East Coast Zone, with each resultant percentage becoming that respective zone's new commercial quota.
- **Alternative 4:** Revise the commercial zone quotas for Gulf migratory group king mackerel as follows: 40% for the Western Zone; 18% for the Northern Zone; 21% for the Southern Zone Handline component; and 21% for the Southern Zone Gillnet component. (**Gulf and South Atlantic AP Recommended**)

In keeping with the aforementioned changes in the stock boundaries identified in SEDAR 38 (2014), the Gulf Council will need to reallocate the commercial ACL amongst the three remaining fishing zones in the Gulf (Western Zone, Northern Zone, and Southern Zone). The current allocations are shown in Table 11 below.

**Table 11.** Commercial fishing zone allocations for Gulf migratory group king mackerel.

### **Gulf King Mackerel:** Commercial Zone Allocations

| Zone               | Percent of Comm Allocation |
|--------------------|----------------------------|
| Western            | 31%                        |
| Northern           | 5.17%                      |
| Southern: Handline | 15.96%                     |
| Southern: Gillnet  | 15.96%                     |
| FL East Coast      | 31.91%                     |

The Florida East Coast Zone would be integrated into the proposed Atlantic Southern Zone (CMP Amendment 20B) if the change to the stock boundary is adopted by the Councils. This integration would result in an imbalance in the distribution of quota for the Gulf commercial sector of the king mackerel fishery (i.e., the remaining commercial zone allocations would not sum to 100%), and thus necessitates reallocation. Options for reallocation might include equal (**Alternative 2**), proportional (**Alternative 3**), or some other distribution (**Alternative 4**) of the 31.91% void, as demonstrated in Table 12. Each of the presented reallocation options would result in additional fish for each of the Gulf commercial zones.

**Table 12**. Options for redistribution of commercial zone allocation for Gulf migratory group king mackerel.

| Zone              | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 |
|-------------------|---------------|---------------|---------------|---------------|
| Western           | 31%           | 38.98%        | 45.53%        | 40%           |
| Northern          | 5.17%         | 13.15%        | 7.61%         | 18%           |
| Southern: H/L     | 15.96%        | 23.93%        | 23.43%        | 21%           |
| Southern: Gillnet | 15.96%        | 23.93%        | 23.43%        | 21%           |
| FL East Coast     | 31.91%        |               |               |               |

Alternative 4 (Gulf and South Atlantic AP Preferred) has been proposed by the Gulf Council's CMP AP. The AP noted the low current commercial allocation for the Northern Zone (5.17%, Alternative 1, Table 2.6.2), and the new season opening date for that zone (October 1, CMP Amendment 20A). The AP determined that increasing the quota for the Northern Zone would allow permit holders in that region who have not had landings in several years the opportunity to fish commercially for king mackerel. Permit holders in the Northern Zone include both dually-permitted charter-for-hire and commercial participants. These permit holders have historically remarked that fishermen traveling from the east coast of Florida have often landed the Northern Zone's quota before the charter fleet concludes the tourist season (usually by October 1) and/or before king mackerel migrate far enough east and south along the western Florida coastline to make fishing profitable.

- 1) Do you want to add or remove any alternatives?
- 2) Do you want to select a Preferred Alternative?

## ACTION 7. Revise the Recreational and Commercial Allocations of Gulf Migratory Group King Mackerel

- **Alternative 1:** No action Maintain the current recreational and commercial allocations for Gulf migratory group king mackerel (68% recreational, 32% commercial). (**Gulf CMP AP Recommended**)
- **Alternative 2:** Revise the recreational and commercial allocations for Gulf migratory group king mackerel by transferring a percentage of the recreational allocation to the commercial sector.

**Option a:** Transfer 5% of the recreational allocation to the commercial sector.

**Option b:** Transfer 10% of the recreational allocation to the commercial sector.

**Option c:** Transfer 20% of the recreational allocation to the commercial sector.

- Alternative 3: Revise the recreational and commercial allocations for Gulf migratory group king mackerel by transferring a percentage of the recreational allocation to the commercial allocation annually until such a time that the recreational sector lands 80% of its allocation, after which no additional allocation will be transferred from the recreational allocation to the commercial allocation.
  - **Option a:** Transfer 2% of the recreational allocation annually to the commercial allocation.
  - **Option b:** Transfer 5% of the recreational allocation annually to the commercial allocation.

**Alternative 4:** Conditionally transfer a certain percentage (*Options a-c*) of the recreational allocation to the commercial sector until such a time that recreational landings reach a predetermined threshold (*Options d-f*). If this threshold is met, the recreational and commercial allocations will revert to 68% for the recreational sector and 32% for the commercial sector.

Conditional Quota Transfer (MUST CHOOSE ONE):

**Option a:** Transfer 5% of the recreational allocation to the commercial sector.

**Option b:** Transfer 10% of the recreational allocation to the commercial sector.

**Option c:** Transfer 20% of the recreational allocation to the commercial sector.

Recreational ACL Threshold (MUST CHOOSE ONE):

**Option d:** Revert to the status quo sector allocations if 80% of the adjusted recreational sector ACL is landed.

**Option e:** Revert to the status quo sector allocations if 90% of the adjusted recreational sector ACL is landed.

**Option f:** Revert to the status quo sector allocations if 100% of the adjusted recreational sector ACL is landed.

**Alternative 5:** Establish a sunset provision for any change in the status quo sector allocations for Gulf migratory group king mackerel (68% for the recreational sector and 32% for the commercial sector). After the predetermined time period, any change in sector allocations would revert back to the allocations specified in the original Coastal Migratory Pelagics Fishery Management Plan for the Gulf of Mexico.

**Option a:** Sunset any change in sector allocations after a five year period (2016-2020).

**Option b:** Sunset any change in sector allocations after a ten year period (2016-2025). **Option c:** Sunset any change in sector allocations after a fifteen year period (2016-2030).

The Gulf Council is considering modifying the sector allocations for Gulf migratory group king mackerel. In multiple fishing seasons over the past ten years, the commercial sector has exceeded the commercial ACL while the recreational sector has landed decreasingly lower proportions of the recreational ACL. The Gulf Council has requested economic analyses to explore the effects of reallocating up to 10 percent of the Gulf recreational ACL to the commercial fishery. Recent landings of Gulf migratory group king mackerel are shown in Tables 16-18. The fishing year for the time series presented is July1 – June 30. Resultant allocations are shown in Table 19.

- 1) Do you want to add or remove any alternatives or options?
- 2) Do you want to select a Preferred Alternative/Option?

**Table 13**. Gulf of Mexico commercial king mackerel landings by Zone and gear. Gillnet landings only include the Gulf Southern Zone. Note: these landings include those attributed to the Florida East Coast Zone.

| Fishing<br>Year | Grand<br>Total | H&L<br>TAC/ACL | Gill<br>TAC/ACL | % HL   | % Gill |
|-----------------|----------------|----------------|-----------------|--------|--------|
| 2001-02         | 2,180,071      | 1,865,454      | 520,312         | 99.2%  | 63.3%  |
| 2002-03         | 2,277,696      | 1,865,454      | 520,312         | 101.2% | 74.9%  |
| 2003-04         | 2,300,382      | 1,865,454      | 520,312         | 97.8%  | 91.5%  |
| 2004-05         | 2,475,416      | 1,865,454      | 520,312         | 96.2%  | 130.9% |
| 2005-06         | 2,265,364      | 1,865,454      | 520,312         | 94.1%  | 98.2%  |
| 2006-07         | 2,319,594      | 1,865,454      | 520,312         | 98.3%  | 93.6%  |
| 2007-08         | 2,383,579      | 1,865,454      | 520,312         | 95.1%  | 117.3% |
| 2008-09         | 2,723,331      | 1,865,454      | 520,312         | 98.9%  | 168.9% |
| 2009-10         | 2,660,934      | 1,865,454      | 520,312         | 109.8% | 117.8% |
| 2010-11         | 2,398,734      | 1,865,454      | 520,312         | 99.5%  | 104.4% |
| 2011-12         | 2,364,041      | 1,865,454      | 520,312         | 102.4% | 87.4%  |
| 2012-13         | 2,698,213      | 2,179,143      | 607,614         | 100.9% | 82.4%  |
| 2013-14         | 2,419,271      | 1,977,709      | 551,448         | 90.9%  | 112.6% |
| Average         |                |                |                 | 98.8%  | 102.1% |

Source: SEFSC/SERO/MRIP

**Table 14**. Landings and proportions landed by each sector for Gulf migratory group king mackerel, less those landings attributed to the Florida East Coast Zone (FLEC).

| Fishing<br>Year | Total Gulf king<br>mackerel | Sector Landings (less FLEC) |           | % of Total Landings by each sector |       |
|-----------------|-----------------------------|-----------------------------|-----------|------------------------------------|-------|
| 1 Cai           | Landings                    | Comm                        | Rec       | Comm                               | Rec   |
| 2001-02         | 4,150,189                   | 2,180,071                   | 3,404,409 | 52.5%                              | 47.5% |
| 2002-03         | 4,583,200                   | 1,990,053                   | 2,593,147 | 43.4%                              | 56.6% |
| 2003-04         | 5,051,033                   | 2,067,028                   | 2,984,005 | 40.9%                              | 59.1% |
| 2004-05         | 4,492,842                   | 2,115,184                   | 2,377,659 | 47.1%                              | 52.9% |
| 2005-06         | 4,795,257                   | 1,956,005                   | 2,839,253 | 40.8%                              | 59.2% |
| 2006-07         | 5,412,306                   | 2,204,924                   | 3,207,382 | 40.7%                              | 59.3% |
| 2007-08         | 4,735,460                   | 2,299,832                   | 2,435,628 | 48.6%                              | 51.4% |
| 2008-09         | 4,808,181                   | 2,638,490                   | 2,169,691 | 54.9%                              | 45.1% |
| 2009-10         | 6,104,556                   | 2,642,137                   | 3,462,419 | 43.3%                              | 56.7% |
| 2010-11         | 4,319,497                   | 2,218,858                   | 2,100,639 | 51.4%                              | 48.6% |
| 2011-12         | 4,616,615                   | 2,260,442                   | 2,356,173 | 49.0%                              | 51.0% |
| 2012-13         | 5,923,021                   | 2,145,257                   | 3,777,764 | 36.2%                              | 63.8% |
| 2013-14         | 5,334,839                   | 2,419,271                   | 2,915,568 | 45.3%                              | 54.7% |

Source: SEFSC/SERO/MRIP

**Table 15**. Proportion of sector ACLs landed and proportion of total ACL landed for Gulf migratory group king mackerel.

| Fishing<br>Year | Total<br>TAC/ACL | % of Sector ACL<br>Landed |                  | Total ACL<br>Landed |
|-----------------|------------------|---------------------------|------------------|---------------------|
| rear            | IAGAGE           | Comm <sup>1</sup>         | Rec <sup>2</sup> |                     |
| 2001-02         | 10.2 MP          | 88.9%                     | 52.9%            | 64.7%               |
| 2002-03         | 10.2 MP          | 97.6%                     | 40.6%            | 59.3%               |
| 2003-04         | 10.2 MP          | 94.8%                     | 46.3%            | 62.7%               |
| 2004-05         | 10.2 MP          | 98.5%                     | 36.5%            | 56.4%               |
| 2005-06         | 10.2 MP          | 91.4%                     | 43.2%            | 58.9%               |
| 2006-07         | 10.8 MP          | 93.5%                     | 45.0%            | 60.5%               |
| 2007-08         | 10.8 MP          | 100.1%                    | 35.8%            | 56.3%               |
| 2008-09         | 10.8 MP          | 110.9%                    | 32.0%            | 57.6%               |
| 2009-10         | 10.8 MP          | 106.3%                    | 48.0%            | 68.0%               |
| 2010-11         | 10.8 MP          | 101.9%                    | 29.7%            | 53.0%               |
| 2011-12         | 10.8 MP          | 99.2%                     | 33.2%            | 54.3%               |
| 2012-13         | 10.8 MP          | 102.4%                    | 36.9%            | 57.9%               |
| 2013-14         | 10.8 MP          | 88.4%                     | 39.7%            | 55.3%               |

<sup>1</sup>Commercial allocation = 32%

<sup>2</sup>Recreational allocation = 68%

Source: SERO

**Table 16**. Resultant allocations based on options presented in Action 7. Alternative 3 would be dependent upon the landings reported in the year during which the recreational sector landed 80% of its allocation.

| Option                     | Commercial Allocation | Recreational Allocation |  |
|----------------------------|-----------------------|-------------------------|--|
| Alternative 1              | 32%                   | 68%                     |  |
| Alternative 2,<br>Option a | 37%                   | 63%                     |  |
| Alternative 2,<br>Option b | 42%                   | 58%                     |  |
| Alternative 2,<br>Option c | 52%                   | 48%                     |  |
| Alternative 3              |                       |                         |  |
| Alternative 4,<br>Option a | 37%                   | 63%                     |  |
| Alternative 4,<br>Option b | 42%                   | 58%                     |  |
| Alternative 4,<br>Option c | 52%                   | 48%                     |  |

## ACTION 8. Modify the Recreational Bag Limit for Gulf Migratory Group King Mackerel

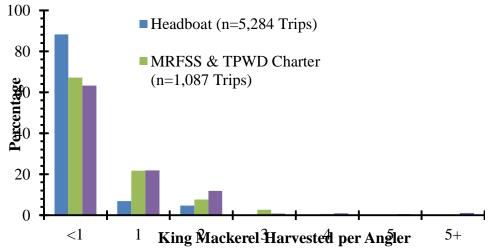
Alternative 1: No action - Maintain the current recreational bag limit of two fish per person per day.

**Alternative 2:** Increase the bag limit to three fish per person per day. (Gulf CMP AP Recommended)

**Alternative 3:** Increase the bag limit to four fish per person per day.

The Gulf Council may consider increasing the recreational bag limit for Gulf king mackerel in order to increase access to the recreational ACL. As explained in Action 7, in recent years, recreational landings have accounted for less than 50% of the recreational ACL. The current bag limit of Gulf king mackerel is 2 fish per person per day.

At the March 2015 Gulf Council CMP AP meeting, the Gulf AP recommended that the Gulf Council abstain from reallocating any king mackerel from the recreational sector to the commercial sector until after additional options for utilizing excess quota are explored for the recreational sector. Some Gulf AP members thought the initial decrease of the bag limit to two fish per person per day in the mid-1990s may have been partly to blame for the decrease in recreational effort. Additionally, recent short recreational seasons for popular reef fish species may result in more effort shifting to king mackerel in the near future. Decreased fuel prices and a general improvement in the economy may also encourage greater recreational effort for king mackerel. The Gulf AP recommended an increase to three fish per person per day for the recreational bag limit as a way to potentially increase utilization of the recreational ACL.



**Figure 14**. Distribution of Gulf of Mexico king mackerel harvested per angler by mode from 2011 through 2013. Source: NMFS SERO LAPP/DM Branch

- 1) Do you want to add or remove any alternatives?
- 2) Do you want to select a Preferred Alternative?

## APPENDIX A: EXPECTED NORTHERN AND SOUTHERN ZONE ALLOCATIONS WITH THE SEDAR 38 STOCK BOUNDARY

Kari MacLauchlin, SAFMC Staff April 2015

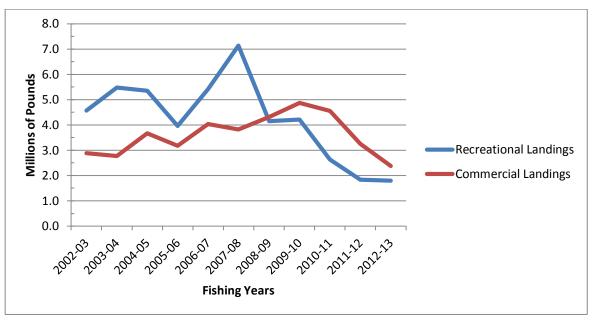
In CMP Amendment 20B, the South Atlantic Council established commercial king mackerel quotas for a Northern and Southern Zone. The boundary between the zones is the NC/SC boundary. The allocations of the commercial ACL that would go to each zone were based on a time period selected in CMP Amendment 20B. This document provides details of how the Northern and Southern zone quotas for Atlantic king mackerel will be set up under the SEDAR 38 stock boundary.

Following the approach used in SEDAR 38, landings in **Table A-1** and **Figure A-1** from the [new] mixing zone from November 1- March 31 are counted as 50% Atlantic and 50% Gulf; and landings from the [new] mixing zone from April 1- October 31 are counted as Atlantic. The fishing year for Atlantic king mackerel is March 1-February 28/29.

#### COMMERCIAL AND RECREATIONAL LANDINGS

**Table A-1**. Recreational landings estimates (blue) and total commercial landings (red) of Atlantic king mackerel from 2002-03 through 2013-14. Data sources: SEFSC/MRIP/SEDAR 38.

|                                 | Commercial Landings<br>(lbs) |               |                    | Recreational Landings<br>(lbs) |
|---------------------------------|------------------------------|---------------|--------------------|--------------------------------|
| Fishing Year                    | Northern Zone                | Southern Zone | TOTAL Commercial   |                                |
| 2002-03                         | 777,749                      | 2,102,493     | 2,880,242          | 4,572,182                      |
| 2003-04                         | 594,870                      | 2,181,464     | 2,776,334          | 5,484,156                      |
| 2004-05                         | 1,046,857                    | 2,622,305     | 3,669,162          | 5,354,585                      |
| 2005-06                         | 1,156,465                    | 2,021,140     | 3,177,605          | 3,962,532                      |
| 2006-07                         | 1,204,659                    | 2,825,673     | 4,030,332          | 5,410,425                      |
| 2007-08                         | 1,112,270                    | 2,709,845     | 3,822,115          | 7,134,876                      |
| 2008-09                         | 953,736                      | 3,359,877     | 4,313,613          | 4,154,875                      |
| 2009-10                         | 786,060                      | 4,087,983     | 4,874,043          | 4,212,935                      |
| 2010-11                         | 294,281                      | 4,255,278     | 4,549,559          | 2,636,250                      |
| 2011-12                         | 433,295                      | 2,817,705     | 3,251,000          | 1,835,817                      |
| 2012-13                         | 345,175                      | 2,029,643     | 2,374,818          | 1,802,805                      |
| 2013-14 Available at AP meeting |                              | ing           | 1,004,439 (Prelim) |                                |



**Figure A-1**. Recreational landings estimates (blue) and total commercial landings (red) of Atlantic king mackerel from 2002-03 through 2013-14. Data sources: SEFSC/MRIP/SEDAR 38.

#### RECALCULATING NORTHERN AND SOUTHERN ZONE QUOTAS

In Action 4.1 in Amendment 20B (Establish Regional Commercial Quotas for Atlantic Migratory Group King Mackerel), the Councils selected the following alternative as the Preferred:

**Preferred Alternative 3:** Establish quotas for Northern and Southern Zones for Atlantic migratory group king mackerel based on **Options a-d** below. The Northern Zone would include the EEZ off states from North Carolina north to New York. The Southern Zone would include the EEZ off South Carolina, Georgia, and the east coast of Florida. NMFS would monitor landings in both zones and close the EEZ of each zone when the respective quota is reached.

**Preferred Option b**: Each zone quota would be the Atlantic migratory group ACL times the average of the proportion of landings in that zone from 2002/2003 through 2011/2012.

For Amendment 26, the expected percentage of the quota for each zone was re-calculated using the same time period as specified in Amendment 20B, but with landings that would be counted as Atlantic king mackerel using the stock boundary and mixing zone from SEDAR 38 (**Table 1**). The expected percentages will be:

Northern Zone - 23.04% Southern Zone - 76.96%

Northern Zone landings = Atlantic king mackerel landings north of the NC/SC boundary (North Carolina + Mid-Atlantic landings).

Southern Zone landings = Atlantic king mackerel landings south of the NC/SC boundary to the Dade/Monroe county line + Atlantic KM landings in the [new] mixing zone landings from April 1 through October 31 + 50% of Atlantic KM landings in the [new] mixing zone from November 1through March 31.

**Table A-2** shows how landings would be counted as Atlantic king mackerel landings under the SEDAR 38 stock boundary and mixing zone. Following the approach used in SEDAR 38, landings from the [new] mixing zone from November 1- March 31 are counted as 50% Atlantic and 50% Gulf; and landings from the [new] mixing zone from April 1- October 31 are counted as 100% Atlantic. The fishing year for Atlantic king mackerel is March 1- February 28/29.

The landings data for the [new] mixing zone are confidential and cannot be shown separately from other Florida landings.

**Table A-2.** Commercial landings of Atlantic king mackerel in the Northern and Southern Zones using the SEDAR 38 approach to designating landings in the [new] mixing zone as 100% Atlantic stock from April 1 – October 31; and 50% of landings in the [new mixing zone] from November 1 - March 31 and landings in the Florida East Coast subzone November 1 - March 31 as Atlantic stock. Proportion of total landings is shown for each year, in addition to the average proportion of total landings for each Zone from 2002-03 through 2011-12. Data source: SEFSC and SEDAR 38.

|              | Commercial Landings of Atlantic King Mackerel (lbs) |   |                          | Proportion of Total Landings |               |
|--------------|---|---|--------------------------|------------------------------|---------------|
| Fishing Year | Northern Zone<br>(NC and Mid-Atl)                   | Southern Zone<br>(SC, GA, FL, new<br>mixing zone) | <b>TOTAL</b><br>Landings | Northern Zone                | Southern Zone |
| 2002-03      | 777,749   | 2,102,493   | 2,880,242                | 27.00%                       | 73.00%        |
| 2003-04      | 594,870   | 2,181,464   | 2,776,334                | 21.43%                       | 78.57%        |
| 2004-05      | 1,046,857   | 2,622,305   | 3,669,162                | 28.53%                       | 71.47%        |
| 2005-06      | 1,156,465   | 2,021,140   | 3,177,605                | 36.39%                       | 63.61%        |
| 2006-07      | 1,204,659   | 2,825,673   | 4,030,332                | 29.89%                       | 70.11%        |
| 2007-08      | 1,112,270   | 2,709,845   | 3,822,115                | 29.10%                       | 70.90%        |
| 2008-09      | 953,736   | 3,359,877   | 4,313,613                | 22.11%                       | 77.89%        |
| 2009-10      | 786,060   | 4,087,983   | 4,874,043                | 16.13%                       | 83.87%        |
| 2010-11      | 294,281   | 4,255,278   | 4,549,559                | 6.47%                        | 93.53%        |
| 2011-12      | 433,295   | 2,817,705   | 3,251,000                | 13.33%                       | 86.67%        |
|              |   |   | AVERAGE:                 | 23.04%                       | 76.96%        |