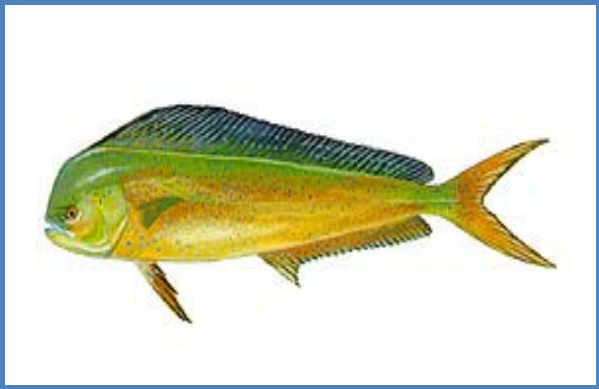
Amendment 5

to the Fishery Management Plan for the Dolphin and Wahoo Fishery for the Atlantic



Revisions to Dolphin and Wahoo Acceptable Biological Catches, Annual Catch Limits, Recreational Annual Catch Targets, and Accountability Measures; Modification to the Framework Procedure; and Commercial Trip Limits for Dolphin

Environmental Assessment Regulatory Impact Review Fishery Impact Statement

November 2013

Definitions, Abbreviations, and Acronyms Used in the Document

ABC	acceptable biological catch
ACL	annual catch limits
AM	accountability measures
ACT	annual catch target
B	a measure of stock biomass in either weight or other appropriate unit
$\mathbf{B_{MSY}}$	the stock biomass expected to exist under equilibrium conditions when fishing at F_{MSY}
$\mathbf{B_{OY}}$	the stock biomass expected to exist under equilibrium conditions when fishing at F_{OY}
$\mathbf{B_{CURR}}$	the current stock biomass
CPUE	catch per unit effort
DEIS	draft environmental impact statement
EA	environmental assessment
EEZ	exclusive economic zone
EFH	essential fish habitat
F	a measure of the instantaneous rate of fishing mortality
$\mathbf{F_{30\%SPR}}$	fishing mortality that will produce a static SPR = 30%
$\mathbf{F_{CURR}}$	the current instantaneous rate of fishing mortality
$\mathbf{F_{MSY}}$	the rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}
$\mathbf{F_{OY}}$	the rate of fishing mortality expected to achieve OY under equilibrium conditions and a corresponding biomass of B_{OY}
FEIS	final environmental impact statement
FMP	fishery management plan
FMU	fishery management unit
M	natural mortality rate
MARMAP	Marine Resources Monitoring Assessment and Prediction Program
MFMT	maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
MRFSS	Marine Recreational Fisheries Statistics Survey
MRIP	Marine Recreational Information Program
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSST	minimum stock size threshold
MSY	maximum sustainable yield
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OFL	overfishing limit
OY	optimum yield
PSE	proportional standard error
RIR	regulatory impact review
SAFMC	South Atlantic Fishery Management Council
SEDAR	Southeast Data, Assessment, and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
SIA	social impact assessment
SPR	spawning potential ratio
SSC	Scientific and Statistical Committee

Amendment 5 to the Fishery Management Plan for the Dolphin and Wahoo Fishery for the Atlantic

Including an Environmental Assessment (EA), Regulatory Impact Review (RIR), and Regulatory Flexibility Act Analysis (RFAA)

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SUMMARY

AMENDMENT 5
to the Fishery Management Plan for the Dolphin and Wahoo Fishery for the Atlantic

Why is the South Atlantic Council Taking Action?

Recreational catch estimates for dolphin and wahoo in the Comprehensive Annual Catch Limit (ACL) Amendment and its integrated Final Environmental Impact Statement (FEIS) (SAFMC 2011a), which included Amendment 3 to the Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic (Dolphin Wahoo FMP) were computed using data generated by the Marine Recreational Fisheries Statistics Survey (MRFSS). Following an independent review by the National Research Council and a mandate from Congress, the National Marine Fisheries Service (NMFS) replaced MRFSS with the Marine Recreational Information Program (MRIP) to provide more accurate recreational catch estimates. The South Atlantic Fishery Management Council (South Atlantic Council) stated in the Comprehensive ACL Amendment that they would take action as needed, via plan amendment or framework amendment, to revise the appropriate values, in 2012 and beyond. MRIP methods have been used to recalculate previous MRFSS estimates dating back to 2004, and will be the basis for all new estimates moving forward. Therefore, Amendment 5 to the Dolphin Wahoo FMP (Dolphin Wahoo Amendment 5) considers these revisions.

The revisions are necessary because if the acceptable biological catch (ABC), ACL, and recreational annual catch target (ACT) values are not updated with the new MRIP estimates, ACLs would be based on MRFSS data while the landings being used to track the ACLs would be estimated using MRIP data. This would result in inconsistencies in the how ACLs are calculated versus how they are monitored. In addition to MRIP data, ACLs would be updated to include revisions to commercial and for-hire landings data. The changes in data impacts the allocations to the commercial and recreational sectors for dolphin and wahoo; however, because the underlying formula used to establish the allocations remains unchanged from what was implemented previously in the Comprehensive ACL Amendment, the magnitude of change is very small. Using MRIP values to estimate recreational landings, as well as updates to headboat and commercial landings represent the best available data and are therefore, in accordance with National Standard 2 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

What are the Actions and Alternatives in Dolphin Wahoo Amendment 5?

Action 1. Revise acceptable biological catches (ABCs), annual catch limits (ACL), and annual catch targets (ACTs) for dolphin and wahoo.

Alternative 1. No action. Acceptable biological catches, annual catch limits, and annual catch targets for dolphin and wahoo are based on the Marine Recreational Fisheries Statistics Survey, commercial accumulated landings system, and NMFS headboat survey.

Dolphin	Commercial	Recreational	Total
ACL=OY=ABC (lbs ww)	---	---	14,596,216
Allocation %	7.3%	92.7%	100%
Sector ACL (lbs ww)	1,065,524	13,530,692	
Sector ACT (lbs ww)	None	ACT equals [sector ACL *(1-PSE)] or [ACL*0.5], whichever is greater = 11,595,803	---
Wahoo	Commercial	Recreational	Total
ACL=OY=ABC (lbs ww)	---	---	1,491,785
Allocation %	4.3%	95.7%	100%
Sector ACL (lbs ww)	64,147	1,427,638	---
Sector ACT (lbs ww)	None	ACT equals [sector ACL *(1-PSE)] or [ACL*0.5], whichever is greater = 1,164,953	---

Preferred Alternative 2. Revise the acceptable biological catches, annual catch limits, and annual catch targets for dolphin and wahoo with landings from Marine Recreational Information Program, commercial accumulated landings system, and NMFS headboat survey.

Dolphin	Commercial	Recreational	Total
ACL=OY=ABC (lbs ww)	---	---	15,344,846
Allocation %	7.54%	92.46%	100%
Sector ACL (lbs ww)	1,157,001	14,187,845	
Sector ACT (lbs ww)	None	ACT equals [sector ACL *(1-PSE)] or [ACL*0.5], whichever is greater = 12,769,061	---
Wahoo	Commercial	Recreational	Total
ACL=OY=ABC (lbs ww)	---	---	1,794,960
Allocation %	3.93%	96.07%	100%
Sector ACL (lbs ww)	70,542	1,724,418	---
Sector ACT (lbs ww)	None	ACT equals [sector ACL *(1-PSE)] or [ACL*0.5], whichever is greater = 1,258,825	---

The proportional standard error (PSE) calculations of the recreational ACTs for **Alternative 1 (No Action)** are based on MRFSS estimates, from the Comprehensive ACL Amendment (SAFMC 2011a). The South Atlantic Council's guidance in that amendment was to use a 3-year (2007-2009) average value of 7.0 for dolphin, and a 5-year (2005-2009) average of 18.4 for wahoo. The PSE calculations of the recreational ACTs for **Preferred Alternative 2** are based on MRIP estimates. The PSE for dolphin is 0.10 using a PSE 3-year average from 2007-2009. The PSE for wahoo is 0.27 using a PSE 5-year average from 2005-2009.

Action 2. Revise the accountability measures (AMs) for dolphin and wahoo.

Alternative 1. No action. (1) Commercial sector. If commercial landings as estimated by the Science and Research Director (SRD), reach or are projected to reach the commercial ACL, the Regional Administrator (RA) shall publish a notice to close the commercial sector for the remainder of the fishing year.
(2) Recreational sector. If recreational landings, as estimated by the SRD, exceed the recreational ACL, then during the following fishing year, recreational landings will be monitored for a persistence in increased landings and, if necessary, the RA shall publish a notice to reduce the length of the following recreational fishing season by the amount necessary to ensure recreational landings do not exceed the recreational ACL in the following fishing year. However, the length of the recreational season will also not be reduced during the following fishing year if the RA determines, using the best scientific information available, that a reduction in the length of the following fishing season is unnecessary.

Preferred Alternative 2. If commercial landings as estimated by the Science and Research Director (SRD) reach or are projected to reach the commercial ACL, the Regional Administrator (RA) shall publish a notice to close the commercial sector for the remainder of the fishing year. Additionally,

Sub-alternative 2a. If the commercial ACL is exceeded, the RA shall publish a notice to reduce the commercial ACL in the following fishing year by the amount of the commercial overage, only if the species is overfished.

Sub-alternative 2b. If the commercial ACL is exceeded, the RA shall publish a notice to reduce the commercial ACL in the following fishing year by the amount of the commercial overage, only if the total ACL (commercial ACL and recreational ACL) is exceeded.

Preferred Sub-alternative 2c. If the commercial ACL is exceeded, the RA shall publish a notice to reduce the commercial ACL in the following fishing year by the amount of the commercial overage, only if the species is overfished **and** the total ACL (commercial ACL and recreational ACL) is exceeded.

Preferred Alternative 3. If recreational landings, as estimated by the SRD, exceed the recreational ACL, then during the following fishing year, recreational landings will be monitored for a persistence in increased landings.

Sub-alternative 3a. If necessary, the RA shall publish a notice to reduce the length of fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage, only if the species is overfished. The length of the recreational season and recreational ACL will not be reduced if the RA determines, using the best scientific information available, that a reduction is unnecessary.

Sub-alternative 3b. If necessary, the RA shall publish a notice to reduce the length of fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage, only if the total ACL (commercial ACL and recreational ACL) is exceeded. The length of the recreational season and recreational ACL will not be reduced if the RA determines, using the best scientific information available, that a reduction is unnecessary.

Preferred Sub-alternative 3c. If necessary, the RA shall publish a notice to reduce the length of fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage, only if the species is overfished **and** the total ACL (commercial ACL and recreational ACL) is exceeded. The length of the recreational season and recreational ACL will not be reduced if the RA determines, using the best scientific information available, that a reduction is unnecessary.

Action 3: Revise the framework procedure in the Dolphin Wahoo FMP.

Alternative 1. No action. Do not modify the framework procedure established in the Dolphin Wahoo FMP (SAFMC 2003). The existing framework (p.160 of the Dolphin Wahoo FMP (2003) includes the following text:

If the RA concurs that the Council's recommendations are consistent with the goals and objectives of the plan, the National Standards, and other applicable law, he/she shall implement the regulations by proposed and final rules in the *Federal Register* prior to the appropriate fishing year or such dates as may be agreed upon with the Councils. A reasonable period for public comment shall be afforded, consistent with the urgency, if any, of the need to implement the management measure.

Appropriate regulatory changes recommended by the Council that may be implemented by the Regional Administrator by proposed and final rules in the *Federal Register* are:

a. Adjustment of the best estimate of maximum sustainable yield (MSY, range and/or best point estimate).
b. Adjustment of the best estimate of optimum yield (OY, range and/or best point estimate).
c. Initial specification of acceptable biological catch (ABC) and subsequent adjustment of the ABC range and/or best estimate when this information becomes available.
d. Setting or modifying total allowable catch (TAC).
e. Reopening of a previously closed area/season, timeframe for recovery of dolphin and wahoo should they become overfished, or fishing year which may not be adjusted by more than two months.
f. Bag limits.
g. Size limits.
h. Tackle configuration (e.g., minimum hook size).

i. Season/area closures (including spawning area closures).
j. Gear restrictions and/or prohibitions.
k. Permitting restrictions.
1. Trip limits.
m. Overfishing/overfished definitions and related thresholds (e.g., minimum stock size threshold (MSST) and maximum fishing mortality threshold (MFMT)).
n. Annual specification/quota setting process.
o. Assessment Panel composition and process.
p. Identification, designation, and modification of essential fish habitat (EFH) and EFH-habitat areas of particular concern (HAPCs).
q. Management measures to reduce or eliminate the impact of fishing gear/activities on EFH or EFH-HAPCs.
r. Specify quota for scientific research.
s. Designation of areas for scientific research.
t. Regulations of longline length if ongoing research with marine mammals documents usefulness.
u. Any other action to minimize the interaction of fishing gear with endangered species or marine mammals.
v. Allocations and modifications to allocations.

Preferred Alternative 2. Include the following in the Dolphin Wahoo FMP framework: Update the framework procedure to revise the specification of Total Allowable Catch (TAC) for the Dolphin Wahoo FMP in terms that incorporate ACLs, ACTs, and AMs. Such modifications would be based upon new scientific information indicating such modifications are prudent. Changes to the ACLs, ACTs and AMs will be made using the following procedure once the new ACLs, ACTs and AMs are established by the Council. The framework language will reflect SEDAR and SSC roles in setting MSY, OY, and ABC. The framework will also allow for modifications of the acceptable biological catch (ABC) Control Rule for dolphin and wahoo.

Modification of the Acceptable Biological Catch (ABC) Control Rule Procedure
1. Modifications to the ABC Control Rule will be proposed to the South Atlantic Council by the South Atlantic Council's Scientific and Statistical Committee (SSC).

2. At the Council meeting following the receipt of the recommended changes to the ABC Control Rule, the South Atlantic Council will determine if changes are needed to the ABC Control Rule and make changes as appropriate.

Dolphin Wahoo FMP Framework Procedure for Specification of Annual Catch Limits, Annual Catch Targets, Overfishing Limits, Acceptable Biological Catch (ABC) Control Rule, ABC, and annual adjustments:

Procedure for Specifications:
1. At times determined by the SEDAR Steering Committee, and in consultation with the South Atlantic Council and NMFS Southeast Regional Office (SERO), stock assessments (or future assessment updates) will be conducted under the SEDAR process for stocks managed under the Dolphin Wahoo FMP. Each SEDAR stock assessment or assessment update will: a) assess to the

extent possible the current biomass, biomass proxy, or SPR levels for each stock; b) estimate fishing mortality (F) in relation to F_{MSY} (MFMT) and F_{OY}; c) determine the overfishing limit (OFL); d) estimate other population parameters deemed appropriate; e) summarize statistics on the fishery for each stock or stock complex; f) specify the geographical variations in stock abundance, mortality, recruitment, and age of entry into the fishery for each stock or stock complex; and g) develop estimates of B_{MSY}.

2. The South Atlantic Council will consider SEDAR stock assessments or other documentation the South Atlantic Council deems appropriate to provide the biological analysis and data listed above in paragraph 1. Either the SEFSC or the stock assessment branch of a state agency may serve as the lead in conducting the analysis, as determined by the SEDAR Steering Committee. After reviewing the SEDAR stock assessments, the SSC will prepare a written report to the South Atlantic Council specifying an OFL and may recommend a range of ABCs for each stock complex that is in need of catch reductions for attaining or maintaining OY. The OFL is the annual harvest level corresponding to fishing at MFMT (F_{MSY}). The ABC range is intended to provide guidance to the SSC and is the amount of the OFL as reduced due to scientific uncertainty in order to reduce the probability that overfishing will occur in a year. To the extent practicable, the probability that overfishing will occur at various levels of ABC and the annual transitional yields (i.e., catch streams) calculated for each level of fishing mortality within the ABC range should be included with the recommended range.

For overfished stocks, the recommended range of ABCs shall be calculated so as to end overfishing and achieve stock population levels at or above B_{MSY} within the rebuilding periods specified by the South Atlantic Council and approved by NMFS. The SEDAR report or SSC will recommend rebuilding periods based on the provisions of the National Standard Guidelines, including generation times for the affected stocks. Generation times are to be specified by the stock assessment panel based on the biological characteristics of the individual stocks. The report will recommend to the South Atlantic Council a B_{MSY} level and a MSST from B_{MSY}. The report may also recommend more appropriate estimates of F_{MSY} for any stock. The report may also recommend more appropriate levels for the MSY proxy, OY, the overfishing threshold (MFMT), and overfished threshold (MSST). For stock or stock complexes where data are inadequate to compute an OFL and recommended ABC range, the SSC will use other available information as a guide in providing their best estimate of an OFL corresponding to MFMT and ABC range that should result in not exceeding the MFMT.

3. The SSC will examine SEDAR reports or other new information, the OFL determination, and the recommended range of ABC. In addition, the SSC will examine information provided by the social scientists and economists from the South Atlantic Council staff and from the SERO Fisheries Social Science Branch analyzing social and economic impacts of any specification demanding adjustments of allocations, ACLs, ACTs, AMs, quotas, bag limits, or other fishing restrictions. The SSC will use the ABC control rule to set their ABC recommendation at or below the OFL, taking into account scientific uncertainty. If the SSC sets their ABC recommendations equal to OFL, the SSC will provide its rationale why it believes that level of fishing will not exceed MFMT.

4. The Council may conduct a public hearing on the reports and the SSC's ABC recommendation at, or prior to the time it is considered by the Council for action. Other public hearings may be held also. The Council may request a review of the report by its Dolphin Wahoo Advisory Panel and optionally by its socioeconomic experts and convene these groups before taking action.

5. The South Atlantic Council, in selecting an ACL, ACT, AM, and a stock restoration time period, if necessary, for each stock or stock complex for which an ABC has been identified, will, in addition to taking into consideration the recommendations and information provided for in paragraphs 1, 2, 3, and 4, utilize the following criteria:

- **a.** Set ACL at or below the ABC specified by the SSC or set a series of annual ACLs at or below the projected ABCs in order to account for management uncertainty. If the South Atlantic Council sets ACL equal to ABC, and ABC has been set equal to OFL, the South Atlantic Council will provide its rationale as to why it by it believes that level of fishing will not exceed MFMT.
- **b.** May subdivide the ACLs into commercial, for-hire, and private recreational sector ACLs that maximize the net benefits of the fishery to the nation. The Sector ACLs will be based on allocations determined by criteria established by the South Atlantic Council and specified by the South Atlantic Council through a plan amendment. If, for an overfished stock, harvest in any year exceeds the ACL or sector ACL, management measure and catch levels for that sector will be adjusted in accordance with the AMs established for that stock.
- **c.** Set ACTs or sector ACTs at or below ACLs and in accordance with the provision of the AM for that stock. The ACT is the management target that accounts for management uncertainty in controlling the actual catch at or below the ACL. If an ACL is exceeded repeatedly, the South Atlantic Council has the option to establish an ACT if one does not already exist for a particular stock and adjust or establish AMs for that stock as well.

6. The South Atlantic Council will provide the SSC specification of OFL; SSC recommendation of ABC; and its recommendations to the NMFS RA for ACLs, sector ACLs, ACTs, sector ACTs, AMs, sector AMs, and stock restoration target dates for each stock or stock complex, estimates of B_{MSY} and MSST, estimates of MFMT, and the quotas, bag limits, trip limits, size limits, closed seasons, and gear restrictions necessary to avoid exceeding the ACL or sector ACLS, along with the reports, a regulatory impact review and proper National Environmental Policy Act (NEPA) documentation, and the proposed regulations within a predetermined time as agreed upon by the South Atlantic Council and RA. The South Atlantic Council may also recommend new levels or statements for MSY (or proxy) and OY.

7. The South Atlantic Council will review recommendations of the ABC control rule as proposed by their SSC at the Council meeting following the recommended changes. The South Atlantic Council will determine whether the recommended changes to the ABC control rule for dolphin and wahoo meet the goals of the Dolphin Wahoo FMP. If the South Atlantic Council agrees with the recommended changes to the ABC control rule, they will include those changes in a framework amendment. If the South Atlantic Council does not agree with the recommended changes to the ABC control rule, they will notify the SSC of their reasons for not approving the changes.

8. The RA will review the South Atlantic Council's recommendations and supporting information, and, if he concurs that the recommendations are consistent with the objectives of the FMP, the National Standards, and other applicable law, he shall forward for publication notice of proposed rules to the Assistant Administrator (providing appropriate time for additional public comment). The RA will take into consideration all public comment and information received and will forward for

publication in the *Federal Register* of a final rule within 30 days of the close of the public comment, or such other time as agreed upon by the South Atlantic Council and RA.

9. Appropriate regulatory changes that may be implemented by final rule in the *Federal Register* include:

- **a.** ACLs or sector ACLs, or a series of annual ACLs or sector ACLs.
- **b.** ACTs or sector ACTs, or a series of annual ACTs or sector ACTs and establish ACTs for stocks which do not have an ACT.
- **c.** AMs or sector AMs.
- **d.** Bag limits, size limits, vessel trip limits, closed seasons or area, gear restrictions, and quotas designed to achieve OY and keep harvest levels from exceeding the ACL or sector ACL.
- **e.** The time period specified for rebuilding an overfished stock, estimated MSY and MSST for overfished stocks, and MFMT.
- **f.** New levels or statements of MSY (or proxy) and OY for any stock.
- **g.** New levels of total allowable catch (TAC).
- **h.** Adjust fishing seasons/years.

10. The NMFS Regional Administrator is authorized, through notice action, to conduct the following activities.

- **a.** Close the commercial fishery of a dolphin or wahoo species or species group that has a commercial quota or sub-quota at such time as projected to be necessary to prevent the commercial sector from exceeding its sector ACL or ACT for the remainder of the fishing year or sub-quota season.

- **b.** Close the recreational fishery of a dolphin or wahoo species or species group at such time as projected to be necessary to prevent recreational sector ACLs or ACTs from being exceeded.

- **c.** Reopen a commercial or recreational season that had been prematurely closed if needed to assure that a sector ACL or ACT can be reached.

11. If NMFS decides not to publish the proposed rule for the recommended management measures, or to otherwise hold the measures in abeyance, then the Regional Administrator must notify the Council of its intended action and the reasons for NMFS concern along with suggested changes to the proposed management measures that would alleviate the concerns. Such notice shall specify: 1) The applicable law with which the amendment is inconsistent; 2) the nature of such inconsistencies; and 3) recommendation concerning the action that could be taken by the Council to conform the amendment to the requirements of applicable law.

Preferred Alternative 3. Institute an abbreviated process for revising ABCs, ACLs and ACTs according to the existing ABC control rule.

12. Adjustments to ABCs, ACLs, and ACTs according to the existing ABC Control Rule(s) and formulas for specifying ACLs and ACTs that have been approved by the Council and that were implemented in a fishery management plan amendment to the FMP. This abbreviated process is authorized as follows:

- **a.** Following the Scientific and Statistical Committee's (SSC's) review of the stock assessment, the Council will determine if changes are needed to ABC, ACL, and/or ACT and will so advise the RA.
- **b.** The Council will first hold a public hearing during the Council meeting during which they will review the stock assessment and the SSC's recommendations. In addition, the public will be advised prior to the meeting that the Council is considering potential changes to the ABC, ACL, and/or ACT and the Council will provide the public the opportunity to comment on the potential changes prior to and during the Council meeting.
- **c.** If the Council then determines that modifications to the ABC, ACL, and/or ACT are necessary and appropriate, they will notify the RA of their recommendations in a letter with the Council's analysis of the relevant biological, economic, and social information necessary to support the Council's action.
- **d.** The RA will review the Council's recommendations and supporting information. If the RA concurs that the Council's recommendations are consistent with the objectives of the FMP, the Magnuson-Stevens Fishery Conservation and Management Act, and all other applicable law, the RA is authorized to implement the Council's proposed action through publication of appropriate notification in the *Federal Register*, providing appropriate time for additional public comment as necessary.
- **e.** If the Council chooses to deviate from the ABC control rule(s) and formulas for specifying ACLs and ACTs that the Council previously approved and that were implemented in a fishery management plan amendment to the FMP, this abbreviated process would not apply, and either the framework procedure would apply with the preparation of a regulatory amendment or a fishery management plan amendment would be prepared. Additionally, the Council may choose to prepare a regulatory amendment or a fishery management plan amendment even if they do not deviate from the previously approved ABC control rule(s) and formulas for specifying ACLs and ACTs.

13. If NMFS decides not to publish the proposed rule for the recommended management measures through this Abbreviated Framework Procedure, or to otherwise hold the measures in abeyance, then the RA must notify the South Atlantic Council of its intended action and the reasons for NMFS concern along with suggested changes to the proposed management measures that would alleviate the concerns. Such notice shall specify: 1) The applicable law with which the amendment is inconsistent; 2) the nature of such inconsistencies; and 3) recommendation concerning the action that could be taken by the South Atlantic Council to conform the amendment to the requirements of applicable law.

Action 4: Establish a commercial trip limit for dolphin in the exclusive economic zone (EEZ) throughout the South Atlantic Council's area of jurisdiction.

Preferred Alternative 1. No action. There is no commercial trip limit for dolphin for commercial dolphin wahoo permit holders.

Alternative 2: 1,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 2a: south of 31° N. Latitude
Sub-Alternative 2b: north of 31° N. Latitude

Alternative 3: 2,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 3a: south of 31° N. Latitude
Sub-Alternative 3b: north of 31° N. Latitude

Alternative 4: 3,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 4a: south of 31° N. Latitude
Sub-Alternative 4b: north of 31° N. Latitude

Alternative 5: 4,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 5a: south of 31° N. Latitude
Sub-Alternative 5b: north of 31° N. Latitude

Alternative 6: 5,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 6a: south of 31° N. Latitude
Sub-Alternative 6b: north of 31° N. Latitude

Alternative 7: 10,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 7a: south of 31° N. Latitude
Sub-Alternative 7b: north of 31° N. Latitude

Summary of Effects

Action 1. Revise acceptable biological catches (ABCs), annual catch limits (ACL), and annual catch targets (ACTs) for dolphin and wahoo.

Preferred *Alternative 2 – Revise the acceptable biological catches, annual catch limits, and annual catch targets for dolphin and wahoo with landings from Marine Recreational Information Program, commercial accumulated landings system, and NMFS headboat survey.*

Biological Effects
Although negligible, greater biological benefits are expected under **Preferred Alternative 2** as opposed to **Alternative 1** (**No Action**), because it is based on the best available data. While the percent differences in the revised ABCs and ACLs in Dolphin Wahoo Amendment 5 may be relatively small from the status quo levels, the data revealed by the new and updated methodology more accurately represent the fishing effort for these species, and would be more likely to trigger AMs when needed. In contrast, **Alternative 1 (No Action)** could either result in triggering an AM when it is not needed, or not triggering an AM when it is needed. Therefore, both direct and indirect biological effects to the fishery resource could be expected.

Economic Effects
Alternative 1 (No Action) would not revise the ABCs, ACLs (including sector ACLs), and ACTs that were established in 2012 for dolphin and wahoo, despite more recent improvements in landings data. Thus, the status quo alternative would retain biological standards (and management measures) that are no longer based on the best available data. In the long term, **Alternative 1 (No Action)** could yield smaller net economic benefits than **Preferred Alternative 2** because the former is not based on the best available data.

Social Effects
The social effects of potential changes in the ACLs for dolphin and wahoo (**Preferred Alternative 2**) are expected to occur in the short and long term, and are closely associated with biological and economic impacts of these actions. Overall, adjustments in ACLs based on improved information (**Preferred Alternative 2**) would be beneficial to the species and would likely produce long-term benefits to the fishermen, coastal communities, and fishing businesses by contributing to sustainable harvest of these fish in the present and future.

Administrative Effects
The mechanisms for monitoring and documentation of ABCs, ACLs, ACTs, and AMs are already in place through implementation of the Comprehensive ACL Amendment (SAFMC 2011a), Amendment 17A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP; SAFMC 2010a), and Amendment 17B to the Snapper Grouper FMP (SAFMC 2010b), and reflects **Alternative 1** (**No Action**). The administrative impacts of **Preferred Alternative 2** would be similar to **Alternative 1** (**No Action**). Other administrative burdens that may result from revising the values under **Preferred Alternative 2** would take the form of development and dissemination of outreach and education materials for fishery participants and law enforcement.

Action 2. Revise the accountability measures (AMs) for dolphin and wahoo.

Preferred *Alternative 2,* ***Preferred*** *sub-alternative 2c – Add a pay-back provision to the existing AMs for dolphin and wahoo for the commercial sector.*

Preferred *Alternative 3,* ***Preferred*** *sub-alternative 3c –Add a pay-back provision to the existing AMs for dolphin and wahoo for the recreational sector.*

Biological Effects
Alternative 1 (No Action) would not modify the way in which the dolphin wahoo fishery in the southeast is prosecuted; nor would this action increase fishing or change fishing methods for species targeted within the Dolphin Wahoo FMP. For the commercial sector, the biological benefits of **Preferred Alternative 2** and its sub-alternatives would be greater than **Alternative 1 (No Action)**. Similar to **Alternative 1 (No Action)**, **Preferred Alternative 2** and its sub-alternatives would prohibit harvest of dolphin or wahoo when the commercial ACL is met or projected to be met. **Sub-alternative 2a** would reduce the ACL in a year following an overage, but only if a species is overfished. **Sub-alternative 2b** would have a greater biological benefit than either **Alternative 1 (No Action)** or **Sub-alternative 2a,** because **Sub-alternative 2b** would prohibit harvest of dolphin or wahoo if the overall ACL (commercial and recreational) is met, regardless of the overfished status. **Preferred Sub-alternative 2c** is similar to **Sub-alternative 2b**, with the exception that commercial ACL in the following season would only be reduced if the total ACL is met, and the stock is overfished. Therefore, **Preferred Sub-alternative 2c** would be expected to yield the least amount of biological benefit among the sub-alternatives under **Preferred Alternative 2,** but a greater biological effect than **Alternative 1 (No Action)**.

Preferred Alternative 3 and its sub-alternatives address the recreational sector. Similar to the status quo **Alternative 1 (No Action)**, the length of the recreational season would only be reduced under **Preferred Alternative 3** and its sub-alternatives if the best scientific information available indicates a reduction is necessary. Unlike **Alternative 1 (No Action)**, the sub-alternatives under **Preferred Alternative 3** provide a mechanism to reduce the recreational ACL when an overage occurs. Action is taken under **Preferred Alternative 3** if the stock is overfished (**Sub-alternative 3a**), both commercial and recreational ACLs are exceeded (**Sub-alternative 3b**), or stock is overfished and commercial and recreational ACLs are exceeded (**Preferred Sub-alternative 3c**). In contrast, **Alternative 1 (No Action)** reduces the length of the following recreational fishing season following a persistent recreational ACL overage regardless of the overfished status of the stock. The biological benefits of **Alternative 1 (No Action)** would be expected to be greater than any of the sub-alternatives under **Preferred Alternative 3** because the triggering the AM is based on only exceeding the recreational ACL. The biological benefits of **Preferred Sub-alternative 3c** would be the least among the recreational AM alternatives because an AM would only be triggered if the stock is overfished, and the commercial and recreational ACLs are exceeded. Therefore, **Alternative 1 (No Action)** would be expected to have the greatest biological benefit among the recreational AM alternatives, followed by **Sub-alternative 3b**, **3a**, and **Preferred Sub-alternative 3c**.

Economic Effects
When an AM is triggered, there is the possibility of negative economic effects due to lost opportunity to continue fishing. The magnitude of that potential loss cannot be estimated unless one knows when a species will close. ACLs have only been in place for dolphin and wahoo since 2012. The commercial sector for wahoo closed December 19, 2012, with only 13 days left in the season.

Of the remaining of alternatives/sub-alternative combinations, **Sub-alternatives 2b** and **3b** have the greatest probability of triggering paybacks. **Sub-alternative 2a, Preferred Sub-alternative 2c, Sub-alternative 3a,** and **Preferred Sub-alternative 3c** all require that to trigger paybacks for dolphin or wahoo, the stock must be overfished. An overfished status of a stock is typically determined as the result of a SEDAR stock assessment or other determination used by the SSC. As neither of these stocks has been assessed in recent years, nor has the SSC determined them to be overfished, **Sub-alternative 2a, Preferred Sub-alternative 2c, Sub-alternative 3a,** and **Preferred Sub-alternative 3c** would not trigger paybacks. The probability of the stocks being both overfished and the total ACL being exceeded (**Preferred Sub-alternatives 2c** and **3c**), is lower than just one of the conditions occurring. Therefore, **Preferred Sub-alternatives 2c** and **3c** have the lowest probability of triggering paybacks.

The selection of any of the sub-alternatives under **Preferred Alternatives 2** or **3** does not change the basic premise of **Alternative 1 (No Action)** that commercial fishing will be stopped when the commercial ACL has been reached or following recreational fishing shortened when recreational ACL is exceeded. An increased probability that paybacks would occur in the short term has greater potential for direct economic effects, therefore, from lowest to highest probability of paybacks would be **Alternative 1 (No Action)**, **Preferred Sub-alternatives 2c** and **3c**, **Sub-alternatives 2a** and **3a**, followed by **Sub-alternatives 2b** and **3b**.

Social Effects
AMs can have significant direct and indirect social effects because, when triggered, can restrict harvest in the current season or subsequent seasons. Currently there is no post-season AM (pay-back) for the commercial sector or recreational sector. Under **Alternative 1 (No Action)** there would be no expected negative impacts on commercial and recreational fishermen from a pay-back provision, but there may be some negative long-term impacts on the fleets and private recreational anglers if the ACLs are exceeded over several years and have negative impact on the stocks. The AMs under **Preferred Alternative 2** would help to provide this protection to the stock and would contribute to sustainable harvest of dolphin and wahoo.

Administrative Effects
Current AMs for dolphin and wahoo were implemented by the Comprehensive ACL Amendment, therefore, the mechanisms for monitoring and enforcing the ACLs are already in place. The South Atlantic Council is working towards having consistent AMs for all its managed species. Consistency in regulations among different species could help reduce the public's confusion, could better aid law enforcement, and could possibly reduce the instances of ACLs being exceeded. Therefore, while in the short term, there might be additional administrative costs, these might be offset in the long term by fewer instances of AMs being triggered and their related administrative costs.

Action 3. Revise the framework procedure in the Dolphin Wahoo FMP.

Preferred *Alternative 2 – Include the following in the Dolphin Wahoo FMP framework: Update the framework procedure to revise the specification of Total Allowable Catch (TAC) for the Dolphin Wahoo FMP in terms that incorporate ACLs, ACTs, and AMs. Such modifications would be based upon new scientific information indicating such modifications are prudent. Changes to the ACLs, ACTs and AMs will be made using the following procedure once the new ACLs, ACTs and AMs are established by the Council. Allows for changes to be made to the ABC control rule. Also include additional language to reflect SEDAR and SSC roles in setting MSY, OY, and ABC.*

Preferred *Alternative 3 – Institute an abbreviated process for revising ABCs, ACLs and ACTs according to the existing ABC control rule.*

Biological Effects
Under **Preferred Alternative 2**, if found not to be significant, adjustments to, ABC control rule, ACLs, ACTs, AMs, MSY, and OY could be through a framework process rather than with a plan amendment. Additionally, **Preferred Alternative 3** would specify an abbreviated process that would allow changes to be made relatively quickly as new fishery and stock abundance information becomes available. Alternatives that would update or revise the current procedure would likely be biologically beneficial for dolphin and wahoo because they would also allow periodic adjustments to harvest parameters, and management measures could be altered in a more timely manner in response to stock assessment, survey results, or other similar information. When stock assessments indicate large decreases in the ACLs are needed, a quick adjustment to the catch level would likely have positive biological effects. The SEDAR process currently only produces one stock assessment for a species every three to five years. As such, the data utilized in the assessment are at least one year old by the time the assessment results become available and can be used for management purposes. It is, therefore, advantageous to make any modifications to the existing management process, as proposed under **Preferred Alternatives 2** and **3** to expedite fishing level adjustments for dolphin and wahoo. **Alternative 1 (No Action)** would retain the existing management process, and biological benefits would be greater under **Preferred Alternatives 2** and **3**.

This action is administrative in nature and would not significantly alter the way in which the dolphin wahoo fishery is prosecuted in the Atlantic Region. Therefore, no impacts on Endangered Species Act-listed marine species, EFH, HAPCs, or coral HAPCs are expected as a result of updating the Dolphin Wahoo Framework Procedure.

Economic Effects
Without an abbreviated framework process, **Alternative 1 (No Action)** could negatively impact the recreational and commercial fishing sectors should new data indicate that a stock had improved but the South Atlantic Council had no means to rapidly increase the ACL, resulting in loss of opportunity, income, and/or recreational angling experiences. However, if an assessment indicated a substantial decrease in the ACL was needed **Alternative 1 (No Action)** would retain a more deliberative process of ensuring the public was well-informed regarding the needed changes in catch levels. **Preferred Alternative 2**, which would allow for adjustments to, ABC control rule, ACLs, ACTs, AMs, MSY, and OY could be through a framework process, would result in positive or negative economic effects. When stock assessments indicate ACLs can be increased, quick

adjustments for ACLs would allow for positive economic effects without negatively affecting the sustainability of the stock. On the other hand, when stock assessments indicate large decreases in the ACLs are needed, it is likely that negative economic effects would result from moving quickly with a decrease in a catch level. However, depending on the timing of the implementation of the ACLs, the positive or negative economic effect would be short-lived as the overall net economic effect to the economy is likely to remain unchanged by this action. **Preferred Alternative 3**, which provides the option for an abbreviated process for revising ABCs, ACLs and ACTs, is expected to have the same economic effects as **Preferred Alternative 2**, however, with the abbreviated process, the economic effects, both positive and negative impact the fisheries more quickly.

Social Effects

Alternative 1 (No Action) would allow for neither updates in the management framework procedure nor development of a process to incorporate new information to adjust ACLs. This could negatively impact the recreational and commercial fishing sectors should new data indicate that a stock had improved but the South Atlantic Council had no means to rapidly increase the ACL, resulting in loss of opportunity, income, and/or recreational angling experiences.

Preferred Alternatives 2 and **3** would generate indirect positive effects on the social environment with the framework modifications to incorporate a procedure for adjusting ACLs in a timely manner; updating text to reflect adoption of SEDAR as the source of stock assessment information (**Preferred Alternatives 2** and **3**) would provide consistency in language with regulatory changes and have few effects on the social environment. Consistency and timeliness in the regulatory process are positive social benefits as they remove uncertainty and subsequent displeasure with regard to changes in management while protecting the stock.

Administrative Effects

Alternative 1 (No Action) would be the most administratively burdensome of the three alternatives being considered, because all modifications to ABCs, ABC control rule, ACLs, ACTs, and AMs would need to be implemented through an plan amendment, which is a more laborious and time consuming process than a framework action. **Preferred Alternatives 2** and **3** would allow modifications to the ABC control rule, ACLs, AMs, and ACTs to be modified via a framework procedure expedited to shorten the length of time it takes to implement routine changes in harvest limits. Additionally, the framework procedure would reflect SEDAR and SSC roles in setting MSY, OY, and ABC. It is anticipated that this streamlined approach would eliminate the lengthy regulatory amendment process, and would minimize administrative impacts since a regulatory amendment would not be required to make such changes.

Action 4. Establish a commercial trip limit for dolphin in the EEZ throughout the South Atlantic Council's area of jurisdiction.

Preferred *Alternative 1. No action. There is no commercial trip limit for dolphin for commercial dolphin wahoo permit holders.*

Biological Effects

Alternatives 2-7 include a wide range of trip limits from 1,000 pounds whole weight (lbs ww) under **Alternative 2**, which is the most restrictive alternative, to 10,000 lbs ww, under **Alternative 7**, which

is the least restrictive alternative. **Alternatives 2-7** would have very little effect on constraining harvest of dolphin as 98 percent of the trips harvested 1,000 lbs ww or less of dolphin. Longline gear is more efficient at harvesting large quantities of dolphin than hook-and-line, and would be most affected by trip limits. Although there were very few trips, only the longline sector had trips of 3,000 lbs ww to 5,000 lbs ww (**Alternatives 4-6**), and they were the dominant gear for trips landing 1,000 lbs ww and 2,000 lbs ww (**Alternatives 2** and **3**). ACLs and AMs are in place to ensure overfishing of dolphin does not occur; therefore, biological effects of **Preferred Alternative 1 (No Action)** and **Alternatives 2-7** for dolphin are expected to be similar. However, bycatch of protected species such as sea turtles are documented with longline gear; therefore, alternatives that would establish a higher trip limit, would likely be met using longline gear, and would be expected to have lower biological benefits.

Economic Effects

Setting trip limits has economic effects. In general, the lower the trip limit, the greater the direct negative effect that comes as a result of ending a trip sooner to keep from going over the trip limit. Trip limits are employed largely to avoid localized depletion or to extend a fishing season. A trip limit tends to increase trip costs per pound of fish landed. The lower the trip limit, the greater the trip cost effect on the resulting value of the catch.

On average, there were 72 longline trips north of 31° North latitude each year from 2008 through 2012. While the majority (60 percent) of longline trips landed less than 1,000 lbs ww north of 31° North latitude, 40 percent of the longline trips from this area landed more than 1,000 lbs ww. However, there were no longline trips north of 31° North latitude that landed more than 15,000 lbs ww, and only two trips on average each year landed more than 10,000 lbs ww of dolphin north of 31° North latitude. In order, from least to most expected direct economic effects, **Alternative 2** would be expected to have the greatest effects at $249,762 annually, followed in order by **Alternative 3, 4, 5, 6,** and **7**.

Social Effects

Preferred Alternative 1 (No Action) would be expected to generate little or no social impacts (positive or negative). The highest proposed trip limit under **Alternative 7** would be the most beneficial to vessels harvesting dolphin, and **Alternative 2** would be the most restrictive for vessels with the capacity to harvest more than 1,000 lbs ww. Although lower trip limits may contribute to a longer fishing season, the more restrictive limits may cause some vessels to target other species to increase the economic efficiency of fishing trips. Requiring a trip limit only for certain areas under **Sub-alternatives a** and **b** under **Alternatives 2-7** could result in some issues of fairness between fishermen in the northern and southern areas. However, different trip limits in different areas could reduce the likelihood of localized depletion or user conflicts.

Administrative Effects

Alternatives 2 through **7** (and their respective sub-alternatives) would add administrative burdens when compared with **Preferred Alternative 1** (**No Action**). Enforcement costs could increase due to the establishment of commercial trip limits, since these would now have to be monitored and enforced. Additionally, legal costs would be incurred from prosecuting any violations that could occur.

Chapter 1.
Introduction

1.1 What Actions Are Being Proposed?

Management measures for dolphin and wahoo in the Amendment 5 to the Fishery Management Plan (FMP) for the Dolphin Wahoo Fishery of the Atlantic (Dolphin Wahoo Amendment 5) are:

- Revisions to acceptable biological catch estimates (ABCs), annual catch limits (ACLs), recreational annual catch targets (ACTs), and accountability measures (AMs) implemented through the Comprehensive ACL Amendment (SAFMC 2011a).
- Inclusion of payback provisions for sector ACL overages.
- Revisions to the framework procedure in the Dolphin Wahoo FMP.
- The Council considered a commercial trip limit for dolphin but chose not to include a trip limit.

1.2 Who is Proposing the Actions?

The South Atlantic Fishery Management Council (South Atlantic Council) is proposing the actions. The South Atlantic Council recommends management measures and submits them to the National Marine Fisheries Service (NMFS) who ultimately approves, disapproves, or partially approves, and implements the actions in the amendment through the development of regulations on behalf of the Secretary of Commerce. NMFS is an agency in the National Oceanic and Atmospheric Administration within the Department of Commerce.

South Atlantic Fishery Management Council

- Responsible for conservation and management of fish stocks
- Consists of 13 voting members: 8 appointed by the Secretary of Commerce, 1 representative from each of the 4 South Atlantic states, the Southeast Regional Director of NMFS; and 4 non-voting members
- Responsible for developing fishery management plans and amendments under the Magnuson-Stevens Act; recommends actions to NMFS for implementation
- Management area is from 3 to 200 miles off the coasts of North Carolina, South Carolina, Georgia, and east Florida through Key West with the exception of Mackerel which is from New York to Florida, and Dolphin Wahoo, which is from Maine to Florida

1.3 Where is the Project Located?

Management of the federal dolphin and wahoo fishery located off the eastern United States (Atlantic) in the 3-200 nautical miles U.S. Exclusive Economic Zone (EEZ) is conducted under the Dolphin Wahoo FMP, SAFMC 2003) (**Figure 1-1**).

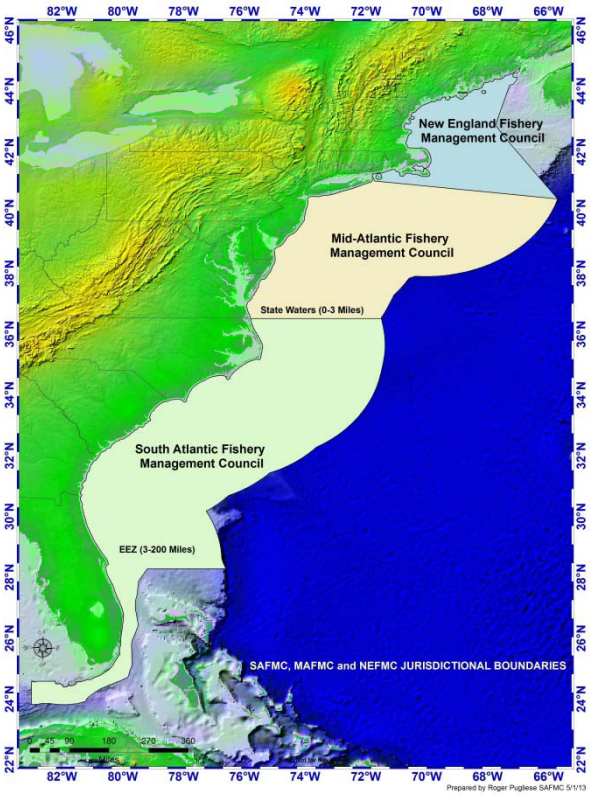

Figure 1-1. Jurisdictional boundaries of the Dolphin and Wahoo FMP for the Atlantic as managed by the South Atlantic Council.

1.4 Why are the Council and NMFS Considering these Actions?

Recreational catch estimates for dolphin and wahoo in the Comprehensive Annual Catch Limit (ACL) Amendment and its integrated Final Environmental Impact Statement (FEIS) (SAFMC 2011a), which included Amendment 3 to the Dolphin Wahoo FMP were computed using data generated by the Marine Recreational Fisheries Statistics Survey (MRFSS). Following an independent review by the National Research Council and a mandate from Congress, NMFS replaced MRFSS with the Marine Recreational Information Program (MRIP) to provide more accurate recreational catch estimates. The South Atlantic Council stated in the Comprehensive ACL Amendment that they would take action as needed, via plan amendment or framework amendment, to revise the appropriate values, in 2012 and beyond. MRIP methods have been used to recalculate previous MRFSS estimates dating back to 1986, and will be the basis for all new estimates moving forward.

The revisions are necessary because if the ABC, ACL, and ACT values are not updated with the new MRIP estimates, ACLs would be be based on MRFSS data while the landings being used to track the ACLs would be estimated using MRIP data. This would result in a disconnect in how ACLs are calculated versus how they are monitored. In addition to MRIP data, ACLs would be updated to include revisions to commercial and for-hire landings data. The changes in data impacts the allocations to the commercial and recreational sectors for dolphin and wahoo; however, because the underlying formula used to establish the allocations remains unchanged from what was implemented previously in the Comprehensive ACL Amendment, the magnitude of change is very small. Using MRIP values to estimate recreational landings, as well as updates to headboat and commercial landings represent the best available data and are

therefore, in accordance with National Standard 2 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Additionally, the South Atlantic Council is proposing to revise the accountability measures (AMs) for dolphin and wahoo to enhance their effectiveness and move towards standardizing AMs across species; updating the Dolphin Wahoo FMP (SAFMC 2003) to allow items such as the ABC control rule, ACLs, ACTs, and AMs to be changed by a framework action so that updates can be implemented more quickly; and establishing commercial trip limits for dolphin to prevent potential localized depletion.

1.5 What are the data sources considered in this amendment?

The Comprehensive ACL Amendment (SAFMC 2011a) established methods for the computation of ABC, allocations of ABC to sectors for the establishment of sector ACLs, and recreational ACTs. Since implementation of the Comprehensive ACL Amendment, there have been substantial improvements in the data collection and catch estimation methodologies that are used to generate the data for the computation of ABCs, ACLs, and ACTs.

Dolphin Wahoo Amendment 5 presents ABCs, ACLs, and ACTs computed using methods identical to those used in the Comprehensive ACL Amendment. All changes are due to improvements in the underlying data only.

The first dataset referred to as the "New MRFSS & Commercial" data contains updated Southeast Fisheries Science Center (SEFSC) Headboat Survey and MRFSS data (1986-2008) and updated commercial data (1986-2008). The 30 August 2012 recreational ACL and the 3 July 2012 commercial datasets were used to generate these combined data. In addition to minor revisions of historical catch data generated by removal of duplicate records and other quality control activities, these data feature two major differences from the datasets used in the Comprehensive ACL Amendment: (1) A more statistically robust MRFSS weight backfill procedure and (2) an improved charter calibration method for MRFSS (1986-2004) data (see SEDAR 25 Data Workshop Report in SEDAR 25 (2011), for details). The updated ABCs, ACLs, and ACTs computed from these

Purpose for Action

The purpose of Amendment 5 to the Fishery Management Plan for the Dolphin Wahoo Fishery for the Atlantic (Dolphin Wahoo Amendment 5) is to revise the ABCs, ACLs, recreational ACTs, and sector AMs for dolphin and wahoo. The revisions incorporate updates to the recreational data as per MRIP, as well as revisions to commercial and for-hire landings. The revisions are necessary to avoid triggering AMs for dolphin and wahoo based on ACLs that were established by the Comprehensive ACL Amendment (77 FR 15916) using recreational data under the MRFSS system. MRFSS ceased to exist in January 2013, and was replaced with MRIP. Additionally, this amendment would revise the framework procedure for dolphin and wahoo; and establish commercial trip limits for dolphin.

Need for Action

The intent of Dolphin Wahoo Amendment 5 is to base conservation and management measures upon the best scientific information available, and to prevent unnecessary negative socio-economic impacts that may otherwise be realized in the dolphin wahoo fishery and fishing community, in accordance with the provisions set forth in the Magnuson-Stevens Act.

data facilitate a more direct comparison with the impacts of switching from MRFSS-based to MRIP-based recreational data.

The final dataset, referred to herein as the "MRIP & New Commercial" data, replaces the MRFSS-based recreational data with MRIP-based recreational data. These are the data that are used in Dolphin Wahoo Amendment 5 under Alternative 2 in Action 1 to generate the revised ABC, allocation, ACL, and ACT values. These data are based upon the 3 July 2012 commercial ACL and the 1 October 2012 recreational ACL datasets. The updated recreational ACL dataset contains MRIP official re-estimates (2004-2008) and recalibrated MRFSS data (1986-2003).

The MRIP process was begun in 2004 to address issues identified by the National Research Council (NRC) in the existing MRFSS program. The goal of MRIP is to provide more detailed, timely, and reliable estimates of marine recreational fishing catch and effort. One step in this process was to take old MRFSS data (2004-2011) and re-estimate it using MRIP methods that remove sources of bias identified by the NRC. Using these official MRIP estimates, the Southeast Regional MRIP Recalibration Working Group developed recalibration methods to address regional needs, following the procedures recommended by the MRIP Ad-Hoc Working Group (**Appendix F**). The MRFSS data (1986-2003) were recalibrated to be more appropriately scaled to MRIP using a ratio of mean landings in numbers at the stock, sub-region, and mode level (when available), based upon the MRFSS (2004-2011) and MRIP (2004-2011) data. These ratios were applied at each stratum (stock, sub-region, year, wave, state, mode, and area) to the catches to develop the recalibrated MRFSS dataset. Average weights were then assigned to strata using the SEFSC's statistically robust weight estimation procedure, and total landings in pounds were computed.

When the section on the economic description of the fishery was drafted, the most recent recreational harvest estimates available were the February 25, 2013 MRFSS ACL file, along with the May 9, 2013 Headboat file. These databases were used to generate Tables 3-3-7 through 3-3-10.

1.6 What is the History of Management for Dolphin and Wahoo?

Dolphin management was originally a part of the FMP for Coastal Pelagic Resources in the Gulf of Mexico and South Atlantic Regions. Under that plan, a control date of May 21, 1999, for possible future limited entry was established for the commercial dolphin and wahoo fishery in the South Atlantic.

Dolphin and wahoo regulations were first implemented in 2003 through a separate FMP for the Dolphin and Wahoo Fishery of the Atlantic (SAFMC 2003). That plan established:

1. A separate management unit for dolphin and wahoo in the US Atlantic
2. A dealer permit
3. For-hire and commercial vessel permits
4. For-hire and commercial operator permit
5. Reporting requirements
6. Maximum Sustainable Yield (MSY) and Optimal Yield (OY)
7. Defined overfishing
8. A management framework
9. Prohibit recreational sale of dolphin or wahoo except by for-hire vessels with a commercial permit
10. A 1.5 million pounds (lbs) or 13% of the total catch soft cap for the commercial sector
11. A recreational bag limit of 10 dolphin per person, 60 dolphin per vessel maximum
12. A minimum size limit of 20 inches fork length off Georgia and Florida
13. A commercial trip limit of 500 lbs of wahoo with no at-sea transfer
14. A recreational bag limit of 2 wahoo per person, per day

15. Allowable gear for dolphin and wahoo in the Atlantic EEZ as longline; hook and line gear including manual, electric, or hydraulic rod and reels; bandit gear; handline; and spearfishing gear (including powerheads)
16. A prohibition on the use of surface and pelagic longline gear for dolphin and wahoo within any "time or area closure" in the South Atlantic Council's area of jurisdiction (Atlantic Coast) which is closed to the use of pelagic gear for highly migratory pelagic species
17. The fishing year of January 1 to December 31 for the dolphin and wahoo fishery
18. Essential Fish Habitat (EFH) for dolphin and wahoo as the Gulf Stream, Charleston Gyre, and Florida Current
19. EFH-Habitat Areas of Particular Concern (EFH-HAPC) for dolphin and wahoo in the Atlantic to include The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and The Georgetown Hole (South Carolina); The Point off Jupiter Inlet Florida); The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; and The "Wall" off of the Florida Keys

The FMP for Pelagic Sargassum Habitat in the South Atlantic Region (SAFMC 2002) and the Comprehensive Ecosystem-Based Amendment 1 (SAFMC 2009a) designated additional EFH and EFH-HAPCs for dolphin and wahoo.

The Comprehensive ACL Amendment (SAFMC 2011a) established the ABC control rule, ABC, ACL, OY, and AMs in the dolphin and wahoo fishery for both the commercial and recreational sectors. The Comprehensive ACL Amendment set an ACT for the recreational sector dolphin and wahoo.

Chapter 2. Proposed Action and Alternatives

2.1 Action 1. Revise acceptable biological catches (ABCs), annual catch limits (ACLs), and annual catch targets (ACTs) for dolphin and wahoo.

2.1.1 Alternatives

Alternative 1 (No action). Acceptable biological catches, annual catch limits, and annual catch targets for dolphin and wahoo are based on the Marine Recreational Fisheries Statistics Survey, commercial accumulated landings system, and NMFS headboat survey.

Preferred Alternative 2. Revise the acceptable biological catches, annual catch limits, and annual catch targets for dolphin and wahoo with landings from Marine Recreational Information Program, commercial accumulated landings system, and NMFS headboat survey.

Table 2-1. Alternative 1 (No Action). ABCs, ACLs, and ACTs for dolphin and wahoo, as implemented through the Comprehensive ACL Amendment (SAFMC 2011a).

Dolphin	Commercial	Recreational	Total
ACL=OY=ABC (lbs ww)	---	---	14,596,216
Allocation %	7.3%	92.7%	100%
Sector ACL (lbs ww)	1,065,524	13,530,692	
Sector ACT (lbs ww)	None	ACT equals [sector ACL *(1-PSE)] or [ACL*0.5], whichever is greater = 11,595,803	---
Wahoo	**Commercial**	**Recreational**	**Total**
ACL=OY=ABC (lbs ww)	---	---	1,491,785
Allocation %	4.3%	95.7%	100%
Sector ACL (lbs ww)	64,147	1,427,638	---
Sector ACT (lbs ww)	None	ACT equals [sector ACL *(1-PSE)] or [ACL*0.5], whichever is greater = 1,164,953	---

Note: PSE stands for proportional standard error.

Table 2-2. Preferred Alternative 2. Revised ABCs, ACLs, and ACTs for dolphin and wahoo using MRIP and updated commercial data.

Dolphin	Commercial	Recreational	Total
ACL=OY=ABC (lbs ww)	---	---	15,344,846
Allocation %	7.54%	92.46%	100%
Sector ACL (lbs ww)	1,157,001	14,187,845	
Sector ACT (lbs ww)	None	ACT equals [sector ACL *(1-PSE)] or [ACL*0.5], whichever is greater = 12,769,061	---
Wahoo	**Commercial**	**Recreational**	**Total**
ACL=OY=ABC (lbs ww)	---	---	1,794,960
Allocation %	3.93%	96.07%	100%
Sector ACL (lbs ww)	70,542	1,724,418	---
Sector ACT (lbs ww)	None	ACT equals [sector ACL *(1-PSE)] or [ACL*0.5], whichever is greater = 1,258,825	---

Note: PSE stands for proportional standard error.

The proportional standard error (PSE) calculations of the recreational ACTs for **Alternative 1 (No Action)** are based on MRFSS estimates, from the Comprehensive ACL Amendment (SAFMC 2011a). The South Atlantic Council's guidance in that amendment was to use a 3-year (2007-2009) average value of 7.0 for dolphin, and a 5-year (2005-2009) average of 18.4 for wahoo. The PSE calculations of the recreational ACTs for **Preferred Alternative 2** are based on MRIP estimates. The PSE for dolphin is 0.10 using a PSE 3-year average from 2007-2009. The PSE for wahoo is 0.27 using a PSE 5-year average from 2005-2009.

2.1.2 Summary of the Effects of the Alternatives

Although negligible, greater biological benefits are expected under **Preferred Alternative 2** as opposed to **Alternative 1** (**No Action**), because it is based on the best available data. **Alternative 1 (No Action)** could either result in triggering an AM when it is not needed, or not triggering an AM when it is needed. In the long term, **Alternative 1 (No Action)** could yield smaller net economic benefits than **Preferred Alternative 2** because the former is not based on the best available data. The social effects of potential changes in the ACLs for dolphin and wahoo (**Preferred Alternative 2**) are expected to occur in the short and long term, and are closely associated with biological and economic impacts of these actions. Overall, adjustments in ACLs based on improved information (**Preferred Alternative 2**) would be beneficial to the species and would likely produce long-term benefits to the fishermen, coastal communities, and fishing businesses by contributing to sustainable harvest of these fish in the present and future. The administrative impacts of **Preferred Alternative 2** would be similar to **Alternative 1** (**No Action**).

2.2 Action 2. Revise the accountability measures (AMs) for dolphin and wahoo.

2.2.1 Alternatives

Alternative 1 (No Action). (1) Commercial sector. If commercial landings as estimated by the Science and Research Director (SRD), reach or are projected to reach the commercial ACL, the Regional Administrator shall publish a notice to close the commercial sector for the remainder of the fishing year.
(2) Recreational sector. If recreational landings, as estimated by the SRD, exceed the recreational ACL, then during the following fishing year, recreational landings will be monitored for a persistence in increased landings and, if necessary, the RA shall publish a notice to reduce the length of the following recreational fishing season by the amount necessary to ensure recreational landings do not exceed the recreational ACL in the following fishing year. However, the length of the recreational season will also not be reduced during the following fishing year if the RA determines, using the best scientific information available, that a reduction in the length of the following fishing season is unnecessary.

Preferred Alternative 2. If commercial landings as estimated by the Science and Research Director (SRD) reach or are projected to reach the commercial ACL, the Regional Administrator shall publish a notice to close the commercial sector for the remainder of the fishing year. Additionally,

- **Sub-alternative 2a.** If the commercial ACL is exceeded, the RA shall publish a notice to reduce the commercial ACL in the following fishing year by the amount of the commercial overage, only if the species is overfished.
- **Sub-alternative 2b.** If the commercial ACL is exceeded, the RA shall publish a notice to reduce the commercial ACL in the following fishing year by the amount of the commercial overage, only if the total ACL (commercial ACL and recreational ACL) is exceeded.
- **Preferred Sub-alternative 2c.** If the commercial ACL is exceeded, the RA shall publish a notice to reduce the commercial ACL in the following fishing year by the amount of the commercial overage, only if the species is overfished **and** the total ACL (commercial ACL and recreational ACL) is exceeded.

Preferred Alternative 3. If recreational landings, as estimated by the SRD, exceed the recreational ACL, then during the following fishing year, recreational landings will be monitored for a persistence in increased landings.

- **Sub-alternative 3a.** If necessary, the RA shall publish a notice to reduce the length of fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage, only if the species is overfished. The length of the recreational season and recreational ACL will not be reduced if the RA determines, using the best scientific information available, that a reduction is unnecessary.
- **Sub-alternative 3b.** If necessary, the RA shall publish a notice to reduce the length of fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage, only if the total ACL (commercial ACL and recreational ACL) is exceeded. The length of the recreational season and recreational ACL will not be reduced if the RA determines, using the best scientific information available, that a reduction is unnecessary.

Preferred Sub-alternative 3c. If necessary, the RA shall publish a notice to reduce the length of fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage, only if the species is overfished **and** the total ACL (commercial ACL and recreational ACL) is exceeded. The length of the recreational season and recreational ACL will not be reduced if the RA determines, using the best scientific information available, that a reduction is unnecessary.

2.2.2 Summary of the Effects of the Alternatives

For the commercial sector, the biological benefits of **Preferred Alternative 2** and its sub-alternatives would be greater than **Alternative 1** (No Action). **Sub-alternative 2b** would have a greater biological benefit than either **Alternative 1 (No Action)** or **Sub-alternative 2a,** because **Sub-alternative 2b** is pro-active in nature, and would be effective if the overall ACL (commercial and recreational) is met, regardless of the overfished status. **Preferred Sub-alternative 2c** would be expected to yield the least amount of biological benefit among the sub-alternatives under **Preferred Alternative 2,** but a greater biological effect than **Alternative 1 (No Action)**. **Alternative 1 (No Action)** would be expected to have the greatest biological benefit among the recreational AM alternatives, followed by **Sub-alternative 3b**, **3a**, and **3c**. When an AM is triggered, there is the possibility of negative economic effects due to lost opportunity to continue fishing. **Sub-alternative 2a, Preferred Sub-alternative 2c, Sub-alternative 3a,** and **Preferred Sub-alternative 3c** all require that to trigger paybacks for dolphin or wahoo, the stock must be considered overfished. As neither dolphin nor wahoo has been recently assessed, it is unlikely **Sub-alternative 2a, Preferred Sub-alternative 2c, Sub-alternative 3a,** and **Preferred Sub-alternative 3c** would trigger paybacks. An increased probability that paybacks would occur in the short term have greater potential for direct economic effects. Under **Alternative 1 (No Action)** there would be no expected negative impacts on commercial and recreational fishermen from a pay-back provision, but there may be some negative long-term impacts on the fleets and private recreational anglers if the ACLs are exceeded over several years and have negative impact on the stocks. The AMs under **Preferred Alternative 2** would help to provide this protection to the stock and would contribute to sustainable harvest of dolphin and wahoo. Current AMs for dolphin and wahoo were implemented by the Comprehensive ACL Amendment, therefore, the mechanisms for monitoring and enforcing the ACLs are already in place.

2.3 Action 3. Revise the framework procedure in the Dolphin Wahoo FMP.

2.3.1 Alternatives

Alternative 1. No action. Do not modify the framework procedure established in the Dolphin Wahoo FMP (SAFMC 2003). The existing framework (p.160 of the Dolphin Wahoo FMP (2003) includes the following text:

If the RA concurs that the Council's recommendations are consistent with the goals and objectives of the plan, the National Standards, and other applicable law, he/she shall implement the regulations by proposed and final rules in the *Federal Register* prior to the appropriate fishing year or such dates as may be agreed upon with the Councils. A reasonable period for public comment shall be afforded, consistent with the urgency, if any, of the need to implement the management measure.

Appropriate regulatory changes recommended by the Council that may be implemented by the Regional Administrator by proposed and final rules in the *Federal Register* are:

a. Adjustment of the best estimate of maximum sustainable yield (MSY, range and/or best point estimate).
b. Adjustment of the best estimate of optimum yield (OY, range and/or best point estimate).
c. Initial specification of acceptable biological catch (ABC) and subsequent adjustment of the ABC range and/or best estimate when this information becomes available.
d. Setting or modifying total allowable catch (TAC).
e. Reopening of a previously closed area/season, timeframe for recovery of dolphin and wahoo should they become overfished, or fishing year which may not be adjusted by more than two months.
f. Bag limits.
g. Size limits.
h. Tackle configuration (e.g., minimum hook size).
i. Season/area closures (including spawning area closures).
j. Gear restrictions and/or prohibitions.
k. Permitting restrictions.
1. Trip limits.
m. Overfishing/overfished definitions and related thresholds (e.g., minimum stock size threshold (MSST) and maximum fishing mortality threshold (MFMT)).
n. Annual specification/quota setting process.
o. Assessment Panel composition and process.
p. Identification, designation, and modification of essential fish habitat (EFH) and EFH-habitat areas of particular concern (HAPCs).
q. Management measures to reduce or eliminate the impact of fishing gear/activities on EFH or EFH-HAPCs.
r. Specify quota for scientific research.
s. Designation of areas for scientific research.
t. Regulations of longline length if ongoing research with marine mammals documents usefulness.
u. Any other action to minimize the interaction of fishing gear with endangered species or marine mammals.
v. Allocations and modifications to allocations.

Preferred Alternative 2. Include the following in the Dolphin Wahoo FMP framework: Update the framework procedure to revise the specification of Total Allowable Catch (TAC) for the Dolphin Wahoo FMP in terms that incorporate ACLs, ACTs, and AMs. Such modifications would be based upon new scientific information indicating such modifications are prudent. Changes to the ACLs, ACTs and AMs will be made using the following procedure once the new ACLs, ACTs and AMs are established by the Council. The framework language will reflect SEDAR and SSC roles in setting MSY, OY, and ABC. The framework will also allow for modifications of the acceptable biological catch (ABC) Control Rule for dolphin and wahoo.

Alternative 2 *modifies the current dolphin wahoo framework procedure to include the language of ABCs, ACLs, ACTs, and AMs similar to Snapper Grouper Amendment 17B.* ***Alternative 2*** *will also allow the Council to adopt a modification of the ABC control rule as proposed by the SSC.* ***Alternative 3*** *follows the expedited procedure implemented by the South Atlantic Council in Snapper Grouper Amendment 27 using an abbreviated process for revising ABCs, ACLs and ACTs. Selecting* ***Alternatives 2*** *and* ***3*** *as preferred alternatives will enable the South Atlantic Council to update the dolphin wahoo framework procedure similar to the updates incorporated in the Snapper Grouper Framework procedure by Snapper Grouper Amendments 17B and 27.*

Modification of the Acceptable Biological Catch (ABC) Control Rule Procedure

1. Modifications to the ABC Control Rule will be proposed to the South Atlantic Council by the South Atlantic Council's Scientific and Statistical Committee (SSC).

2. At the Council meeting following the receipt of the recommended changes to the ABC Control Rule, the South Atlantic Council will determine if changes are needed to the ABC Control Rule and make changes as appropriate.

Table 2-3. Proposed framework modifications for the South Atlantic Council's Dolphin Wahoo FMP.

Items retained from the current framework	Items added to current framework
Adjustment of the best estimate of MSY, range and/or best point estimate.	Use of SEDAR reports or other documentation the South Atlantic Council deems appropriate to provide biological analyses.
Adjustment of the best estimate of OY, range and/or best point estimate.	The SSC prepares a written report to the South Atlantic Council specifying OFL and a range of ABCs for species in need of catch reductions to achieve OY.
Setting or modifying TAC.	
Initial specification of ABC and subsequent adjustment of the ABC range and/or best estimate when this information becomes available.	The SEDAR report or SSC will recommend rebuilding periods.
Adjustments to or implementation of trip limits.	Adjustment to ACLs and/or sector ACLs.
Adjustments to or implementation of bag limits.	Adjustment to or implementation of ACTs and/or sector ACTs.
Adjustments to or implementation of size limits.	Adjustments to or implementation of AMs.
Tackle configuration (e.g., minimum hook size).	Adjustments to ABC control rule
Season/area closures (including spawning area closures).	
Reopening of a previously closed area/season, timeframe for recovery of dolphin and wahoo should they become overfished, or fishing year which may not be adjusted by more than two months.	
Gear restrictions and/or prohibitions.	
Permitting restrictions.	
Overfishing/overfished definitions and related thresholds (e.g. MSST and MFMT).	
Annual specification/quota setting process.	
Assessment Panel composition and process.	
Identification, designation, and modification of EFH and EFH- HAPCs.	
Management measures to reduce or eliminate the impact of fishing gear/activities on EFH or EFH-HAPCs.	
Specify quota for scientific research.	
Designation of areas for scientific research.	
Regulations of longline length if ongoing research with marine mammals documents usefulness.	
Any other action to minimize the interaction of fishing gear with endangered species or marine mammals.	
Allocations and modifications to allocations.	

Dolphin Wahoo FMP Framework Procedure for Specification of Annual Catch Limits, Annual Catch Targets, Overfishing Limits, Acceptable Biological Catch (ABC) Control Rule, ABC, and annual adjustments:

Procedure for Specifications:

1. At times determined by the SEDAR Steering Committee, and in consultation with the South Atlantic Council and NMFS Southeast Regional Office (SERO), stock assessments (or future assessment updates) will be conducted under the SEDAR process for stocks managed under the Dolphin Wahoo FMP. Each SEDAR stock assessment or assessment update will: a) assess to the extent possible the current biomass, biomass proxy, or SPR levels for each stock; b) estimate fishing mortality (F) in relation to F_{MSY} (MFMT) and F_{OY}; c) determine the overfishing limit (OFL); d) estimate other population parameters deemed appropriate; e) summarize statistics on the fishery for each stock or stock complex; f) specify the geographical variations in stock abundance, mortality, recruitment, and age of entry into the fishery for each stock or stock complex; and g) develop estimates of B_{MSY}.

2. The South Atlantic Council will consider SEDAR stock assessments or other documentation the South Atlantic Council deems appropriate to provide the biological analysis and data listed above in paragraph 1. Either the SEFSC or the stock assessment branch of a state agency may serve as the lead in conducting the analysis, as determined by the SEDAR Steering Committee. After reviewing the SEDAR stock assessments, the SSC will prepare a written report to the South Atlantic Council specifying an OFL and may recommend a range of ABCs for each stock complex that is in need of catch reductions for attaining or maintaining OY. The OFL is the annual harvest level corresponding to fishing at MFMT (F_{MSY}). The ABC range is intended to provide guidance to the SSC and is the amount of the OFL as reduced due to scientific uncertainty in order to reduce the probability that overfishing will occur in a year. To the extent practicable, the probability that overfishing will occur at various levels of ABC and the annual transitional yields (i.e., catch streams) calculated for each level of fishing mortality within the ABC range should be included with the recommended range.

For overfished stocks, the recommended range of ABCs shall be calculated so as to end overfishing and achieve stock population levels at or above B_{MSY} within the rebuilding periods specified by the South Atlantic Council and approved by NMFS. The SEDAR report or SSC will recommend rebuilding periods based on the provisions of the National Standard Guidelines, including generation times for the affected stocks. Generation times are to be specified by the stock assessment panel based on the biological characteristics of the individual stocks. The report will recommend to the South Atlantic Council a B_{MSY} level and a MSST from B_{MSY}. The report may also recommend more appropriate estimates of F_{MSY} for any stock. The report may also recommend more appropriate levels for the MSY proxy, OY, the overfishing threshold (MFMT), and overfished threshold (MSST). For stock or stock complexes where data are inadequate to compute an OFL and recommended ABC range, the SSC will use other available information as a guide in providing their best estimate of an OFL corresponding to MFMT and ABC range that should result in not exceeding the MFMT.

3. The SSC will examine SEDAR reports or other new information, the OFL determination, and the recommended range of ABC. In addition, the SSC will examine information provided by the social scientists and economists from the South Atlantic Council staff and from the SERO

Fisheries Social Science Branch analyzing social and economic impacts of any specification demanding adjustments of allocations, ACLs, ACTs, AMs, quotas, bag limits, or other fishing restrictions. The SSC will use the ABC control rule to set their ABC recommendation at or below the OFL, taking into account scientific uncertainty. If the SSC sets their ABC recommendations equal to OFL, the SSC will provide its rationale why it believes that level of fishing will not exceed MFMT.

4. The Council may conduct a public hearing on the reports and the SSC's ABC recommendation at, or prior to the time it is considered by the Council for action. Other public hearings may be held also. The Council may request a review of the report by its Dolphin Wahoo Advisory Panel and optionally by its socioeconomic experts and convene these groups before taking action.

5. The South Atlantic Council, in selecting an ACL, ACT, AM, and a stock restoration time period, if necessary, for each stock or stock complex for which an ABC has been identified, will, in addition to taking into consideration the recommendations and information provided for in paragraphs 1, 2, 3, and 4, utilize the following criteria:

- **a.** Set ACL at or below the ABC specified by the SSC or set a series of annual ACLs at or below the projected ABCs in order to account for management uncertainty. If the South Atlantic Council sets ACL equal to ABC, and ABC has been set equal to OFL, the South Atlantic Council will provide its rationale as to why it by it believes that level of fishing will not exceed MFMT.
- **b.** May subdivide the ACLs into commercial, for-hire, and private recreational sector ACLs that maximize the net benefits of the fishery to the nation. The Sector ACLs will be based on allocations determined by criteria established by the South Atlantic Council and specified by the South Atlantic Council through a plan amendment. If, for an overfished stock, harvest in any year exceeds the ACL or sector ACL, management measure and catch levels for that sector will be adjusted in accordance with the AMs established for that stock.
- **c.** Set ACTs or sector ACTs at or below ACLs and in accordance with the provision of the AM for that stock. The ACT is the management target that accounts for management uncertainty in controlling the actual catch at or below the ACL. If an ACL is exceeded repeatedly, the South Atlantic Council has the option to establish an ACT if one does not already exist for a particular stock and adjust or establish AMs for that stock as well.

6. The South Atlantic Council will provide the SSC specification of OFL; SSC recommendation of ABC; and its recommendations to the NMFS RA for ACLs, sector ACLs, ACTs, sector ACTs, AMs, sector AMs, and stock restoration target dates for each stock or stock complex, estimates of B_{MSY} and MSST, estimates of MFMT, and the quotas, bag limits, trip limits, size limits, closed seasons, and gear restrictions necessary to avoid exceeding the ACL or sector ACLS, along with the reports, a regulatory impact review and proper National Environmental Policy Act (NEPA) documentation, and the proposed regulations within a predetermined time as agreed upon by the South Atlantic Council and RA. The South Atlantic Council may also recommend new levels or statements for MSY (or proxy) and OY.

7. The South Atlantic Council will review recommendations of the ABC control rule as proposed by their SSC at the Council meeting following the recommended changes. The South Atlantic

Council will determine whether the recommended changes to the ABC control rule for dolphin and wahoo meet the goals of the Dolphin Wahoo FMP. If the South Atlantic Council agrees with the recommended changes to the ABC control rule, they will include those changes in a framework amendment. If the South Atlantic Council does not agree with the recommended changes to the ABC control rule, they will notify the SSC of their reasons for not approving the changes.

8. The RA will review the South Atlantic Council's recommendations and supporting information, and, if he concurs that the recommendations are consistent with the objectives of the FMP, the National Standards, and other applicable law, he shall forward for publication notice of proposed rules to the Assistant Administrator (providing appropriate time for additional public comment). The RA will take into consideration all public comment and information received and will forward for publication in the *Federal Register* of a final rule within 30 days of the close of the public comment, or such other time as agreed upon by the South Atlantic Council and RA.

9. Appropriate regulatory changes that may be implemented by final rule in the *Federal Register* include:

- **i.** ACLs or sector ACLs, or a series of annual ACLs or sector ACLs.
- **j.** ACTs or sector ACTs, or a series of annual ACTs or sector ACTs and establish ACTs for stocks which do not have an ACT.
- **k.** AMs or sector AMs.
- **l.** Bag limits, size limits, vessel trip limits, closed seasons or area, gear restrictions, and quotas designed to achieve OY and keep harvest levels from exceeding the ACL or sector ACL.
- **m.** The time period specified for rebuilding an overfished stock, estimated MSY and MSST for overfished stocks, and MFMT.
- **n.** New levels or statements of MSY (or proxy) and OY for any stock.
- **o.** New levels of total allowable catch (TAC).
- **p.** Adjust fishing seasons/years.

10. The NMFS Regional Administrator is authorized, through notice action, to conduct the following activities.

- **d.** Close the commercial fishery of a dolphin or wahoo species or species group that has a commercial quota or sub-quota at such time as projected to be necessary to prevent the commercial sector from exceeding its sector ACL or ACT for the remainder of the fishing year or sub-quota season.

- **e.** Close the recreational fishery of a dolphin or wahoo species or species group at such time as projected to be necessary to prevent recreational sector ACLs or ACTs from being exceeded.

- **f.** Reopen a commercial or recreational season that had been prematurely closed if needed to assure that a sector ACL or ACT can be reached.

11. If NMFS decides not to publish the proposed rule for the recommended management measures, or to otherwise hold the measures in abeyance, then the Regional Administrator must

notify the Council of its intended action and the reasons for NMFS concern along with suggested changes to the proposed management measures that would alleviate the concerns. Such notice shall specify: 1) The applicable law with which the amendment is inconsistent; 2) the nature of such inconsistencies; and 3) recommendation concerning the action that could be taken by the Council to conform the amendment to the requirements of applicable law.

Preferred Alternative 3. Institute an abbreviated process titled an Abbreviated Framework Procedure for revising ABCs, ACLs and ACTs according to the existing ABC Control Rule as outlined below:

12. Adjustments to ABCs, ACLs, and ACTs according to the existing ABC Control Rule(s) and formulas for specifying ACLs and ACTs that have been approved by the Council and that were implemented in a fishery management plan amendment to the FMP. This abbreviated process is authorized as follows:

- **a.** Following the Scientific and Statistical Committee's (SSC's) review of the stock assessment, the Council will determine if changes are needed to ABC, ACL, and/or ACT and will so advise the RA.
- **b.** The Council will first hold a public hearing during the Council meeting during which they will review the stock assessment and the SSC's recommendations. In addition, the public will be advised prior to the meeting that the Council is considering potential changes to the ABC, ACL, and/or ACT and the Council will provide the public the opportunity to comment on the potential changes prior to and during the Council meeting.
- **c.** If the Council then determines that modifications to the ABC, ACL, and/or ACT are necessary and appropriate, they will notify the RA of their recommendations in a letter with the Council's analysis of the relevant biological, economic, and social information necessary to support the Council's action.
- **d.** The RA will review the Council's recommendations and supporting information. If the RA concurs that the Council's recommendations are consistent with the objectives of the FMP, the Magnuson-Stevens Fishery Conservation and Management Act, and all other applicable law, the RA is authorized to implement the Council's proposed action through publication of appropriate notification in the *Federal Register*, providing appropriate time for additional public comment as necessary.
- **e.** If the Council chooses to deviate from the ABC control rule(s) and formulas for specifying ACLs and ACTs that the Council previously approved and that were implemented in a fishery management plan amendment to the FMP, this abbreviated process would not apply, and either the framework procedure would apply with the preparation of a regulatory amendment or a fishery management plan amendment would be prepared. Additionally, the Council may choose to prepare a regulatory amendment or a fishery management plan amendment even if they do not deviate from the previously approved ABC control rule(s) and formulas for specifying ACLs and ACTs.

13. If NMFS decides not to publish the proposed rule for the recommended management measures through this Abbreviated Framework Procedure, or to otherwise hold the measures in abeyance, then the RA must notify the South Atlantic Council of its intended action and the reasons for NMFS concern along with suggested changes to the proposed management measures

that would alleviate the concerns. Such notice shall specify: 1) The applicable law with which the amendment is inconsistent; 2) the nature of such inconsistencies; and 3) recommendation concerning the action that could be taken by the South Atlantic Council to conform the amendment to the requirements of applicable law.

2.3.2 Summary of the Effects of the Alternatives

Under **Preferred Alternative 2**, if found not to be significant, adjustments to, ABC control rule, ACLs, ACTs, AMs, MSY, and OY could be through a framework process rather than with a plan amendment. Additionally, **Preferred Alternative 3** would specify an abbreviated process that would allow changes to be made relatively quickly as new fishery and stock abundance information becomes available. Alternatives that would update or revise the current procedure would likely be biologically beneficial for dolphin and wahoo because they would also allow periodic adjustments to harvest parameters, and management measures to be altered in a more timely manner in response to stock assessment, survey results, or other similar information. When stock assessments indicate large decreases in the ACLs are needed, a quick adjustment to the catch level would likely have positive biological effects. **Preferred Alternatives 2** and **3** could result in positive or negative economic effects. When stock assessments indicate ACLs can be increased, quick adjustments for ACLs would allow for positive economic effects without negatively affecting the sustainability of the stock. On the other hand, when stock assessments indicate large decreases in the ACLs are needed, it is likely that negative economic effects would result from moving quickly with a decrease in a catch level. However, depending on the timing of the implementation of the ACLs, the positive or negative economic effect would be short-lived as the overall net economic effect to the economy is likely to remain unchanged by this action. **Preferred Alternatives 2** and **3** would generate indirect positive effects on the social environment with the framework modifications to incorporate a procedure for adjusting ACLs in a timely manner. Consistency and timeliness in the regulatory process are positive social benefits as they remove uncertainty and subsequent displeasure with regard to changes in management while protecting the stock. It is anticipated that this streamlined approach to would eliminate the lengthy regulatory amendment process, and would minimize administrative impacts since a regulatory amendment would not be required to make such changes.

2.4 Action 4. Establish a commercial trip limit for dolphin in the exclusive economic zone (EEZ) in the South Atlantic Council's area of jurisdiction.

2.4.1 Alternatives

Preferred Alternative 1. No action. There is no commercial trip limit for dolphin for commercial dolphin wahoo permit holders.

Alternative 2: 1,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 2a: south of 31° N. Latitude
Sub-Alternative 2b: north of 31° N. Latitude

Alternative 3: 2,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 3a: south of 31° N. Latitude
Sub-Alternative 3b: north of 31° N. Latitude

Alternative 4: 3,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 4a: south of 31° N. Latitude
Sub-Alternative 4b: north of 31° N. Latitude

Alternative 5: 4,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 5a: south of 31° N. Latitude
Sub-Alternative 5b: north of 31° N. Latitude

Alternative 6: 5,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 6a: south of 31° N. Latitude
Sub-Alternative 6b: north of 31° N. Latitude

Alternative 7: 10,000 lbs ww trip limit for commercial dolphin wahoo permit holders.
Sub-Alternative 7a: south of 31° N. Latitude
Sub-Alternative 7b: north of 31° N. Latitude

2.4.2 Summary of the Effects of the Alternatives

Alternatives 2-7 include a wide range of trip limits from 1,000 pounds whole weight (lbs ww) under **Alternative 2**, which is the most restrictive alternative, to 10,000 lbs ww, under **Alternative 7**, which is the least restrictive alternative. **Alternatives 2-7** would have very little effect on constraining harvest of dolphin as 98% of the trips harvested 1,000 lbs ww or less of dolphin. ACLs and AMs are in place to ensure overfishing of dolphin and wahoo does not occur; therefore, biological effects of **Preferred Alternative 1 (No Action)** and **Alternatives 2-7** for dolphin are expected to be similar. In general, the lower the trip limit, the greater the direct negative economic effect that comes as a result of ending a trip sooner to keep from going over the trip limit. In order, from least to most expected direct economic effects, **Alternative 2** would be expected to have the greatest effects at $249,762 annually, followed in order by **Alternative 3, 4, 5, 6,** and **7**. The highest proposed trip limit under **Alternative 7** would be the most beneficial to vessels harvesting dolphin, and **Alternative 2** would be the most restrictive for vessels with the capacity to harvest more 1,000 lbs ww. However, as 98% of the trips caught less than 1,000 lbs ww of dolphin, few fishermen would be impacted by a trip limit.

Table 2-4. Average number of trips and pounds (ww) of dolphin landed by hook and line and longline gear north and south of 31° N. latitude for **Alternatives 2** through **7** in **Action 4** during 2008 through 2012.

				Alternative 2		Alternative 3		Alternative 4		Alternative 5		Alternative 6		Alternative 7	
		<1,000 lb		1,000-1,999 lbs		2,000-2,999 lbs		3,000-3,999 lbs		4,000-4,999 lbs		5,000-9,999 lbs		>10,000 lb	
Zone	Gear	Trips	Pounds	Trips	Pounds	Trips	Pounds	Trips	Pounds	Trips	Pounds	Trips	Pounds	Trips	Pounds
North 31	Hook & Line	903	67,817	3	4,285	1	1,327	0	749	0	919	0	0	0	0
	Longline	43	6,440	10	15,044	6	14,983	4	13,968	2	6,880	5	34,965	2	27,688
	Total (N 31)	**946**	**74,257**	**13**	**19,329**	**7**	**16,310**	**4**	**14,717**	**2**	**7,799**	**5**	**34,965**	**2**	**27688**
South 31	Hook & Line	1,311	86,680	3	3,248	1	3,251	0	0	0	988	0	0	0	0
	Longline	11	429	0	0	0	0	0	0	0	0	0	0	0	0
	Total (S 31)	**1,322**	**87,109**	**3**	**3,248**	**1**	**3,251**	**0**	**0**	**0**	**988**	**0**	**0**	**0**	**0**
Total (both N & S)		**2,268**	**161,366**	**16**	**22,577**	**8**	**19,561**	**4**	**14,717**	**2**	**8,787**	**5**	**34,965**	**2**	**27,688**

Source: NMFS SERO.

2.5 Comparison Effects Summary of Alternatives

This section describes the environmental effects of these alternatives through concise descriptive summary of such impacts in a comparative form (**Table 2-5**). Chapter 4 describes the effects in detail.

Table 2-5. A summary and comparison of the effects of the alternatives.

Actions &Alternatives		Effects			
		Biological	**Economic**	**Social**	**Administrative**
Action 1	Revision of ABCs, ACLs, and ACTs.				
Alt. 1	No Action.	-	-	-	+/-
Pref Alt. 2	Revision of ABCs, ACLs, and ACTs using updated MRIP, commercial, and for-hire landings.	+	+	+	+/-
Action 2	Revise the AMs for dolphin and wahoo.				
Alt. 1	No Action.	+/-	+/-	+/-	+/-
Sub-alt. 2a		++	-	-	+/-
Sub-alt. 2b		+++	--	--	+/-
Sub-alt. 2c		+	-	-	+/-
Sub-alt. 3a		++	-	-	+/-
Sub-alt. 3b		+++	--	--	+/-
Sub-alt. 3c		+	-	-	+/-
Action 3	Revise the framework procedure in Dolphin Wahoo FMP.				
Alt. 1	No Action.	-	+/-	+/-	--
Pref Alt. 2	Incorporate adjustments to ABC control rule, ABCs, ACLs, ACTs, and AMs. Include additional language to reflect SEDAR and SSC roles in setting MSY, OY, and ABC,	++	+/-	++	++

Actions &Alternatives		Effects			
		Biological	Economic	Social	Administrative
	in the framework procedure.				
Pref Alt. 3	Incorporate adjustments to the framework using an abbreviated procedure.	++	+/-	+	++
Action 4	Establish a commercial trip limit for dolphin in the EEZ throughout the SAFMC's area of jurisdiction.				
Alt. 1	No Action.	+/-	+	+	+/-
Alt. 2	1000 lb trip limit.	+/-	-	+/-	-
Sub-alt. 2a	South of 31^0 N. Lat.	+/-	+/-	+/-	-
Sub-alt. 2b	North of 31^0 N. Lat.	+/-	-	+/-	-
Alt. 3	2000 lb trip limit.	+/-	+/-	+/-	-
Sub-alt. 3a	South of 31^0 N. Lat.	+/-	+/-	+/-	-
Sub-alt. 3b	North of 31^0 N. Lat.	+/-	+/-	+/-	-
Alt. 4	3000 lb trip limit.	+/-	+/-	+/-	-
Sub-alt. 4a	South of 31^0 N. Lat.	+/-	+/-	+/-	-
Sub-alt. 4b	North of 31^0 N. Lat.	+/-	+/-	+/-	-
Alt. 5	4000 lb trip limit.	+/-	+/-	+/-	-
Sub-alt. 5a	South of 31^0 N. Lat.	+/-	+/-	+/-	-
Sub-alt. 5b	North of 31^0 N. Lat.	+/-	+/-	+/-	-
Alt. 6	5000 lb trip limit.	+/-	+/-	+/-	-
Sub-alt. 6a	South of 31^0 N. Lat.	+/-	+/-	+/-	-
Sub-alt. 6b	North of 31^0 N. Lat.	+/-	+/-	+/-	-
Alt. 7	10,000 lb trip limit.	Unknown	+/-	+/-	-
Sub-alt. 7a	South of 31^0 N. Lat.	Unknown	+/-	+/-	-
Sub-alt. 7b	North of 31^0 N. Lat.	Unknown	+/-	+/-	-

Note: +/- = Neutral; higher number of + or – indicates higher impact (and vice versa).

Chapter 3. Affected Environment

This section describes the affected environment in the proposed project area. The affected environment is divided into four major components:

Affected Environment

- **Habitat environment (Section 3.1)**

  Examples include coral reefs, sea grass beds, and rocky hard-bottom substrates

- **Biological and ecological environment (Section 3.2)**

  Examples include populations of dolphin and wahoo, corals, and turtles

- **Human environment (Section 3.3)**

  Examples include fishing communities and economic descriptions of the fisheries

- **Administrative environment (Section 3.4)**

  Examples include the fishery management process and enforcement activities

3.1 Habitat Environment

Information on the habitat utilized by dolphin and wahoo is included in Volume II of the Fishery Ecosystem Plan (FEP, SAFMC 2009b) and incorporated here by reference. The FEP can be found at: http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx

3.1.1 Essential Fish Habitat

Essential fish habitat (EFH) for dolphin and wahoo is the Gulf Stream, Charleston Gyre, Florida Current, and pelagic *Sargassum.*

Note: This EFH definition for dolphin was approved by the Secretary of Commerce on June 3, 1999, as a part of the South Atlantic Fishery Management Council's (South Atlantic Council) Comprehensive Habitat Amendment (SAFMC 1998). Dolphin was included within the Fishery Management Plan for the Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region (Coastal Migratory Pelagics FMP). This definition does not apply to extra-jurisdictional areas.

3.1.2 Habitat Areas of Particular Concern

EFH-habitat of particular concern (HAPCs) for dolphin and wahoo in the Atlantic include The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and The Georgetown Hole (South Carolina); The Point off Jupiter Inlet (Florida); The Hump off

Islamorada, Florida; The Marathon Hump off Marathon, Florida; The "Wall" off of the Florida Keys; and Pelagic Sargassum.

Note: This EFH-HAPC definition for dolphin was approved by the Secretary of Commerce on June 3, 1999 as a part of the South Atlantic Council's Comprehensive Habitat Amendment (SAFMC 1998; dolphin was included within the Coastal Migratory Pelagics FMP).

3.2 Biological and Ecological Environment

The marine environment in the Atlantic management area affected by actions in this environmental assessment is defined by two components (**Figure 3-1**). Each component will be described in detail in the following sections.

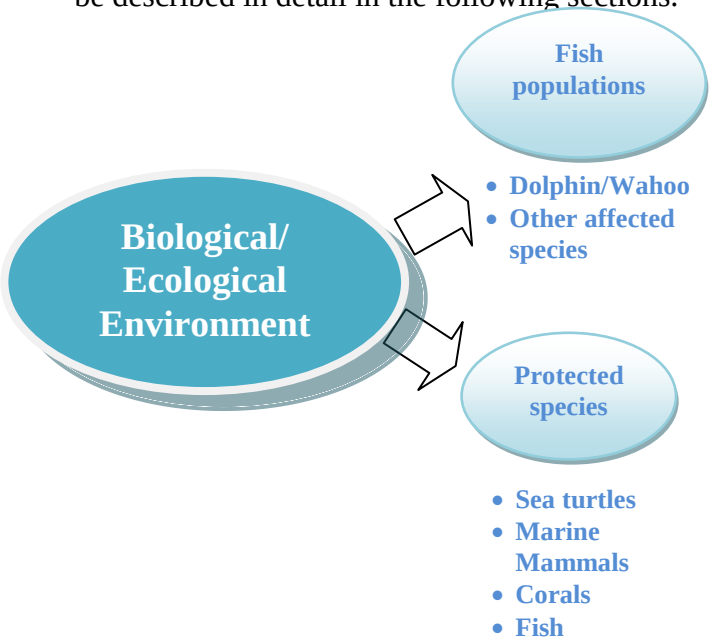

Figure 3-1. Two components of the biological environment described in this document.

3.2.1 Fish Populations

Dolphin and wahoo are highly migratory pelagic species occurring in tropical and subtropical waters worldwide. In the western Atlantic, dolphin and wahoo are distributed from Nova Scotia to Brazil, including Bermuda and the greater Caribbean region, and the Gulf of Mexico. They are found near the surface around natural and artificial floating objects, including *Sargassum* (in the Atlantic).

Dolphin eat a wide variety of species, including small pelagic fish, juvenile tuna, billfish, jacks, and pompano, and pelagic larvae of nearshore, bottom-living species. They also eat invertebrates such as cephalopods, mysids, and jellyfish. Large tuna, rough-toothed dolphin, marlin, sailfish, swordfish, and sharks feed on dolphin, particularly juveniles. Wahoo mainly feed on squid and fish, including frigate mackerel, butterfish, porcupine fish, and round herring. They generally compete with tuna for the same kind of food, but can feed on larger prey. A number of predators such as sharks and large tuna that share their habitat feed on young wahoo. Dolphin and Wahoo are likely to be caught when longline fishermen target other species such as billfish and tuna. Additional background information regarding the fish populations for dolphin and wahoo can be found in the Dolphin Wahoo FMP (SAFMC 2003) at: http://www.safmc.net/Library/Dolphin/Wahoo/tabid/410/Default.aspx

3.2.2 Dolphin, *Coryphaena hippurus*

In the western Atlantic ocean, dolphin are most common from North Carolina, throughout the Gulf of Mexico and Caribbean, to the northeast coast of Brazil (Oxenford 1999). Dolphin are highly migratory and pelagic with adults found in open water, and juveniles with floating seagrass and marine debris and occasionally

Dolphin Life History
An Overview

- Worldwide distribution; In the western Atlantic ocean, from Nova Scotia to Brazil (including Bermuda, the Bahamas, the Gulf of Mexico, and the Caribbean)
- Oceanic, adults in open water and juveniles with floating seagrass and marine debris
- Highly migratory
- Protracted multiple spawning behavior throughout the year, varying with region. Off North Carolina, peak spawning is during April through July
- Maximum age is 4 years (mean <2 years)

found in estuaries and harbors (Palko et al. 1982; Johnson 1978).

In a study by Schwenke and Buckel (2008) off North Carolina, dolphin ranged from 3.5 in (89 mm) fork length (FL) to 57 in (1451 mm) FL. Mean dolphin weight ranged from 14.2 lbs (6.44 kg) for males to 7.6 lbs (3.44 kg) for females. Estimated average growth rate was 0.15 in (3.78 mm)/day during the first six months, and maximum reported age was 3 years. Size at 50% maturity was slightly smaller for female dolphin (18.1 in FL; 460 mm), when compared with males (18.7 in FL; 475 mm); and peak spawning occurred from April through July off North Carolina (Schwenke and Buckel 2008). Prager (2000) estimated natural mortality for dolphin to be between 0.68 and 0.80.

For a more comprehensive record of the literature on the biology and ecology of dolphin, see **Section 3.0** in the Dolphin Wahoo FMP (SAFMC 2003) found at: http://www.safmc.net/Library/Dolphin/Wahoo/tabid/410/Default.aspx

3.2.3 Wahoo, *Acanthocybium solanderi*

Wahoo Life History
An Overview

- Worldwide distribution; In the western Atlantic wahoo are found from New York through Columbia (including Bermuda, The Bahamas, the Gulf of Mexico, and the Caribbean)
- Oceanic
- Highly migratory
- The spawning season extends from June through August, with peak spawning in June and July
- Maximum age is 9.3 years (mean 1.8 years)

In the western Atlantic, the highly migratory, pelagic wahoo are found from New York through Columbia including Bermuda, the Bahamas, the Gulf of Mexico, and the Caribbean (Theisen et al. 2008; Garber et al. 2005; Collette 2002). Wahoo typically occur far offshore, inhabit waters around pinnacles, reef edges, and walls, and may be attracted to oceanic frontal

zones and temperature discontinuities (Garber et al. 2005).

In studies off Florida and the northern Bahamas, McBride et al. (2008) reported rapid growth to a large size, with sizes ranging from 24.7 in (628 mm) FL to 77 in (1956 mm) FL. Males were smaller than females, with the largest male at 72.3 lbs (32.8 kg) and the largest female was 101.4 lbs (46.0 kg). Maximum age was 9.3 years. Maki Jenkins and McBride (2009) reported size and age at 50% maturity for female wahoo at 36.4 in (925 mm) FL and 0.64 years, respectively, with peak spawning in the summer.

For a more comprehensive record of the literature on the biology and ecology of wahoo, see **Section 3.0** in the Dolphin Wahoo FMP (SAFMC 2003) found at: http://www.safmc.net/Library/Dolphin/Wahoo/tabid/410/Default.aspx

3.2.4 Stock Status of Dolphin and Wahoo

The Report to Congress on the Status of U.S. Stocks indicates dolphin is not overfished, and is not undergoing overfishing (http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm). The overfished/overfishing status of wahoo is unknown, but all indications are that it is a healthy. Prager (2000) conducted an exploratory assessment of dolphin, but the results were not conclusive. A Southeast Data, Assessment, and Review (SEDAR) stock assessment for dolphin and wahoo is expected within the next 5 years. The SEDAR process, initiated in 2002, is a cooperative Fishery Management Council process intended to improve the quality, timeliness, and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and U.S. Caribbean. SEDAR is managed by the Caribbean, Gulf of Mexico, and South Atlantic Fishery Management Councils in coordination with NMFS and the Atlantic and Gulf States Marine Fisheries Commissions.

Oxenford and Hunte (1986) suggested that there were at least two separate unit stocks of dolphin in the northeast and southeast Caribbean Sea. Oxenford (1999) suggested that it was very likely that additional stocks of dolphin existed in the Gulf of Mexico and central/western Caribbean. Theisen et al. (2008) indicated that a worldwide stock for wahoo consisted of a single globally distributed population. However, Zischke et al. (2012) concluded that despite genetic homogeneity in wahoo, multiple discrete phenotypic stocks existed in the Pacific and eastern Indian oceans.

Life-history characteristics of dolphin and wahoo such as rapid growth rates, early maturity, batch spawning over an extended season, a short life span, and a varied diet could help sustain fishing pressures on these species (Schwenke and Buckel 2008; McBride et al. 2008; Prager 2000; and Oxenford 1999). Dolphin and wahoo are listed as species of “least concern” under the International Union for Conservation of Nature Red List, i.e., species that have a low risk of extinction. See **Section 1.5** for a history of recent management of dolphin and wahoo.

3.2.5 Protected Species

There are 31 different species of marine mammals that may occur in the exclusive economic zone (EEZ) of the South Atlantic region. All 31 species are protected under the Marine Mammal Protection Act (MMPA) and six are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). Other species protected under the ESA occurring in the South Atlantic include five species of sea turtle (green, hawksbill, Kemp’s ridley, leatherback, and loggerhead); the smalltooth sawfish; four distinct population

segments of Atlantic sturgeon; and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]). Designated critical habitat for the *Acropora* corals and North Atlantic right whales also occurs within the South Atlantic region. However, only sea turtles are likely to interact with the hook-and line dolphin and wahoo fishery. Sea turtles are therefore discussed in further detail below.

3.2.5.1 ESA-Listed Sea Turtles

Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all highly migratory and travel widely throughout the South Atlantic. The following sections are a brief overview of the general life history characteristics of the sea turtles found in the South Atlantic region. Several volumes exist that cover the biology and ecology of these species more thoroughly (e.g., Lutz and Musick (eds.) 1997, Lutz et al. (eds.) 2002).

Green sea turtle hatchlings are thought to occupy pelagic areas of the open ocean and are often associated with *Sargassum* rafts (Carr 1987, Walker 1994). Pelagic stage green sea turtles are thought to be carnivorous. Stomach samples of these animals found ctenophores and pelagic snails (Frick 1976, Hughes 1974). At approximately 7.9 to 9.8 in (20 to 25 cm) carapace length, juveniles migrate from pelagic habitats to benthic foraging areas (Bjorndal 1997). As juveniles move into benthic foraging areas a diet shift towards herbivory occurs. They consume primarily seagrasses and algae, but are also know to consume jellyfish, salps, and sponges (Bjorndal 1980, 1997; Paredes 1969; Mortimer 1981, 1982). The diving abilities of all sea turtles species vary by their life stages. The maximum diving range of green sea turtles is estimated at 360 ft (110 m) (Frick 1976), but they are most frequently making dives of less than 65 ft (20 m) (Walker 1994). The time of these dives also varies by life stage. The maximum dive length is estimated at 66 minutes with most dives lasting from 9 to 23 minutes (Walker 1994).

The **hawksbill's** pelagic stage lasts from the time they leave the nesting beach as hatchlings until they are approximately 8.7-9.8 in (22-25 cm) in straight carapace length (Meylan 1988, Meylan and Donnelly 1999). The pelagic stage is followed by residency in developmental habitats (foraging areas where juveniles reside and grow) in coastal waters. Little is known about the diet of pelagic stage hawksbills. Adult foraging typically occurs over coral reefs, although other hard-bottom communities and mangrove-fringed areas are occupied occasionally. Hawksbills show fidelity to their foraging areas over several years (van Dam and Diéz 1998). The hawksbill's diet is highly specialized and consists primarily of sponges (Meylan 1988). Gravid females have been noted ingesting coralline substrate (Meylan 1984) and calcareous algae (Anderes Alvarez and Uchida 1994), which are believed to be possible sources of calcium to aid in eggshell production. The maximum diving depths of these animals are not known, but the maximum length of dives is estimated at 73.5 minutes. More routinely, dives last about 56 minutes (Hughes 1974).

Kemp's ridley hatchlings are also pelagic during the early stages of life and feed in surface waters (Carr 1987, Ogren 1989). Once the juveniles reach approximately 7.9 (20 cm) carapace length they move to relatively shallow (less than 164 ft; 50m) benthic foraging habitat over unconsolidated substrates (Márquez-M. 1994). They have also been observed transiting long distances between foraging habitats (Ogren 1989). Kemp's ridleys feeding in these nearshore areas primarily prey on crabs, though they are also known to ingest mollusks, fish, marine vegetation, and shrimp (Shaver 1991). The fish and shrimp Kemp's ridleys ingest are not thought to be a primary prey item but instead may be scavenged opportunistically from bycatch discards or from discarded bait (Shaver

1991). Given their preference for shallower water, Kemp's ridleys most routinely make dives of 164 ft (50 m) or less (Soma 1985, Byles 1988). Their maximum diving range is unknown. Depending on the life stage a Kemp's ridleys may be able to stay submerged anywhere from 167 minutes to 300 minutes, though dives of 12.7 minutes to 16.7 minutes are much more common (Soma 1985, Mendonca and Pritchard 1986, Byles 1988). Kemp's ridleys may also spend as much as 96% of their time underwater (Soma 1985, Byles 1988).

Leatherbacks are the most pelagic of all ESA-listed sea turtles and spend most of their time in the open ocean, although they will enter coastal waters and are seen over the continental shelf on a seasonal basis to feed in areas where jellyfish are concentrated. Leatherbacks feed primarily on cnidarians (medusae, siphonophores) and tunicates. Unlike other sea turtles, the leatherback's diets does not shift during their life cycles. Because the leatherback's ability to capture and eat jellyfish is not constrained by size or age, they continue to feed on these species regardless of life stage (Bjorndal 1997). Leatherbacks are the deepest diving of all sea turtles. It is estimated that these species can dive in excess of 3280.8 ft (1000 m) (Eckert et al. 1989) but more frequently dive to depths of 164 ft to 275.6 ft (50 m to 84 m) (Eckert et al. 1986). Dive times range from a maximum of 37 minutes to more routines dives of 4 to 14.5 minutes (Standora et al. 1984, Eckert et al. 1986, Eckert et al. 1989, Keinath and Musick 1993). Leatherbacks may spend 74% to 91% of their time submerged (Standora et al. 1984).

Loggerhead hatchlings forage in the open ocean and are often associated with *Sargassum* rafts (Hughes 1974, Carr 1987, Walker 1994, Bolten and Balazs 1995). The pelagic stage of these sea turtles are known to eat a wide range of things including salps, jellyfish, amphipods, crabs, syngnathid fish, squid, and pelagic snails (Brongersma 1972). Stranding records indicate that when pelagic immature loggerheads reach 15.7-23.6 in (40-60 cm) straight-line carapace length they begin to live in coastal inshore and nearshore waters of the continental shelf throughout the U.S. Atlantic (Witzell 2002). Here they forage over hard- and soft-bottom habitats (Carr 1986). Benthic foraging loggerheads eat a variety of invertebrates with crabs and mollusks being an important prey source (Burke et al. 1993). Estimates of the maximum diving depths of loggerheads range from 692-764ft (211-233 m) (Thayer et al. 1984, Limpus and Nichols 1988). The lengths of loggerhead dives are frequently between 17 and 30 minutes (Thayer et al. 1984, Limpus and Nichols 1988, Limpus and Nichols 1994, Lanyan et al. 1989) and they may spend anywhere from 80 to 94% of their time submerged (Limpus and Nichols 1994, Lanyan et al. 1989).

3.3 Socio-economic Environment

3.3.1 Economic Description of the Commercial Sector

Additional information on the commercial dolphin wahoo fishery is contained in previous amendments [Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic (SAFMC 2003), and Comprehensive Annual Catch Limit (ACL) Amendment for the South Atlantic Region (SAFMC 2011a)] and are incorporated herein by reference. Presented below is selected information on the commercial sector of the dolphin wahoo fishery.

The major source of data summarized in this description is the Federal Logbook System (FLS), supplemented by average prices calculated from the Accumulated Landings System (ALS) and price indices taken from the Bureau of Labor Statistics and the SEFSC ACL database. Real (inflation adjusted) prices are reported in 2011 constant dollars. Nominal values are reported in the dollar value of the

individual year without adjustment for inflation. Landings are expressed in whole weight to match with the method for collecting ex-vessel price information for dolphin and wahoo.

The data reported in this section and its subsections do not represent the entire range of landings from the entire management area because not all fishermen who land dolphin and wahoo are required to have a federal permit (e.g. some landings from other states, landings from state waters). The dolphin wahoo fishery encompassed by this amendment includes the entire US Atlantic coast; however, logbooks are required only for federally permitted fishermen in the four South Atlantic states.

3.3.1.1 Annual Landings, Revenues, and Effort

Total landings of dolphin and wahoo in the South, Mid-, and North Atlantic show no particular trend pattern (**Table 3-1-1a**). Dolphin landings range from 650,000 lbs to 1.2 million lbs, with an average of 830,000 lbs. Wahoo landings range from 40,500 lbs to about 60,000 lbs, with an average of about 49,262 lbs. Revenues from dolphin also show no apparent trend. While landings of wahoo move up and down, both nominal real revenues follow an upward direction over time. On average (2008-2012), the South Atlantic region accounts for approximately 93% of total dolphin or wahoo landings.

Table 3-1-1a. Landings and revenues of dolphin and wahoo in the South, Mid-, and North Atlantic, 2008-2012.

	2008	2009	2010	2011	2012	Average
Dolphin						
Pounds (ww)	780,818	1,222,944	706,281	781,693	654,271	829,201
Revenues (nominal)	$1,456,648	$2,084,243	$1,455,301	$1,781,835	$1,758,264	$1,707,258
Revenues (2011 dollars)	$1,521,841	$2,185,299	$1,501,238	$1,781,835	$1,722,615	$1,742,566
Wahoo						
Pounds (ww)	40,525	45,254	43,275	59,820	57,435	49,262
Revenues (nominal)	$107,951	$118,049	$120,270	$174,930	$188,322	$141,904
Revenues (2011 dollars)	$112,782	$123,773	$124,066	$174,930	$184,504	$144,011

Source: SEFSC ACL database, July 2013.

The following discussion focuses on trip characteristics of vessels landing at least one pound of dolphin or wahoo in the South Atlantic. Only vessels reporting logbooks to the FLS are included in the analysis. It is assumed that vessel trip characteristics reported in the FLS would be close approximations of trip characteristics of all vessels landing dolphin or wahoo in the South Atlantic.

There are no discernible trends on the pounds of landings, number of vessels or trips for dolphin from year to year in the time series shown in **Table 3-3-1b.** The average 2007-2011 landings as shown in the table below were 157,435 pounds of dolphin. For 2007-2011, an average of 2,379 trips that landed at least one pound of dolphin were taken by 566 permitted vessels. Over the years 2007 through 2011 dolphin trips landed 787,174 lbs ww of dolphin valued at $1.608 million in 2011 prices (**Table 3-3-1b**). On average from 2007 through 2011, dolphin price per pound was $1.98, or $2.06 when adjusted for inflation (2011 $).

There are no discernible trends in the pounds of landings, number of vessels, or trips for wahoo from year to year in the time series shown in **Table 3-3-1b.** The average 2007-2011 landings as shown in the table below were 25,194 pounds of wahoo. For 2007-2011, an average of 430 trips that landed at least one pound of wahoo were taken by 221 permitted vessels. Over the years 2007 through 2011 wahoo trips landed 125,972 lbs ww of wahoo valued at about $363,985 in 2011 prices (**Table 3-3-1b**). On average from 2007 through 2011, wahoo price per pound was $2.78, or $2.89 when adjusted for inflation (2011 $).

Table 3-3-1b. Selected characteristics for trips landing at least one pound (whole weight) of dolphin in the South Atlantic, 2007-2011.

Dolphin	2007	2008	2009	2010	2011
# Trips	2,356	2,394	2,913	1,996	2,238
# Vessels	540	580	642	546	521
# Dealers	188	187	190	193	180
Lbs Landed	151,752	146,933	208,203	129,468	150,818
Nominal Revenue	$ 311,381	$ 284,218	$ 358,996	$ 257,466	$ 331,284
Nominal Price/lb	$ 2.05	$ 1.93	$ 1.72	$ 1.99	$ 2.20
Real Revenue (2011 $)	$ 337,848	$ 297,008	$ 376,228	$ 265,705	$ 331,284
Real Price/lb (2011 $)	$ 2.23	$ 2.02	$ 1.81	$ 2.05	$ 2.20
Wahoo	**2007**	**2008**	**2009**	**2010**	**2011**
# Trips	528	353	470	354	446
# Vessels	247	176	235	207	240
# Dealers	116	84	98	92	95
Lbs Landed	30,821	18,853	25,255	23,134	27,909
Nominal Revenue	$ 77,196	$ 49,509	$ 68,513	$ 67,553	$ 86,973
Nominal Price/lb	$ 2.50	$ 2.63	$ 2.71	$ 2.92	$ 3.12
Real Revenue (2011 $)	$ 83,758	$ 51,737	$ 71,802	$ 69,715	$ 86,973
Real Price/lb (2011 $)	$ 2.72	$ 2.74	$ 2.84	$ 3.01	$ 3.12

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems (2013).

3.3.1.2 Monthly Landings, Revenues, and Effort

Dolphin and wahoo commercial seasons have not been closed early in any year due to their ACLs having been met. On average, the greatest number of trips that land dolphin occur in May and June (**Table 3-3-2**). There is a large increase in trips from March to April and July and August see declines from the highs from the late spring months. Likewise, the numbers of participating vessels, pounds landed and ex-vessel revenue earned by fishermen follow the same trend. Most trips that land dolphin last about two days, however in July the length of trips approaches an average of three days.

The occurrence of wahoo trips is more constant across the year than are dolphin trips. The peak tends to be in May, as with dolphin, however, there are only an average of 50 trips that land wahoo in that month and a low of 21 trips on average in February. Trips on which wahoo are landed tend to last about two days.

Table 3-3-2. Selected monthly average characteristics for trips landing at least one pound (ww) of dolphin and wahoo in the South Atlantic, 2007-2011.

Dolphin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Trips	52	49	64	171	557	528	296	217	139	120	141	72
Vessels	35	29	33	81	153	142	97	86	68	59	59	43
Days Away	1.84	1.87	2.06	1.91	2.24	2.34	2.72	2.33	2.33	2.33	2.07	1.89
Lbs Landed	1,669	2,431	3,416	8,780	54,009	40,399	15,852	10,237	8,161	5,187	4,534	2,787
Nominal Revenue	$3,588	$5,624	$7,069	$20,388	$95,318	$79,467	$31,829	$23,251	$14,408	$10,904	$9,916	$6,907
Wahoo	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Trips	36	21	24	39	50	33	36	56	31	32	40	32
Vessels	22	16	19	26	31	22	24	32	23	23	30	22
Days Away	1.90	2.64	2.55	2.16	2.53	2.64	2.17	2.04	2.53	2.24	2.37	1.78
Lbs Landed	1,964	2,054	1,520	2,056	2,103	1,595	1,720	2,446	1,931	2,468	2,795	2,543
Nominal Revenue	$5,235	$6,129	$4,455	$ 5,325	$ 5,594	$ 4,282	$ 4,865	$ 7,186	$ 5,430	$ 6,363	$7,876	$7,208

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems (2013).

3.3.1.3 Average Landings, Revenues, and Effort by State

On average, North Carolina (31% of the total landings) landed slightly more pounds annually than did the east coast of Florida (27% of the total landings). However, all vessels from other states with a South Atlantic Dolphin Wahoo Permit landed more dolphin than did fishermen from any of the South Atlantic states other than North Carolina at 29% of the total average landings (**Table 3-3-3**). These states included Gulf of Mexico states, as well as states north of North Carolina. Trips from South Carolina and Georgia, while fewer in number and lower in landings, tended to average 6 to 7 days per trip, while trips from other states typically were one to two days.

The east coast of Florida averaged more trips and pounds landed of wahoo than any other state (**Table 3-3-3**) with 44% of the average annual landings. Trips from South Carolina and Georgia, while fewer in number and lower in landings, tended to average 5 to 7 days per trip, while trips from other states typically were one to two days.

Table 3-3-3. Selected average characteristics for trips landing at least one pound (whole weight) of dolphin and wahoo, by state in the South Atlantic, 2007-2011.

Dolphin	E. FL	GA	SC	NC	Other
Trips	958	33	228	715	445
Vessels	591	9	71	340	268
Days Away	1.44	6.57	6.65	2.44	1.62
Lbs Landed	41,166	2,310	22,009	47,805	44,144
Nominal Revenue	$89,169	$3,815	$47,949	$87,641	$80,094
Wahoo	**E. FL**	**GA**	**SC**	**NC**	**Other**
Trips	190	2	67	100	71
Vessels	63	2	9	34	18
Days Away	1.34	5.18	6.73	1.82	1.12
Lbs Landed	11,058	99	3,349	7,169	3,520
Nominal Revenue	$34,207	$ 187	$ 9,052	$18,393	$ 8,108

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems (2013).

3.3.1.4 Average Landings, Revenues, and Effort by Gear

The majority of dolphin (63%) on average, is commercially landed using hook and line gear (**Table 3-3-4**). Dolphin made up 9% of the total landings on all trips where dolphin was landed, including those trips where dolphin were not targeted, but were encountered. Other major gears include longline and trolling. The average dolphin trip using hook and line lands almost 63 lbs of dolphin. The majority of trips that land dolphin, but do not target them are hook and line trips. Longline trips average 185 lbs of dolphin per trip. Trolling trips that land dolphin average 59 lbs per trip.

Wahoo on average are landed almost exclusively using hook and line (48%) and trolling gears (40%). Wahoo made up 7% of the total landings on all trips where wahoo was landed, including those trips where wahoo were not targeted, but were encountered. The average wahoo trip using hook and line lands almost 52 lbs of wahoo. Trolling trips average 55 lbs of wahoo per trip (**Table 3-3-4**).

Table 3-3-4. Selected average characteristics for trips landing at least one pound (whole weight) of dolphin and wahoo, by gear type in the South Atlantic, 2007-2011.

Dolphin	Hook & Line	Longline	Trolling	Other
Trips	1,591	91	673	24
Vessels	177	11	112	11
Days Away	2.74	2.79	1.13	2.03
Lbs Dolphin	99,810	16,870	39,855	901
Total Lbs	1,424,096	230,062	155,192	19,146
Dolphin Revenue	$ 205,119	$ 19,606	$ 82,136	$ 1,808
Total Revenue	$ 3,734,279	$ 496,475	$ 315,946	$ 56,929
Wahoo	**Hook & Line**	**Longline**	**Trolling**	**Other**
Trips	233	6	183	7
Vessels	75	3	60	6
Days Away	3.10	4.42	1.19	1.49
Lbs Wahoo	12,108	279	9,982	2,825
Total Lbs	258,916	22,926	49,866	5,775
Wahoo Revenue	$ 34,218	$ 718	$ 27,331	$ 7,682
Total Revenue	$ 669,156	$ 51,171	$ 103,587	$ 13,477

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, (2013).

3.3.1.5 Permits

A commercial permit is required to harvest or possess commercial quantities of dolphin and wahoo from the EEZ in the South Atlantic. North of the North Carolina/Virginia state line, no permit is required, however, trips are limited to 200 lbs combined of dolphin and wahoo. The number of South Atlantic Commercial Dolphin Wahoo Permits for 2008-2012 is provided in **Table 3-3-5**.

Every year from 2008 through 2012, the number of vessels landing at least one pound of dolphin or wahoo was much lower than the number of dolphin wahoo permits (**Table 3-3-1b** and **Table 3-3-5**). This is not totally unexpected. The South Atlantic Dolphin Wahoo Permit is not a limited access permit. Many commercial fishing operations have multiple federal permits. Presumably, vessel operators buy the permit each year in case they do catch dolphin or wahoo so they can sell the fish.

Table 3-3-5. Number of South Atlantic commercial dolphin wahoo permits, 2008 - 2012.

	Number of Permits
2008	2,526
2009	2,526
2010	2,563
2011	2,614
2012	2,685
Average	2,583

Source: NMFS SERO Permits Data Base

3.3.1.6 Economic Activity

Estimates of the average annual economic activity (impacts) associated with the commercial harvest of dolphin and wahoo were derived using the model developed for and applied in NMFS (2010) and are provided in **Table 3-3-6**. Business activity for the commercial sector is characterized in the form of full-time equivalent jobs, income impacts (wages, salaries, and self-employed income), and output (sales) impacts (gross business sales). Income impacts should not be added to output (sales) impacts because this would result in double counting.

The estimates of economic activity include the direct effects (effects in the sector where an expenditure is actually made), indirect effects (effects in sectors providing goods and services to directly affected sectors), and induced effects (effects induced by the personal consumption expenditures of employees in the direct and indirectly affected sectors). The estimate of ex-vessel value for 2011 is replicated from **Table 3-3-1b**.

Table 3-3-6. Average annual economic activity associated with dolphin and wahoo, 2007-2011.

Species	Average Revenue (millions)[1]	Total Jobs	Harvester Jobs	Output (Sales) Impacts (millions)[1]	Income Impacts (millions)[1]
Dolphin	$0.331	56	7	$3.959	$1.677
Wahoo	$0.087	16	2	$1.099	$0.466

[1]2011 dollars.
Source: NMFS SERO

3.3.2 Economic Description of the Recreational Sector

Additional information on the recreational sector of the dolphin wahoo fishery contained in previous or concurrent amendments is incorporated herein by reference [see Comprehensive ACL Amendment for the South Atlantic Region (SAFMC 2011a)]. The following description focuses mainly on the recreational sector of the dolphin and wahoo fishery in the Atlantic.

The recreational fishery is comprised of the private sector and for-hire sector. The private sector includes anglers fishing from shore (all land-based structures) and private/rental boats. The for-hire sector is composed of the charter boat and headboat (also called party boat) sectors. Charter boats generally carry fewer passengers and charge a fee on an entire vessel

basis, whereas headboats carry more passengers and payment is per person.

3.3.2.1 Harvest

Harvest information for dolphin is summarized in **Table 3-3-7** and **Table 3-3-8**, and those for wahoo, in **Table 3-3-9** and **Table 3-3-10**. At this stage, it is instructive to point out that harvest estimates are sometimes subject to relatively high proportional standard errors (PSE), reflecting a high level of imprecision in the estimates. This has particular relevance to the relatively low harvests of these species in Georgia, South Carolina, and North Atlantic as well as to the harvest estimates by wave.

The annual trend of recreational harvest of dolphin in the South Atlantic, Mid-Atlantic, and North Atlantic was not uniform across fishing modes during 2008-2012 (**Table 3-3-7**). Charter boat harvests fell in 2009, rose in 2010, and fell in 2011 and 2012. Harvests by headboats and private/rental modes, on the other hand, went the opposite way, except in 2012 when private/rental mode harvests fell with charter boat harvests. The private/rental mode was the dominant sector in the harvest of dolphin, followed by charter boats and headboats. There were no reported harvests of dolphin from the shore mode.

Harvest trend for dolphin also differed across the four South Atlantic states and across the three regions in the Atlantic (**Table 3-3-7**). Harvests in Florida decreased in 2009 and 2010 but increased in the subsequent two years; the relatively low harvests in Georgia mostly rose throughout, except in 2010; harvests in North Carolina followed a seesaw pattern; and harvests in South Carolina mostly rose throughout, except in 2011. Apparent in the table is the substantial harvest increase in 2009, followed by a substantial decrease in 2010, for Georgia. South Carolina also reported a substantial harvest increase in 2009 and substantial harvest decrease in 2011. Worthy of note here is that high PSEs characterize the estimates in Georgia and South Carolina. Harvests in the Mid-Atlantic increased in 2009 but consecutively decreased in the following years. The North Atlantic reported harvests of dolphin only in 2011 and 2012. The South Atlantic clearly dominated the other regions in the harvest of dolphin, and within this region, North Carolina was the dominant state, followed by Florida, South Carolina, and Georgia.

The peaks and troughs of average (2008-2012) dolphin harvests by wave were similar for all fishing modes (**Table 3-3-8**). Peaks occurred in Wave 3 for all fishing modes and troughs occurred in Wave 1 for all fishing modes. In addition, the peaks and troughs of harvests by wave were similar for all states in the South Atlantic (**Table 3-3-8**). Peaks occurred in Wave 3 and troughs occurred in Wave 1 for all states. The peaks in the Mid- and North Atlantic occurred in Wave 4, noting that the Mid-Atlantic reported dolphin harvests only in Wave 3 through Wave 5, and the North Atlantic in Wave 4 only.

Table 3-3-7. Harvests of dolphin in the South Atlantic, Mid-Atlantic, and North Atlantic, 2008-2012. Harvests are in pounds whole weight.

	2008	2009	2010	2011	2012	Average
By Fishing Mode						
Charter	3,246,604	1,820,523	2,353,472	2,219,069	1,744,489	2,276,832
Headboat	12,825	24,138	19,442	20,128	20,437	19,394
Private/Rental	4,964,915	5,672,189	3,814,986	4,289,060	3,851,123	4,518,455
TOTAL	8,224,344	7,516,851	6,187,899	6,528,257	5,616,049	6,814,680
By State/Region						
Florida East	4,553,132	2,503,705	1,685,442	2,638,967	2,653,128	2,806,875
Georgia	856	128,226	127	909	3,265	26,676
N. Carolina	3,349,185	3,848,165	3,276,882	3,492,208	2,280,333	3,249,355
S. Carolina	66,384	501,764	881,065	40,465	549,852	407,906
Mid-Atlantic	254,788	534,992	344,383	309,338	113,409	311,382
North Atl.	0	0	0	46,370	16,064	12,487
TOTAL	8,224,344	7,516,851	6,187,899	6,528,257	5,616,049	6,814,680

2012 data are preliminary.
Source: The Headboat Survey, NMFS, SEFSC, Beaufort Lab; SEFSC MRFSS ACL database, NMFS, SERO.

Table 3-3-8. Average (2008-2012) harvests of dolphin in the South Atlantic, Mid-Atlantic, and North Atlantic, by wave. Harvests are in pounds whole weight.

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
By Fishing Mode						
Charter	14,843	84,848	1,244,581	757,478	141,365	33,717
Headboat	1,224	2,645	7,049	3,905	2,056	2,515
Private/Rental	124,719	600,172	1,909,594	1,056,867	479,382	347,721
TOTAL	140,786	687,664	3,161,224	1,818,250	622,803	383,953
By State/Region						
Florida East	138,973	450,721	1,022,669	419,461	417,659	357,392
Georgia	0	667	25,890	65	17	37
N. Carolina	1,812	72,167	1,892,917	1,082,466	173,487	26,506
S. Carolina	0	164,110	201,070	36,660	6,048	18
Mid-Atlantic	0	0	18,679	267,112	25,592	0
North Atl.	0	0	0	12,487	0	0
TOTAL	140,786	687,664	3,161,224	1,818,250	622,803	383,953

Wave 1: Jan-Feb; Wave 2: Mar-Apr; Wave 3: May-Jun; Wave 4: Jul-Aug; Wave 5: Sep-Oct; Wave 6: Nov-Dec; 2012 data are preliminary.
Source: The Headboat Survey, NMFS, SEFSC, Beaufort Lab; SEFSC MRFSS ACL database, NMFS, SERO.

Harvest trends for wahoo were closely uniform across fishing modes (**Table 3-3-9**). Harvests generally rose throughout the period, falling only in 2010 for the charter and private/rental modes and in 2011 for headboats. Peak harvests occurred in 2012 for the charter and private/rental fishing modes, whereas for headboats peak harvests occurred in 2010. On average, the private/rental mode dominated all other fishing modes, followed by charter boats and headboats.

Harvest trends for wahoo varied mostly across states in the South Atlantic and across regions (**Table 3-3-9**). Harvests in Florida and North Carolina followed similar pattern—they increased in 2009, fell in 2010 and increased in the next two years. Georgia reported harvests only in 2009 and 2010. Harvests in South Carolina rose in 2009 and 2010, fell in 2011, and rose again in 2012. Again, high PSEs characterized harvests in Georgia and South Carolina. Wahoo harvests in the Mid-Atlantic fell in 2009 and 2010 but rose in the next two years. North Atlantic reported no harvests of wahoo in 2008-2012. Within the South Atlantic region, North Carolina was the dominant state in the harvest of wahoo, followed by Florida, South Carolina, and Georgia.

On average, peak harvests occurred in Wave 5 for charter boats, Wave 4 for headboats, and Wave 2 for the private/rental mode (**Table 3-3-10**). The troughs occurred in Wave 1 for all fishing modes. For all fishing modes combined, Wave 4 registered the highest harvests. Peak harvests occurred in Wave 6 for Florida, Wave 2 for Georgia and South Carolina, and Wave 5 for North Carolina. Georgia recorded harvest only in Wave 2. Harvest troughs occurred in Wave 1 for all states, except Florida whose trough occurred in Wave 3. The Mid-Atlantic region reported harvests only in Wave 4 and Wave 5, whereas the North Atlantic did not report any harvest of wahoo.

Table 3-3-9. Harvests of wahoo in the South Atlantic, Mid-Atlantic, and North Atlantic, 2008-2012. Harvests are in pounds whole weight.

	2008	2009	2010	2011	2012	Average
By Fishing Mode						
Charter	206,539	208,835	200,407	254,215	546,716	283,342
Headboat	2,767	3,369	4,606	1,633	3,844	3,244
Private/Rental	457,069	583,845	391,958	444,273	880,745	551,578
TOTAL	666,375	796,050	596,970	700,120	1,431,306	838,164
By State/Region						
Florida East	317,036	336,227	136,115	179,647	334,854	260,776
Georgia	0	578	41,556	0	0	8,427
N. Carolina	311,867	410,789	375,580	449,513	759,574	461,465
S. Carolina	734	25,839	32,907	202	250,655	62,067
Mid-Atlantic	36,739	22,616	10,813	70,758	86,223	45,430
North Atl.	0	0	0	0	0	0
TOTAL	666,375	796,050	596,970	700,120	1,431,306	838,164

2012 data are preliminary.
Source: The Headboat Survey, NMFS, SEFSC, Beaufort Lab; SEFSC MRFSS ACL database, NMFS, SERO.

Table 3-3-10. Average (2008-2012) harvest of wahoo in the South Atlantic, Mid-Atlantic, and North Atlantic, by wave. Harvests are in pounds whole weight.

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
By Fishing Mode						
Charter	3,151	16,764	32,661	99,536	115,101	16,129
Headboat	242	490	620	1,189	456	247
Private/Rental	42,752	149,314	43,975	130,375	105,175	79,987
TOTAL	46,145	166,568	77,256	231,100	220,731	96,364
By State/Region						
Florida East	41,590	41,624	22,753	46,374	32,089	76,346
Georgia	0	8,427	0	0	0	0
N. Carolina	4,556	60,290	53,433	155,586	167,588	20,012
S. Carolina	0	56,228	1,070	3,896	868	5
Mid-Atlantic	0	0	0	25,243	20,186	0
North Atl.	0	0	0	0	0	0
TOTAL	46,145	166,568	77,256	231,100	220,731	96,364

Wave 1: Jan-Feb; Wave 2: Mar-Apr; Wave 3: May-Jun; Wave 4: Jul-Aug; Wave 5: Sep-Oct; Wave 6: Nov-Dec; 2012 data are preliminary
Source: The Headboat Survey, NMFS, SEFSC, Beaufort Lab; SEFSC MRFSS ACL database, NMFS, SERO.

3.3.2.2 Effort

Recreational effort can be characterized in terms of the number of trips as follows:

Target effort - The number of individual angler trips, regardless of trip duration, where the intercepted angler indicated that the species was targeted as either the first or the second primary target for the trip. The species did not have to be caught.

Catch effort - The number of individual angler trips, regardless of trip duration and target intent, where the individual species was caught. The fish caught did not have to be kept.

All recreational trips - The total estimated number of recreational trips taken, regardless of target intent or catch success.

Estimates of target and catch effort for dolphin are presented in **Table 3-3-11** through **Table 3-3-14** and those for wahoo are presented in **Table 3-3-15** through **Table 3-3-18**. Clearly apparent in these tables is the substantial difference between target and catch trips, with target trips being higher than catch trips. This is very much unlike the case with most snapper grouper species when target trips generally are substantially lower than catch trips. Dolphin and wahoo are in a sense highly targeted species but many target trips are unsuccessful in harvesting the species. The shore mode recorded very few target and catch trips for dolphin and none for wahoo. As with recreational harvests of snapper grouper species, target and catch trips for these species were characterized with relative high PSEs, especially in fishing modes, states/regions, and waves with low target or catch trips. Therefore, the interpretation of the trends below should be used with caution.

The annual variation in dolphin target trips matched well with the annual variation in catch trips for charter boats but not as well for the private/rental mode (**Table 3-3-11**). For charter boats, target and catch trips decreased in 2009, rose in 2010, and fell in the next two years. For the private/rental mode, changes in target and

catch trips matched in 2009 and 2010 but not in 2011 and 2012. The private/rental mode was by far the dominant fishing mode in both target and catch trips.

In the South Atlantic region, the variation in target trips did not match well with the variation in catch trips across states, except for Florida where negative and positive changes in target trips matched exactly with the corresponding changes in catch trips (**Table 3-3-12**). In the other states, negative changes in target trips occurred with positive changes in catch trips in most years. Georgia recorded no target trips but had some catch trips. For both target and catch trips, Florida, by far, dominated all other states, followed by North Carolina, South Carolina, and Georgia. In the Mid-Atlantic, target trips rose in 2009 and 2010 but fell in the next two years, whereas catch trips followed a seesaw pattern.

Peaks for both target and catch trips occurred in Wave 3 for charter boats and the private/rental mode (**Table 3-3-13**). The troughs for both target and catch trips occurred in Wave 1 for charter boats and the private/rental mode. The shore mode recorded target trips in Waves 2, 4, and 6 and catch trips in Waves 3 and 5.

The timing of the peaks and troughs for target and catch trips were similar for all states in the South Atlantic (**Table 3-3-14**). Peaks occurred in Wave 3 and troughs in Wave 1 for all states. Georgia reported catch trips in some waves that did not have target trips. The peak for both target and catch trips in the Mid-Atlantic region occurred in Wave 4, noting that this region recorded target trips in Waves 3 through 6 and catch trips in Waves 3 through 5. The North Atlantic region had a record of catch trips in Wave 4 but no record of target trips in any wave.

Table 3-3-11. Target and catch trips for dolphin in the South Atlantic, Mid-Atlantic, and North Atlantic, by fishing mode, 2008-2012.

	2008	2009	2010	2011	2012	Average
Target Trips						
Shore	2,467	0	10,536	0	0	2,601
Charter	42,037	25,985	38,176	37,816	20,571	32,917
Private	790,157	859,161	596,645	654,861	639,253	708,015
TOTAL	834,661	885,146	645,357	692,677	659,824	743,533
Catch Trips						
Shore	0	0	642	0	1,593	447
Charter	36,493	28,027	37,511	27,515	24,245	30,758
Private	259,235	294,114	258,817	251,690	254,810	263,733
TOTAL	295,728	322,141	296,970	279,205	280,648	294,938

2012 data are preliminary.
Source: MRIP database, NMFS, SERO.

Table 3-3-12. Target and catch trips for dolphin in the South Atlantic (by state), Mid-Atlantic, and North Atlantic, 2008-2012.

	2008	2009	2010	2011	2012	Average
Target Trips						
Florida East	740,609	717,476	501,830	600,660	568,069	625,729
Georgia	0	0	0	0	0	0
N. Carolina	63,754	128,202	100,145	69,607	54,696	83,281
S. Carolina	17,285	15,492	17,111	6,104	33,201	17,839
Mid-Atlantic	13,012	23,976	26,270	12,750	1,618	15,525
North Atl.	0	0	0	0	0	0
Catch Trips						
Florida East	236,983	198,828	197,218	205,689	199,802	207,704
Georgia	1,208	902	5	31	65	442
N. Carolina	43,530	84,130	60,589	43,832	42,206	54,857
S. Carolina	3,624	10,635	14,943	1,769	25,665	11,327
Mid-Atlantic	10,384	27,642	24,215	26,108	11,450	19,960
North Atl.	0	0	0	1,774	1,462	647

2012 data are preliminary.
Source: MRIP database, NMFS, SERO.

Table 3-3-13. Average (2008-2012) target and catch trips for dolphin in the South Atlantic, Mid-Atlantic, and North Atlantic, by wave and fishing mode.

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Target Trips						
Shore	0	1,655	0	493	0	452
Charter	1,341	4,660	15,705	7,934	1,400	1,876
Private	43,890	118,392	236,587	161,895	75,638	71,614
TOTAL	45,231	124,707	252,292	170,322	77,039	73,942
Catch Trips						
Shore	0	0	319	0	128	0
Charter	1,027	2,709	12,873	10,385	2,600	1,164
Private	13,530	42,222	100,613	60,310	26,122	20,936
TOTAL	14,558	44,931	113,805	70,695	28,850	22,100

2012 data are preliminary.
Source: MRIP database, NMFS, SERO.

Table 3-3-14. Average (2008-2012) target and catch trips for dolphin in the South Atlantic (by state), Mid-Atlantic, and North Atlantic, by wave.

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Target Trips						
Florida East	45,052	116,488	167,196	123,876	71,144	72,036
Georgia	0	0	0	146	565	0
N. Carolina	179	4,187	38,324	30,088	3,598	605
S. Carolina	0	4,032	5,965	4,325	171	0
Mid-Atlantic	0	0	777	11,564	1,560	1,301
North Atl.	0	0	0	0	0	0
Catch Trips						
Florida East	14,471	38,574	76,588	32,238	24,251	21,582
Georgia	0	21	413	2	1	5
N. Carolina	86	2,943	29,816	18,176	3,323	513
S. Carolina	0	3,393	6,238	1,437	260	0
Mid-Atlantic	0	0	751	18,195	1,014	0
North Atl.	0	0	0	647	0	0

2012 data are preliminary.
Source: MRIP database, NMFS, SERO.

The annual variation in target trips for wahoo did not quite match with the annual variation in target trips across fishing modes during 2008-2012 (**Table 3-3-15**). For charter boats, target trips increased throughout except in 2012 whereas catch trips were down in 2009 and 2010 and rose in the two subsequent years. For the private/rental mode, changes in target trips matched well with changes in catch trips in 2010 and 2012, but the exact opposite occurred in the other years. The private/rental mode was the dominant fishing mode in both target and catch trips, with its target trips being substantially higher than those of charter boats.

The variation in target trips for wahoo also did not match well with the variation in catch trips across states in the South Atlantic (**Table 3-3-16**). In Florida, changes in target trips matched exactly with change in catch trips in 2010 and 2011, but the exact opposite occurred in the other years. In North Carolina, positive and negative changes in target trips matched exactly with the corresponding changes in catch trips. In South Carolina, changes in target trips followed a seesaw pattern, but changes in catch trips were all positive, except in 2011. Florida dominated in terms of target trips, followed by North Carolina, South Carolina, and Georgia. On the other hand, North Carolina dominated all other states in terms of catch trips, followed by Florida, South Carolina, and Georgia. Target trips in the Mid-Atlantic region followed a seesaw pattern, whereas catch trips fell in 2009 and 2010 and rose in the next two years. The North Atlantic region did not record any target or catch trips for wahoo.

The timing of peaks and troughs for target and catch trips varied from one another and across fishing modes (**Table 3-3-17**). Peaks for charter boats occurred in Wave 3 for target trips and Wave 1 for catch trips; peaks for the private/rental mode occurred in Wave 4 for target trips and Wave 5 for catch trips. For charter boats, the troughs occurred in Wave 1 for target trips and Wave 3 for catch trips; for the private/rental mode, the troughs occurred in Wave 3 for target trips and Wave 4 for catch trips. As noted before, there were no recorded target or catch trips for the shore mode.

While the timing of the peaks and troughs for target and catch trips across states in the South Atlantic varied, there were some apparent similarities (**Table 3-3-18**). For North Carolina, the peaks for both target and catch trips occurred in Wave 4, and for South Carolina the peaks for both target and catch trips occurred in Wave 2. In addition, the troughs for both target and catch trips occurred in Wave 3 for Florida and in Wave 1 for South Carolina. The Mid-Atlantic region recorded target trips only in Waves 4 and 5 and catch trips only in Wave 4. As noted earlier, there were no recorded target or catch trips for wahoo in the North Atlantic region.

Table 3-3-15. Target and catch trips for wahoo in the South Atlantic, Mid-Atlantic, and North Atlantic, by fishing mode, 2008-2012.

	2008	2009	2010	2011	2012	Average
Target Trips						
Shore	0	0	0	0	0	0
Charter	4,973	5,354	9,262	9,414	5,676	6,936
Private	124,844	100,880	92,818	128,104	139,071	117,143
TOTAL	129,817	106,234	102,080	137,518	144,747	124,079
Catch Trips						
Shore	0	0	0	0	0	0
Charter	9,091	5,936	4,920	5,998	8,727	6,934
Private	18,251	22,826	13,192	10,870	26,186	18,265
TOTAL	27,342	28,762	18,112	16,868	34,913	25,199

2012 data are preliminary.
Source: MRIP database, NMFS, SERO.

Table 3-3-16. Target and catch trips for wahoo in the South Atlantic (by state), Mid-Atlantic, and North Atlantic, 2008-2012.

	2008	2009	2010	2011	2012	Average
Target Trips						
Florida East	108,643	89,609	75,330	120,749	112,004	101,267
Georgia	0	0	1,224	2,825	0	810
N. Carolina	13,018	12,814	17,003	12,663	15,071	14,114
S. Carolina	5,325	3,243	7,488	1,281	17,305	6,928
Mid-Atlantic	2,831	566	1,036	0	368	960
North Atl.	0	0	0	0	0	0
Catch Trips						
Florida East	12,959	16,391	6,039	6,147	11,315	10,570
Georgia	0	75	1,224	0	0	260
N. Carolina	12,728	11,425	10,137	8,387	12,814	11,098
S. Carolina	0	285	496	0	5,597	1,276
Mid-Atlantic	1,652	587	108	2,334	5,189	1,974
North Atl.	0	0	0	0	0	0

2012 data are preliminary.
Source: MRIP database, NMFS, SERO.

Table 3-3-17. Average (2008-2012) target and catch trips for wahoo in the South Atlantic, Mid-Atlantic, and North Atlantic, by wave and fishing mode.

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Target Trips						
Shore	0	0	0	0	0	0
Charter	238	751	2,082	1,739	1,650	475
Private	16,751	23,547	13,418	27,218	20,742	15,468
TOTAL	16,989	24,298	15,501	28,958	22,391	15,942
Catch Trips						
Shore	0	0	0	0	0	0
Charter	9,091	5,936	4,920	5,998	8,727	6,934
Private	18,251	22,826	13,192	10,870	26,186	18,265
TOTAL	27,342	28,762	18,112	16,868	34,913	25,199

2012 data are preliminary.
Source: MRIP database, NMFS, SERO.

Table 3-3-18. Average (2008-2012) target and catch trips for wahoo in the South Atlantic (by state), Mid-Atlantic, and North Atlantic, by wave.

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Target Trips						
Florida East	16,399	18,424	10,882	22,951	17,418	15,193
Georgia	0	245	0	0	565	0
N. Carolina	590	1,978	2,377	4,466	4,141	562
S. Carolina	0	3,652	2,242	836	11	187
Mid-Atlantic	0	0	0	591	256	0
North Atl.	0	0	0	0	0	0
Catch Trips						
Florida East	1,551	2,081	1,004	2,136	1,016	2,782
Georgia	0	260	0	0	0	0
N. Carolina	50	1,505	2,533	3,805	2,870	336
S. Carolina	0	1,209	15	33	18	0
Mid-Atlantic	0	0	0	1,974	0	0
North Atl.	0	0	0	0	0	0

2012 data are preliminary.
Source: MRIP database, NMFS, SERO.

Similar analysis of recreational effort is not possible for the headboat sector because the headboat data are not collected at the angler level. Estimates of effort in the headboat sector are provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats. **Table 3-3-19** displays the annual angler days by state in the South Atlantic for 2008-2012 and **Table 3-3-20** displays their average (2008-2012) monthly distribution. Confidentiality issues required combining Georgia estimates with those of Northeast Florida.

Headboat angler days (trips) varied from year to year across various states. Total headboat angler trips increased in 2009, fell in the next two years,

and increased in 2012 (**Table 3-3-19**). Southeast Florida registered the highest number of angler days, followed by South Carolina, North Carolina, and Georgia/Northeast Florida. Florida clearly dominated all other states in terms of headboat angler days.

On average (2008-2012), overall angler days peaked in July and troughed in November (**Table 3-3-20**). All states recorded peak angler trips in July, similar to the overall peak month. None of the states, however, had the same trough month as the overall angler trips. North Carolina had a trough in February, South Carolina and Georgia/Northeast Florida in January, and Southeast Florida in October.

Table 3-3-19. South Atlantic headboat angler days, by state, 2008-2012.

	2008	2009	2010	2011	2012	AVERAGE
NC	16,982	19,468	21,071	18,457	20,766	19,349
SC	47,287	40,919	44,951	44,645	41,003	43,761
GA/NEFL	52,521	66,447	53,676	46,256	8,800	12,822
SEFL	71,598	69,973	69,986	77,785	130,823	116,751
TOTAL	188,388	196,807	189,684	187,143	201,392	192,683

Source: The Headboat Survey, NMFS, SEFSC, Beaufort Lab.

Table 3-3-20. Average monthly distribution of headboat angler days in the South Atlantic, by state, 2008-2012.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NC	26	12	224	1,142	2,372	3,908	4,331	3,478	1,851	1,659	321	23
SC	70	196	1,234	3,203	3,897	9,363	11,614	8,118	3,093	2,236	618	118
GA/NEFL	158	357	734	1,344	1,631	2,389	2,459	1,478	894	662	403	312
SEFL	7,927	9,732	12,911	12,934	10,985	13,239	14,868	10,035	5,385	5,141	5,662	7,930
TOTAL	8,181	10,298	15,103	18,624	18,885	28,900	33,272	23,109	11,224	9,698	7,004	8,384

Source: The Headboat Survey, NMFS, SEFSC, Beaufort Lab.

3.3.2.3 Permits

For-hire vessels are required to have a dolphin wahoo for-hire permit to fish for or possess dolphin or wahoo in the Atlantic EEZ. The number of vessels with for-hire dolphin wahoo permits for 2008-2012 is provided in **Table 3-3-21**. This sector operates as an open access fishery and not all permitted vessels are necessarily active in the fishery. Some vessel owners may have obtained open access permits as insurance for uncertainties in the fisheries in which they currently operate.

The number of for-hire permits issued for the South Atlantic dolphin wahoo fishery increased from 1,965 permits in 2008 to 2,019 permits in 2012. Based on applications for dolphin wahoo for-hire permits, an average of 79% of for-hire permitted vessels were home-ported in the South Atlantic states, 15% in the Mid-Atlantic states, 1% in the North Atlantic states, and the rest in the Gulf and other states. Among the South

Atlantic states, Florida accounted for the greatest proportion of home-ported for-hire vessels, followed by North Carolina, South Carolina, and Georgia. In the Mid-Atlantic (not shown in the table), Maryland had, on average, the most number of home-ported for-hire vessels, followed by New Jersey, Delaware, Virginia, and New York. In the North Atlantic (not shown in the table), most of the permitted for-hire vessels were home-ported in Massachusetts and Rhode Island. The number of vessels in the Gulf and other states with for-hire dolphin wahoo permits has remained steady over the years.

Table 3-3-21. Number of South Atlantic for-hire dolphin wahoo vessel permits, 2008-2012.

Home Port State	2008	2009	2010	2011	2012	Average
Florida	1,011	1,021	1,015	1,031	1,052	1,026
Georgia	24	28	24	23	25	25
North Carolina	401	412	394	393	368	394
South Carolina	137	148	147	140	141	143
Mid-Atlantic	291	299	313	303	301	301
North Atlantic	14	19	21	21	22	19
Gulf States (AL-TX)	66	73	78	86	91	79
Other States	21	21	14	17	19	18
Total	1,965	2,021	2,006	2,014	2,019	2,005

Source: NMFS, SERO Permits Data Base.

For-hire permits do not distinguish charter boats from headboats. Some vessels could operate solely as charter boats, others solely as headboats, while still others could operate either as charter boats or headboats (not both at the same time) at some period during the fishing year. Based on a 1997 survey, Holland et al. (1999) estimated that a total of 1,080 charter vessels and 96 headboats supplied for-hire services in all South Atlantic fisheries during 1997. By 2013, the estimated number of headboats supplying for-hire services in all South Atlantic fisheries had fallen to 75 (K. Brennan, Beaufort Laboratory, SEFSC, personal communication, 2013).

According to the Southeast Regional Office Website, the Constituency Services Branch (Permits) unofficially listed 1,623 holders of South Atlantic for-hire dolphin wahoo permits as of April 23, 2013. There are no specific permitting requirements for recreational anglers to harvest dolphin or wahoo in the South Atlantic. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions.

3.3.2.4 Economic Values and For-Hire Vessel Financials

Participation, effort, and harvest are indicators of the value of saltwater recreational fishing. However, a more specific indicator of value is the satisfaction that anglers experience over and above their costs of fishing. The monetary value of this satisfaction is referred to as consumer surplus. The value or benefit derived from the recreational experience is dependent on several quality determinants, which include fish size, catch success rate, and the number of fish kept. These variables help determine the

value of a fishing trip and influence total demand for recreational fishing trips.

The NMFS Southeast Science Center (Table 7, Carter and Liese 2012) developed estimates of consumer surplus per angler trip. These estimates were culled from various studies – Haab et al. (2009), Dumas et al. (2009), and NOAA SEFSC SSRG (2009). The values/ranges of consumer surplus estimates are (in 2011 dollars) $117 to $134 for red snapper, $129 to $134 for grouper, $11.50 for other snappers, and $84 for snapper grouper. Haab et al. (2009) also estimated consumer surplus for dolphin of two general sizes. They estimated that for one additional fish caught and kept the consumer surplus would range from $48 to $538 (2011 dollars) for dolphin greater than 20 inches and from $5 to $30 (2011 dollars) for smaller dolphin. Carter and Liese (2012) also estimated the mean willingness to pay per fish, per trip for dolphin (in 2011 dollars) of $14.40, $9.60, $7.10, $5.60, and $4.60, respectively for the second, third, fourth, fifth, and sixth fish caught and kept. They also estimated declining mean willingness to pay for additional fish caught and released due to the size or bag limit.

While anglers receive economic value as measured by the consumer surplus associated with fishing, for-hire businesses receive value from the services they provide. Producer surplus is the measure of the economic value these operations receive. Producer surplus is the difference between the revenue a business receives for a good or service, such as a charter or headboat trip, and the cost the business incurs to provide that good or service. Estimates of the producer surplus associated with for-hire trips are not available. However, proxy values in the form of net operating revenues are available (Christopher Liese, NMFS SEFSC, personal communication, August 2010). These estimates were culled from several studies – Liese et al. (2009), Dumas et al. (2009), Holland et al. (1999), and Sutton et al. (1999). Estimates of net operating revenue per angler trip (2011 dollars) on representative charter trips (average charter trip regardless of area fished) are $153 for Louisiana through east Florida, $142 for east Florida, $164 for northeast Florida, and $134 for North Carolina. For charter trips into the EEZ only, net operating revenues are $148 in east Florida and $155 in northeast Florida. For full-day and overnight trips only, net operating revenues are estimated to be $163-$168 in North Carolina. Comparable estimates are not available for Georgia, South Carolina, or Texas.

Net operating revenues per angler trip are lower for headboats than for charter boats. Net operating revenue estimates (2011 dollars) for a representative headboat trip are $50 in the Gulf of Mexico (all states and all of Florida), and $66-$71 in North Carolina. For full-day and overnight headboat trips, net operating revenues (2011 dollars) are estimated to be $78-$81 in North Carolina. Comparable estimates are not available for Georgia and South Carolina.

A study of the North Carolina for-hire fishery provides some information on the financial status of the for-hire fishery in the state (Dumas et al., 2009). Depending on vessel length, regional location, and season, charter fees (2011 dollars) per passenger per trip ranged from $176 to $263.80 for a full-day trip and from $98.20 to $130 for a half-day trip; headboat fees ranged from $76 to $86 for a full-day trip and from $39.90 to $47.20 for a half-day trip. Charter boats generated a total of $58.4 million in passenger fees, $3.4 million in other vessel income (e.g., food and beverages), and $5.0 million in tips (2011 dollars). The corresponding figures for headboats in 2011 dollars were $10.3 million in passenger fees, $0.21 million in other vessel income, and $0.94 million in tips. Non-labor expenditures (e.g., boat insurance, dockage fees, bait, ice, fuel) amounted to $45.7 million for charter boats and $5.6 million for headboats (2011 dollars). Summing across vessel lengths and regions, charter vessels had an aggregate value (depreciated) of $126.2 million and headboats

had an aggregate value (depreciated) of $10.7 million (2011 dollars).

A more recent study of the for-hire sector provides estimates on gross revenues generated by the charter boats and headboats in the South Atlantic (Holland et al. 2012). Average annual revenues (2011 dollars) for charter boats are estimated to be $126,032 for Florida vessels, $53,443 for Georgia vessels, $100,823 for South Carolina vessels, and $101,959 for North Carolina vessels. For headboats, the corresponding estimates are $209,507 for Florida vessels and $153,848 for vessels in the other states. Revenue information for headboats in states, other than Florida, are aggregated due to small sample size.

3.3.3 Social Environment

Descriptions of the social and cultural environment of the dolphin wahoo fishery are contained in the original Dolphin Wahoo FMP (SAFMC 2003), and the Comprehensive Annual Catch Limit Amendment (SAFMC 2011a) and are incorporated herein by reference where appropriate.

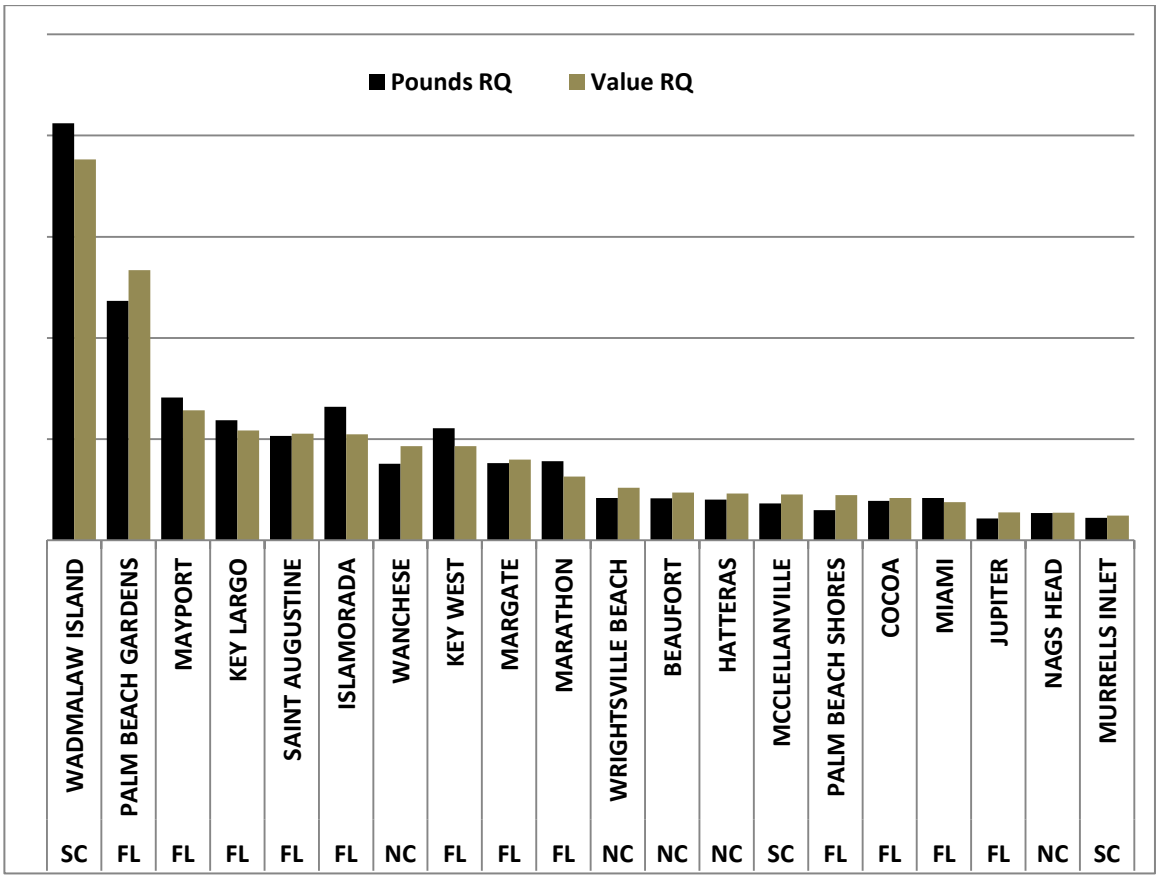

Figure 3-2. Dolphin Commercial Value and Pounds Regional Quotient for South Atlantic Fishing Communities in 2011.
Source: SERO

Figure 3-2 provides a depiction of dolphin regional quotient commercial pounds and value of landings for the top twenty South Atlantic communities with dolphin landings in 2011. A regional quotient is the amount of local landings and/or value divided by the total landings and

value for the region. For this analysis, total commercial landings for Florida Keys communities were included in the South Atlantic region as we are unable to disaggregate landings at the community level to Gulf of Mexico or Atlantic at this time. Values for regional quotient of pounds and value are not reported to address confidentiality concerns.

However**, Figure 3-3** still provides an indication of the proportion of dolphin that is landed by the top twenty communities. For more detailed discussions and demographic characteristics of some communities included in **Figure 3-3** see SAFMC (1983); SAFMC (2011a) or Jepson et al. (2005).

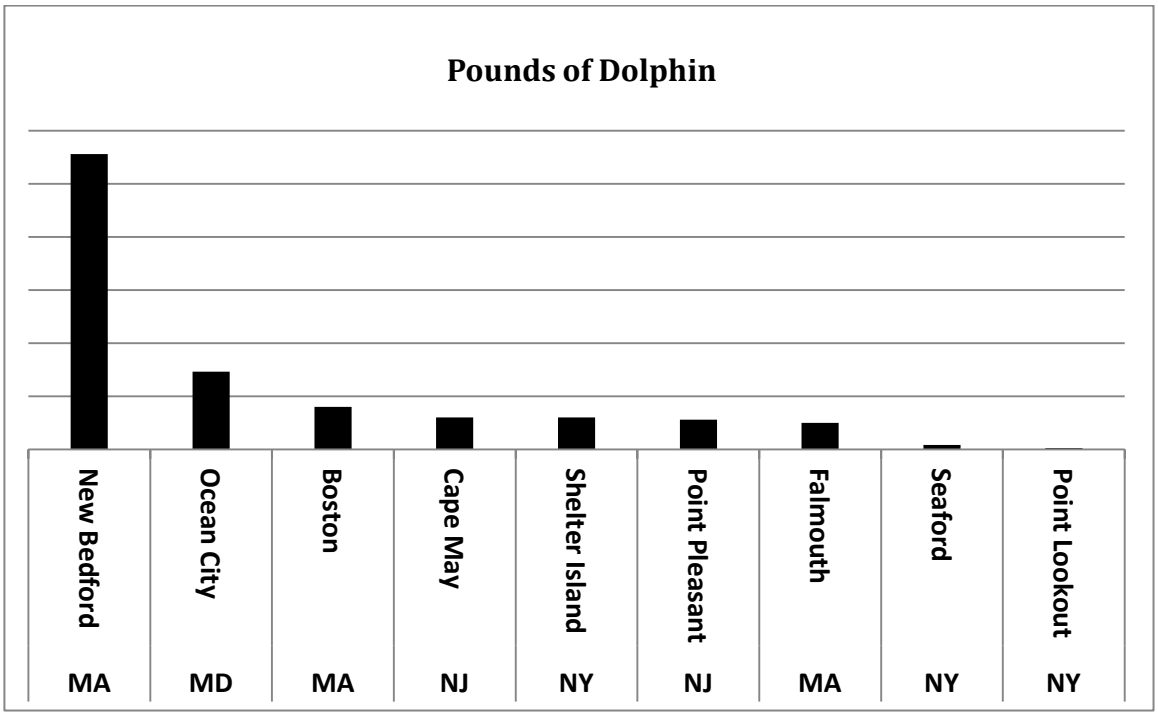

Figure 3-3. Dolphin Commercial Pounds Landed for Northeast Fishing Communities in 2011**.** Source: NEFSC

Figure 3-3 depicts the communities that reported commercial landings of dolphin in the Northeast and Mid-Atlantic for 2011. The actual number of pounds landed has been removed from the graph to address confidentiality concerns. New Bedford, Massachusetts is the leading port in terms of dolphin landings with Ocean City, Maryland a distant second. Several other communities follow with near comparable amounts of dolphin landed but far less than the leading community. Wahoo landings for 2011were far less than dolphin with only three communities reporting landings: New Bedford, Massachusetts; Hatteras, North Carolina; and Cape May, New Jersey. For more detailed descriptions of some Northeast and Mid-Atlantic communities see McCay and Cieri (2000) and Hall-Arber et al. (2002). More up-to-date information can also be found at http://www.nefsc.noaa.gov/read/socialsci/communitySnapshots.php.

Recreational landings of dolphin are reported for the Northeast and Mid-Atlantic communities in **Figure 3-4** from charter and headboat landings. New Jersey communities are the top three in terms of number of dolphin landed from recreational fishing for-hire vessels. Numerous other communities from a variety of states have

landings reported. Recreational landings of wahoo were far less than dolphin with numbers of 3 or less for all communities reporting landings. Many of the same communities in **Figure 3-4** have wahoo landings, but with so few fish, ranking them is unnecessary. See the references above for more detailed descriptions of recreational fishing communities listed in **Figure 3-4**.

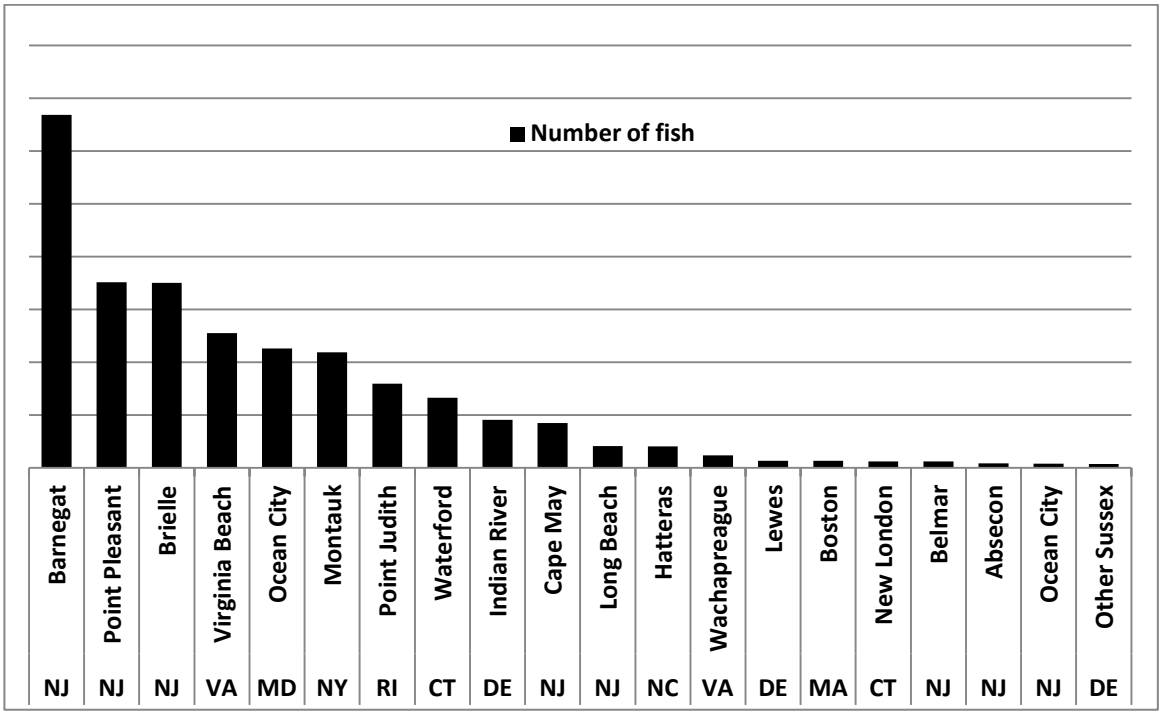

Figure 3-4. Dolphin Number of Fish Landed Recreationally for Northeast Fishing Communities by Charter/Headboats in 2011.
Source: NEFSC

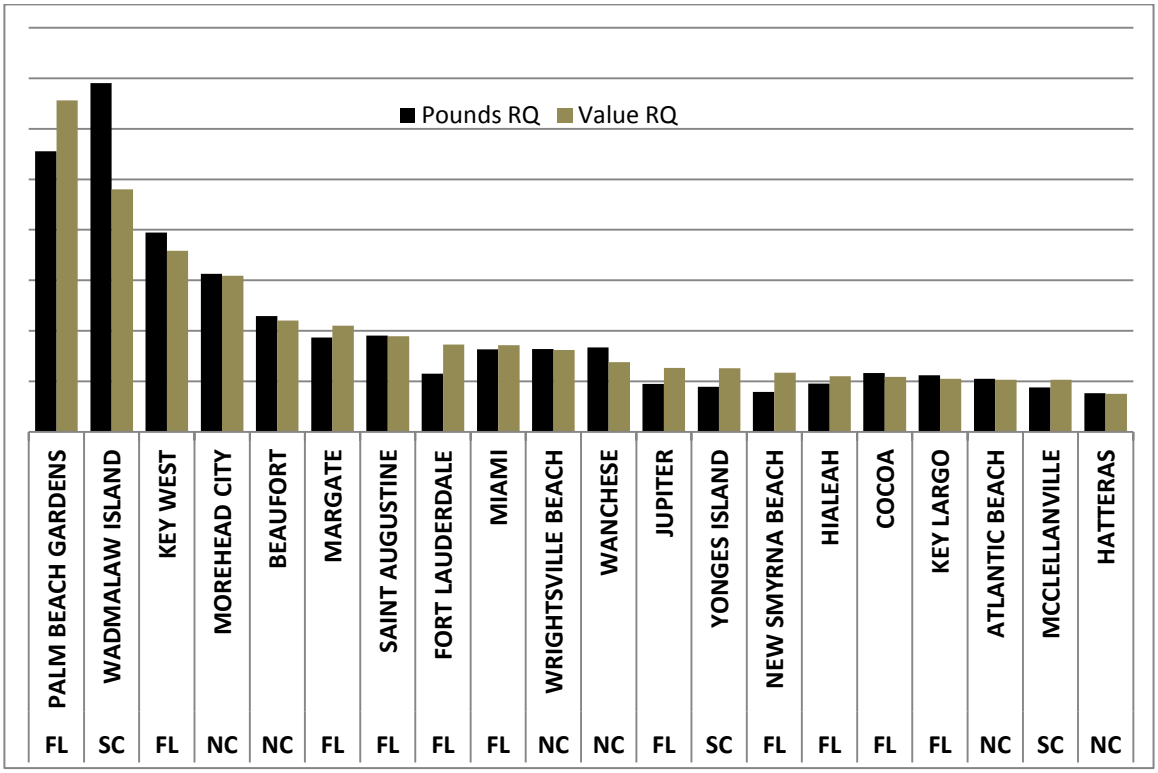

Figure 3-5. Wahoo Commercial Value and Pounds Regional Quotient for South Atlantic Fishing Communities in 2011.
Source: SERO/ALS

Figure 3-5 provides a depiction of wahoo regional quotient commercial pounds and value of landings for the top twenty South Atlantic communities with wahoo landings in 2011. Again, values for regional quotient of pounds and value are not reported to address confidentiality concerns. Palm Beach Gardens, Florida leads in terms of value of catch landed, but Wadamalaw Island, South Carolina has the most pounds landed. Most communities with wahoo landings are in either Florida or North Carolina, with Younges Island and McCellanville the only South Carolina communities included in the top twenty.

Southeast Commercial and Recreational Engagement and Reliance on Fishing

Selecting the most comprehensive set of communities from figures for regional quotient for both dolphin and wahoo, a comparison of two indices recently developed to understand overall dependence on both commercial and recreational fishing are presented below. To better capture how South Atlantic and Northeast fishing communities are engaged and reliant on fishing, indices were created using secondary data from permit and landings information for the commercial and recreational sectors (Colburn and Jepson 2012; Jacob et al. 2012). Fishing engagement is primarily the absolute numbers of permits, landings, and value. Fishing reliance has many of the same variables as engagement divided by population to give an indication of the per capita impact of this activity.

Using a principal component and single solution factor analysis each community receives a factor score for each index to compare to other communities. With the top eighteen communities from both component fisheries, factor scores of both engagement and reliance for both commercial and recreational fishing

were plotted onto radar graphs. Each community's factor score is located on the axis radiating out from the center of the graph to its name. Factor scores are connected by colored lines and are standardized, therefore the mean is zero. Two thresholds of one and ½ standard deviation above the mean are plotted onto the graphs to help determine a threshold for significance. Because the factor scores are standardized, a score above 1 is also above one standard deviation. A score above ½ standard deviation is considered moderately engaged or reliant, while over 1 standard deviation is considered very engaged or reliant (Census data were not available for Mayport, Florida, Younges Island, South Carolina; Wadamalaw Island, South Carolina; or Hatteras, North Carolina and therefore do not have indices developed at this time).

Using the thresholds of fishing dependence of ½ and 1 standard deviation, **Figure 3-6** suggests that several communities that land dolphin in the Southeast are substantially engaged in commercial fishing. The communities of Islamorada, Key West, and Marathon, Florida; Atlantic Beach, Beaufort, Wanchese, North Carolina are engaged and reliant on commercial fishing.

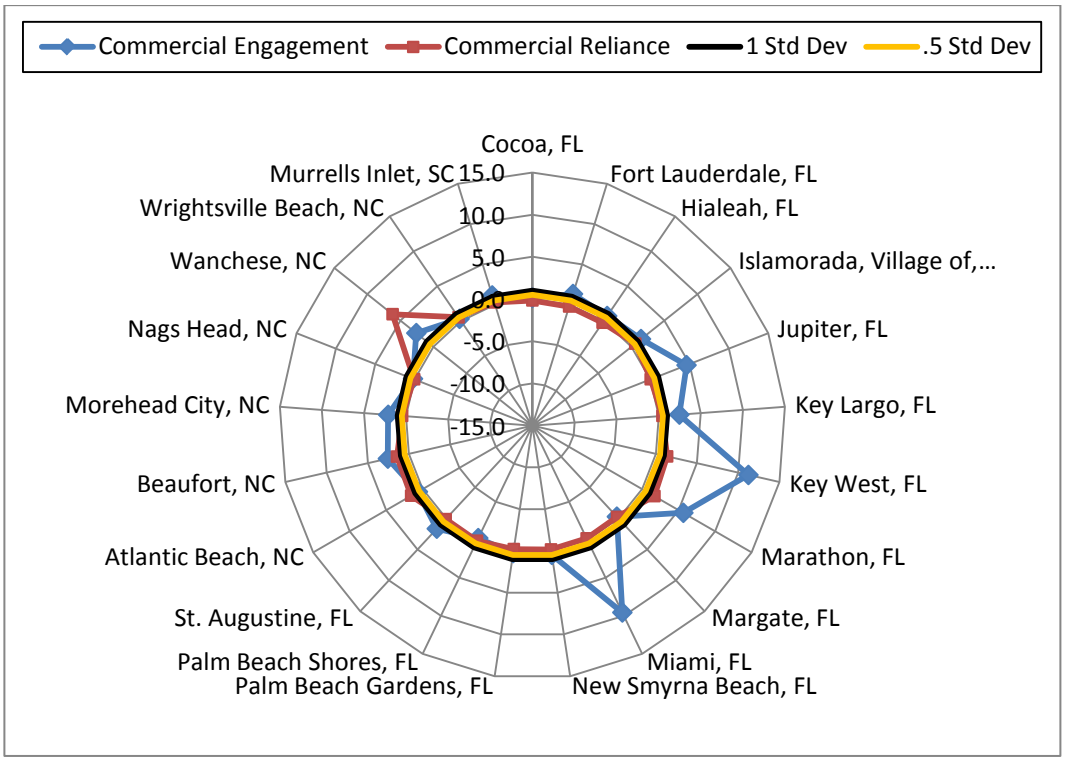

Figure 3-6. Commercial Fishing Engagement and Reliance for Southeast Dolphin and Wahoo Fishing Communities.
Source: SERO Social Indicators Database

As mentioned above, similar indices were created for recreational fishing. The communities of Islamorada, Key West, Marathon, St. Augustine, and Miami, Florida; Atlantic Beach, Morehead City, Nags Head, Wanchese, and Wrightsville Beach, North Carolina and Murrell's Inlet, South Carolina are above the threshold for recreational engagement and reliance as shown in **Figure 3-7**. These communities would most likely have local economies with some dependence upon

recreational fishing and its supporting businesses.

In terms of overall fishing dependence, the communities of Islamorada, Key West, Marathon, Florida; Atlantic Beach, and Wanchese, North Carolina are engaged and reliant for both commercial and recreational fishing. These communities would have an especially strong dependence upon fishing throughout their overall economy with substantial support infrastructure.

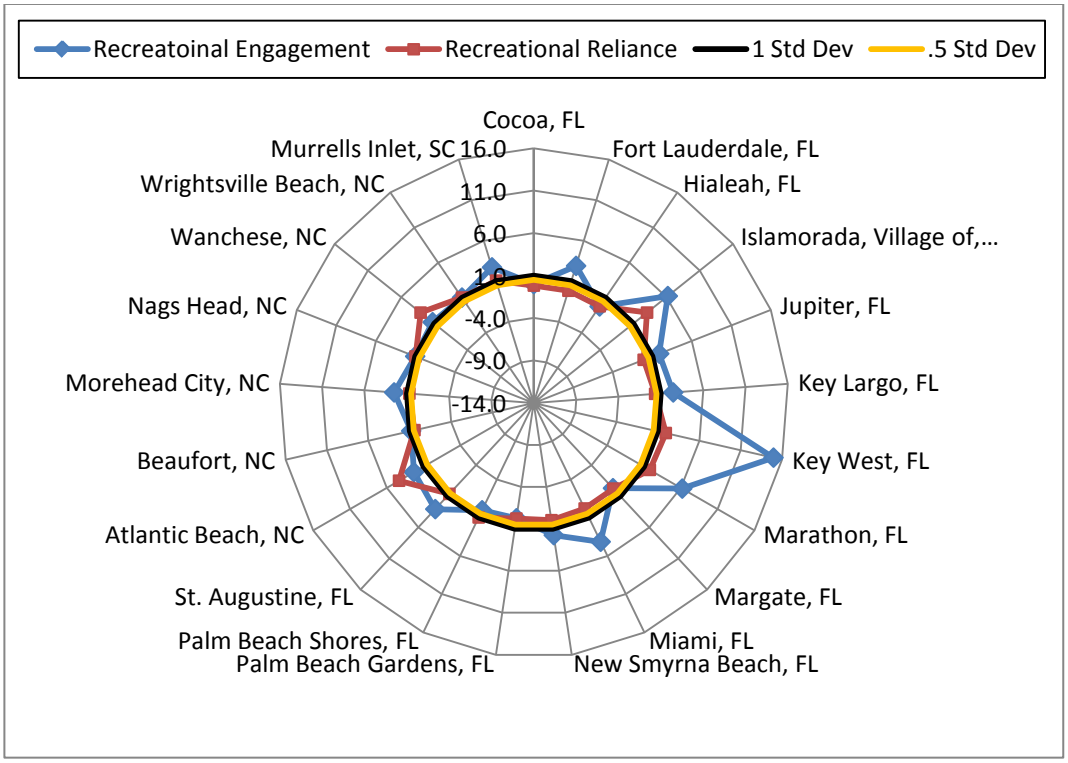

Figure 3-7. Recreational Fishing Engagement and Reliance for Southeast Dolphin and Wahoo Fishing Communities.
Source: SERO Social Indicators Database

Northeast Commercial and Recreational Engagement and Reliance on Fishing

As depicted in **Figure 3-8**, for Northeast communities, Ocean City, Maryland; Barnegat Light, Cape May, and Point Pleasant, New Jersey; Montauk, New York; Watchapreague, Virginia; Boston and New Bedford, Massachusetts; and Narragansett/Saunderstown, Rhode Island are all over either the engaged or reliant threshold for commercial fishing or both.

For those communities that exceed the threshold for either the engagement or reliance indices, it would be expected that the local economy has some dependence upon commercial fishing. Where the community exceeds both thresholds a much stronger dependence upon commercial fishing should be found.

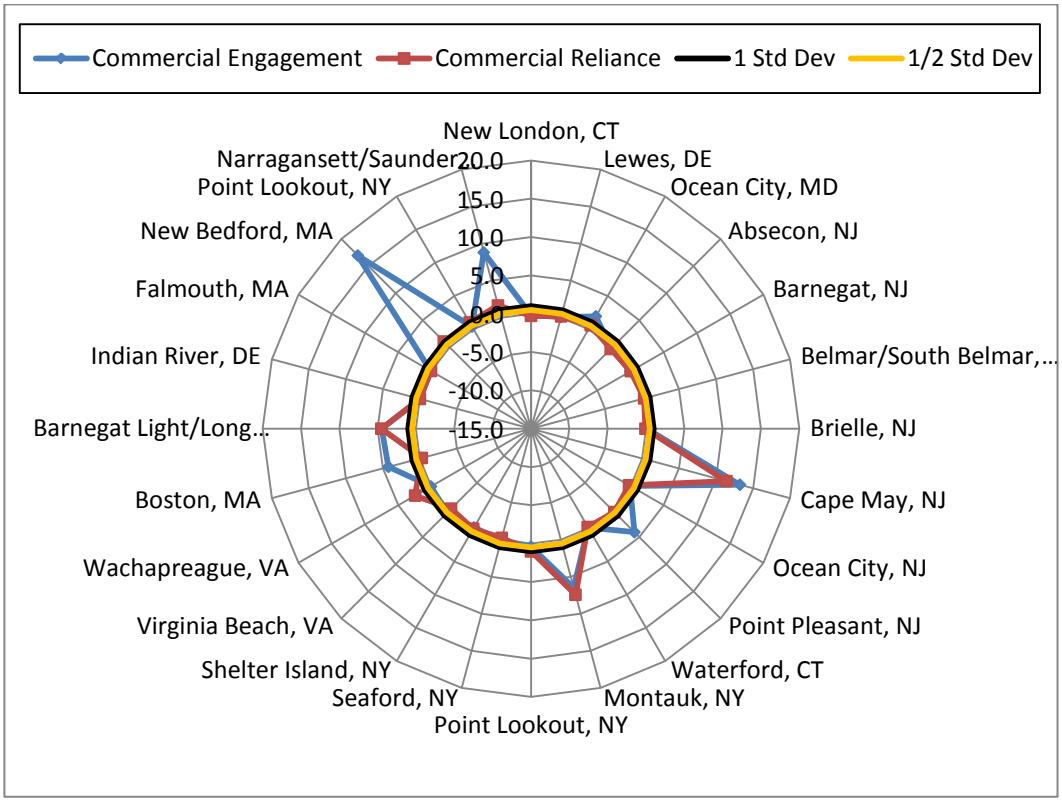

Figure 3-8. Commercial Fishing Engagement and Reliance for Northeast Dolphin and Wahoo Fishing Communities.
Source: SERO/NEFSC Social Indicators Database

In terms of recreational fishing engagement and reliance for Northeast communities with dolphin and wahoo landings, almost every community is over the threshold for either engagement or reliance for recreational fishing as shown in **Figure 3-9**. Only four communities do not exceed either threshold: Absecon, New Jersey; Barnegat, New Jersey; Seaford, New York; and Shelter Island, New York.

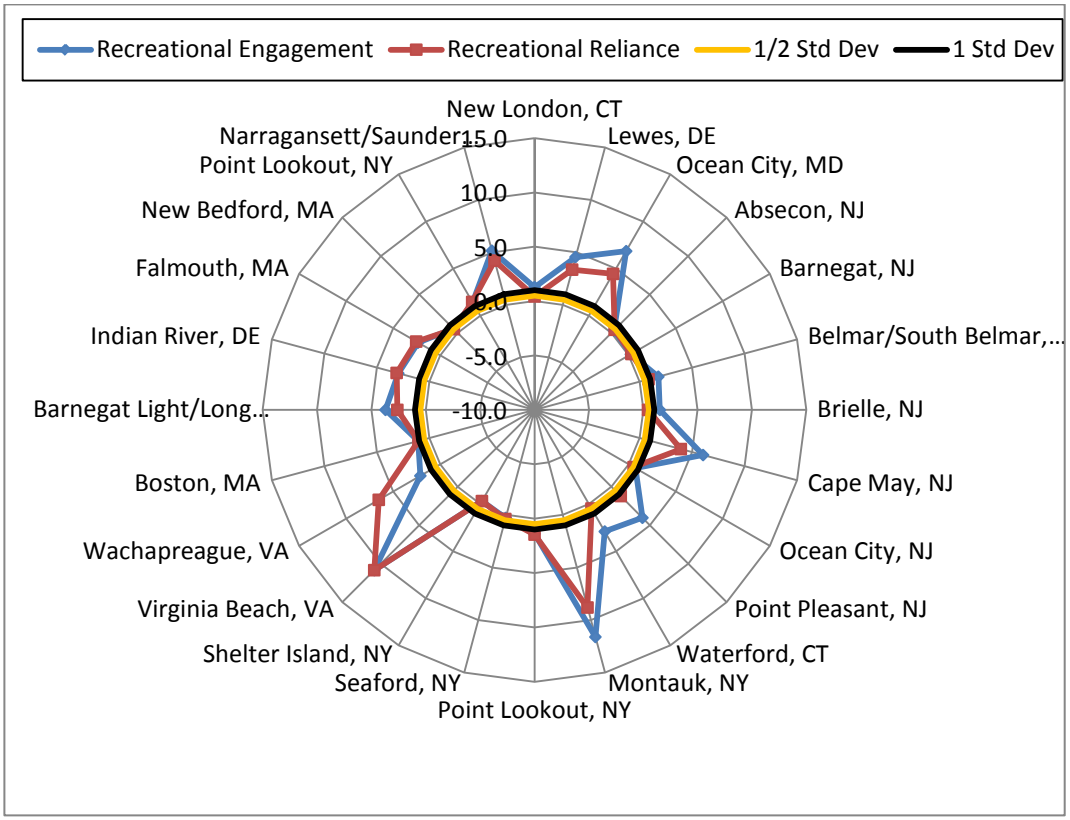

Figure 3-9. Recreational Fishing Engagement and Reliance for Northeast Dolphin and Wahoo Fishing Communities.
Source: SERO/NEFSC Social Indicators Database

3.3.3.1 Environmental Justice

Executive Order 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. The main focus of Executive Order 12898 is to consider "the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories…" This executive order is generally referred to as environmental justice (EJ).

Commercial fishermen, recreational fishermen, and coastal communities in the South Atlantic and Northeast would be expected to be impacted by the proposed action. However, information on the race and income status for many of these individuals involved in fishing is not available. Because the proposed action could be expected to impact fishermen and community members in several states within the South Atlantic, census data have been assessed to examine whether any coastal communities have poverty or minority rates that exceed thresholds for raising EJ concerns.

The threshold for comparison used was 1.2 times the state average for the proportion of minorities and population living in poverty (EPA 1999). If the value for the community is

greater than or equal to 1.2 times this average, then the community is considered an area of potential EJ concern. Census data from the American Community Survey for the year 2010 were used to calculate the percentages and thresholds.

Table 3-3-22. Southeast Communities Exceeding the Poverty and Minority Environmental Justice Thresholds for 2011.

Community	Percent in Poverty	State threshold	Percent Over threshold
Cocoa, FL	27	16.56	10.44
Fort Lauderdale, FL	18.2	16.56	1.64
Hialeah, FL	20.1	16.56	3.54
Miami, FL	27.3	16.56	10.74
St. Augustine, FL	21.1	16.56	4.54

Source: SERO 2012

Five communities exceed the poverty threshold and are listed in **Table 3-3-22** and all are in Florida. There were two Florida communities that exceeded the threshold for minorities: Hialeah, Florida and Miami, Florida. We do not have these same EJ threshold data for communities in the Northeast and therefore use another approach to examine similar factors that can encompass more communities. To take a closer look, a recently created database for both Northeast and Southeastern communities offers a comparable suite of measures of social vulnerabilities.

Another suite of indices created to examine the social vulnerability of coastal communities is depicted in **Figure 3-10.** The three indices are poverty, population composition, and personal disruptions. The variables included in each of these indices have been identified through the literature as being important components that contribute to a community's vulnerability. Indicators such as increased poverty rates for different groups, more single female-headed households and households with children under the age of 5, disruptions such as higher separation rates, higher crime rates and unemployment all are signs of populations experiencing vulnerabilities. These vulnerabilities signify that it may be difficult for anyone living in these communities to be able to recover from social disruptions that might come from something like a significant change in their ability to work or make a decent wage that may be a result of regulatory change.

As depicted in **Figure 3-10** the communities of Cocoa, Florida; Fort Lauderdale, Florida; Hialeah, Florida; Margate, Florida; Miami, Florida; Beaufort, North Carolina; Morehead City, North Carolina; and Wanchese, North Carolina exceed the threshold of ½ standard deviation above the mean for at least one or more of the social vulnerability indices. The communities of Cocoa, Florida; Hialeah, Florida; and Miami, Florida exceed the thresholds for all three of the indicators, which correlates with the EJ thresholds above. It would be expected that these communities may exhibit vulnerabilities to social or economic disruption because of regulatory change that may have negative social impacts dependent upon their engagement and reliance upon fishing and whether the regulatory change would have negative effects. Those communities that exhibit several index scores exceeding the threshold, especially 1 standard deviation would be the most vulnerable. This is not to say that these communities will be negatively affected, but they may be if there

were to be negative impacts from the actions within this amendment. These are the communities that would be most at risk depending upon their fishing engagement and reliance. Wanchese, North Carolina is engaged and reliant on both commercial and recreational fishing, while Morehead City, North Carolina is highly engaged and reliant on recreational fishing.

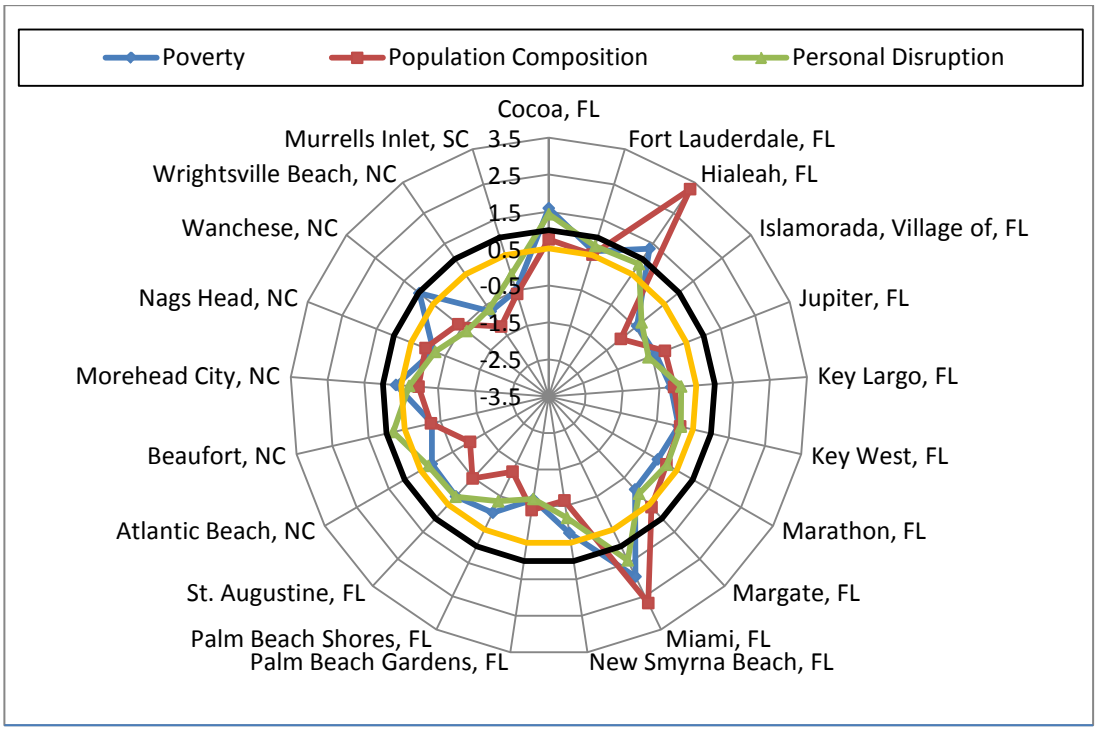

Figure 3-10. Social Vulnerability Indices for Southeast Dolphin and Wahoo Fishing Communities. Source: SERO/NEFSC Social Indicators Database

Communities in the Northeast that exhibit social vulnerabilities are depicted in **Figure 3-11**. Three communities exceed the thresholds for all three indices: New London, Connecticut; Boston, Massachusetts; and New Bedford, Massachusetts. While Boston, Massachusetts is highly engaged in commercial fishing, neither it nor New London, Connecticut, is reliant on commercial fishing. New Bedford, Massachusetts on the other hand is both reliant on and engaged in commercial fishing and may be susceptible to negative effects from regulatory change.

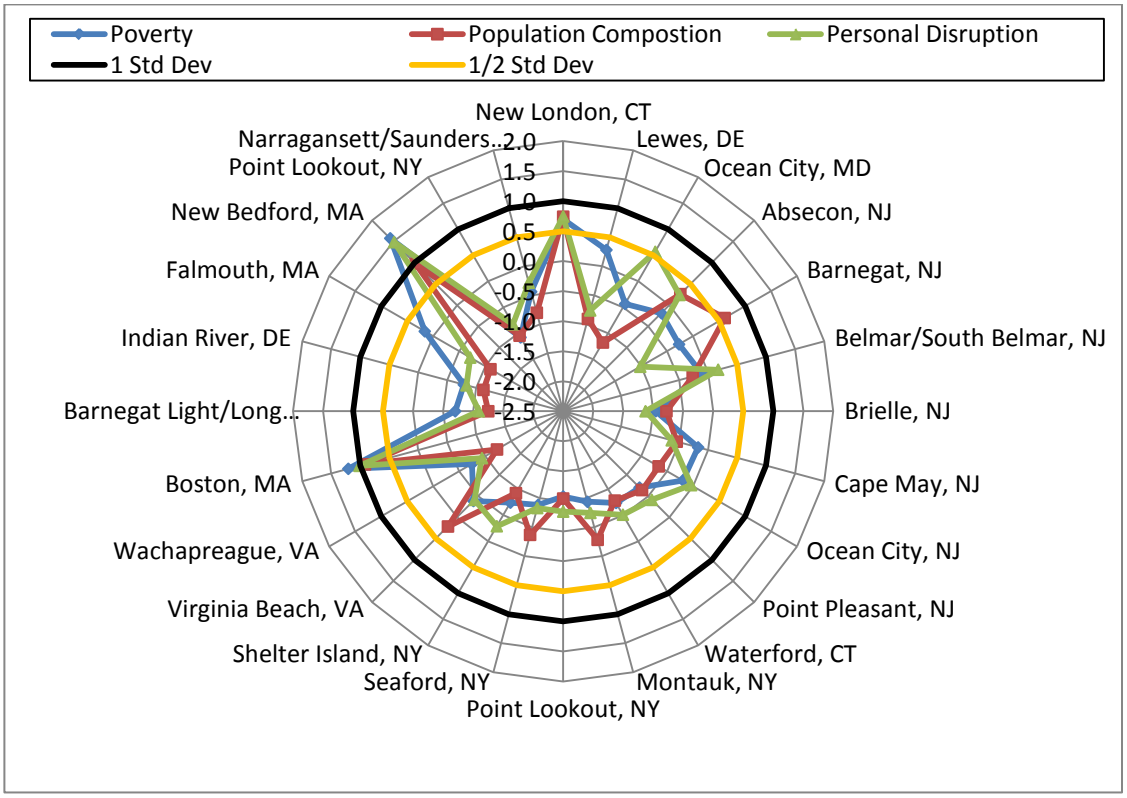

Figure 3-11. Social Vulnerability Indices for Northeast Dolphin and Wahoo Fishing Communities. Source: SERO/NEFSC Social Indicators Database

Although we have information concerning a community's overall status with regard to minorities, poverty, and social vulnerability indices, we do not have such information for fishermen individually. Therefore, we can only place our fishing activity within the community as a proxy for understanding the role that these social vulnerabilities may have in gauging how those affected by regulatory change may respond. While subsistence fishing is also an activity that can be affected by regulatory change, we have very little, if any, data on this activity at this time. We assume that the effects to other sectors will be similar to those that affect subsistence fishermen who may rely on dolphin and wahoo. Because dolphin and wahoo are pelagic and likely would require a vessel to fish, there may be few if any subsistence fishermen who rely on this species.

3.4 Administrative Environment

3.4.1 The Fishery Management Process and Applicable Laws

3.4.1.1 Federal Fishery Management

Federal fishery management is conducted under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.), originally enacted in 1976 as the Fishery Conservation and Management Act. The Magnuson-Stevens Act claims sovereign rights and exclusive fishery management authority over most fishery resources within the EEZ, an area extending 200 nm from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the U.S. EEZ.

Responsibility for federal fishery management decision-making is divided between the U.S. Secretary of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for collecting and providing the data necessary for the councils to prepare fishery management plans and for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act and with other applicable laws. In most cases, the Secretary has delegated this authority to NMFS.

The South Atlantic Council, in cooperation with the Mid-Atlantic Fishery Management Council and the New England Fishery Management Council, is responsible for conservation and management of dolphin and wahoo in federal waters off the Atlantic states. These waters extend from 3 to 200 mi offshore from the seaward boundary of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and east Florida to Key West. The South Atlantic Council has thirteen voting members: one from NMFS; one each from the state fishery agencies of North Carolina, South Carolina, Georgia, and Florida; and eight public members appointed by the Secretary. On the South Atlantic Council, there are two public members from each of the four South Atlantic States. Non-voting members include representatives of the U.S. Fish and Wildlife Service, U.S. Coast Guard, State Department, and Atlantic States Marine Fisheries Commission (ASMFC). The South Atlantic Council has adopted procedures whereby the non-voting members serving on the South Atlantic Council Committees have full voting rights at the Committee level but not at the full South Atlantic Council level. South Atlantic Council members serve three-year terms and are recommended by state governors and appointed by the Secretary from lists of nominees submitted by state governors. Appointed members may serve a maximum of three consecutive terms.

Public interests also are involved in the fishery management process through participation on Advisory Panels and through council meetings, which, with few exceptions for discussing personnel matters and litigation, are open to the public. The South Atlantic Council uses its Scientific and Statistical Committee (SSC) to review the data and science being used in assessments and fishery management plans/amendments. In addition, the regulatory process is in accordance with the Administrative Procedure Act, in the form of “notice and comment” rulemaking.

3.4.1.2 State Fishery Management

The state governments of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey,

Pennsylvania, Delaware, Maryland, Virginia North Carolina, South Carolina, Georgia, and Florida have the authority to manage fisheries that occur in waters extending three nautical miles from their respective shorelines. The Department of Marine Fisheries is responsible for marine fisheries in Maine's state waters. In New Hampshire, marine fisheries are managed by the Marine Fisheries Division of the New Hampshire Fish and Game Department. Massachusetts's marine fisheries are managed by the Division of Marine Fisheries of the Massachusetts Department of Fish and Game. Rhode Island's marine fisheries are managed by the Division of Fish and Wildlife of Rhode Island's Department of Environmental Management. Connecticut manages its marine fisheries through the Department of Energy and Environmental Protection. New York's marine fisheries are managed by the Division of Fish, Wildlife, and Marine Resources of the Department of Environmental Conservation. New Jersey manages its marine fisheries through the Division of Fish and Wildlife of the Department of Environmental Protection. Pennsylvania manages its fisheries through the Pennsylvania Fish and Boat Commission. Marine fisheries in Delaware are managed by the Fisheries Section of the Division of Fish and Wildlife. Maryland's Department of Natural Resources manages its marine fisheries. Marine fisheries in Virginia are managed by the Virginia Marine Resources Commission. North Carolina's marine fisheries are managed by the Marine Fisheries Division of the North Carolina Department of Environment and Natural Resources. The Marine Resources Division of the South Carolina Department of Natural Resources regulates South Carolina's marine fisheries. Georgia's marine fisheries are managed by the Coastal Resources Division of the Department of Natural Resources. The Marine Fisheries Division of the Florida Fish and Wildlife Conservation Commission is responsible for managing Florida's marine fisheries. Each state fishery management agency has a designated seat on the South Atlantic Council. The purpose of state representation at the South Atlantic Council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations in state and federal waters.

The Atlantic States are also involved through the ASMFC in management of marine fisheries. This commission was created to coordinate state regulations and develop management plans for interstate fisheries. It has significant authority, through the Atlantic Striped Bass Conservation Act and the Atlantic Coastal Fisheries Cooperative Management Act, to compel adoption of consistent state regulations to conserve coastal species. The ASFMC is also represented at the South Atlantic Council level, but does not have voting authority at the South Atlantic Council level.

NMFS' State-Federal Fisheries Division is responsible for building cooperative partnerships to strengthen marine fisheries management and conservation at the state, inter-regional, and national levels. This division implements and oversees the distribution of grants for two national (Inter-jurisdictional Fisheries Act and Anadromous Fish Conservation Act) and two regional (Atlantic Coastal Fisheries Cooperative Management Act and Atlantic Striped Bass Conservation Act) programs. Additionally, it works with the ASMFC to develop and implement cooperative State-Federal fisheries regulations.

3.4.1.3 Enforcement

Both the National Oceanic and Atmospheric Administration (NOAA) Fisheries Office for Law Enforcement (NOAA/OLE) and the United States Coast Guard (USCG) have the authority and the responsibility to enforce South Atlantic Council regulations. NOAA/OLE agents, who specialize in living marine resource violations, provide fisheries expertise and investigative

support for the overall fisheries mission. The USCG is a multi-mission agency, which provides at sea patrol services for the fisheries mission.

Neither NOAA/OLE nor the USCG can provide a continuous law enforcement presence in all areas due to the limited resources of NOAA/OLE and the priority tasking of the USCG. To supplement at sea and dockside inspections of fishing vessels, NOAA entered into Cooperative Enforcement Agreements with all but one of the states in the Southeast Region (North Carolina), which granted authority to state officers to enforce the laws for which NOAA/OLE has jurisdiction. In recent years, the level of involvement by the states has increased through Joint Enforcement Agreements, whereby states conduct patrols that focus on federal priorities and, in some circumstances, prosecute resultant violators through the state when a state violation has occurred.

The NOAA Office of General Counsel Penalty Policy and Penalty Schedules can be found at www.gc.noaa.gov/enforce-office3.html.

Chapter 4. Environmental Consequences and Comparison of Alternatives

4.1 Action 1. Revise acceptable biological catches (ABCs), annual catch limits (ACLs), and annual catch targets (ACTs) for dolphin and wahoo.

Two Alternatives Considered

Section 1502.14(a) of the National Environmental Policy Act states that "agencies shall: rigorously explore and objectively evaluate all reasonable alternatives…" Two reasonable alternatives for this action, including the no action alternative, have been identified by the National Marine Fisheries Service (NMFS) and the South Atlantic Fishery Management (South Atlantic Council). **Preferred Alternative 2** represents the accepted formula used for specifying ACLs for the majority of assessed species that are not overfished nor undergoing overfishing.

The two alternatives in this action do not change the methodology used in the Comprehensive ACL Amendment (SAFMC 2011a) which set ACL equal to the ABC and optimum yield (OY); and specified recreational ACTs for dolphin, wahoo, and numerous snapper grouper species. The same methodology was used in Amendment 24 to the Snapper Grouper FMP (Amendment 24; SAFMC 2011b), and the recently approved Regulatory Amendment 13 to the Snapper Grouper FMP (Regulatory Amendment 13; SAFMC 2013).

***Alternatives*[1]**
*(preferred alternatives in **bold**)*

1. No action. Do not modify the ABCs, ACLs or ACTs for dolphin and wahoo.
   Dolphin: ABC = 14,596,216[2] lbs ww
   - Commercial ACL = 1,065,524 lbs ww
   - Recreational ACL = 13,530,692 lbs ww
   - Recreational ACT = 11,595,803 lbs ww

   Wahoo: ABC = 1,491,785 lbs ww
   - Commercial ACL = 64,147 lbs ww
   - Recreational ACL = 1,427,638 lbs ww
   - Recreational ACT = 1,164,953 lbs ww

2. **Revise ABCs, ACLs, and ACTs for dolphin and wahoo to reflect data from MRIP and other data updates.**
   Dolphin: ABC = 15,344,846 lbs ww
   - **Commercial ACL = 1,157,001 lbs ww**
   - **Recreational ACL = 14,187,845 lbs ww**
   - **Recreational ACT = 12,769,061 lbs ww**

   Wahoo: ABC = 1,794,960 lbs ww
   - **Commercial ACL = 70,542 lbs ww**
   - **Recreational ACL = 1,724,418 lbs ww**
   - **Recreational ACT = 1,258,825 lbs ww**

[1]See Chapter 2 for a more detailed description of the alternatives.
[2]Pounds are in whole weight.

The South Atlantic Council and NMFS are not considering options beyond the two alternatives listed because: (1) setting ACL=ABC=OY was the preferred alternative in the Comprehensive ACL Amendment, Amendment 24, and Regulatory Amendment 13; (2) monitoring efforts have improved significantly within the past year, which has reduced the likelihood that the commercial ACLs for dolphin and wahoo would be exceeded and overfishing would occur; (3) the South Atlantic Council has approved an amendment that, if implemented, would require dealers to report landings electronically once a week (which would improve

monitoring efforts so that the ACL is not exceeded); and (4) recreational landings have remained well below the recreational dolphin and wahoo ACLs since they were implemented through the Comprehensive ACL Amendment (SAFMC 2011a). Therefore, the South Atlantic Council and NMFS determined it is not reasonable to include additional alternatives that incorporate a buffer between the ABC and ACL.

4.1.1 Biological Effects

Alternative 1 (No Action) would retain the ABCs, ACLs, and ACTs that were analyzed and implemented by the final rule for the Comprehensive ACL Amendment (SAFMC 2011a). ABCs were initially established for dolphin and wahoo in the Comprehensive ACL Amendment (SAFMC 2011a). The Comprehensive ACL Amendment (SAFMC 2011a) followed the South Atlantic Council Scientific and Statistical Committee's (SSC) recommendations for the specification of ABCs based on the South Atlantic Council's approved ABC control rule. The ABC control rule involves a systematic inspection of all sources of uncertainty, including variables such as susceptibility, vulnerability, bycatch, and discard information.

The Comprehensive ACL Amendment (SAFMC 2011a) set the ACL equal to the ABC and OY. To specify sector ACLs for dolphin and wahoo, the ABC was allocated between the recreational and commercial based on landings information from 1999-2008 and 2006-2008; thereby, combining past and present participation. The Comprehensive ACL Amendment (SAFMC 2011a) also established recreational annual catch targets (ACTs) for dolphin and wahoo. The ACTs adjust the ACLs by 50% or by one minus the proportional standard error (PSE) from the Marine Recreational Statistical Survey (MRFSS), whichever is greater. The South Atlantic Council chose to use the average PSE (14.3) from 2007-2009 for dolphin and average PSE (18.4) from 2005-2009 for wahoo because these years better represented catches for the two species. The South Atlantic Council concluded including the PSE for the catch estimates into a formula to establish ACT adds a buffer to account for variability in landings data and management uncertainty. For the commercial sector of dolphin and wahoo, the South Atlantic Council concluded that quota monitoring and AMs specified in the Comprehensive ACL Amendment (SAFMC 2011a) were sufficient to account for management uncertainty. Therefore, the South Atlantic Council did not establish commercial ACTs for dolphin and wahoo.

Preferred Alternative 2 would update ABCs, ACLs, and ACTs using the data described in **Section 1-5** of Amendment 5 to the Fishery Management Plan for the Dolphin Wahoo Fishery of the Atlantic (Dolphin Wahoo Amendment 5). These are the based on the best available data, as they include Marine Recreational Information Program (MRIP), which replaced MRFSS and updated commercial data (**Table 2-2)**.

The Report to Congress on the Status of U.S. Stocks indicates dolphin is not overfished, and is not undergoing overfishing (http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm). The overfished/overfishing status of wahoo is unknown, but all indications are that it is a healthy stock because of its life history. Prager (2000) conducted an exploratory assessment of dolphin, but the results were not conclusive. A Southeast Data, Assessment, and Review (SEDAR) stock assessment for dolphin and wahoo is expected within the next 5 years. The biological effects of the new ABC values from **Preferred Alternative 2** would be negligible compared to **Alternative 1 (No Action)** for dolphin and wahoo. The new ABC for dolphin would increase from 14,596,216 lbs ww to 15,344,846 lbs ww (**Tables 2-1** and **2-2**), which translates to a 5.1% increase (748,630 lbs ww) in ABC. Similarly, the new ABC for

wahoo would increase from 1,491,785 lbs ww to 1,794,960 lbs ww (**Tables 2-1** and **2-2**), which translates to a 20.3% increase (303,175 lbs ww) in ABC. Life-history characteristics of dolphin and wahoo such as rapid growth rates, early maturity, batch spawning over an extended season, short life span, and varied diet can probably help sustain fishing pressures on these species (Schwenke and Buckel 2008; McBride et al. 2008; Prager 2000; and Oxenford 1999). Dolphin and wahoo are currently listed as species of "least concern" under the International Union for Conservation of Nature Red List, i.e. species that have a low risk of extinction.

Inclusion of data from MRIP and updated commercial data have little effect on changes in the allocations of dolphin and wahoo. Biological effects of allocations are qualitative in nature; overall fishing mortality and its consequences to a certain stock determines the health of that stock. Dolphin Wahoo Amendment 5 would not change the methodology used in the Comprehensive ACL Amendment (SAFMC 2011a) to allocate the ACLs to commercial and recreational sectors for dolphin and wahoo. However, changes in data used to determine allocations would result in modifications to ACLs allocated to the commercial and recreational sectors. As shown in **Tables 2-1** and **2-2**, sector allocations for dolphin would increase from 7.3% to 7.54% for the commercial sector; and a decrease from 92.7% to 92.46% for the recreational sector; a negligible change of 0.2% for both sectors. Sector allocations for wahoo would decrease from 4.3% to 3.93% for the commercial sector; and increase from 95.7% to 96.0% (**Tables 2-1** and **2-2)**, again, a very small change (0.4%) in the magnitude of the allocations.

Similar to the ABCs, the biological effects of the small increases in commercial and recreational ACLs under **Preferred Alternative 2** would be expected to be negligible when compared with **Alternative 1 (No Action)**. The ACL for the commercial sector for dolphin would increase by 91,477 lbs ww, from 1,065,524 lbs ww to 1,157,001 lbs ww (**Tables 2-1** and **2-2).** The ACL for the recreational sector for dolphin would increase by 657,153 lbs ww, from 13,530,692 lbs ww to 14,187,845 lbs ww (**Tables 2-1** and **2- 2**). The ACL for the commercial sector for wahoo would increase by 6,395 lbs ww, from 64,147 lbs ww to 70,542 lbs ww (**Tables 2-1** and **2-2)** and the ACL for the recreational sector for wahoo would increase by 296,780 lbs ww, from 1,427,638 lbs ww to 1,724,418 lbs ww (**Tables 2-1** and **2-2**).

Recreational ACTs would increase for dolphin and wahoo under **Preferred Alternative 2** in Amendment 5 (**Tables 2-1** and **2-2**). For dolphin, the recreational ACT would increase by 1,173,258 lbs ww, from 11,595,803 lbs ww to 12,769,061 lbs ww; and for wahoo, the recreational ACT would increase by 93,872 lbs ww, from 1,164,953 lbs ww to 1,258,825 lbs ww. The current ACTs implemented by the Comprehensive ACL Amendment (2011a) function as a performance standard, and do not trigger an AM. If an evaluation concludes that the ACL is being chronically exceeded for a species, and post-season AMs are repeatedly needed to correct for ACL overages, adjustments to management measures would be made. Furthermore, alternatives in **Action 2** of this amendment would modify the AMs for dolphin and wahoo, potentially providing additional protection in the event the ACLs are exceeded for these two species. Therefore, the biological benefits of **Preferred Alternative 2** would be negligible.

Although negligible, greater biological benefits are expected under **Preferred Alternative 2** as opposed to **Alternative 1** (**No Action**), because it is based on the best available data. While the percent differences in the revised ABCs and ACLs in Dolphin Wahoo Amendment 5 may be relatively small from the status quo levels, the data revealed by the new and updated methodology more accurately represent the fishing effort for these species, and would be more likely to trigger AMs when needed. In contrast, **Alternative 1 (No Action)** could either result in triggering an AM when it is not needed, or not triggering

an AM when it is needed. Therefore, both direct and indirect biological effects to the fishery resource could be expected.

There is likely to be no additional biological benefit to protected species from either **Alternative 1 (No Action)** or **Preferred Alternative 2**. **Alternative 1** would perpetuate the existing level of risk for interactions between Endangered Species Act (ESA)-listed species and the fishery. Previous ESA consultations determined the dolphin wahoo fishery was not likely to adversely affect marine mammals, smalltooth sawfish, Atlantic sturgeon, or *Acropora* species (See **Appendix C** for discussion of recent ESA Section 7 consultations). The impacts from **Preferred Alternative 2** on sea turtles are unclear. If these ABCs, ACLs, and ACTs perpetuate the existing amount of fishing effort, they are unlikely to change the level of interaction between sea turtles and the fishery as a whole. This scenario is likely to provide little additional biological benefits to protected species, if any. However, if these alternatives cause reductions in the overall amount of effort in the fishery, and do not simply shift effort elsewhere, the risk of interaction between sea turtles and the fishery may decrease.

4.1.2 Economic Effects

Alternative 1 (No Action) would not revise the ABCs, ACLs (including sector ACLs), and ACTs that were established in 2012 for dolphin and wahoo, despite more recent improvements in landings data. Thus, the status quo alternative would retain biological standards (and management measures) that are no longer based on the best available data.

Preferred Alternative 2 would use MRIP and more recent commercial data to revise the ABCs, ACLs (including sector ACLs), and ACTs for dolphin and wahoo. These revisions, especially the revised ACLs, could affect annual commercial and/or recreational landings of these species and the net economic benefits that derive from these landings. **Table 2-2** indicates that **Preferred Alternative 2** would allow for increased harvest of both dolphin and wahoo for both the commercial and recreation sectors over what would be allowed by **Alternative 1 (No Action)**.

Table 4-1 shows the commercial and recreational landings of dolphin and wahoo from 2008 through the 2012 fishing seasons. Note that recreational landings in this table differ from those in **Section 3.3.2** as data in this table are based on the May 7, 2013 ACL MRIP database. Had either alternative been in place during this entire time series, the commercial dolphin sector, left unconstrained as it was in 2009, would have exceeded either ACL in 2009, but not in other years. The recreational ACL would not have exceeded its dolphin ACL under either alternative in any year of the time series. The commercial wahoo sector did not exceed its ACL under either alternative in the time series. However, in 2012, the commercial sector for wahoo closed in December to keep from exceeding the ACL, which is the ACL under **Alternative 1** (**No Action**) based on projections of catch rates. In 2012, the recreational sector of the wahoo fishery exceeded its ACL, which is the ACL under **Alternative 1** (**No Action**). On average, neither dolphin nor wahoo would have exceeded their respective sector ACLs under either **Alternative 1 (No Action)** or **Preferred Alternative 2**.

Table 4-1. Commercial and recreational landings of dolphin and wahoo, 2008-2012.

	2008	2009	2010	2011	2012	Average
Dolphin						
Commercial	780,818	1,222,944	706,281	781,691	685,227	835,392
Recreational	7,833,415	7,570,073	6,243,399	6,517,770	6,091,307	6,851,193
Total	8,614,233	8,793,017	6,949,680	7,299,461	6,776,534	7,686,585
Wahoo						
Commercial	40,525	45,254	43,275	59,820	63,183	50,411
Recreational	751,433	1,043,340	603,992	616,840	1,486,515	900,424
Total	791,958	1,088,594	647,267	676,660	1,549,698	950,835

Source: SEFSC ACL database, July 10, 2013; SEFSC ACLMRIP database, May 7, 2013.

Given the variability of the commercial and recreational sector landings for dolphin and wahoo, neither alternative is likely to have a significant economic effect based on the last five fishing seasons. However, **Preferred Alternative 2**, with its higher overall sector ACLs, would likely provide more fishing opportunities in the near future before exceeding the ACL and consequent application of AMs that would have adverse short-term economic effects on fishing participants. In addition, **Preferred Alternative 2** is based on the best available data so that it would offer a higher potential for developing appropriate management measures that could lead to greater long-term positive economic effect for fishing participants in the dolphin wahoo fishery than does **Alternative 1 (No Action)**.

4.1.3 Social Effects

The social effects of potential changes in the ACLs for dolphin and wahoo (**Preferred Alternative 2**) are expected to occur in the short and long term, and are closely associated with biological and economic impacts of these actions. Overall, adjustments in ACLs based on improved data (**Preferred Alternative 2**) would be beneficial to the species and would likely produce long-term benefits to the fishermen, coastal communities, and fishing businesses by contributing to sustainable harvest of these fish in the present and future.

Incorporation of the best available data into the ABC/ACL calculations (**Preferred Alternative 2**) is expected to more accurately estimate recreational and commercial landings and better reflect actual fishing behavior than not updating catch limits under **Alternative 1 (No Action)** because MRFSS landing estimates will no longer be calculated. Future recreational landings would be estimated using MRIP. **Preferred Alternative 2** would result in future MRIP estimates being compared to ACLs determined using previous MRIP estimates. Although, the proposed updated ACLs are considered to be based on the best available data, the proposed changes may not prevent AMs from being triggered or minimize impacts. However, the proposed changes under **Preferred Alternative 2** would still be expected to improve management of the dolphin wahoo fishery and possibly minimize negative social impacts on AMs more than under **Alternative 1 (No Action)**. Some impacts may not occur immediately but could be expected in the future. This is particularly significant for the recreational sector of the dolphin and wahoo fishery because ACLs (of any level) may constrain growth in recreational effort, which is tied to the increasing pattern of coastal population growth, and national population growth in general. Therefore, even if recent recreational catches of a particular species do not meet or even come close to the adjusted recreational ACLs for dolphin and wahoo under **Preferred Alternative 2**, there may still be future

impacts on private recreational anglers because there would be a limited number of fish available to a continually increasing number of people.

Section 3.3.3 describes communities that would be expected to benefit from updated commercial and recreational ACLs. The communities of Islamorada, and Key West, Marathon, Florida and Atlantic Beach, Beaufort, Wanchese, North Carolina are engaged and reliant on commercial and recreational fishing, and participate in the dolphin and wahoo fishery, although these two species are not the most important target species in these communities. In the Northeast, the fishing communities that would be expected to experience impacts from AMs for the dolphin and wahoo fishery include New Bedford, Massachusetts; Barnegat, Point Pleasant, and Brielle, New Jersey; Virginia Beach Virginia; and Montauk, New York.

4.1.4 Administrative Effects

The mechanisms for monitoring and documentation of ABCs, ACLs, ACTs, and AMs are already in place through implementation of the Comprehensive ACL Amendment (SAFMC 2011a) and reflects **Alternative 1** (**No Action**). The administrative impacts of **Preferred Alternative 2** would be similar to **Alternative 1** (**No Action**). Other administrative burdens that may result from revising the values under **Preferred Alternative 2** would take the form of development and dissemination of outreach and education materials for fishery participants and law enforcement.

4.2 Action 2. Revise the accountability measures (AMs) for dolphin and wahoo.

4.2.1 Biological Effects

Commercial and recreational landings for dolphin and wahoo were variable during 2008-2012 (**Table 4-1**). In 2009, before ACLs were implemented, commercial landings for dolphin exceeded the current ACL; and in 2012, the commercial harvest of wahoo closed two weeks before the end the fishing season because the ACL was projected to met, but it was not (**Table 4-1**). Recreational ACLs for dolphin did not come close to being met in 2012, however, the recreational ACL for wahoo was slightly exceeded in 2012.

Preferred Alternative 2 and its sub-alternatives address the commercial sector. Current AMs for the commercial sector prohibit harvest and retention of dolphin or wahoo if their ACLs are met or are projected to be met. Under **Preferred Alternative 2** (including its sub-alternatives), the in-season closure of the species would remain in place; however, the additional protection to the stocks would be provided via payback provisions.

The biological benefits of **Preferred Alternative 2** and its sub-alternatives would be greater than **Alternative 1** (No Action). **Sub-alternative 2a** would reduce the commercial ACL by the amount of the commercial overage in the following season if the stock is overfished. **Sub-alternative 2b** would have a greater biological benefit than either **Alternative 1 (No Action)** or **Sub-alternative 2a,** because **Sub-alternative 2b** would reduce the commercial ACL in the following season if the overall ACL (commercial and recreational) is met, regardless of the overfished status. **Preferred Sub-alternative 2c** is similar to **Sub-alternative 2b**, with the exception that the commercial ACL in the following season would only be reduced if the total ACL is met and the stock is overfished. Therefore, **Preferred Sub-alternative 2c** would be expected to have the least amount of biological benefit among

***Alternatives*[1]**

*(preferred alternatives in **bold**)*

1. No action. Commercial – In-season closure if commercial ACL is met or projected to be met. Recreational – If high landings persist, reduce the length of the following fishing season.

Alternative 2 affects only the <u>commercial</u> sector. In-season closure would take place if the commercial ACL is met or projected to be met. If the commercial ACL is exceeded, reduce the commercial ACL by the amount of the commercial overage in the following season only if:

Sub-alt 2a. The species is overfished.
Sub-alt 2b. The total ACL is exceeded.
Sub-alt 2c. The species is overfished <u>AND</u> the total ACL is exceeded.

Alternative 3 affects only the <u>recreational</u> sector. If the recreational ACL is exceeded, recreational landings will be monitored for persistence in increased landings. The length of the recreational season will not be reduced if the RA determines the best available science shows it is not necessary. If a reduction is necessary, the recreational ACL in the following fishing year will be reduced by the amount of the recreational overage only if:

Sub-alt 3a. The species is overfished.
Sub-alt 3b. The total ACL is exceeded.
Sub-alt 3c. The species is overfished <u>AND</u> the total ACL is exceeded.

[1]See Chapter 2 for a more detailed description of the alternatives.

the sub-alternatives under **Preferred Alternative 2,** but a greater biological effect than **Alternative 1 (No Action)**.

Preferred Alternative 3 and its sub-alternatives address the recreational sector. Similar to the status quo **Alternative 1 (No Action)**, the length of the recreational season would only be reduced if the best scientific information available indicates a reduction is necessary. Unlike **Alternative 1 (No Action)**, the sub-alternatives under **Preferred Alternative 3** provide a mechanism to reduce the recreational ACL when an overage occurs, which provides more biological benefits than only shortening the following season. Action to reduce the following season and payback any recreational overage is taken under **Preferred Alternative 3** if the stock is overfished (**Sub-alternative 3a**), both commercial and recreational ACLs are exceeded (**Sub-alternative 3b**), or stock is overfished and commercial and recreational ACLs are exceeded (**Preferred Sub-alternative 3c**). In contrast, **Alternative 1 (No Action)** only reduces the length of the following recreational fishing season following a persistent recreational ACL overage regardless of the overfished status of the stock. The biological benefits of **Alternative 1 (No Action)** would be expected to be greater than any of the sub-alternatives under **Preferred Alternative 3** because triggering the AM is based on only exceeding the recreational ACL and lacks any payback provision. The biological benefits of **Preferred Sub-alternative 3c** would be the least among the recreational AM sub-alternatives because an AM would only be triggered if the stock is overfished, and the commercial and recreational ACLs are exceeded. Therefore, **Alternative 3b** would be expected to have the greatest biological benefit among the recreational AM alternatives, followed by **Sub-alternative 3a, 3c (Preferred),** and **Alternative 1 (No Action)**.

Alternative 1 (No Action) would not modify the way in which the dolphin wahoo fishery in the southeast is prosecuted; nor would this action increase fishing or change fishing methods for species targeted within the Dolphin Wahoo FMP. Therefore, no adverse effects to the protected species most likely to interact with the dolphin wahoo fishery (e.g., sea turtles) are likely to result under this alternative. **Preferred Alternatives 2** and **3** (along with their sub-alternatives) are unlikely to alter fishing behavior in a way that would cause new adverse effects to these species. The biological benefits to sea turtles from **Preferred Alternatives 2** and **3** with their added payback provisions are likely to be beneficial since it could lower the risk of interactions between sea turtles and the fishery.

4.2.2 Economic Effects

Action 2 modifies what stock conditions would trigger a payback of a sector's ACL overage. **Alternative 1 (No Action)** does not require paybacks of overages. **Preferred Alternatives 2** and **3** specify the stock conditions that would require paybacks of overages. **Preferred Alternative 2** relates to the commercial sector, while **Preferred Alternative 3** is related to the recreational sector.

Sub-alternatives 2a and **3a** would reduce the ACL the following season by the amount of the overage only if the species is overfished. **Sub-alternatives 2b** and **3b** would reduce the ACL the following season by the amount of the overage only if the combined landings of the commercial and recreational sectors for that species exceeded the overall ACL. **Preferred Sub-alternatives 2c** and **3c** would reduce the ACL the following season by the amount of the overage only if the species is overfished <u>and</u> the combined landings of the commercial and recreational sectors for that species exceeded the overall ACL.

The selection of any of the sub-alternatives of **Preferred Alternatives 2** or **3** does not change the basic premise of **Alternative 1 (No Action)** that commercial fishing will be stopped when the commercial ACL has been met or projected to be met or the following recreational fishing shortened when recreational ACL is exceeded. Thus, only when overages occur would the various alternatives have possibly differing economic effects. The relative magnitude of short-term economic effects of the various alternatives would depend on the likelihood of triggering AMs, particularly those that have a payback proviso. The alternatives' long-term economic effects would depend on their effects on the sustainability of the stock to support continued fishing opportunities for the commercial and recreational fishing participants.

Because **Alternative 1** (**No Action**) does not contain any payback provision, it may be considered to result in the least adverse economic effects in the short term. In fact, this is the alternative that has the highest probability of providing positive short-term economic benefits when overages occur. The nature of the other alternatives/sub-alternatives is that should overages occur, economic benefits would tend to be higher in the year overages occur; however, the following year's ACL would be reduced and likely reduce economic benefits as well. While it cannot be readily determined whether an increase in economic benefits in the year overages occur would more than compensate for the reduction in economic benefits the following year when ACLs are reduced, it would appear that the expected long-term net economic effects would be positive or least negative with the lowest payback probability.

Of the remaining of alternatives/sub-alternative combinations, **Sub-alternatives 2b** and **3b** have the greatest probability of triggering paybacks in the short term. **Sub-alternative 2a, Preferred Sub-alternative 2c, Sub-alternative 3a,** and **Preferred Sub-alternative 3c** all require that to trigger paybacks, the stock must be overfished. As noted in **Section 4.1.1**, the Report to Congress on the Status of U.S. Stocks indicates dolphin is not overfished and is not undergoing overfishing. The overfished/overfishing status of wahoo is unknown, but all indications are that it is a healthy stock and not likely to be overfished because of its life history. An overfished status of a stock is typically determined as the result of a SEDAR stock assessment or other determination used by the SSC. As neither of these stocks has been recently assessed, nor has the SSC determined them to be overfished, **Sub-alternative 2a, Preferred Sub-alternative 2c, Sub-alternative 3a,** and **Preferred Sub-alternative 3c** would likely not trigger paybacks in the short term. However, this status condition of dolphin and wahoo could change or be clarified upon completion of the SEDAR stock assessment for dolphin and wahoo which is scheduled within the next 5 years. The probability of the stocks being both overfished and the total ACL being exceeded (**Preferred Sub-alternatives 2c** and **3c**), is lower than just one of the conditions occurring. Therefore, **Preferred Sub-alternatives 2c** and **3c** have the lowest probability of triggering paybacks. Thus, the alternatives may be ranked from lowest to highest probability of paybacks and associated short-term adverse economic effects as follows: **Alternative 1 (No Action)**, **Preferred Sub-alternatives 2c** and **3c**, **Sub-alternatives 2a** and **3a**, followed by **Sub-alternatives 2b** and **3b**.

In general, AMs help ensure that ACLs are not exceeded, particularly on a consistent basis. Exceeding the ACLs on a consistent basis presents a high likelihood of overfishing which could possibly derail the rebuilding strategy adopted for an overfished stock or even drive an otherwise healthy stock to being overfished. Once overfishing occurs, or the stocks become overfished, and more restrictive regulations are adopted, affected fishers could redirect their effort to other species that could also experience overfishing or be overfished over time. This could eventually trigger untoward repercussions on the ecological environment for dolphin and wahoo and associated species. Incorporating paybacks in AMs may not eliminate the occurrence of overages but it does increase the likelihood that overages would be less likely to occur over time.

Among the alternatives, **Alternative 1** (**No Action**) has the highest likelihood of allowing overages to consistently occur over time. Without adopting more restrictive corrective measures over time, such as lower ACLs, more stringent bag/size limits, area/seasonal closures, lower trip limits, etc., this alternative could raise grave issues regarding the long-term sustainability of the stock and its ability to support commercial and recreational fishing activities over time. In a sense, this alternative has the highest likelihood that economic benefits would erode over time, first due to the adoption of more restrictive management measures as overfishing occurs and later as fishing opportunities severely diminish with an overfished stock. In a similar manner, alternatives, such as **Preferred Sub-alternatives 2c** and **3c**, which have a lower probability of adopting paybacks would be associated with higher probability of allowing overfishing to occur over time that could possibly lead to an overfished condition for the stock. A similar statement may be made for the remaining sub-alternatives. In summary, the lower the probability of arresting overfishing due to consistent ACL overages, the higher the likelihood that long-term economic benefits would be eroded.

One key issue brought about by the scenario just described is the appropriate balancing of higher economic benefits in the short term but lower benefits in the long term, by adopting such AM alternative as **Alternative 1** (**No Action**) or **Preferred Sub-alternatives 2c** and **3c**; or of possibly lower economic benefits in the short term but a more sustainable fishery in the long term, by adopting any of the other sub-alternatives, particularly **Sub-alternatives 2b** and **3b**. Currently available economic information is not sufficient to estimate the net short-term and long-term effects of the various alternatives. However, there appears to be a better chance of higher net economic benefits with AMs that have a higher likelihood of limiting consistent ACL overages over time.

4.2.3 Social Effects

AMs can have significant direct and indirect social effects because, when triggered, can restrict harvest in the current season or subsequent seasons. Currently there is no post-season AM (pay-back) for the commercial sector or recreational sector. Under **Alternative 1 (No Action)** there would be no expected negative impacts on commercial and recreational fishermen from a pay-back provision, but there may be some negative long-term impacts on the fleets and private recreational anglers if the ACLs are exceeded over several years and have negative impact on the stocks. The AMs under **Preferred Alternatives 2** and **3** would help to provide protection to the stocks and would contribute to sustainable harvest of dolphin and wahoo.

While the negative effects are usually short-term, they may at times induce other indirect effects through changes in fishing behavior or business operations that could have long-term social effects. Some of those effects are similar to other thresholds being met and may involve switching to other species or discontinuing fishing altogether. Those restrictions usually translate into reduced opportunity for harvest, which in turn can change fishing behaviors through species switching if the opportunity exists. That behavior can increase pressure on other stocks or amplify conflict. If there are no opportunities to switch species then losses of income or fishing opportunities may occur which can act like any downturn in an economy for fishing communities affected. If there is a substantial downturn, then increased unemployment and other disruptions to the social fabric may occur. While these negative effects are usually short term, they may at times induce other indirect effects through the loss of fishing infrastructure that can have a lasting effect on a community.

Section 3.3.3 describes communities that would be expected to be affected by any negative impacts resulting from a payback provision. The communities of Islamorada, Key West, and Marathon, Florida; and Atlantic Beach, Beaufort, and Wanchese, North Carolina are engaged and reliant on commercial and recreational fishing and participate in the dolphin and wahoo fishery, although the two species are not the most important target species in these communities. In the Northeast, the fishing communities that would be expected to experience impacts from AMs for the dolphin and wahoo fishery include New Bedford Massachusetts; Barnegat, Point Pleasant, and Brielle, New Jersey; Virginia Beach, Virginia; and Montauk, New York.

Alternative 1 (No Action) would put no new AMs in place and would risk further harm to the stock if bag limits in place were not sufficient to keep the ACLs from being exceeded. This would avoid short-term negative social impacts mentioned above, but may incur longer term impacts if stock status were jeopardized. The addition of a payback provision for the commercial sector in **Sub-alternatives a-c (Preferred)** under **Preferred Alternative 2** could result in some negative impacts on the commercial fleet if there was a substantial reduction in the subsequent year's commercial ACL. However, some short-term negative social and economic impacts could be lessened with the requirement that the stock must be overfished and the total ACL exceeded under **Preferred Sub-alternative 2c**. However, this could allow the ACLs to be consistently exceeded over time as to possibly impair the status of the stocks, which in turn could result in long-term negative social and economic impacts on fishing participants and their associated communities. The addition of a payback provision for the recreational sector in **Sub-alternatives a-c (Preferred)** under **Preferred Alternative 3** could also result in some negative impacts if the reduced ACL for the subsequent year reduces the fishing opportunities for dolphin or wahoo. However the flexibility in requirements for payback under **Preferred Sub-alternative 3c** would likely result in the lowest level of negative impacts on the recreational sector.

4.2.4 Administrative Effects

Current AMs for dolphin and wahoo were implemented by the Comprehensive ACL Amendment, therefore, the mechanisms for monitoring and enforcing the ACLs are already in place. **Preferred Alternatives 2** and **3** (including their **Preferred Sub-alternatives 2c** and **3c**) would be expected to have beneficial administrative effects when compared with **Alternative 1** (**No Action**). The South Atlantic Council is working towards having consistent AMs for all its managed species. Consistency in regulations among different species could help reduce confusion in the general public, could better aid law enforcement, and could possibly reduce the instances of ACLs being exceeded. Therefore, while in the short term, there might be additional administrative costs, these might be offset in the long term by fewer instances of AMs being triggered and their related administrative costs.

4.3 Action 3. Revise the framework procedure in the Dolphin Wahoo FMP.

4.3.1 Biological Effects

This administrative action would have indirect positive biological effects in that adjustments to harvest levels would not be subject to regulatory delays as is currently the case under **Alternative 1 (No Action)**. As such, biological benefits may result due to the ability to implement appropriate levels of harvest quickly in response to the latest scientific information to maintain harvest levels at or below the ACL.

Alternatives[1]
*(preferred alternatives in **bold**)*

1. No action. Do not modify the existing framework.

2. **Revise the framework language to reflect the new terminology used for managing fisheries and SEDAR/SSC roles in setting MSY, OY, and ABC. Allow modifications to the ABC control rule.**

3. **Institute an abbreviated process for revising ABCs, ACLs and ACTs according to the existing ABC control rule.**

[1]See Chapter 2 for a more detailed description of the alternatives.

The South Atlantic Council has three different regulatory vehicles for addressing fishery management issues. First, a fishery management plan or plan amendment may be developed to implement management measures. The amendment process can take one to three years depending on the analysis needed to support the amendment actions. Second, the South Atlantic Council may vote to request an interim or emergency rule under the Magnuson-Stevens Fishery Conservation and Management Act that could remain effective for 180 days with the option to extend it for an additional 186 days. Interim and emergency rules are only meant as short-term management tools while permanent regulations are developed through an amendment. Third, the South Atlantic Council may prepare a regulatory amendment, based on the framework procedure, previously included through a plan amendment, which allows changes in specific management measures and parameters. Typically, framework actions take less than a year to implement, and are effective until amended.

Under **Preferred Alternative 2**, adjustments to the ABC control rule, ACLs, ACTs, AMs, MSY, and OY, if found not to be significant, could be through the framework process rather than with a plan amendment. A framework process rather than a plan amendment would allow for faster changes to the ABC control rule, ACLs, ACTs, AMs, MSY, and OY as new fishery and stock abundance information becomes available. **Preferred Alternative 3**, which would provide the option for an abbreviated process to revise ABCs, ACLs, and ACTs according to the existing ABC control rule, could further increase the rate at which adjustments could be made to these parameters. Alternatives that update or revise the current procedure would likely be biologically beneficial for dolphin and wahoo because they would also allow periodic adjustments to harvest parameters, and management measures in a more timely manner in response to stock assessment, survey results, or other similar information. When stock assessments indicate large decreases in the ACLs are needed, a quick adjustment to the catch level would likely have positive biological effects. The SEDAR process currently only produces one stock assessment for a particular species every three to five years. As such, the data utilized in the assessment are at least one year old by the time the assessment results become available and can be used for management purposes. It is, therefore, advantageous to make any modifications to the existing management process, as proposed under **Preferred Alternatives 2** and **3**, to expedite fishing level adjustments for dolphin and wahoo.

This action is administrative in nature and would not significantly alter the way in which the dolphin wahoo fishery is prosecuted in the Atlantic Region. Therefore, no impacts on ESA-listed marine species, EFH, HAPCs, or coral HAPCs are expected as a result of updating the Dolphin Wahoo Framework Procedure.

4.3.2 Economic Effects

Without an abbreviated framework process, **Alternative 1 (No Action)** could negatively impact the recreational and commercial fishing sectors should new data indicate that a stock had improved but the South Atlantic Council had no means to rapidly increase the ACL, resulting in loss of opportunity, income, and/or recreational angling experiences. However, if an assessment indicated a substantial decrease in the ACL was needed, **Alternative 1 (No Action)** would retain a more deliberative process of ensuring the public was well-informed regarding the needed changes in catch levels and associated economic effects. **Preferred Alternative 2** is primarily administrative in nature and is not expected to have economic effects. **Preferred Alternative 3** could result in positive or negative economic effects depending on whether ACLS would be increased or decreased more quickly because if stock assessments indicate ACLs can be increased, quick adjustments for ACLs would allow for positive economic effects without negatively affecting the sustainability of the stock. On the other hand, when stock assessments indicate large decreases in the ACLs are needed, it is likely that short term negative economic effects would result from moving quickly with a decrease in a catch level. Yet quickly reducing an ACL when necessary could have long-term direct economic benefits resulting from a quicker return of the stock to a healthier status.

4.3.3 Social Effects

Modification of the framework procedure to allow for more rapid adjustments to the ABC control rule, ACLs, ACTs, AMs, MSY, and OY would be expected to result in broad, long-term social benefits, and minimal negative social effects. The proposed modifications to improve timeliness and incorporate regulatory updates (**Preferred Alternative 2** and **Preferred Alternative 3**) would be expected to contribute to improved management of dolphin and wahoo and would allow the South Atlantic Council to more efficiently respond to management needs. Public participation and the review process would continue as part of the framework procedure under all alternatives.

Alternative 1 (No Action) would allow for neither updates in the management framework procedure nor development of a process to incorporate new information to adjust ACLs in a more timely manner. This could negatively impact the recreational and commercial fishing sectors should new data indicate that a stock had improved but the South Atlantic Council had no means to rapidly increase the ACL, resulting in loss of opportunity, income, and/or recreational angling experiences.

Preferred Alternative 2 and **Preferred Alternative 3** would generate indirect positive effects on the social environment with the framework modifications to incorporate a procedure for adjusting ACLs in a timely manner. Updating text to reflect adoption of SEDAR as the source of stock assessment information (**Preferred Alternative 2** and **Preferred Alternative 3**) would provide consistency in language with regulatory changes and have few effects on the social environment. Consistency and

timeliness in the regulatory process are positive social benefits as they remove uncertainty and subsequent displeasure with regard to changes in management while protecting the stock.

4.3.4 Administrative Effects

Alternative 1 (No Action) would be the most administratively burdensome of the three alternatives being considered, because all modifications to ABCs, ACLs, ACTs, and AMs would need to be implemented through a plan amendment, which is a more laborious and time consuming process than a framework action. **Preferred Alternative 2** would allow the ABC control rule, ACLs, AMs, and ACTs to be modified via a framework procedure intended to shorten the length of time it takes to implement routine changes in harvest limits. Additionally, the framework procedure would reflect SEDAR and SSC roles in setting MSY, OY, and ABC. **Preferred Alternative 3** would allow for an abbreviated process to implement the modifications, while still adhering to all the requirements of the Magnuson-Stevens Fishery Conservation and Management Act and include appropriate notification in the *Federal Register* providing appropriate time for additional public comment as necessary.

Administratively, **Preferred Alternatives 2** and **3** would have positive effects compared with **Alternative 1 (No Action)**.

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4.4 Action 4. Establish a commercial trip limit for dolphin in the exclusive economic zone (EEZ) in the SAFMC's area of jurisdiction

4.4.1 Biological Effects

In the Dolphin Wahoo FMP (SAFMC 2003), the South Atlantic Council proposed establishing trip limits (3,000 lbs north of 31° n. latitude and 1,000 lbs south of 31° n. latitude) as an appropriate method to regulate and cap commercial harvest of dolphin; ensure highly efficient gear are not employed for dolphin; and prevent a rapid increase in commercial landings, which could shift allocation from the recreational sector to the commercial sector. However, NMFS rejected this measure because it was unnecessary given the current trends in commercial landings and the Council's cap on commercial landings.

Alternatives[1]
*(preferred alternatives in **bold**)*

1. No action. Do not establish a commercial trip limit for dolphin. Currently, there is no commercial trip limit for dolphin.

Alternatives 2 through 9 have two sub-alternatives that would apply the trip limit only south and/or north of 31° N. latitude.

2. 1,000 pound[2] trip limit
3. 2,000 pound trip limit
4. 3,000 pound trip limit
5. 4,000 pound trip limit
6. 5,000 pound trip limit
7. 10,000 pound trip limit

[1]See Chapter 2 for a more detailed description of the alternatives.
[2]Pounds are in whole weight.

As shown in **Table 4-2** and **Figures 4-1**, **4-2**, and **4-3**, most of the commercial harvest of dolphin continues to be north of 31° n. latitude, and hook-and-line gear is used primarily south of 31° n. latitude. Regulations at Section 635.21 prohibit the use of pelagic longline gear in the East Florida Coast Closed Area south of 31°00' N. During 2008-2012, almost all of the trips caught less than 3,000 lbs ww of dolphin, with only two trips reported landings in excess of 10,000 lbs ww (**Table 4-2**). Hook-and-line gear was the dominant gear used south of 31° n. latitude to commercially harvest dolphin while longline was the dominant gear north of 31° n. latitude (**Table 4-2**).

Trip limits are often considered for a species to reduce the rate that the ACL is met, reduce derby conditions, prevent the market from being flooded by fish, and prevent localized depletion. Trip limits can be an effective tool to constrain harvest in the absence of a commercial quota or ACL, and can also be useful in extending the fishing season for species with small quotas or ACLs. The commercial ACL for dolphin became effective on April 16, 2012, and it has not been met. Prior to 2012, a soft cap was in place, which would not close the commercial sector if met; however, it would trigger a review of the data by the South Atlantic Council and a determination whether action is necessary.

Alternatives 2-7 include a wide range of trip limits from 1,000 lbs ww under **Alternative 2**, which is the most restrictive alternative, to 10,000 lbs ww, under **Alternative 7**, which is the least restrictive alternative. **Alternatives 2-7** would have very little effect on constraining harvest of dolphin as **Table 4-2** reveals that 98% of the trips harvested 1,000 lbs ww or less of dolphin. Longline gear are more efficient

at harvesting large quantities of dolphin than hook-and-line, and would be most affected by the trip limit **Alternatives 2-7**. Although there were very few trips, only the longline sector had trips of 3,000 lbs ww to 5,000 lbs ww (**Alternatives 4-6**), and they were the dominant gear for trips landing 1,000 lbs ww to 2,000 lbs ww (**Alternatives 2** and **3**).

Competitor, predator, and prey relationships in marine ecosystems are complex and poorly understood. As a result, the exact nature and magnitude of the ecological effects of management measures are difficult to accurately predict or distinguish. Fishermen are able to target dolphin without interaction with other fish species. There is no evidence to suggest any ecosystem changes have occurred as a result of harvesting dolphin.

Since **Alternatives 2-7** do little to constrain harvest of dolphin, and ACLs and AMs are in place to ensure overfishing of dolphin does not occur; biological effects of **Preferred Alternative 1 (No Action)** and **Alternatives 2-7** for dolphin are expected to be similar, and no ecosystem effects are expected.

Preferred Alternative 1 (No Action) would not modify the way in which the dolphin wahoo fishery in the southeast is prosecuted; nor would this action increase fishing or change fishing methods for species targeted within the Dolphin Wahoo FMP. Therefore, no adverse effects to the protected species most likely to interact with the dolphin wahoo fishery (e.g., sea turtles) are likely to result under this alternative. **Alternatives 2-7** could alter fishing behavior in a way that would cause adverse effects to these species. Bycatch of protected species such as sea turtles are documented with longline gear (NMFS 2003). Therefore, alternatives that would establish a higher trip limit (or no trip limit), that would likely be met using longline gear, would be expected to have lower biological benefits.

Table 4-2. Trips and total pounds (ww) of dolphin landed by hook and line and longline gears north and south of 31° n. latitude for **Alternatives 2** through **7** of **Action 4** averaged across the years 2008 through 2012.

				Alternative 2		Alternative 3		Alternative 4		Alternative 5		Alternative 6		Alternative 7	
		<1,000 lb		1,000-1,999 lbs		2,000-2,999 lbs		3,000-3,999 lbs		4,000-4,999 lbs		5,000-9,999 lbs		>10,000 lb	
Zone	Gear	Trips	Pounds	Trips	Pounds	Trips	Pounds	Trips	Pounds	Trips	Pounds	Trips	Pounds	Trips	Pounds
North 31	Hook & Line	903	67,817	3	4,285	1	1,327	0	749	0	919	0	0	0	0
	Longline	43	6,440	10	15,044	6	14,983	4	13,968	2	6,880	5	34,965	2	27,688
	Total (N 31)	**946**	**74,257**	**13**	**19,329**	**7**	**16,310**	**4**	**14,717**	**2**	**7,799**	**5**	**34,965**	**2**	**27,688**
South 31	Hook & Line	1,311	86,680	3	3,248	1	3,251	0	0	0	988	0	0	0	0
	Longline	11	429	0	0	0	0	0	0	0	0	0	0	0	0
	Total (S 31)	**1,322**	**87,109**	**3**	**3,248**	**1**	**3,251**	**0**	**0**	**0**	**988**	**0**	**0**	**0**	**0**
Total (both N & S)		**2,268**	**161,366**	**16**	**22,577**	**8**	**19,561**	**4**	**14,717**	**2**	**8,787**	**5**	**34,965**	**2**	**27,688**

Source: NMFS SERO

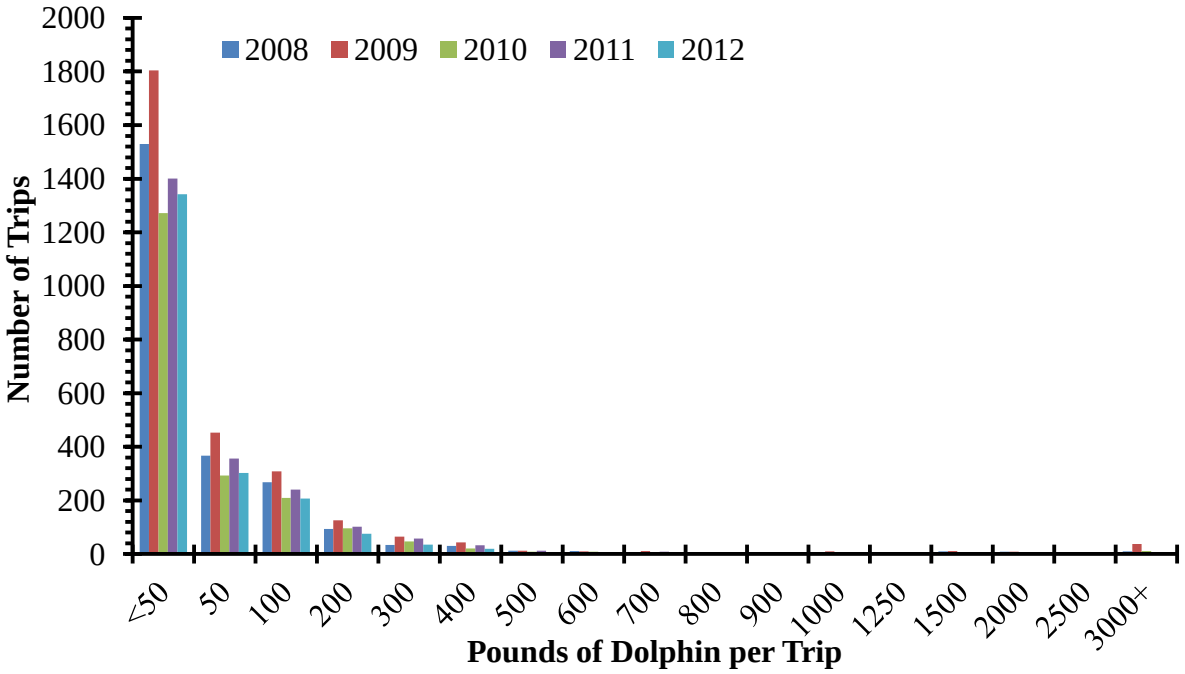

Figure 4-1. Number of logbook-reported trips that commercially harvested dolphin for the five most recent fishing years (n= 11,582 trips).
Source: NMFS SERO

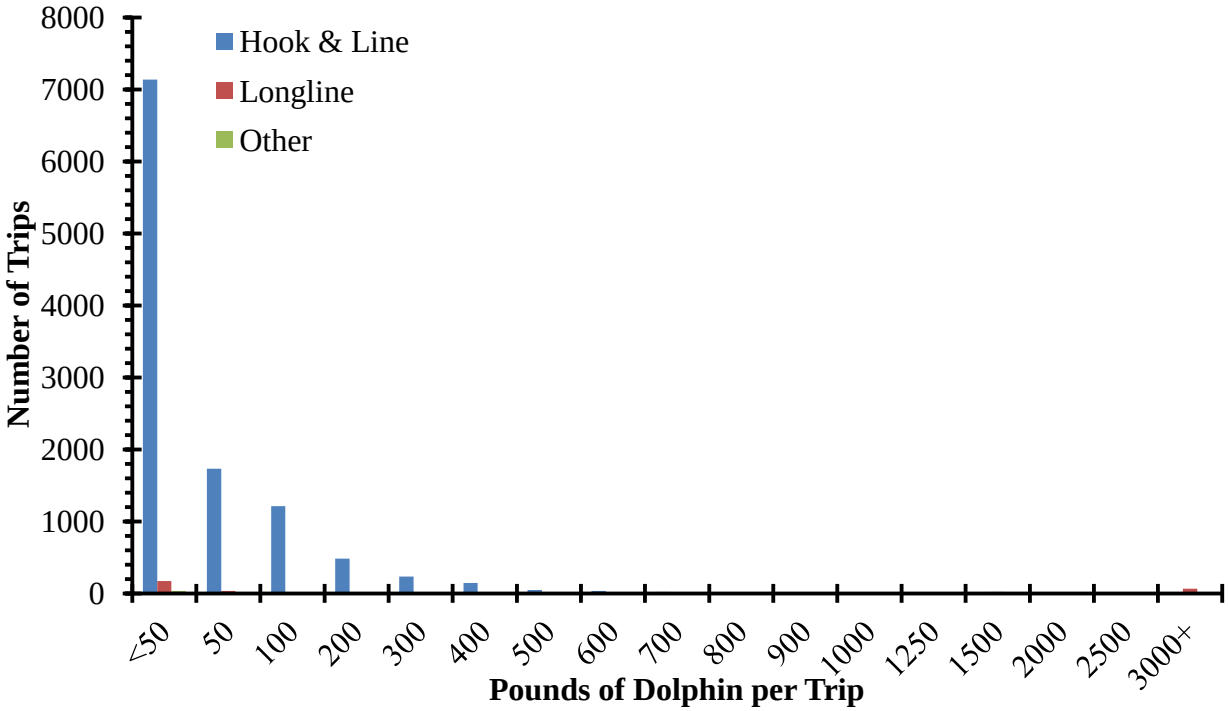

Figure 4-2. Number of logbook-reported trips that commercially harvested dolphin from 2008 to 2012 separated by gear (n= 11,582 trips).
Source: NMFS SERO

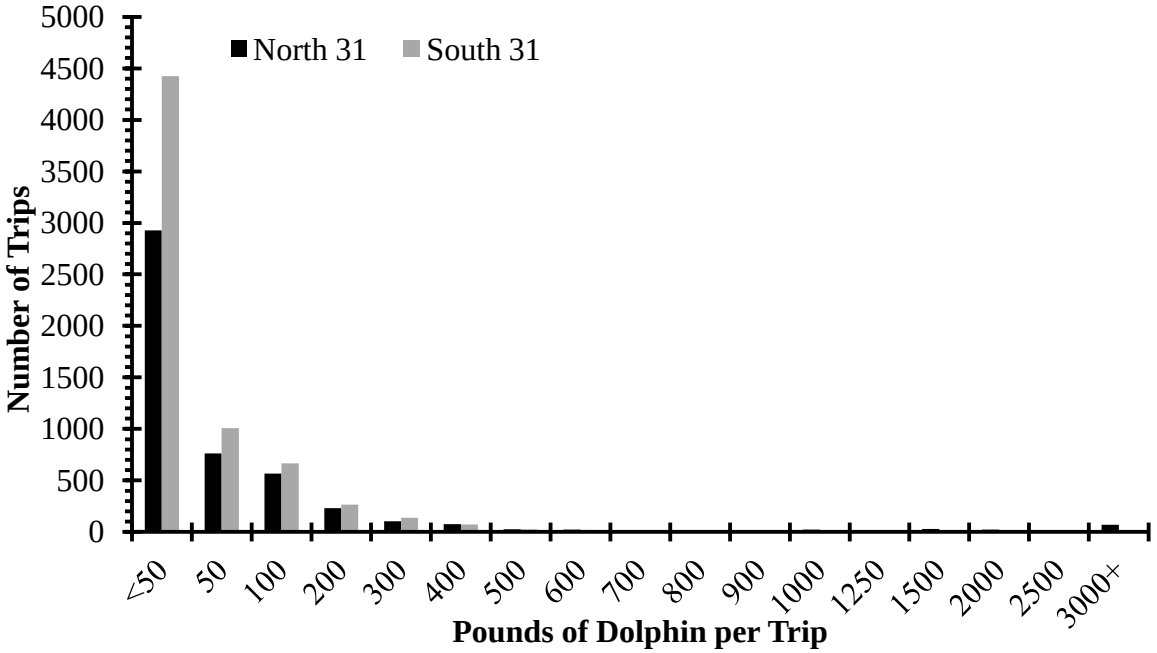

Figure 4-3. Number of logbook-reported trips that commercially harvested dolphin from 2008 to 2012 separated by fishing areas north and south of latitude 31° n. latitude (n= 11,582 trips).
Source: NMFS SERO

4.4.2 Economic Effects

Setting trip limits has direct economic effects on per trip revenues and possibly per trip profits for commercial vessels. In general, the lower the trip limit, the greater the direct negative effect that comes as a result of ending a trip sooner to keep from going over the trip limit. Trip limits are employed largely to avoid localized depletion or to extend a fishing season. A trip limit tends to increase trip costs per pound of fish landed. The lower the trip limit, the greater the trip cost per fish, and unless other equally valuable species are caught in the trip, per trip profit would tend to decrease. If a trip limit were successful in extending the fishing season, industry revenues and possibly profits would not necessarily decrease as a result of the trip limit. Revenues and possibly profits forgone by vessels adversely affected by the trip limit could be recouped by other vessels able to participate in the fishery during the extended part of the fishing season.

Preferred Alternative 1 (No Action) imposes no trip limits on commercial dolphin catches and therefore would not be expected to have economic effects. Trip limits would have a minimal economic impact for any hook and line trips, or on longline trips south of 31° n. latitude. In each case, the average number of trips across the years 2008 through 2012 where more than 1,000 lbs ww of dolphin were landed on a single trip was less than 1% of all the trips (**Table 4-2**). Trip limits would be expected to have economic effects for longline trips north of 31° n. latitude.

On average, there were 72 longline trips north of 31° n. latitude each year from 2008 through 2012 (**Table 4-2**). While the majority (60%) of longline trips landed less than 1,000 lbs ww north of 31° n. latitude, 40% of the longline trips from this area landed more than 1,000 lbs ww. However, there were only two trips on average each year landed more than 10,000 lbs ww of dolphin north of 31° n. latitude.

Using the price per pound of dolphin for 2011 as shown in **Table 3-3-1b** and assuming the level of market demand for dolphin will be the same regardless of the alternative, **Table 4-3** shows the expected direct negative economic effects of each of the alternatives for **Action 4**. In order from least to most expected direct economic effects, **Alternative 2** would be expected to have the greatest effects at $249,762 annually, followed in order by **Alternative 3, 4, 5, 6,** and **7**. These effects assume that forgone revenues by those affected by the trip limit would not be recouped by other vessels especially in the event the trip limits were effective in extending the fishing season. If the commercial fishing season for dolphin remained open throughout the year even without the trip limit and no additional vessels enter that portion of the dolphin wahoo fishery, then the revenue reductions shown in **Table 4-3** would likely occur.

Table 4-3. Expected number and percent of trips (primarily longline trips north of 31° North latitude) with expected negative economic effects for each alternative for **Action 4. (**Amounts shown are in 2011 dollars.)

	Trips	% of Total Trips	Pounds	Economic Effect
Preferred Alt 1 (No Action)	0	0%	0	$ -
Alternative 2	29	40%	113,528	$ 249,762
Alternative 3	19	26%	98,484	$ 216,665
Alternative 4	13	18%	83,501	$ 183,702
Alternative 5	9	13%	69,533	$ 152,973
Alternative 6	7	10%	62,653	$ 137,837
Alternative 7	2	3%	27,688	$ 60,914

Data Source: NMFS SERO

4.4.3 Social Effects

In general, trip limits may be effective in slowing harvest and lengthening a season, which would be somewhat beneficial to crew, dealers, and communities because dolphin may be available for a longer period and market gluts could be avoided. However, trip limits also have the potential to restrict efficiency of fishing trips. The negative social impacts of trip limits are associated with the economic costs if a vessel has the capacity to harvest more than the proposed trip limits. Currently almost all trips (98%; **Table 2-4**) harvest below 1,000 lbs ww even without a trip limit in place and it is likely that immediate effects on fishermen, dealers and communities would be minimal or non-existent. However, future trips would also be affected by trip limits and could restrict growth in the commercial sector

Preferred Alternative 1 (No Action) would be expected to generate little or no social impacts (positive or negative). The highest proposed trip limit under **Alternative 7** would be the most beneficial to vessels harvesting dolphin, and **Alternative 2** would be the most restrictive for vessels with the capacity to harvest more 1,000 lbs ww. Although lower trip limits may contribute to a longer fishing season, the more restrictive limits may cause some vessels to target other species to increase the economic efficiency of fishing trips. Requiring a trip limit only for certain areas under **Sub-alternatives a** and **b** under **Alternatives 2-7** could result in some issues of fairness between fishermen in the northern and southern areas. However, different trip limits in different areas could reduce the likelihood of localized depletion or user conflicts.

Because a majority trips south of 31° n. latitude do not exceed 1,000 lbs ww (**Section 4.4.1**), **Sub-alternative a** under **Alternatives 2-7** would be expected to have minimal effects on the primary dolphin fishing communities of Palm Beach Gardens, Mayport, St. Augustine, Key West, Key Largo and Islamorada, Florida (see **Figure 3-2**). Communities that could be impacted by establishment of a dolphin trip limit under **Sub-alternative b** under **Alternatives 2-6** include Wanchese, Wrightsville Beach, Beaufort, Hatteras, and Nags Head in North Carolina and Wadmalaw Island, McClellanville, and Murrells Inlet in South Carolina (**Figure 3-2**). Additionally, a dolphin trip limit could restrict fishermen in the New England and Mid-Atlantic communities of New Bedford, Massachusetts; Ocean City, Maryland; Boston Massachusetts; Cape May, New Jersey; Shelter Island, New York; Point Pleasant, New Jersey; and Falmouth, Massachusetts (**Figure 3-3**). Overall, trip limits for the commercial dolphin sector are not expected to have any immediate negative or positive effects on fishermen and associated businesses and communities.

4.4.4 Administrative Effects

Alternatives 2 through **7** would add administrative burdens when compared with **Preferred Alternative 1** (**No Action**). Enforcement costs could increase due to the establishment of commercial trip limits, since these would now have to be monitored and enforced. Additionally, legal costs would be incurred from prosecuting any violations that could occur.

Chapter 5. Reasoning for Council's Choice of Preferred Alternatives

5.1 *Revise acceptable biological catches (ABCs), annual catch limits (ACLs), and annual catch targets (ACTs) for dolphin and wahoo.*

5.1.1 Dolphin Wahoo Advisory Panel Comments and Recommendations

The Dolphin Wahoo Advisory Panel (DWAP) met in March of 2013. The DWAP received a presentation from South Atlantic Fishery Management Council (South Atlantic Council) staff on the ABCs, ACLs, and ACTs for dolphin and wahoo. The DWAP discussed the implications of the action and did not disagree with the South Atlantic Fishery Management Council's (South Atlantic Council's) decision to revise the ABCs, ACLs (including sector ACLs), and ACTs using Marine Recreational Information Program (MRIP) estimates of recreational landings, as well as updated commercial and headboat landings.

5.1.2 Law Enforcement Advisory Panel Comments and Recommendations

At the time the Law Enforcement Advisory Panel (LEAP) met in February 2013, Amendment 5 consisted only of actions that would not have an impact on enforcement. Therefore, they did not comment on this amendment. The Council's preferred alternative will have no new impact on law enforcement due to changes in the ABCs, ACLs, or ACTs.

5.1.3 Scientific and Statistical Committee Comments and Recommendations

The Scientific and Statistical Committee (SSC) met in October 2012. At that meeting, they were presented with the first three actions in Amendment 5 to the Fishery Management Plan for the Dolphin Wahoo Fishery of the Atlantic (Dolphin Wahoo Amendment 5). The SSC did not specifically comment on this action.

5.1.4 Public Comments and Recommendations

The South Atlantic Council accepted written public comments from July 22, 2013 through August 18, 2013, for Amendment 5. The public was given an opportunity to comment in person on August 5, 2013 in Richmond Hill, Georgia; August 6, 2013 in Jacksonville, Florida; August 7, 2013 in Cocoa Beach, Florida; August 8, 2013 in Key Largo, Florida; August 13, 2013 in Charleston, South Carolina; August 15, 2013 in New Bern, North Carolina; and at the Council's quarterly meeting on September 19, 2013 in Charleston, South Carolina. Nineteen commenters were not in favor of changing the ABCs, ACLs, and

ACTs for dolphin and wahoo, **Alternative 1 (No Action)**. Seven commenters were in favor of **Preferred Alternative 2**.

5.1.5 South Atlantic Council Choice for Preferred Alternative

The South Atlantic Council chose **Alternative 2** as its preferred alternative. **Alternative 1 (No Action)** would have continued the use of recreational catch estimates for dolphin and wahoo that were established by the Comprehensive ACL Amendment (SAGMC 2011c), using data generated by the Marine Recreational Fisheries Statistics Survey (MRFSS). Following an independent review by the National Research Council and a mandate from Congress, the National Marine Fisheries Services (NMFS) replaced MRFSS with MRIP to provide more accurate recreational catch estimates. The South Atlantic Council stated in the Comprehensive ACL Amendment (SAFMC 2011c) that they would take action as needed, via plan amendment or framework amendment, to revise the appropriate values in 2012 and beyond. The South Atlantic Council determined that revisions under **Preferred Alternative 2** were necessary because if the ABCs, ACLs, and recreational ACTs are not updated with the new MRIP estimates, ACLs would be based on MRFSS data while the landings being used to track the ACLs would be estimated using MRIP data. This would result in inconsistencies in how ACLs are calculated versus how they are monitored.

The South Atlantic Council concluded **Preferred Alternative 2** best meets the purpose and need, the objectives of the FMP for the Dolphin Wahoo Fishery of the Atlantic, as amended, while complying with the requirements of the Magnuson Stevens Fishery and Conservation and Management Act (Magnuson Stevens Act) and other applicable law.

5.2 *Revise the accountability measures (AMs) for dolphin and wahoo.*

5.2.1 Dolphin Wahoo Advisory Panel Comments and Recommendations

At the March 2013 meeting, the DWAP discussed this action. They chose the as preferred the alternatives that later became **Preferred Alternative 2, Preferred Sub-alternative 2c** and **Preferred Alternative 3, Preferred Sub-alternative 3c** for wahoo only. They preferred **Alternative 1 (No Action)** for dolphin citing that the species did not need any other management for AMs.

5.2.2 Law Enforcement Advisory Panel Comments and Recommendations

At the time the LEAP met in February 2013, Dolphin Wahoo Amendment 5 consisted only of actions that would not have an impact on enforcement. Therefore, they did not comment on this amendment. The Council's preferred alternative will have no new impact on law enforcement due to changes in AMs.

5.2.3 Scientific and Statistical Committee Comments and Recommendations

The SSC met in October 2012. At that meeting, they were presented with the first three actions in Amendment 5. The SSC did not specifically comment on this action.

5.2.4 Public Comments and Recommendations

The South Atlantic Council accepted written public comments from July 22, 2013 through August 18, 2013, for Dolphin Wahoo Amendment 5. The public was given an opportunity to comment in person on August 5, 2013 in Richmond Hill, Georgia; August 6, 2013 in Jacksonville, Florida; August 7, 2013 in Cocoa Beach, Florida; August 8, 2013 in Key Largo, Florida; August 13, 2013 in Charleston, South Carolina; August 15, 2013 in New Bern, North Carolina; and at the Council's quarterly meeting on September 19, 2013 in Charleston, South Carolina. Twenty-one commenters preferred **Alternative 1 (No Action)**, while one preferred **Sub-alternative 2a**, two were in favor of **Preferred Sub-alternative 2c**, and three were in favor of **Sub-alternative 3a**.

5.2.5 South Atlantic Council Choice for Preferred Alternative

The South Atlantic Council chose **Preferred Alternative 2, Preferred Sub-alternative 2c** and **Preferred Alternative 3, Preferred Sub-alternative 3c** as its preferred alternatives/sub-alternatives. The South Atlantic Council determined that **Alternative 1 (No Action)** would not be the best alternative because it does not require paybacks of ACL overages for dolphin and wahoo. The South Atlantic Council determined the preferred alternatives/sub-alternatives were the best management strategies based on the biology and the recent catch levels of dolphin and wahoo.

The South Atlantic Council concluded **Preferred Alternative 2, Preferred Sub-alternative 2c** and **Preferred Alternative 3, Preferred Sub-alternative 3c** best meets the purpose and need, the objectives of the Dolphin Wahoo FMP, as amended, while complying with the requirements of the Magnuson Stevens Act and other applicable law.

5.3 *Revise the framework procedure in the Dolphin Wahoo FMP.*

5.3.1 Dolphin Wahoo Advisory Panel Comments and Recommendations

At the March 2013 meeting, the DWAP discussed this action. They chose the same preferred alternatives (**Preferred Alternatives 2** and **3**) that the South Atlantic Council selected. One AP member was not in favor of the streamlined process for making the changes for fear that the public would have fewer opportunities to comment.

5.3.2 Law Enforcement Advisory Panel Comments and Recommendations

At the time the Law Enforcement Advisory Panel (LEAP) met in February 2013, Amendment 5 consisted only of actions that would not have an impact on enforcement. Therefore, they did not comment on this amendment. The Council's preferred alternative will have no new impact on law enforcement due to changes in to the framework procedures.

5.3.3 Scientific and Statistical Committee Comments and Recommendations

The SSC met in October 2012. At that meeting, they were presented with the first three actions in Dolphin Wahoo Amendment 5. The SSC did not specifically comment on this action.

5.3.4 Public Comments and Recommendations

The South Atlantic Council accepted written public comments from July 22, 2013 through August 18, 2013, for Dolphin Wahoo Amendment 5. The public was given an opportunity to comment in person on August 5, 2013 in Richmond Hill, Georgia; August 6, 2013 in Jacksonville, Florida; August 7, 2013 in Cocoa Beach, Florida; August 8, 2013 in Key Largo, Florida; August 13, 2013 in Charleston, South Carolina; August 15, 2013 in New Bern, North Carolina; and at the Council's quarterly meeting on September 19, 2013 in Charleston, South Carolina. Twenty-one commenters preferred **Alternative 1 (No Action)**, while three were in favor of **Preferred Alternative 2**, and two were in favor of **Preferred Alternative 3**.

5.3.5 South Atlantic Council Choice for Preferred Alternative

The South Atlantic Council chose **Alternatives 2** and **3** as its preferred alternatives. Under **Preferred Alternative 2** adjustments to the ABC control rule, ACLs, ACTs, AMs, MSY, and OY could be accomplished through a framework process rather than with a plan amendment. Additionally, **Preferred Alternative 3** would specify an abbreviated process that would allow changes to be made relatively quickly as new fishery and stock abundance information becomes available. The South Atlantic Council decided that alternatives that would update or revise the current procedure would likely be beneficial for dolphin and wahoo because they would also allow periodic adjustments to harvest parameters, and management measures could be altered in a timelier manner in response to stock assessment, survey results, or other similar information. When stock assessments indicate large decreases in the ACLs are needed, a quick adjustment to the catch level would likely have positive biological effects. The SEDAR process currently only produces one stock assessment for a species every three to five years. As such, the data utilized in the assessment are at least one year old by the time the assessment results become available and can be used for management purposes. Therefore, the South Atlantic Council determined it is advantageous to make modifications to the existing framework process, as proposed under **Preferred Alternatives 2** and **3** to expedite fishing level adjustments for dolphin and wahoo by allowing the Council to respond more quickly.

The South Atlantic Council concluded **Preferred Alternative 2** best meets the purpose and need, the objectives of the Dolphin Wahoo FMP, as amended, while complying with the requirements of the Magnuson Stevens Act and other applicable law.

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5.4 *Establish a commercial trip limit for dolphin in the exclusive economic zone (EEZ) in the South Atlantic Council's area of jurisdiction.*

5.4.1 Dolphin Wahoo Advisory Panel Comments and Recommendations

At the March 2013 meeting, the DWAP discussed this action. In light of the highly migratory nature of dolphin based on data that were presented to them at the meeting, as well as the fact that the stock is neither overfished, nor is the total ACL being exceeded, the DW AP decided this action is not necessary at this time.

5.4.2 Law Enforcement Advisory Panel Comments and Recommendations

At the time the LEAP met in February 2013, Dolphin Wahoo Amendment 5 consisted only of actions that would not have an impact on enforcement. Therefore, they did not comment on this amendment.

5.4.3 Scientific and Statistical Committee Comments and Recommendations

The SSC met in April 2013. At that meeting they were briefed on all four actions in Dolphin Wahoo Amendment 5. The SSC did not specifically comment on this action.

5.4.4 Public Comments and Recommendations

The South Atlantic Council accepted written public comments from July 22, 2013 through August 18, 2013, for Amendment 5. The public was given an opportunity to comment in person on August 5, 2013 in Richmond Hill, Georgia; August 6, 2013 in Jacksonville, Florida; August 7, 2013 in Cocoa Beach, Florida; August 8, 2013 in Key Largo, Florida; August 13, 2013 in Charleston, South Carolina; August 15, 2013 in New Bern, North Carolina; and at the Council's quarterly meeting on September 19, 2013 in Charleston, South Carolina. Six commenters were in favor of **Preferred Alternative 1 (No Action)**, while one comment preferred **Alternative 2a**, one preferred **Alternative 4a**, and two comments preferred **Alternative 4b**.

5.4.5 South Atlantic Council Choice for Preferred Alternative

The South Atlantic Council chose **Alternative 1 (No Action)** as its preferred alternative. The South Atlantic Council determined that other alternatives/sub-alternatives would not be the best choices because they did not address a current management need. **Preferred Alternative 1 (No Action)** was determined to be the best alternative because neither sector had reached its ACL, the South Atlantic Council historically has not imposed trip limits on fisheries that are not meeting their ACLs, and it was impossible to determine whether localized depletion was occurring. The South Atlantic Council reasoned that even if localized depletion was occurring, it could not be determined how much of the depletion was due to commercial or recreational fishing activity.

The South Atlantic Council concluded **Preferred Alternative 1 (No Action)** best meets the purpose and need, the objectives of the Dolphin Wahoo FMP, as amended, while complying with the requirements of the Magnuson Stevens Act and other applicable law.

Chapter 6. Cumulative Effects

As directed by the CEQ regulations, federal agencies are mandated to assess not only the indirect and direct impacts, but the cumulative impacts of proposed actions as well. The CEQ regulations define a cumulative impact as *"the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time"* (40 C.F.R. 1508.7). Cumulative effects can be either additive or synergistic. A synergistic effect is when the combined effects are greater than the sum of the individual effects.

Various approaches for assessing cumulative effects have been identified, including checklists, matrices, indices, and detailed models (MacDonald 2000). The Council on Environmental Quality (CEQ) offers guidance on conducting a Cumulative Effects Analysis (CEA) in a report titled "Considering Cumulative Effects under the National Environmental Policy Act". The report outlines 11 items for consideration in drafting a CEA for a proposed action.

1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.
2. Establish the geographic scope of the analysis.
3. Establish the timeframe for the analysis.
4. Identify the other actions affecting the resources, ecosystems, and human communities of concern.
5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stress.
6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.
7. Define a baseline condition for the resources, ecosystems, and human communities.
8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.
9. Determine the magnitude and significance of cumulative effects.
10. Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.
11. Monitor the cumulative effects of the selected alternative and adapt management.

This CEA for the biophysical environment will follow a modified version of the 11 steps. Cumulative effects for the socio-economic environment will be analyzed separately.

6.1 Biological

1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.

The Council on Environmental Quality (CEQ) cumulative effects guidance states that this step is done through three activities. The three activities and the location in the document are as follows:

I. The direct and indirect effects of the proposed actions **(Chapter 4)**;
II. Which resources, ecosystems, and human communities are affected **(Chapter 3)**; and
III. Which effects are important from a cumulative effects perspective **(information revealed in this Cumulative Effects Analysis (CEA))**

2. Establish the geographic scope of the analysis.

The South Atlantic Fishery Management Council (South Atlantic Council), in cooperation with the Mid-Atlantic Fishery Management Council and the New England Fishery Management Council, is responsible for conservation and management of dolphin and wahoo in federal waters off the Atlantic states. The immediate impact area would be the federal 200-mile limit of the Atlantic off the coasts of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and east Florida to Key West. In light of the available information, the extent of the boundaries would depend upon the degree of fish immigration/emigration and larval transport, whichever has the greatest geographical range. The ranges of affected species are described in **Section 3.2.1**. **Section 3.1.1** describes the essential fish habitat designation and requirements for dolphin and wahoo; additional details are included in **Appendix I**. The most measurable and substantial effects would be limited to the Atlantic region.

3. Establish the timeframe for the analysis.

Establishing a timeframe for the CEA is important when the past, present, and reasonably foreseeable future actions are discussed. It would be advantageous to go back to a time when there was a natural, or some modified (but ecologically sustainable) condition. For dolphin and wahoo, landings data are available from 1986, and were utilized in this amendment (see **Section 1.5** for more details). When possible, the last five years of data (2008-2012) were utilized for economic analysis (see **Chapters 3** and **4**). If 2012 data were not complete (for example revenue and trips), a five year time period of 2007-2011 was utilized (see **Chapter 3**).

4. Identify the other actions affecting the resources, ecosystems, and human communities of concern (the cumulative effects to the human communities are discussed in Section 4).

Listed are other past, present, and reasonably foreseeable actions occurring in the South Atlantic region. These actions, when added to the proposed management measures, may result in cumulative effects on the biophysical environment.

I. Fishery-related actions affecting dolphin and wahoo and associated species.

A. Past

The reader is referred to **Section 1.6** and **Appendix D** (History of Management**)** of this document for past regulatory activity for dolphin and wahoo. These include bag and size limits, commercial quotas, and gear prohibitions and limitations.

The Comprehensive Annual Catch Limit (ACL) Amendment and its integrated Final Environmental Impact Statement (FEIS) (SAFMC 2011a) fulfilled the 2011 mandate of the Magnuson-Stevens Fishery Conservation and Management Act to establish ACLs and accountability measures (AMs) for species managed by the South Atlantic Council that are not undergoing overfishing. The amendment addressed dolphin and wahoo, a number of species in the snapper grouper fishery management unit, as well as golden crab and *Sargassum*. The Comprehensive ACL Amendment (SAFMC 2011a) established the acceptable biological catch (ABC) control rule, ABC, ACL, optimal yield (OY), and AMs in the dolphin and wahoo fishery for both the commercial and recreational sectors. The amendment also set an annual catch target (ACT) for the recreational sector for dolphin and wahoo. The Comprehensive ACL Amendment was implemented on April 16, 2012.

B. Present

The South Atlantic Council has recently completed and is developing amendments for snapper grouper, coastal migratory pelagic species, and corals/live-hard bottom. See the South Atlantic Council's Web site at http://www.safmc.net for further information on South Atlantic Council managed species.

C. Reasonably Foreseeable Future

The Joint Generic Dealer Reporting Amendment is under review by the Secretary of Commerce (Secretary) and would require that all dealers report landings information electronically on a weekly basis to improve the timeliness and accuracy of landings data. This amendment will apply to fishery management plans (FMP) for dolphin wahoo, snapper grouper, and coastal migratory pelagics.

The South Atlantic Headboat Reporting Amendment is under review by the Secretary and would require that all federally-permitted headboats on the South Atlantic report their landings information electronically, and on a weekly basis in order to improve the timeliness and accuracy of harvest data.

The Joint Commercial Logbook Reporting Amendment would require electronic reporting of landings information by federally-permitted commercial vessels, which would increase the timeliness and accuracy of landings data.

The Joint Charter Boat Reporting Amendment would require charter vessels to regularly report their landings information electronically. Including charter boats in the recreational harvest

reporting system would further improve the agency's ability to monitor recreational catch rates in-season.

Dolphin Wahoo Amendment 7 would consider allowing dolphin and wahoo fillets from the Bahamas to be brought into the United States through the Atlantic exclusive economic zone (EEZ).

II. Non-Council and other non-fishery related actions, including natural events affecting the species in this amendment.

A. Past
B. Present
C. Reasonably foreseeable future

In terms of natural disturbances, it is difficult to determine the effect of non-Council and non-fishery related actions on stocks of dolphin wahoo species. Annual variability in natural conditions such as water temperature, currents, food availability, predator abundance, etc. can affect the abundance of young fish that survive the egg and larval stages each year to become juveniles (i.e., recruitment). This natural variability in year class strength is difficult to predict as it is a function of many interactive and synergistic factors that cannot all be measured (Rothschild 1986). Furthermore, natural factors such as storms, red tide, cold water upwelling, etc. can affect the survival of juvenile and adult fishes; however, it is very difficult to quantify the magnitude of mortality these factors may have on a stock. Alteration of preferred habitats for dolphin and wahoo could affect survival of fish at any stage in their life cycles. However, estimates of the abundance of fish, which utilize any number of preferred habitats, as well as determining the impact habitat alteration may have on dolphin and wahoo, is problematic and limited. Dolphin and wahoo are highly migratory pelagic species occurring in tropical and subtropical waters worldwide. Other natural events such as spawning seasons and aggregations of fish in spawning condition can make some species especially vulnerable to targeted fishing pressure.

The Report to Congress on the Status of U.S. Stocks indicates dolphin is not overfished, and is not undergoing overfishing (http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm). The overfished/overfishing status of wahoo is unknown, but all indications are that it is a healthy stock. A Southeast Data, Assessment, and Review (SEDAR) stock assessment for dolphin and wahoo is scheduled within the next 5 years. Life-history characteristics of dolphin and wahoo such as rapid growth rates, early maturity, batch spawning over an extended season, a short life span, and a varied diet could help sustain fishing pressures on these species (Schwenke and Buckel 2008; McBride et al. 2008; Prager 2000; and Oxenford 1999). Dolphin and wahoo are listed as species of "least concern" under the International Union for Conservation of Nature Red List, i.e. species that have a low risk of extinction. See **Section 3.2** and the references cited therein for more information.

How global climate changes will affect the dolphin wahoo fishery is unclear. Climate change can impact marine ecosystems through ocean warming by increased thermal stratification, reduced upwelling, sea level rise, increases in wave height and frequency, loss of sea ice, and

increased risk of diseases in marine biota. Decreases in surface ocean pH due to absorption of anthropogenic CO_2 emissions may impact a wide range of organisms and ecosystems, particularly organism that absorb calcium from surface waters, such as corals and crustaceans (IPCC 2007, and references therein).
The BP/Deepwater Horizon oil spill event, which occurred in the Gulf of Mexico on April 20, 2010, did not impact fisheries operating in the Atlantic. Oil from the spill site has not been detected in the Atlantic region, and did not likely to pose a threat to the species addressed in this amendment.

5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stress.

In terms of the biophysical environment, the resources/ecosystems identified in earlier steps of the CEA are the fish populations directly or indirectly affected by the regulations. This step should identify the trends, existing conditions, and the ability to withstand stresses of the environmental components.

The species most likely to be impacted by alternatives considered in this amendment are dolphin and wahoo. Trends in the condition of dolphin and wahoo are determined through the SEDAR process. More information on the SEDAR process and specific information on dolphin and wahoo are included in **Section 3.2.4**, and is hereby incorporated by reference.

6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.

This step is important in outlining the current and probable stress factors on dolphin wahoo species identified in the previous steps. The goal is to determine whether these species are approaching conditions where additional stresses could have an important cumulative effect beyond any current plan, regulatory, or sustainability threshold (CEQ 1997). Sustainability thresholds can be identified for some resources, which are levels of impact beyond which the resources cannot be sustained in a stable state. Other thresholds are established through numerical standards, qualitative standards, or management goals. The CEA should address whether thresholds could be exceeded because of the contribution of the proposed action to other cumulative activities affecting resources.

Fish populations

This document updates thresholds (ACLs and ACTs) already specified for dolphin and wahoo to ensure future overfishing does not occur, and to ensure these stocks can be maintained at sustainable levels. Modifying the current AMs in place for both species would make it unlikely that these thresholds would be exceeded. If the harvest limits are exceeded, management measures would be in place to either restrict further fishing or correct for the overage in the following fishing season. Modifying the framework procedure would also benefit fish populations since revisions to fishing thresholds would be updated in a timely manner. See **Section 3.2** for more information on fish populations.

Climate change

Global climate changes could have significant effects on South Atlantic fisheries. However, the extent of these effects is not known at this time. Possible impacts include temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; changes in precipitation patterns and a rise in sea level which could change the water balance of coastal ecosystems; altering patterns of wind and water circulation in the ocean environment; and influencing the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs (IPCC 2007; Kennedy et al. 2002).

It is unclear how climate change would affect dolphin and wahoo in the Atlantic. Climate change can affect factors such as migration, range, larval and juvenile survival, prey availability, and susceptibility to predators. In addition, the distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. Climate change may significantly impact dolphin and wahoo in the future, but the level of impacts cannot be quantified at this time, nor is the time frame known in which these impacts will occur.

7. Define a baseline condition for the resources, ecosystems, and human communities.

The purpose of defining a baseline condition for the resource and ecosystems in the area of the proposed action is to establish a point of reference for evaluating the extent and significance of expected cumulative effects. Oxenford and Hunte (1986) suggested that there were at least two separate unit stocks of dolphin in the northeast and southeast Caribbean Sea. Oxenford (1999) suggested that it was very likely that additional stocks of dolphin existed in the Gulf of Mexico and central/western Caribbean. Prager (2000) conducted an exploratory assessment of dolphin, but the results were not conclusive. Theisen et al. (2008) indicated that a worldwide stock for wahoo consisted of a single globally distributed population. However, Zischke et al. (2012) concluded that despite genetic homogeneity in wahoo, multiple discrete phenotypic stocks existed in the Pacific and eastern Indian oceans. The Report to Congress on the Status of U.S. Stocks indicates dolphin is not overfished, and is not undergoing overfishing (http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm). The overfished/overfishing status of wahoo is unknown, but all indications are that it is a healthy stock. A SEDAR stock assessment for dolphin and wahoo is scheduled within the next 5 years. Status determination criteria for dolphin and wahoo are outlined in the Dolphin Wahoo Fishery Management Plan (2003) and the Comprehensive ACL Amendment (2011a).

For more details on the baseline conditions of dolphin and wahoo, the reader is referred to additional sources referenced in **Section 3** of the document and **Item Number 6** of this CEA.

8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.

The dolphin wahoo fishery is not as highly regulated as the snapper grouper fishery. Regulations that have affected the resource, ecosystem, and human communities are shown in **Table 6-1.**

Table 6-1. The cause and effect relationship of fishing and regulatory actions within the time period of the Cumulative Effects Analysis (CEA).

Time period/dates	Cause	Observed and/or Expected Effects
Effective June 28, 2004	Fishery Management Plan for the Dolphin Wahoo Fishery off the Atlantic states (Dolphin Wahoo FMP).	1) A 20-inch fork length minimum size limit for dolphin off the coasts of Georgia and Florida with no size restrictions elsewhere; (2) prohibition of longline fishing for dolphin and wahoo in areas closed to the use of such gear for highly migratory pelagic species; and (3) allowable gear to be used in the fishery (hook-and-line gear including manual, electric, and hydraulic rods and reels; bandit gear; handlines; longlines; and spearfishing (including powerheads) gear. In addition, other approved portions of the FMP were also effective on this date, including (1) the management unit and designations of stock status criteria for the unit; (2) a fishing year of January 1 through December 31; (3) a 1.5 million pound (or 13% of the total harvest) cap on commercial landings; (4) establishment of a framework procedure by which the SAFMC may modify its management measures; and (5) designations of Essential Fish Habitat (EFH) and EFH-Habitat Areas of Particular Concern (HAPC).
Effective September 24, 2004	Dolphin Wahoo FMP	1) owners of commercial vessels and/or charter vessels/headboats must have vessel permits and, if selected, submit reports; (2) dealers must have permits and, if selected, submit reports; (3) longline vessels must comply with sea turtle protection measures; (4) a recreational bag limit of 10 dolphin and 2 wahoo per person per day, with a limit of 60 dolphin per boat per day (headboats are excluded from the boat limit); (5) prohibition on recreational sale of dolphin and wahoo caught under a bag limit unless the seller holds the necessary commercial permits; and (6) a commercial trip limit of 500 pounds for wahoo.
Effective November 23, 2004	Dolphin Wahoo FMP	Operators of commercial vessels, charter vessels and headboats that are required to have a federal vessel permit for dolphin and wahoo must display operator permits.

Time period/dates	Cause	Observed and/or Expected Effects
Effective Date July 22, 2010	Amendment 1 to the Dolphin Wahoo FMP (Comprehensive Ecosystem Based Amendment (CE-BA) 1)	Updated spatial information of Council-designated EFH and EFH-HAPCS.
Effective Date April 16, 2012	Amendment 2 to the Dolphin Wahoo FMP (Comprehensive ACL Amendment SAFMC 2011a)	Set ABC, ACL, ACT and AMs
Target 2014	Amendment 5 to the Dolphin Wahoo FMP	Revisions to ABCs, ACLs (including sector ACLs), recreational ACTs, and AMs implemented through the Comprehensive ACL Amendment; modifications to the sector allocations for dolphin; revisions to the framework procedure in the Dolphin Wahoo FMP.
Target 2014	Generic For-Hire Reporting Amendment	Require all federally-permitted headboats in the South Atlantic to report landings information electronically and on a weekly basis.
Target 2014	Generic Dealer Reporting Amendment	Require that all dealers report landings information electronically on a weekly basis to improve the timeliness and accuracy of landings data
Target 2017	Joint Commercial Logbook Reporting Amendment	Require all federally-permitted commercial fin fish fishermen in the southeast to report electronically.
Target 2014/2015	Joint Charterboat Reporting Amendment	Require all federally-permitted charterboats to report landings information electronically.
Target 2014	Dolphin Wahoo Amendment 7	Allow dolphin and wahoo fillets from the Bahamas to be brought into the United States through the Atlantic EEZ.

9. Determine the magnitude and significance of cumulative effects.

Dolphin was assessed by Prager (2000), and SEDAR stock assessments for both species are scheduled within the next 5 years. When the SEDAR stock assessments are completed, changes to regulations may be required. In addition, changes in management regulations, fishing techniques, social/economic structure, etc. can result in shifts in the percentage of harvest between user groups over time. As such, the South Atlantic Council has determined that certain aspects of the current management system should be restructured. **Chapters 2** and **4** of this document describe in detail the magnitude and significance of effects of the alternatives considered which consider a procedure for updating the ABC control rule, ACLs, recreational ACTs, and AMs; modifying the framework procedure; and trip limits for dolphin. None of the impacts have been determined to be significant.

Revisions to ABCs, ACLs, ACTs, AMs, and the framework procedure (Actions 1 - 3) are administrative in nature and are not expected to have significant biological, social, or economic effects. Similarly, inclusion of a commercial trip limit for dolphin (Action 4) would not have significant biological, social, or economic effects because the trip limits proposed would have little effect on constraining harvest of dolphin. Therefore, the cumulative effects of the actions proposed in Dolphin Wahoo Amendment 5 are not expected to affect the magnitude of bycatch, diversity and ecosystem structure of fish communities, or safety at sea of fishermen targeting dolphin wahoo and other species managed by the South Atlantic Council.

This action is not likely to result in direct, indirect, or cumulative effects to unique areas, such as significant scientific cultural or historical resources, park land, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas as the proposed action is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort within the South Atlantic region. The USS Monitor, Gray's Reef, and Florida Keys National Marine Sanctuaries are within the boundaries of the South Atlantic exclusive economic zone (EEZ). The proposed actions are not likely to cause loss or destruction of these national marine sanctuaries.

10. Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.

The cumulative effects on the biophysical environment are expected to be negligible. Avoidance, minimization, and mitigation are not applicable.

11. Monitor the cumulative effects of the selected alternative and adapt management.

The effects of the proposed actions are, and will continue to be, monitored through collection of data by NMFS, states, stock assessments and stock assessment updates, life history studies, and other scientific observations.

6.2 Socioeconomic

Biological forces that either motivate certain regulations or simply influence the natural variability in fish stocks have likely played a role in determining the changing composition of the fisheries addressed by this document. Additional factors, such as changing career or lifestyle preferences, stagnant to declining prices due to imports, increased operating costs (gas, ice, insurance, dockage fees, etc.), and increased waterfront/coastal value leading to development pressure for other than fishery uses have impacted both the commercial and recreational fishing sectors.

Given the variety of factors that affect fisheries, persistent data issues, and the complexity of trying to identify cause-and-effect relationships, it is not possible to differentiate actual or cumulative regulatory effects from external cause-induced effects. For each regulatory action, expected effects are projected. However, these projections, typically only minimally, if at all, are capable of incorporating the variety of external factors, and evaluation in hindsight is

similarly incapable of isolating regulatory effects from other factors, as in, what portion of a change was due to the regulation versus due to input cost changes, random species availability variability, the sale of a fish house for condominium development, or even simply fishermen behavioral changes unrelated to the regulation.

In general, it can be stated, however, that the regulatory environment for all fisheries has become progressively more complex and burdensome, increasing, in tandem with other adverse influences, the pressure on economic losses, business failure, occupational changes, and associated adverse pressures on associated families, communities, and industries. Some reverse of this trend is possible and expected.

A description of the human environment, including a description of the commercial and recreational dolphin and wahoo fishery, as well as associated key fishing communities is contained in **Section 3.3** and incorporated herein by reference.

Because of the recent overall downturn in the economy, any actions to provide more economic opportunity should have beneficial social effects. The commercial and for-hire sectors of the dolphin and wahoo fishery have seen changes in regulatory actions. With the recent adoption of ACLs, early closures of some species are occurring which can change fishing behavior by initiating switching target behavior to other fisheries and adding pressure on other stocks, however, this has not yet happened for either the commercial or recreational sectors of the dolphin and wahoo fishery, but could in the future. If the choices available to fishermen are limited, then fishermen are also limited in their flexibility to adapt to regulatory change. Without other options on the water, they may need to make changes in household economics that can have further impacts that extend to the larger community. Much of this discussion is based on the assumption that we do not have enough detailed information on fishermen's businesses or households.

In summary, cumulative effects from all the actions in Dolphin Wahoo Amendment 5 are below significance.

Chapter 7. List of Preparers

Table 7-1. List of preparers of the document.

Name	SAFMC	Title
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NMFS = National Marine Fisheries Service, SAFMC = South Atlantic Fishery Management Council, SF = Sustainable Fisheries Division, PR = Protected Resources Division, SERO = Southeast Regional Office, HC = Habitat Conservation Division, GC = General Counsel, Eco=Economics

Table 7-2. List of interdisciplinary plan team members for the document.

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NMFS = National Marine Fisheries Service, SAFMC = South Atlantic Fishery Management Council, SF = Sustainable Fisheries Division, PR = Protected Resources Division, SERO = Southeast Regional Office, HC = Habitat Conservation Division, GC = General Counsel, Eco=Economics

Chapter 8. Agencies and Persons Consulted

Responsible Agency for EA
NMFS, Southeast Region
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824-5301 (TEL)
(727) 824-5320 (FAX)

List of Agencies, Organizations, and Persons Consulted
SAFMC Law Enforcement Advisory Panel
SAFMC Dolphin Wahoo Advisory Panel
SAFMC Scientific and Statistical Committee
SAFMC Information and Education Advisory Panel
North Carolina Coastal Zone Management Program
South Carolina Coastal Zone Management Program
Georgia Coastal Zone Management Program
Florida Coastal Zone Management Program
Florida Fish and Wildlife Conservation Commission
Georgia Department of Natural Resources
South Carolina Department of Natural Resources
North Carolina Division of Marine Fisheries
North Carolina Sea Grant
South Carolina Sea Grant
Georgia Sea Grant
Florida Sea Grant
Atlantic States Marine Fisheries Commission
Gulf and South Atlantic Fisheries Development Foundation
Gulf of Mexico Fishery Management Council
Mid Atlantic Fishery Management Council
New England Fishery Management Council
National Marine Fisheries Service
- Washington Office
- Office of Ecology and Conservation
- Southeast Regional Office
- Southeast Fisheries Science Center

Chapter 9. References

Anderes Alvarez, B.A. and I. Uchida. 1994. Study of the Hawksbill turtle (*Eretmochelys imbricata*) stomach content in Cuban waters. In: Study of the Hawksbill turtle in Cuba (I), Ministry of Fishing Industry, Cuba.

Bjorndal, K.A. 1980. Nutrition and grazing behavior of the green sea turtle, *Chelonia mydas*. Marine Biology 56:147.

Bjorndal, K.A. 1997. Foraging ecology and nutrition of sea turtles. In: Lutz, P.L. and J.A. Musick (eds.), The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.

Bolten, A.B., and G.H., Balazs. 1995. Biology of the early pelagic stage – the "lost year." In: Bjorndal, K.A. (ed.), Biology and Conservation of Sea Turtles, Revised edition. Smithsonian Institute Press, Washington, D.C., 579.

Brongersma, L.D. 1972. European Atlantic Turtles. Zool. Verhand. Leiden 121:318

Byles, R.A. 1988. Behavior and Ecology of Sea Turtles from Chesapeake Bay, Virginia. Ph.D. dissertation, College of William and Mary, Williamsburg, VA.

Burke, V.J., E.A. Standora, and S.J. Morreale. 1993. Diet of juvenile Kemp's ridley and loggerhead sea turtles from Long Island, New York. Copeia 1993: 1176.

Carr, A. 1986. Rips, FADS, and little loggerheads. BioScience 36:92.

Carr, A. 1987. New perspectives of the pelagic stage of sea turtle development. Conservation Biology 1(2):103.

Carter, D. and C. Liese. 2012. The Economic Value of Catching and Keeping or Releasing Saltwater Sport Fish in the Southeast USA. North American Journal of Fisheries Management 32:613-625.

CEQ (Council on Environmental Quality). 1997. Considering Cumulative Effects Under the National Environmental Policy Act. U.S. Council on Environmental Quality, Washington, DC. 64 pp.

Colburn, L. L. and M. Jepson. 2012 Social Indicators of Gentrification Pressure in Fishing Communities: A Context for Social Impact Assessment. Coastal Management 40(3): 289-300.

Collette, B. B. 2002. Scombridae. In: 'The Living Marine Resources of the Western Central Atlantic. Volume 2: Bony Fishes Part 2 (Opistognathidae to Molidae), Sea Turtles and Marine Mammals. FAO Species Identification Guide for Fishery Purposes and American Society of Ichthyologists and Herpetologists, Special Publication No. 5'. (Ed. K. E. Carpenter.) pp. 1701–1722. Food Agricultural Organization, Rome.

Dumas, C. F., J .C. Whitehead, C. E. Landry, and J. H. Herstine. 2009. Economic Impacts and Recreation Value of the North Carolina For-Hire Fishing Fleet. North Carolina Sea Grant FRG Grant Report 07-FEG-05.

Eckert, S.A., D.W. Nellis, K.L. Eckert, and G.L. Kooyman. 1986. Diving patterns of two leatherback sea turtles (*Dermochelys coriacea*) during interesting intervals at Sandy Point, St. Croix, U.S. Virgin Islands. Herpetologica 42:381.

Eckert, S.A., K.L. Eckert, P. Ponganis, and G.L. Kooyman. 1989. Diving patterns of two leatherback sea turtles (*Dermochelys coriacea*). Canadian Journal of Zoology 67:2834.

EPA. 1999. Interim Policy to Identify and Address Potential Environmental Justice Areas. Environmental Accountability Division, EPA-904-R-99-004.

Frick, J. 1976. Orientation and behavior of hatchling green turtles (*Chelonia mydas*) in the sea. Animal Behavior 24:849.

Garber, A. F., M. D. Tringali, and J. S. Franks. 2005. Population genetic and phylogeographic structure of wahoo, *Acanthocybium solandri*, from the western Atlantic and central Pacific Oceans. Marine Biology (Berlin) 147: 205–214. doi:10.1007/S00227-004-1533-1

Haab, T. C., R. Hicks, K. Schnier, and J. C. Whitehead. 2009. Angler Heterogeneity and the Species-Specific Demand for Recreational Fishing in the Southeastern United States. Draft Final Report Submitted for MARFIN Grant #NA06NMF4330055.

Hall-Arber, M., C. Dyer, J. Poggie, J. McNally, and R. Gagne M. 2002. New England's Fishing Communities. A final report for Northeast MARFIN grant #NA87FF0547.

Holland, S. M., A. J. Fedler, and J. W. Milon. 1999. The Operation and Economics of the Charter and Headboat Fleets of the Eastern Gulf of Mexico and South Atlantic Coasts. University of Florida Office of Research, Technology, and Graduate Education. Report prepared for the National Marine Fisheries Service. Grant Number NA77FF0553.

Holland, S. M., C. Oh, S. L. Larkin, and A. W. Hodges. 2012. The Operations and Economics of For-Hire Fishing Fleets of the South Atlantic States and the Atlantic Coast of Florida. Report prepared for the National Marine Fisheries Service. MARFIN Grant Number NA09NMF4330151.

Hughes, G.R. 1974. The sea turtles of southeast Africa. II. The biology of the Tongaland loggerhead turtle *Caretta caretta* L. with comments on the leatherback turtle *Dermochelys coriacea* L. and green turtle *Chelonia mydas* L. in the study region. Oceanographic Research Institute (Durban) Investigative Report. No. 36.

IPCC 2007. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp.

Jacob, S., P. Weeks, B. Blount, and M. Jepson. 2012 Development and Evaluation of Social Indicators of Vulnerability and Resiliency for Fishing Communities in the Gulf of Mexico. Marine Policy 26(10): 16-22.

Jepson, M., K. Kitner, A. Pitchon, W.W. Perry, and B. Stoffle. 2005. Potential fishing communities in the Carolinas, Georgia, and Florida: An effort in baseline profiling and mapping. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

Johnson, G. D. 1978. Development of fishes of the Mid-Atlantic Bight. An atlas of egg, larval, and juvenile stages. Vol. IV Carangidae through Epruppidae. U.S. Dep. Inter., Fish Wildl. Serv., Biol. Serv. Prog. *FWS/OBS-78!12,* Jan. 1978: 123-128.

Keinath, J.A., and J.A., Musick. 1993. Movements and diving behavior of a leatherback sea turtle, *Dermochelys coriacea*. Copeia 1993:1010.

Kennedy, V.S., R. R. Twilley, J. A. Kleypas, J. H. Cowan, Jr., and S. R. Hare. 2002. Coastal and Marine Ecosystems & Global Climate Change: Potential Effects on U.S. Resources. Pew Center on Global Climate Change. 52 p.

Lanyan, J.M., C.J. Limpus, and H. Marsh. 1989. Dugongs and turtles: grazers in the seagrass system. In: A.W.D Larkum, A.J. McComb and S.A. Shepard (eds.) Biology of Seagrasses. Elsevier, Amsterdam, 610.

Liese, C. D.,W. Carter, and R. Curtis. 2009. Surveying the For-Hire Sector: Economic Heterogeneity in the Southeast Charter Boat Industry. Submitted to the Proceedings of the 5th World Recreational Fishing Conference.

Limpus, C.J. and N. Nichols. 1988. The southern oscillation regulates the annual numbers of green turtles (*Chelonia mydas*) breeding around northern Australia. Australian Journal of Wildlife Research 15:157.

Limpus, C.J. and N. Nichols. 1994. Progress report on the study of the interaction of El Niño Southern Oscillation on annual *Chelonia mydas* numbers at the southern Great Barrier Reef rookeries. In: Proceedings of the Australian Marine Turtle Conservation Workshop, Queensland Australia

Lutz, P.L. and J.A. Musick (eds.). 1997. The Biology of Sea Turtles. CRC Press, Boca Raton, Florida.

Lutz, P.L., J.A. Musick, and J. Wyneken. 2002. The Biology of Sea Turtles, Volume II. CRC Press, Boca Raton, Florida.

MacDonald, L. H. 2000. Evaluating and managing cumulative effects: process and constraints. Environmental Management 26(3): 299-315.

Maki Jenkins, K.L. and R.S. McBride. 2009. Reproductive biology of wahoo, *Acanthocybium solandri*, from the Atlantic coast of Florida and the Bahamas. Marine and Freshwater Research. 60:893-897.

Márquez -M, R.1994. Synopsis of biological data on the Kemp's ridley turtles, *Lepidochelys kempii* (Garman, 1880). NOAA Technical Memo, NMFS-SEFSC-343. Miami, FL.

McBride, R. S., A. K. Richardson, and K. L. Maki. 2008. Age, growth, and mortality of wahoo, *Acanthocybium solandri*, from the Atlantic coast of Florida and the Bahamas. Marine and Freshwater Research 59, 799–807. doi:10.1071/MF08021

McCay, B. and M. Cieri. 2000. Fishing Ports of the Mid-Atlantic. A Report to the Mid-Atlantic Fishery Management Council, Dover, Delaware, April 2000.

McGovern, J.C., P.J. Harris, and G.R. Sedberry. 1999. The status of reef fish stocks off the southeastern United States, 1983-1996. Proc. Gulf and Carib. Fish. Inst. 50:871-895.

Mendonca, M.T. and P.C.H. Pritchard. 1986. Offshore movements of post-nesting Kemp's ridley sea turtles (*Lepidochelys kempi*). Herpetologica 42:373.

Meylan, A. 1984. Feeding Ecology of the Hawksbill turtle (*Eretmochelys imbricata*): Spongivory as a Feeding Niche in the Coral Reef Community. Dissertation, University of Florida, Gainesville, FL.

Meylan, A. 1988. Spongivory in hawksbill turtles: a diet of glass. Science 239:393-395.

Meylan, A.B. and M. Donnelly. 1999. Status justification for listing the hawksbill turtle (*Eretmochelys imbricata*) as critically endangered on the 1996 IUCN Red List of Threatened Animals. Chelonian Conservation and Biology 3(2): 200-204.

Mortimer, J.A. 1981. The feeding ecology of the West Caribbean green turtle (*Chelonia mydas*) in Nicaragua. Biotropica 13:49.

Mortimer, J.A. 1982. Feeding ecology of sea turtles. In: Bjorndal, K.A. (ed.), Biology and Conservation of Sea Turtles. Smithsonian Institute Press, Washington, D.C.

NMFS (National Marine Fisheries Service). 2003. Endangered Species Act – Section 7 Consultation on the Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic Ocean. Biological Opinion, August 27.

NMFS (National Marine Fisheries Service). 2010. Fisheries Economics of the United States, 2008. U.S. Department of Commerce, NOAA Technical Memorandum. National Marine Fisheries Service-F/SPO-118.

NOAA SEFSC SSRG. 2009. Economic Value of Catch and Keep in the Southeastern U.S.: Evidence from a Choice Experiment.

Ogren, L.H. 1989. Distribution of juvenile and subadult Kemp's ridley turtles: Preliminary results from the 1984-1987 surveys. In: C.W. Caillouet Jr. and A.M. Landry Jr. (eds.) Proceedings from the 1st Symposium on Kemp's ridley Sea Turtle Biology, Conservation, and Management. Sea Grant College Program, Galveston, TX. 116.

Oxenford, H. A. 1999. Biology of the dolphinfish (*Coryphaena hippurus*) in the western central Atlantic: a review. Scientia Marina 63 (3-4): 277-301.

Oxenford, H. A. and W. Hunte. 1986. A preliminary investigation of the stock structure of the dolphin, *Coryphaena hippurus*, in the western central Atlantic. U.S. Fishery Bulletin 84: 451-460.

Palko, B. J., G. L. Beardsley, and W. J. Richards. 1982. Synopsis of the biological data on dolphin fishes, *Coryphaena hippurus* Linnaeus and *Coryphaena equiselis* Linnaeus. U.S. Dept. Commer., NOAA Tech. Rept. NMFS Circ. 443, 28 p.

Paredes, R.P. 1969. Introduccion al Estudio Biologico de *Chelonia mydas agassizi* en el Perfil de Pisco, Master's thesis, Universidad Nacional Federico Villareal, Lima, Peru.

Prager, M. H. 2000. Exploratory Assessment of Dolphinfish, *Coryphaena hippurus*, based on U.S. landings from the Atlantic Ocean and Gulf of Mexico. NMFS, SEFSC 18pp.

Rothschild, B. J. 1986. Dynamics of Marine Fish Populations. Harvard University Press. Cambridge, Massachusetts. 277 pp.

SAFMC (South Atlantic Fishery Management Council). 1983. Fishery Management Plan, Regulatory Impact Review and Final Environmental Impact Statement for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Circle, Suite 306, Charleston, South Carolina, 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1998. Final Habitat Plan for the South Atlantic Region: Essential Fish Habitat Requirements for Fishery Management Plans of the South Atlantic Fishery Management Council. South Atlantic Fishery Management Council, 1 Southpark Circle, Suite 306, Charleston, South Carolina, 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2002. Fishery Management Plan for Pelagic Sargassum Habitat of the South Atlantic Region Including a Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, & Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 1 Southpark Circle, Suite 306, Charleston, South Carolina, 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2003. Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic, Including a Final Environmental Impact Statement, Regulatory Impact Review, Initial Flexibility Analysis, & Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 1 Southpark Circle, Suite 306, Charleston, South Carolina, 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2009a. Comprehensive Ecosystem-Based Amendment 1for the South Atlantic Region (Including a FEIS, IRFA, FRIR & FSIA/FIS). South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2009b. Fishery Ecosystem Plan for the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2010a. Amendment 17A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 385 pp. with appendices.

SAFMC (South Atlantic Fishery Management Council). 2010b. Amendment 17B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 406 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2011a. Comprehensive Annual Catch Limit Amendment for the South Atlantic Region with Final Environmental Impact Statement, Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 755 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2011b. Amendment 24 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 256 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2013. Regulatory Amendment 13. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

Schwenke, K. L. and J.A. Buckel, 2008. Age, growth, and reproduction of dolphinfish (*Coryphaena hippurus*) caught off the coast of North Carolina. Fishery Bulletin 106: 82–92.

SEDAR 25. 2011. Stock Assessment Report. Black Sea Bass. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/.

Shaver. D.J. 1991. Feeding ecology of wild and head-started Kemp's ridley sea turtles in south Texas waters. Journal of Herpetology 25:327.

Soma, M. 1985. Radio biotelemetry system applied to migratory study of turtle. Journal of the Faculty of Marine Science and Technology, Tokai University, Japan, 21:47.

Standora, E.A., J.R. Spotila, J.A. Keinath, and C.R. Shoop. 1984. Body temperatures, diving cycles, and movements of a subadult leatherback turtle, *Dermochelys coriacea*. Herpetologica 40:169.

Sutton, S.G., R.B. Ditton, J.R. Stoll, and J.W. Milon. 1999. A Cross sectional study and longitudinal perspective on the social and economic characteristics of the charter and party boat fishing industry of Alabama, Mississippi, Louisiana, and Texas. Report by the Human Dimensions of Recreational Fisheries Research Laboratory, Texas A&M for NMFS, MARFIN program grant number NA 77FF0551.

Thayer, G.W., K.A. Bjorndal, J.C. Ogden, S.L. Williams, and J.C. Zieman. 1984. Role of large herbivores in seagrass communities. Estuaries 7:351.

Theisen, T. C., B.W. Bowen, W. Lanier, and J.D. Baldwin. (2008). High connectivity on a global scale in the pelagic wahoo, *Acanthocybium solandri* (tuna family Scombridae). Molecular Ecology 17, 4233–4247.

Van Dam, R. and C. Diéz. 1998. Home range of immature hawksbill turtles (*Eretmochelys imbricata*) at two Caribbean islands. Journal of Experimental Marine Biology and Ecology 220(1):15-24.

Walker, T.A. 1994. Post-hatchling dispersal of sea turtles. p. 79. In: Proceedings of the Australian Marine Turtle Conservation Workshop, Queensland Australia.

Witzell, W.N. 2002. Immature Atlantic loggerhead turtles (*Caretta caretta*): suggested changes to the life history model. Herpetological Review 33(4):266-269.

Zischke, M. T., S. P. Griffiths, I. R. Tibbetts, and R. J. G. Lester. 2012. Stock identification of wahoo (*Acanthocybium solandri*) in the Pacific and Indian Oceans using morphometrics and parasites. ICES Journal of Marine Science 10.1093/icesjms/fss164.

Appendix A. Alternatives Considered, but Eliminated from Detailed Analysis

This section describes actions and alternatives that the South Atlantic Fishery Management Council (South Atlantic Council) considered in developing Amendment 5 to the Fishery Management Plan for the Dolphin and Wahoo Fishery of Atlantic (Amendment 5), but decided not to pursue. The description of each alternative is followed by a summary statement of why it was eliminated from Amendment 5.

Accountability Measures Action

Action 2: Revise the accountability measures (AMs) for dolphin and wahoo

Alternative 3. If the commercial ACL is exceeded, the RA shall publish a notice to reduce the ACL in the following season by the amount of the overage, regardless of the stock status of the species.

Alternative 7. If the recreational ACL is exceeded, the RA shall publish a notice to reduce the ACL in the following season by the amount of the overage, regardless of the stock status of the species.

The South Atlantic Council is revising the AMs for dolphin and wahoo to consider a payback provision in the event the recreational or commercial ACL is exceeded. Because the stocks are healthy, and extremely productive, the South Atlantic Council felt that ACLs overruns could be indicative of a strong year class, rather than increased fishing pressure. Thus, the South Atlantic Council indicated that alternatives which reduce the ACL in the following season, regardless of stock status are likely overly punitive and not needed to ensure overfishing does not occur. Therefore, the South Atlantic Council removed these alternatives from the amendment in March 2013 because it was determined that such stringent measures are not necessary, especially for dolphin, which is a relatively short-lived species.

Sector Allocations for Dolphin Action

Action 3. Modify the sector allocations for dolphin.

Alternative 1. No Action. The recreational sector allocation for dolphin is 92.7%. The commercial sector allocation for dolphin is 7.3%. The sector allocations for dolphin were set in the Comprehensive ACL Amendment (SAFMC 2011a) using the sector allocation rule where 50% of sector allocations are based on a longer term landings series (1999 – 2008) and 50% of the sector allocation are based on a shorter time series (2006-2008). If the South Atlantic Council chooses Alternative 2 of Action 1 as its preferred alternative, the recreational sector allocation for dolphin will be 92.46% and the commercial sector allocation for dolphin will be 7.54%.

Alternative 2. Establish the sector allocations for dolphin that were in place prior to the Comprehensive ACL Amendment making the "soft cap" allocations the sector allocations. The recreational sector allocation for dolphin is 87%, and commercial sector allocation is 13%.

Alternative 3. Set the commercial allocation at its highest percentage of the total catch over the past 5 years (2008-2012). The recreational sector allocation for dolphin is 86%, and commercial sector allocation is 14%.

Alternative 4. Set the commercial allocation at the average of the percentages of the total catch over the past 5 years (2008-2012). The recreational sector allocation for dolphin is 90%, and commercial sector allocation is 10%.

Although the alternatives are appropriate for consideration, the South Atlantic Council eliminated this action from the document at their June 2013 meeting because they decided they will take it up as part of an allocation amendment that will begin development in Fall 2013.

Commercial Trip Limit Action

Action 4 (formerly Action 5). Establish a commercial trip limit for dolphin in the exclusive economic zone (EEZ) in the South Atlantic Council's area of jurisdiction.

Alternative 8: 15,000 lbs ww trip limit

Sub-Alternative 8a: south of 31° N. Latitude

Sub-Alternative 8b: north of 31° N. Latitude

Alternative 9: 20,000 lbs ww trip limit

Sub-Alternative 9a: south of 31° N. Latitude

Sub-Alternative 9b: north of 31° N. Latitude

The South Atlantic Council removed Alternatives 8 and 9 from Amendment 5 at their June 2013 meeting because data analysis indicated there were no commercial trips from 2008 through 2012 that landed at least 15,000 lbs ww. Thus, the South Atlantic Council did not consider these to be reasonable alternatives.

Appendix B. Glossary

Acceptable Biological Catch (ABC): Maximum amount of fish stock than can be harvested without adversely affecting recruitment of other components of the stock. The ABC level is typically higher than the total allowable catch, leaving a buffer between the two.

Accountability measure (AM): AMs are fishery management rules that prevent annual catch limits from being exceeded (i.e. prevent overfishing) and make corrections when fishing goes over the annual catch limit.

ALS: Accumulative Landings System. NMFS database which contains commercial landings reported by dealers.

Annual Catch Limit (ACL): The amount of a particular fish species, stock or stock complex that can be caught in a given year.

Annual Catch Target (ACT): An annual catch target is an amount of annual catch that serves as the management target, set below the annual catch limit to account for management uncertainty.

Biomass: Amount or mass of some organism, such as fish.

B_{MSY}: Biomass of population achieved in long-term by fishing at F_{MSY}.

Bycatch: Fish harvested in a fishery, but not sold or kept for personal use. Bycatch includes economic discards and regulatory discards, but not fish released alive under a recreational catch and release fishery management program.

Caribbean Fishery Management Council (CFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The CFMC develops fishery management plans for fisheries off the coast of the U.S. Virgin Islands and the Commonwealth of Puerto Rico.

Catch Per Unit Effort (CPUE): The amount of fish captured with an amount of effort. CPUE can be expressed as weight of fish captured per fishing trip, per hour spent at sea, or through other standardized measures.

Charter Boat: A fishing boat available for hire by recreational anglers, normally by a group of anglers for a short time period.

Cohort: Fish born in a given year. (See year class.)

Control Date: Date established for defining the pool of potential participants in a given management program. Control dates can establish a range of years during which a potential participant must have been active in a fishery to qualify for a quota share.

Constant Catch Rebuilding Strategy: A rebuilding strategy where the allowable biological catch of an overfished species is held constant until stock biomass reaches B_{MSY} at the end of the rebuilding period.

Constant F Rebuilding Strategy: A rebuilding strategy where the fishing mortality of an overfished species is held constant until stock biomass reached BMSY at the end of the rebuilding period.

Directed Fishery: Fishing directed at a certain species or species group.

Discards: Fish captured, but released at sea.

Discard Mortality Rate: The percent of total fish discarded that do not survive being captured and released at sea.

Derby: Fishery in which the TAC is fixed and participants in the fishery do not have individual quotas. The fishery is closed once the TAC is reached, and participants attempt to maximize their harvests as quickly as possible. Derby fisheries can result in capital stuffing and a race for fish.

Effort: The amount of time and fishing power (i.e., gear size, boat size, horsepower) used to harvest fish.

Exclusive Economic Zone (EEZ): Zone extending from the shoreline out to 200 nautical miles in which the country owning the shoreline has the exclusive right to conduct certain activities such as fishing. In the United States, the EEZ is split into state waters (typically from the shoreline out to 3 nautical miles) and federal waters (typically from 3 to 200 nautical miles).

Exploitation Rate: Amount of fish harvested from a stock relative to the size of the stock, often expressed as a percentage.

F: Fishing mortality.

Fecundity: A measurement of the egg-producing ability of fish at certain sizes and ages.

Fishery Dependent Data: Fishery data collected and reported by fishermen and dealers.

Fishery Independent Data: Fishery data collected and reported by scientists who catch the fish themselves.

Fishery Management Plan: Management plan for fisheries operating in federal waters. Produced by regional fishery management councils and submitted to the Secretary of Commerce for approval.

Fishing Effort: Usually refers to the amount of fishing. May refer to the number of fishing vessels, amount of fishing gear (nets, traps, hooks), or total amount of time vessels and gear are actively engaged in fishing.

Fishing Mortality: A measurement of the rate at which fish are removed from a population by fishing. Fishing mortality can be reported as either annual or instantaneous. Annual mortality is the percentage of fish dying in one year. Instantaneous is that percentage of fish dying at any one time.

Fishing Power: Measure of the relative ability of a fishing vessel, its gear, and its crew to catch fishes, in reference to some standard vessel, given both vessels are under identical conditions.

$F_{30\%SPR}$: Fishing mortality that will produce a static SPR = 30%.

$F_{45\%SPR}$: Fishing mortality that will produce a static SPR = 45%.

F_{OY}: Fishing mortality that will produce OY under equilibrium conditions and a corresponding biomass of B_{OY}. Usually expressed as the yield at 85% of F_{MSY}, yield at 75% of F_{MSY}, or yield at 65% of F_{MSY}.

F_{MSY}: Fishing mortality that if applied constantly, would achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}

Fork Length (FL): The length of a fish as measured from the tip of its snout to the fork in its tail.

Gear restrictions: Limits placed on the type, amount, number, or techniques allowed for a given type of fishing gear.

Growth Overfishing: When fishing pressure on small fish prevents the fishery from producing the maximum poundage. Condition in which the total weight of the harvest from a fishery is improved when fishing effort is reduced, due to an increase in the average weight of fishes.

Gulf of Mexico Fishery Management Council (GFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The GFMC develops fishery management plans for fisheries off the coast of Texas, Louisiana, Mississippi, Alabama, and the west coast of Florida.

Head Boat: A fishing boat that charges individual fees per recreational angler onboard.

Highgrading: Form of selective sorting of fishes in which higher value, more marketable fishes are retained, and less marketable fishes, which could legally be retained are discarded.

Individual Fishing Quota (IFQ): Fishery management tool that allocates a certain portion of the TAC to individual vessels, fishermen, or other eligible recipients.

Longline: Fishing method using a horizontal mainline to which weights and baited hooks are attached at regular intervals. Gear is either fished on the bottom or in the water column.

Magnuson-Stevens Fishery Conservation and Management Act: Federal legislation responsible for establishing the fishery management councils and the mandatory and discretionary guidelines for federal fishery management plans.

Marine Recreational Fisheries Statistics Survey (MRFSS): Survey operated by NMFS in cooperation with states that collects marine recreational fisheries data.

Marine Recreational Information Program (MRIP): Survey operated by NMFS in cooperation with states that collects marine recreational fisheries data.

Maximum Fishing Mortality Threshold (MFMT): The rate of fishing mortality above which a stock's capacity to produce MSY would be jeopardized.

Maximum Sustainable Yield (MSY): The largest long-term average catch that can be taken continuously (sustained) from a stock or stock complex under average environmental conditions.

Minimum Stock Size Threshold (MSST): The biomass level below which a stock would be considered overfished.

Modified F Rebuilding Strategy: A rebuilding strategy where fishing mortality is changed as stock biomass increases during the rebuilding period.

Multispecies fishery: Fishery in which more than one species is caught at the same time and location with a particular gear type.

National Marine Fisheries Service (NMFS): Federal agency within NOAA responsible for overseeing fisheries science and regulation.

National Oceanic and Atmospheric Administration: Agency within the Department of Commerce responsible for ocean and coastal management.

Natural Mortality (M): A measurement of the rate at which fish are removed from a population by natural causes. Natural mortality can be reported as either annual or instantaneous. Annual mortality is the percentage of fish dying in one year. Instantaneous is that percentage of fish dying at any one time.

Optimum Yield (OY): The amount of catch that will provide the greatest overall benefit to the nation, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems.

Overfished: A stock or stock complex is considered overfished when stock biomass falls below the minimum stock size threshold (MSST) (e.g., current biomass < MSST = overfished).

Overfishing: Overfishing occurs when a stock or stock complex is subjected to a rate of fishing mortality that exceeds the maximum fishing mortality threshold (e.g., current fishing mortality rate > MFMT = overfishing).

Quota: Percent or annual amount of fish that can be harvested.

Recruitment (R): Number or percentage of fish that survives from hatching to a specific size or age.

Recruitment Overfishing: The rate of fishing above which the recruitment to the exploitable stock becomes significantly reduced. This is characterized by a greatly reduced spawning stock, a decreasing proportion of older fish in the catch, and generally very low recruitment year after year.

Scientific and Statistical Committee (SSC): Fishery management advisory body composed of federal, state, and academic scientists, which provides scientific advice to a fishery management council.

Selectivity: The ability of a type of gear to catch a certain size or species of fish.

South Atlantic Fisheries Management Council (SAFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The SAFMC develops fishery management plans for fisheries off North Carolina, South Carolina, Georgia, and the east coast of Florida.

Spawning Potential Ratio (Transitional SPR): Formerly used in overfished definition. The number of eggs that could be produced by an average recruit in a fished stock divided by the number of eggs that could be produced by an average recruit in an unfished stock. SPR can also be expressed as the spawning stock biomass per recruit (SSBR) of a fished stock divided by the SSBR of the stock before it was fished.

% Spawning Per Recruit (Static SPR): Formerly used in overfishing determination. The maximum spawning per recruit produced in a fished stock divided by the maximum spawning per recruit, which occurs under the conditions of no fishing. Commonly abbreviated as %SPR.

Spawning Stock Biomass (SSB): The total weight of those fish in a stock which are old enough to spawn.

Spawning Stock Biomass Per Recruit (SSBR): The spawning stock biomass divided by the number of recruits to the stock or how much spawning biomass an average recruit would be expected to produce.

Total Allowable Catch (TAC): The total amount of fish to be taken annually from a stock or stock complex. This may be a portion of the Allowable Biological Catch (ABC) that takes into consideration factors such as bycatch.

Total Length (TL): The length of a fish as measured from the tip of the snout to the tip of the tail.

Appendix C. Other Applicable Laws

1.1 Administrative Procedure Act (APA)

All federal rulemaking is governed under the provisions of the APA (5 U.S.C. Subchapter II), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Under the APA, the National Marine Fisheries Service (NMFS) is required to publish notification of proposed rules in the *Federal Register* and to solicit, consider, and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day wait period from the time a final rule is published until it takes effect, with some exceptions. Amendment 5 to the Fishery Management Plan for the Dolphin Wahoo Fishery of the Atlantic (Dolphin Wahoo Amendment 5) complies with the provisions of the APA through the South Atlantic Fishery Management Council's (South Atlantic Council) extensive use of public meetings, requests for comments, and consideration of comments. The proposed rule associated with this amendment will have a request for public comments which complies with the APA, and upon publication of the final rule, there will be a 30-day wait period before the regulations are effective.

1.2 Information Quality Act (IQA)

The IQA (Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-443)) which took effect October 1, 2002, directed the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidelines to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies." OMB directed each federal agency to issue its own guidelines, establish administrative mechanisms allowing affected persons to seek and obtain correction of information that does not comply with OMB guidelines, and report periodically to OMB on the number and nature of complaints. The NOAA Section 515 Information Quality Guidelines require a series of actions for each new information product subject to the IQA. Dolphin Wahoo Amendment 5 has used the best available information and made a broad presentation thereof. The information contained in this document was developed using best available scientific information. Therefore, this document is in compliance with the IQA.

1.3 Coastal Zone Management Act (CZMA)

Section 307(c)(1) of the federal CZMA of 1972 requires that all federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. The South Atlantic Council, in cooperation with the Mid-Atlantic Fishery Management Council and the New England Fishery Management Council, is responsible for conservation and management of dolphin and wahoo in federal waters off the Atlantic states. While it is the goal of the South Atlantic Council to have management measures that complement those of the states, federal and state administrative procedures vary and regulatory changes are unlikely to be fully instituted at the same time. Based on the analysis of the environmental consequences of the proposed actions in **Section 4**, the South Atlantic Council believes this document is consistent to the maximum extent practicable with the Coastal Zone Management Plans of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and east Florida to Key West. This

determination will be submitted to the responsible state agencies under Section 307 of the CZMA administering approved Coastal Zone Management Programs in the states mentioned above.

1.4 Endangered Species Act (ESA)

The ESA of 1973 (16 U.S.C. Section 1531 et seq.) requires that federal agencies must ensure actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or the habitat designated as critical to their survival and recovery. The ESA requires NMFS to consult with the appropriate administrative agency (itself for most marine species, and the U.S. Fish and Wildlife Service for all remaining species) when proposing an action that may affect threatened or endangered species or adversely modify critical habitat. Consultations are necessary to determine the potential impacts of the proposed action. They conclude informally when proposed actions may affect but are "not likely to adversely affect" threatened or endangered species or designated critical habitat. Formal consultations, resulting in a biological opinion, are required when proposed actions may affect and are "likely to adversely affect" threatened or endangered species or adversely modify designated critical habitat.

NMFS completed a biological opinion (NMFS 2003) on August 27, 2003 evaluating the impacts of the Atlantic dolphin and wahoo fishery (Dolphin Wahoo FMP) on ESA-listed species (see **Section 3.0**). The opinion concluded the fishery would not affect ESA-listed marine mammals or smalltooth sawfish, and is not likely to jeopardize the continued existence of any listed sea turtle species (see NMFS 2003 for discussion on these species). However, the opinion did state that the dolphin wahoo fishery would adversely affect sea turtles. An incidental take statement was issued for green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles. Reasonable and prudent measures to minimize the impact of these incidental takes were specified, along with terms and conditions to implement them.

Subsequent to the 2003 biological opinion, NMFS made several modifications to the list of protected species for which they are responsible. These changes included: (1) the listing of two species of *Acropora* coral, (2) the designation of *Acropora* critical habitat, (3) the determination that the loggerhead sea turtle population consists of nine distinct population segments (DPSs; 76 FR 58868), (4) the listing of five DPSs of Atlantic sturgeon, and (5) the proposed listing of 66 coral species and reclassification of *Acropora* from threatened to endangered (77 FR 73220).

NFMS addressed how these ESA changes could impact the determinations of the 2003 biological opinion in a series of consultation memoranda. In separate memoranda, NMFS concluded the continued authorization of the Atlantic dolphin wahoo fishery, is not likely to adversely affect *Acropora* or *Acropora* critical habitat (May 18, 2010), and Atlantic sturgeon (February 15, 2012). The February 15, 2012 memorandum also stated that because the 2003 biological opinion had evaluated the impacts of the fishery on the loggerhead subpopulations now wholly contained within the NWA DPS, the opinion's conclusion that the fishery is not likely to jeopardize the continued existence of loggerhead sea turtles remains valid. Finally, in a memorandum dated February 13, 2013, NMFS concluded new information provided in the proposed reclassification (uplisting) of *Acropora* did not change the previous effects determination that the fishery was not likely to adversely affect *Acropora*. Therefore, the actions of proposed Amendment 5 would fall within the level of effort and scope of the action analyzed in the above mentioned opinion and subsequent memoranda.

1.5 Executive Order 12612: Federalism

E.O. 12612 requires agencies to be guided by the fundamental federalism principles when formulating and implementing policies that have federalism implications. The purpose of the Order is to guarantee the division of governmental responsibilities between the federal government and the states, as intended by the framers of the Constitution. No federalism issues have been identified relative to the actions proposed in this document and associated regulations. Therefore, preparation of a Federalism assessment under E.O. 13132 is not necessary.

1.6 Executive Order 12866: Regulatory Planning and Review

E.O. 12866, signed in 1993, requires federal agencies to assess the costs and benefits of their proposed regulations, including distributional impacts, and to select alternatives that maximize net benefits to society. To comply with E.O. 12866, NMFS prepares a Regulatory Impact Review (RIR) for all fishery regulatory actions that implement a new fishery management plan (FMP) or that significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society associated with proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. The reviews also serve as the basis for the agency's determinations as to whether proposed regulations are a "significant regulatory action" under the criteria provided in E.O. 12866 and whether proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act (RFA). A regulation is significant if it is likely to result in an annual effect on the economy of at least $100,000,000 or if it has other major economic effects.

In accordance with E.O. 12866, the following is set forth by the South Atlantic Council: (1) this rule is not likely to have an annual effect on the economy of more than $100 million or to adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) this rule is not likely to create any serious inconsistencies or otherwise interfere with any action taken or planned by another agency; (3) this rule is not likely to materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; (4) this rule is not likely to raise novel or policy issues arising out of legal mandates, or the principles set forth in the Executive Order; and (5) this rule is not controversial.

This amendment includes the RIR as **Appendix G**.

1.7 Executive Order 12898: Environmental Justice

E.O. 12898 requires that "to the greatest extent practicable and permitted by law…each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations in the United States and its territories and possessions…"

The alternatives being considered in this document are not expected to result in any disproportionate adverse human health or environmental effects to minority populations or low-income populations of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and east Florida to Key West, rather the impacts would be spread across all participants in the dolphin wahoo fishery regardless of race or income. A detailed description of the communities impacted by the actions contained in this document and potential socioeconomic impacts of those actions are contained in **Sections 3.0** and **4.0** of this document.

1.8 Executive Order 12962: Recreational Fisheries

E.O. 12962 requires federal agencies, in cooperation with states and tribes, to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities through a variety of methods including but not limited to developing joint partnerships; pr0omoting the restoration of recreational fishing areas that are limited by water quality and habitat degradation; fostering sound aquatic conservation and restoration endeavors; and evaluating the effects of federally-funded, permitte, or authorized actions on aquatic systems and recreational fisheries, and documenting those effects. Additionally, the Order establishes a seven-member National Recreational Fisheries Coordination Council responsible for, among other things, ensuring that social and economic values of healthy aquatic systems that support recreational fisheries are considered by federal agencies in the course of their actions, sharing the latest resource information and management technologies, and reducing duplicative and cost-inefficient programs among federal agencies involved in conserving or managing recreational fisheries. The National Recreational Fisheries Coordination Council also is responsible for developing, in cooperation with federal agencies, states and tribes, a Recreational Fishery Resource Conservation Plan - to include a five-year agenda. Finally, the Order requires NMFS and the U.S. Fish and Wildlife Service to develop a joint agency policy for administering the ESA.

The alternatives considered in this amendment are consistent with the directives of E.O. 12962.

1.9 Executive Order 13089: Coral Reef Protection

E.O. 13089, signed by President William Clinton on June 11, 1998, recognizes the ecological, social, and economic values provided by the Nation's coral reefs and ensures that federal agencies are protecting these ecosystems. More specifically, the Order requires federal agencies to identify actions that may harm U.S. coral reef ecosystems, to utilize their program and authorities to protect and enhance the conditions of such ecosystems, and to ensure that their actions do not degrade the condition of the coral reef ecosystem.

The alternatives considered in this amendment are consistent with the directives of E.O. 13089.

1.10 Executive Order 13158: Marine Protected Areas (MPAs)

E.O. 13158 was signed on May 26, 2000, to strengthen the protection of U.S. ocean and coastal resources through the use of MPAs. The E.O. defined MPAs as "any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting

protection for part or all of the natural and cultural resources therein". It directs federal agencies to work closely with state, local, and non-governmental partners to create a comprehensive network of MPAs "representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources".

The alternatives considered in this amendment are consistent with the directives of E.O. 13158.

1.11 Marine Mammal Protection Act (MMPA)

The MMPA established a moratorium, with certain exceptions, on the taking of marine mammals in U.S. waters and by U.S. citizens on the high seas. It also prohibits the importing of marine mammals and marine mammal products into the United States. Under the MMPA, the Secretary of Commerce (authority delegated to NMFS) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). The Secretary of the Interior is responsible for walruses, sea otters, polar bears, manatees, and dugongs. Part of the responsibility that NMFS has under the MMPA involves monitoring populations of marine mammals to make sure that they stay at optimum levels. If a population falls below its optimum level, it is designated as "depleted". A conservation plan is then developed to guide research and management actions to restore the population to healthy levels.

In 1994, Congress amended the MMPA, to govern the taking of marine mammals incidental to commercial fishing operations. This amendment required the preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction; development and implementation of take-reduction plans for stocks that may be reduced or are being maintained below their optimum sustainable population levels due to interactions with commercial fisheries; and studies of pinniped-fishery interactions. The MMPA requires a commercial fishery to be placed in one of three categories, based on the relative frequency of incidental serious injuries and mortalities of marine mammals. Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing; Category II designates fisheries with occasional serious injuries and mortalities; and Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities.

Under the MMPA, to legally fish in a Category I and/or II fishery, a fisherman must take certain steps. For example, owners of vessels or gear engaging in a Category I or II fishery, are automatically registered for the Marine Mammal Authorization Program and are required by law to carry a current Authorization Certificate on board their vessel or person when participating in the listed fishery. Fishermen are also required to accommodate an observer if requested (50 CFR 229.7(c)) and must comply with any applicable take reduction plans. Furthermore, all fishermen (regardless of fishery category) must report any incidental mortality or injury to a marine mammal during commercial fishing activities within 48 hours of the fishing trip.

The dolphin wahoo fishery of the Atlantic is part of the Southeastern U.S. Atlantic, Gulf of Mexico, and Caribbean pelagic hook-and-line/harpoon fishery and designated as a Category III fishery (78 FR 53336, August 29, 2013) because there have been no known documented interactions between these gear and marine mammals. The actions in this EA are related to the dolphin wahoo fishery of the Atlantic, are not expected to negatively impact the provisions of the MMPA.

1.12 Migratory Bird Treaty Act (MBTA) and Executive Order 13186

The MBTA implemented several bilateral treaties for bird conservation between the United States and Great Britain, the United States and Mexico, the United States and Japan, and the United States and the former Union of Soviet Socialists Republics. Under the MBTA, it is unlawful to pursue, hunt, take, capture, kill, possess, trade, or transport any migratory bird, or any part, nest, or egg of a migratory bird, included in bilateral treaties, except as permitted by regulations issued by the Department of the Interior (16 U.S.C. 703-712). Violations of the MBTA carry criminal penalties. Any equipment and means of transportation used in activities in violation of the MBTA may be seized by the United States government and, upon conviction, must be forfeited to it.

Executive Order 13186 directs each federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations to develop and implement a memorandum of understanding (MOU) with the U.S. Fish and Wildlife Service (USFWS) to conserve those bird populations. In the instance of unintentional take of migratory birds, NMFS would develop and use principles, standards, and practices that will lessen the amount of unintentional take in cooperation with the USFWS. Additionally, the MOU would ensure that NEPA analyses evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.

An MOU was signed on August 15, 2012, which addresses the incidental take of migratory birds in commercial fisheries under the jurisdiction of NMFS. NMFS must monitor, report, and take steps to reduce the incidental take of seabirds that occurs in fishing operations. The United States has already developed the U.S. National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries. Under that plan many potential MOU components are already being implemented.

The alternatives considered in this amendment are consistent with the directives of E.O. 13186.

1.13 National Environmental Policy Act (NEPA)

This document has been written and organized in a manner that meets NEPA requirements, and thus is a consolidated NEPA document, including an EA, as described in NOAA Administrative Order (NAO) 216- 6, Section 6.03.a.2.

Purpose and Need for Action

The purpose and need for this action are described in **Section 1.4.**

Alternatives

The alternatives for this action are described in **Chapter 2.**

Affected Environment

The affected environment is described in **Chapter 3**.

Impacts of the Alternatives

The impacts of the alternatives on the environment are described in **Chapter 4.**

1.14 National Marine Sanctuaries Act (NMSA)

Under the NMSA (also known as Title III of the Marine Protection, Research and Sanctuaries Act of 1972), as amended, the U.S. Secretary of Commerce is authorized to designate National Marine Sanctuaries to protect distinctive natural and cultural resources whose protection and beneficial use requires comprehensive planning and management. The National Marine Sanctuary Program is administered by the Sanctuaries and Reserves Division of NOAA. The NMSA provides authority for comprehensive and coordinated conservation and management of these marine areas. The National Marine Sanctuary Program currently comprises 13 sanctuaries around the country, including sites in American Samoa and Hawaii. These sites include significant coral reef and kelp forest habitats, and breeding and feeding grounds of whales, sea lions, sharks, and sea turtles. The three sanctuaries in the South Atlantic exclusive economic zone are the USS Monitor, Gray's Reef, and Florida Keys National Marine Sanctuaries.

The alternatives considered in this amendment are not expected to have any adverse impacts on the resources managed by the National Marine Sanctuaries.

1.15 Paperwork Reduction Act (PRA)

The purpose of the PRA is to minimize the burden on the public. The PRA is intended to ensure that the information collected under the proposed action is needed and is collected in an efficient manner (44 U.S.C. 3501 (1)). The authority to manage information collection and record keeping requirements is vested with the Director of the Office of Management and Budget (OMB). This authority encompasses establishment of guidelines and policies, approval of information collection requests, and reduction of paperwork burdens and duplications. The PRA requires NMFS to obtain approval from the OMB before requesting most types of fishery information from the public.

Actions in this amendment are not expected to affect PRA since no data collection programs are included.

1.16 Regulatory Flexibility Act (RFA)

The RFA of 1980 (5 U.S.C. 601 et seq.) requires federal agencies to assess the impacts of regulatory actions implemented through notice and comment rulemaking procedures on small businesses, small organizations, and small governmental entities, with the goal of minimizing adverse impacts of burdensome regulations and record-keeping requirements on those entities. Under the RFA, NMFS must determine whether a proposed fishery regulation would have a significant economic impact on a substantial number of small entities. If not, a certification to this effect must be prepared and submitted to the Chief Counsel for Advocacy of the Small Business Administration. Alternatively, if a regulation is determined to significantly impact a substantial number of small entities, the RFA requires the agency to prepare an initial and final Regulatory Flexibility Analysis to accompany the proposed and final rule, respectively. These analyses, which describe the type and number of small

businesses affected, the nature and size of the impacts, and alternatives that minimize these impacts while accomplishing stated objectives, must be published in the *Federal Register* in full or in summary for public comment and submitted to the chief counsel for advocacy of the Small Business Administration. Changes to the RFA in June 1996 enable small entities to seek court review of an agency's compliance with the RFA's provisions.

As NMFS has determined whether a proposed fishery regulation would have a significant economic impact on a substantial number of small entities, a certification to this effect will be prepared and submitted to the Chief Counsel for Advocacy of the Small Business Administration.

This amendment includes the RFA as **Appendix H**.

1.17 Small Business Act (SBA)

Enacted in 1953, the SBA requires that agencies assist and protect small-business interests to the extent possible to preserve free competitive enterprise. The objectives of the SBA are to foster business ownership by individuals who are both socially and economically disadvantaged; and to promote the competitive viability of such firms by providing business development assistance including, but not limited to, management and technical assistance, access to capital and other forms of financial assistance, business training, and counseling, and access to sole source and limited competition federal contract opportunities, to help firms achieve competitive viability. Because most businesses associated with fishing are considered small businesses, NMFS, in implementing regulations, must make an assessment of how those regulations will affect small businesses.

1.18 Public Law 99-659: Vessel Safety

Public Law 99-659 amended the MSFCMA to require that a FMP or FMP amendment must consider, and may provide for, temporary adjustments (after consultation with the U.S. Coast Guard and persons utilizing the fishery) regarding access to a fishery for vessels that would be otherwise prevented from participating in the fishery because of safety concerns related to weather or to other ocean conditions.

No vessel would be forced to participate in South Atlantic fisheries under adverse weather or ocean conditions as a result of the imposition of management regulations proposed in this amendment. No concerns have been raised by fishermen or by the U.S. Coast Guard that the proposed management measures directly or indirectly pose a hazard to crew or vessel safety under adverse weather or ocean conditions.

References

NMFS (National Marine Fisheries Service). 2003. Endangered Species Act – Section 7 Consultation on the Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic Ocean. Biological Opinion, August 27, 2003.

Appendix D. History of Management

History of Management of the Atlantic Dolphin and Wahoo Fisheries

The dolphin and wahoo fisheries are highly regulated and have been regulated since 2004. The following table summarizes actions in each of the amendments to the original FMP.

Time period/dates	Cause	Observed and/or Expected Effects
Effective June 28, 2004	Fishery Management Plan for the Dolphin Wahoo Fishery off the Atlantic states (Dolphin Wahoo FMP).	1) A 20-inch fork length minimum size limit for dolphin off the coasts of Georgia and Florida with no size restrictions elsewhere; (2) prohibition of longline fishing for dolphin and wahoo in areas closed to the use of such gear for highly migratory pelagic species; and (3) allowable gear to be used in the fishery (hook-and-line gear including manual, electric, and hydraulic rods and reels; bandit gear; handlines; longlines; and spearfishing (including powerheads) gear. In addition, other approved portions of the FMP were also effective on this date, including (1) the management unit and designations of stock status criteria for the unit; (2) a fishing year of January 1 through December 31; (3) a 1.5 million pound (or 13% of the total harvest) cap on commercial landings; (4) establishment of a framework procedure by which the SAFMC may modify its management measures; and (5) designations of Essential Fish Habitat (EFH) and EFH-Habitat Areas of Particular Concern (HAPC).
Effective September 24, 2004	Dolphin Wahoo FMP	1) owners of commercial vessels and/or charter vessels/headboats must have vessel permits and, if selected, submit reports; (2) dealers must have permits and, if selected, submit reports; (3) longline vessels must comply with sea turtle protection measures; (4) a recreational bag limit of 10 dolphin and 2 wahoo per person per day, with a limit of 60 dolphin per boat per day (headboats are excluded from the boat limit); (5) prohibition on recreational sale of dolphin and wahoo caught under a bag limit unless the seller holds the necessary commercial permits; and (6) a commercial trip limit of 500 pounds for wahoo.

Time period/dates	Cause	Observed and/or Expected Effects
Effective November 23, 2004	Dolphin Wahoo FMP	Operators of commercial vessels, charter vessels and headboats that are required to have a federal vessel permit for dolphin and wahoo must display operator permits.
Effective Date July 22, 2010	Amendment 1 to the Dolphin Wahoo FMP (Comprehensive Ecosystem Based Amendment (CE-BA) 1)	Updated spatial information of Council-designated EFH and EFH-HAPCS.
Effective Date April 16, 2012	Amendment 2 to the Dolphin Wahoo FMP (Comprehensive ACL Amendment SAFMC 2011C)	Set ABC, ACL, ACT and AMs
Target 2014	Amendment 5 to the Dolphin Wahoo FMP	Revisions to acceptable biological catch estimates (ABCs), annual catch limits (ACLs) (including sector ACLs), recreational annual catch targets (ACTs), and accountability measures (AMs) implemented through the Comprehensive ACL Amendment; modifications to the sector allocations for dolphin; and revisions to the framework procedure in the Dolphin Wahoo FMP.

Appendix E.

1 Bycatch Practicability Analysis (BPA)

1.1 Population Effects for the Bycatch Species

Background

Amendment 5 to the Fishery Management Plan (FMP) for Dolphin and Wahoo in the Atlantic (Dolphin Wahoo Amendment 5) includes actions that revise the acceptable biological catch (ABC) estimates, annual catch limits (ACLs), recreational annual catch targets (ACTs) (**Action 1**), and accountability measures (AMs) (**Action 2**). The revisions incorporate updates to the recreational landings data as per the new Marine Recreational Information Program (MRIP), as well as updates to commercial and for-hire landings. Additionally, this amendment would revise the framework procedure for dolphin and wahoo (**Action 3**). Commercial trip limits for dolphin (**Action 4**) were considered, but the South Atlantic Fishery Management Council (South Atlantic Council) chose **Alternative 1 (No Action)**.

Most dolphin and wahoo are taken with hook-and-line gear, with some harvest using pelagic longlines. Landings for dolphin outnumber wahoo for both commercial and recreational sectors (**Table 1**).

Commercial Sector

Currently, discard data are collected using a supplemental form that is sent to a 20% stratified random sample of the active permit holders in dolphin wahoo fishery. However, in the absence of any observer data, there are concerns about the accuracy of logbook data in collecting bycatch information. Biases associated with logbooks primarily result from inaccuracy in reporting of species that are caught in large numbers or are of little economic interest (particularly of bycatch species), and from low compliance rates. The Gulf of Mexico Fishery Management Council (Gulf of Mexico Council) and the South Atlantic Council are developing an amendment that would consider a requirement for electronic logbooks to improve the accuracy of these data. During 2008-2012, mean commercial dolphin landings were 835,392 pounds whole weight (lbs ww) and discards were 1,750 fish (**Table 1**). Commercial landings for wahoo were much lower (50,327 lbs ww) with negligible discards (**Table 1**).

Recreational Sector

For the recreational sector, during 2008-2012, estimates of the number of recreational discards were available from Marine Recreational Fisheries Statistical Survey (MRFSS) and the National Marine Fisheries Service (NMFS) headboat survey. The MRFSS system classified recreational catch into three categories:

- Type A - Fishes that were caught, landed whole, and available for identification and enumeration by the interviewers.

- Type B - Fishes that were caught but were either not kept or not available for identification:

- Type B1 - Fishes that were caught and filleted, released dead, given away, or disposed of in some way other than Types A or B2.

- Type B2 - Fishes that were caught and released alive.

Recent improvements have been made to the MRFSS program, and the program is now called MRIP. Beginning in 2013, samples were drawn from a known universe of fishermen rather than randomly dialing coastal households. Other improvements have been and will be made that should result in better estimating recreational catches and the variances around those catch estimates. MRIP methods have been used to recalculate previous MRFSS estimates dating back to 1986.

During 2008-2012, mean private recreational landings and discards for dolphin and wahoo were higher than the headboat and charterboat category (**Table 1**).

Commercial discards for dolphin and wahoo were very low, but discards were disproportionately higher in the recreational sector (**Table 1**). For wahoo, while landings were higher in the commercial sector, discards were exponentially high in the recreational sector (**Table 1**). During 2008-2012, charter vessels for the dolphin and wahoo fishery were selected to report by the Southeast Regional Director (SRD) to maintain a fishing record for each trip, or a portion of such trips as specified by the SRD, and on forms provided by the SRD. Harvest and bycatch information was monitored by MRFSS. Since 2000, a 10% sample of charter vessel captains were called weekly to obtain trip level information. In addition, the standard dockside intercept data were collected from charter vessels and charter vessel clients were sampled through the standard random digital dialing of coastal households. Precision of charter vessel effort estimates has improved by more than 50% due to these changes (Van Voorhees et al. 2000).

Harvest from headboats was monitored by NMFS at the Southeast Fisheries Science Center's (SEFSC) Beaufort Laboratory. Collection of discard data began in 2004. Daily catch records (trip records) were filled out by the headboat operators, or in some cases by NMFS approved headboat samplers based on personal communication with the captain or crew. Headboat trips were subsampled for data on species lengths and weights. Biological samples (scales, otoliths, spines, reproductive tissues, and stomachs) were obtained as time allowed. Lengths of discarded fish were occasionally obtained but these data were not part of the headboat database.

Table 1. Mean headboat, MRIP charter, MRIP private, and commercial landings and estimates of discards in the U.S. Atlantic Ocean (2008-2012). Headboat, and MRIP (charter and private) landings are in numbers of fish (N); commercial landings are in pounds whole weight (lbs ww). Discards represent numbers of fish that were caught and released alive.

	HEADBOAT			MRIP CHARTER			MRIP PRIVATE			COMMERCIAL		ALL SECTORS
Species	**Catch (N)**	**Landings (N)**	**Discards (N)**	**Catch (N)**	**Landings (N)**	**Discards (N)**	**Catch (N)**	**Landings (N)**	**Discards (N)**	**Landings (lbs ww)**	**Discards (N)**	**Discards (N)**
Dolphin	3,635	3,269	366	299,392	290,800	8,592	780,125	598,363	181,762	835,392	1,750	192,470
Wahoo	122	110	12	12,636	12,545	91	22,058	21,473	586	50,327	6	695
Total	**3,757**	**3,379**	**378**	**312,028**	**303,345**	**8,683**	**802,183**	**619,836**	**182,347**	**885,719**	**1,756**	**193,165**

Sources: MRIP data from SEFSC Recreational ACL Dataset (May 2013), Headboat data from SEFSC Headboat Logbook CRNF files (expanded; May 2013), Commercial landings data from SEFSC Commercial ACL Dataset (July 10, 2013) with discard estimates from expanded SEFSC Commercial Discard Logbook (Jun 2013).

Note: Dolphin and wahoo landings include all east coast (NY-FL), but discard estimates for headboat and commercial are highly uncertain and only include NC-FL. Estimates of commercial discards are for vertical line gear only.

Finfish Bycatch Mortality

Release mortality rates are unknown for most managed species, including dolphin and wahoo. Hook-and-line gear is the predominant gear used to harvest dolphin and wahoo in the Atlantic (SAFMC 2003). It is likely that most mortality is a function of hooking and handling of the fish when the hook is being removed. However, sustainable seafood guides recommend dolphin harvested by hook-and-line gear in the U.S. as a "best choice" or "good alternative" since this gear has minimal bycatch issues (Blue Ocean 2010; Seafood Watch 2010). A small portion of dolphin is harvested using pelagic longlines, with sea turtles, sharks, and rays commonly caught as bycatch, but survival rates of hooked sea turtles was over 94% (Whoriskey et al. 2011).

Prager (2000) conducted an assessment of dolphin and indicated the species can withstand a high level of exploitation. Prager (2000) stated the biomass of the U.S. stock of dolphin appeared to be higher than needed to produce the maximum sustainable yield, but the results were not conclusive. The 2012 Report to Congress (NMFS 2012) indicates dolphin are neither overfished nor undergoing overfishing. The overfished/overfishing status of wahoo is unknown; however, like dolphin they are not considered to be vulnerable to overfishing due to life history characteristics including rapid growth rates, early maturity, and batch spawning over an extended season (Oxenford 1999, Prager 2000, McBride et al. 2008, and Schwenke and Buckel 2008). Furthermore, dolphin and wahoo are listed as species of "least concern" under the International Union for Conservation of Nature Red List, i.e. species that have a low risk of extinction (IUCN 2013). A Southeast Data, Assessment, and Review (SEDAR) stock assessment for dolphin and wahoo is scheduled within the next 5 years.

Practicability of Management Measures in Directed Fisheries Relative to their Impact on Bycatch and Bycatch Mortality

Under **Preferred Alternative 2** in **Action 1** of Dolphin Wahoo Amendment 5, the small increases in the revised ABCs and ACLs for dolphin and wahoo are not expected to substantially change fishing practices. Revision of the AMs under **Preferred Sub-alternatives 2c** and **3c** in **Action 2** would further ensure overfishing of dolphin and wahoo does not occur, and promote sustainability of the species. **Action 3**, which would modify the framework procedure, is administrative in nature and **Preferred Alternatives 2** and **3** are not expected to jeopardize the sustainability of dolphin and wahoo. Bycatch information is currently being collected in the dolphin wahoo fishery. Longline gear is more efficient at harvesting large quantities of dolphin than hook-and-line gear, and would be most affected by the trip limit alternatives under **Action 4**. Bycatch of protected species such as sea turtles are documented with longline gear (Whoriskey et al. 2011). Therefore, alternatives that would establish a lower trip limit would be expected to have greater biological benefits to non-target species, including protected species. However, restricting the dolphin trip limit is not expected to have much effect on bycatch of non-target species since 98% of the trips harvested 1,000 pounds whole weight (lbs ww) or less of dolphin (see **Section 4.4.1** of the amendment for more details). Furthermore, in September 2013, the South Atlantic Fishery Management Council (South Atlantic Council) selected **Alternative 1 (No Action)** as the preferred alternative for **Action 4**. Therefore, there will be no commercial trip limits for dolphin implemented by this amendment.

Additional information on fishery related actions from the past, present, and future considerations can be found in **Chapter 6** (cumulative effects) of Dolphin Wahoo Amendment 5.

1.2 Ecological Effects Due to Changes in the Bycatch

The ecological effects of bycatch mortality are the same as fishing mortality from directed fishing efforts. If not properly managed and accounted for, either form of mortality could potentially reduce stock biomass to an unsustainable level. The South Atlantic Council, along with the Gulf of Mexico Council and NMFS, is in the process of developing actions that would improve bycatch monitoring in all fisheries including the dolphin wahoo fishery (see **Section 1.1** of this BPA). The Joint South Atlantic/Gulf of Mexico Generic Charter/Headboat Amendment, which has been approved by the South Atlantic Council, includes an action that would require weekly electronic reporting of landings and bycatch data for headboats in the South Atlantic. The Gulf of Mexico and South Atlantic Councils are developing an amendment that would require electronic reporting of logbook data, which would include landed and discarded fish. The South Atlantic Council is developing CE-BA3 which addresses bycatch monitoring in South Atlantic fisheries. Better bycatch and discard data would improve understanding of the composition and magnitude of catch and bycatch, enhance the quality of data provided for stock assessments, increase the quality of assessment output, provide better estimates of interactions with protected species, and lead to better decisions regarding additional measures to reduce bycatch.

Dolphin and wahoo are pelagic and migratory, interacting with various combinations of species groups at different levels on a seasonal basis. Blue Ocean (2010) reported that the fishing method used to harvest dolphin in the Atlantic does little damage to physical or biogenic habitats, and that the habitat for this species remains robust and viable. Dolphin Wahoo Amendment 5 would not modify the gear types or fishing techniques in the dolphin wahoo fishery. Therefore, ecological effects due to changes in bycatch in this fishery are likely to remain very low if actions in Dolphin Wahoo Amendment 5 are implemented. For more details on ecological effects, see **Chapters 3** and **4** of Dolphin Wahoo Amendment 5.

1.3 Changes in the Bycatch of Other Fish Species and Resulting Population and Ecosystem Effects

As discussed in **Sections 1.1** and **1.2** of this BPA, the actions in Dolphin Wahoo Amendment 5 are not expected to cause changes in the bycatch of other fish species or result in population and ecosystem effects. Furthermore, there is very little bycatch associated with hook-and-line gear (Whoriskey et al. 2011; BlueOcean 2010; Seafood Watch 2010; and Chuenpagdee et al. 2003).

1.4 Effects on Marine Mammals and Birds

The actions in Dolphin Wahoo Amendment 5 are not expected to negatively impact marine mammals and birds. Under Section 118 of the Marine Mammal Protection Act (MMPA), NMFS must publish, at least annually, a List of Fisheries (LOF) that places all U.S. commercial fisheries into one of three categories based on the level of incidental serious injury and mortality

of marine mammals that occurs in each fishery. NMFS evaluated the dolphin wahoo fishery of the Atlantic as part of the Southeastern U.S. Atlantic, Gulf of Mexico, and Caribbean pelagic hook-and-line/harpoon fishery and designated it as Category III (78 FR 53336, August 29, 2013). Category III fisheries have a remote likelihood of/no known incidental mortality or serious injury of marine mammals. Further, NMFS completed a biological opinion on August 27, 2003 evaluating the impacts of the Atlantic dolphin wahoo fishery on Endangered Species Act (ESA)-listed species (see **Section 3.0**). The opinion concluded the fishery would not affect ESA-listed marine mammals.

The Bermuda petrel and roseate tern occur within the action area. Bermuda petrels are occasionally seen in the waters of the Gulf Stream off the coasts of North Carolina and South Carolina during the summer. Sightings are considered rare and only occurring in low numbers (Alsop 2001). Roseate terns occur widely along the Atlantic coast during the summer but in the southeast region, they are found mainly off the Florida Keys (unpublished USFWS data). Interaction with fisheries has not been reported as a concern for either of these species.

Fishing effort reductions have the potential to reduce the amount of interactions between the fishery and marine mammals and birds. Although, the Bermuda petrel and roseate tern occur within the action area, these species are not commonly found and neither has been described as associating with vessels or having had interactions with the dolphin wahoo fishery. Thus, it is believed that the dolphin wahoo fishery is not likely to negatively affect the Bermuda petrel and the roseate tern.

1.5 Changes in Fishing, Processing, Disposal, and Marketing Costs

Preferred Alternative 2 in **Action 1** in Dolphin Wahoo Amendment 5 would be beneficial to the species and would likely produce long-term benefits to the fishermen, coastal communities, and fishing businesses by contributing to sustainable harvest of these fish in the present and future. **Actions 2** and **3** are administrative and costs would be related to development and dissemination of outreach and education materials for fishery participants and law enforcement. Establishing a trip limit for dolphin under **Action 4** would affect communities depending on the level of their participation in the dolphin wahoo fishery, benefitting some and non-consequential to others (see **Section 4.4.3** for more details). Higher trip limits would likely favor the use of longlines since this type of gear would be more effective. However, 98% of the trips harvested 1,000 lbs ww or less of dolphin, and there is no biological evidence such as localized depletion, overfishing, or overfished status of the species. Enforcement costs could increase under **Action 4** due to the establishment of commercial trip limits, since these would now have to be monitored and enforced. Additionally, legal costs would be incurred from prosecuting any violations that could occur. However, as discussed in **Section 1.1**, the South Atlantic Council chose not to establish commercial trip limits for dolphin at their Council meeting in September 2013. Therefore, there will be no commercial trip limits for dolphin implemented by this amendment.

Economic effects of actions proposed in Dolphin Wahoo Amendment 5 are addressed in **Chapter 4**, as well as **Appendix G** (Regulatory Impact Review) and **Appendix H** (Regulatory Flexibility Act Analysis).

1.6 Changes in Fishing Practices and Behavior of Fishermen

Action 4 in Dolphin Wahoo Amendment 5 could result in a modification of fishing practices by commercial fishermen harvesting dolphin and could have an effect on the magnitude of discards. Higher trip limits would likely be met using longline gear, which is known to have larger amounts of bycatch (Whoriskey et al. 2011, Chuenpagdee et al. 2003). Because a majority trips south of 31° N. Latitude do not exceed 1,000 lbs ww (**Section 4.4.1**), sub-alternatives under **Alternatives 2-7** would be expected to have minimal effects on the primary dolphin fishing communities in Florida (**Figure 3-2**). Communities in North Carolina and South Carolina could be impacted by establishment of a dolphin trip limit under **Sub-alternative b** under **Alternatives 2-6** (**Figure 3-2**). Additionally, a dolphin trip limit could restrict fishermen in some New England and Mid-Atlantic communities (**Figure 3-3**). Overall, trip limits for the commercial sector of the dolphin fishery would not be expected to have any immediate negative or positive effects on fishermen and associated businesses and communities. Social effects of actions proposed in Dolphin Wahoo Amendment 5 are addressed in **Chapter 4** of this document. In September 2013, the South Atlantic Council chose not to establish commercial trip limits for dolphin. Therefore, no commercial trip limit would be implemented and no changes in fishing practices and behavior of fishermen are expected from this amendment.

1.7 Changes in Research, Administration, and Enforcement Costs and Management Effectiveness

All the actions in Dolphin Wahoo Amendment 5 would affect some measure of change in research, administration, and enforcement costs and management effectiveness. See **Chapter 4** of the amendment, as well as **Sections 1.1**, **1.5**, and **1.6** of this BPA for more details.

Research and monitoring is ongoing to understand the effectiveness of proposed management measure and their effect on bycatch. In 1990, the SEFSC initiated a logbook program for vessels with federal permits in the snapper grouper fishery from the Gulf of Mexico and South Atlantic. In 1999, logbook reporting was initiated for vessels catching king and Spanish mackerel (Gulf of Mexico and South Atlantic Councils). The Dolphin and Wahoo FMP required logbook reporting by fishermen with Commercial Atlantic Dolphin/Wahoo Permits. Approximately 20% of commercial fishermen from snapper grouper, dolphin wahoo, and coastal migratory pelagic (CMP) fisheries are required to fill out discard information in logbooks; however, a greater percentage of fishermen could be selected with emphasis on individuals that dominate landings. Recreational discards are obtained from the MRIP and logbooks from the NMFS headboat program.

The preferred alternative in the Generic Headboat Amendment, which is under Secretarial review, would require electronic reporting for headboats and increase the frequency of reporting to seven days for the snapper grouper, dolphin wahoo, and CMP fisheries in the Atlantic. A similar amendment was developed by the Gulf Council to require electronic reporting for headboats and increase the frequency of reporting to seven days for the reef and CMP fisheries in the Gulf. The Gulf amendment is currently under Secretarial review. Some observer information for the snapper grouper fishery has been provided by the SEFSC, Marine Fisheries Initiative, and Cooperative Research Programs (CRP), but more is desired for the snapper

grouper, dolphin wahoo, reef fish, and CMP fisheries. An observer program is in place for headboats in the southeast for the snapper grouper, reef fish, dolphin wahoo, and CMP fisheries. Observers in the NMFS Headboat survey collect information about numbers and total weight of individual species caught, total number of passengers, total number of anglers, location fished (identified to a 10 mile by 10 mile grid), trip duration (half, ¾, full, or multiday trip), species caught, and numbers of released fish with their disposition (dead or alive). The headboat survey does not collect information on encounters with protected species. At the September 2012 South Atlantic Council meeting, the SEFSC indicated that observers are placed on about 2% of the headboat trips out of South Carolina to Florida, and about 9% of the headboat trips out of North Carolina (safmc.net/sites/default/files/Resource%20Library/pdf/Generic%20Reporting%20Amendment%208-15-13.pdf).

Cooperative research projects between science and industry are being used to a limited extent to collect bycatch information on fisheries in the South Atlantic. Research funds for observer programs, as well as gear testing and testing of electronic devices are also available each year in the form of grants from the Marine Fisheries Initiative, Saltonstall-Kennedy program, and the CRP. Efforts are made to emphasize the need for observer and logbook data in requests for proposals issued by granting agencies. A condition of funding for these projects is that data are made available to the Councils and NMFS upon completion of a study.

Stranding networks have been established in the Southeast Region. The NMFS SEFSC is the base for the Southeast United States Marine Mammal Stranding Program (http://sero.nmfs.noaa.gov/pr/strandings.htm). NMFS authorizes organizations and volunteers under the MMPA to respond to marine mammal strandings throughout the United States. These organizations form the stranding network whose participants are trained to respond to, and collect samples from live and dead marine mammals that strand along southeastern United State beaches. The SEFSC is responsible for: coordinating stranding events; monitoring stranding rates; monitoring human caused mortalities; maintaining a stranding database for the southeast region; and conducting investigations to determine the cause of unusual stranding events including mass strandings and mass mortalities (http://www.sefsc.noaa.gov/species/mammals/strandings.htm).

The Southeast Regional Office and the SEFSC participate in a wide range of training and outreach activities to communicate bycatch related issues. The NMFS Southeast Regional Office issues public announcements, Southeast Fishery Bulletins, and News Releases on different topics, including use of turtle exclusion devices, bycatch reduction devices, use of methods and devices to minimize harm to turtles and sawfish, information intended to reduce harm and interactions with marine mammals, and other methods to reduce bycatch for the convenience of constituents in the southern United States. These are mailed to various organizations, government entities, commercial interests, and recreational groups. This information is also included in newsletters and publications that are produced by NMFS and the various regional fishery management councils. Announcements and news releases are also available on the internet and broadcasted over NOAA weather radio.

Additional administrative and enforcement efforts would help to implement and enforce fishery regulations. NMFS established the South East Fishery-Independent Survey in 2010 to strengthen fishery-independent sampling efforts in southeast U.S. waters, addressing both immediate and long-term fishery-independent data needs, with an overarching goal of improving fishery-independent data utility for stock assessments. Meeting these data needs is critical to improving scientific advice to the management process, ensuring overfishing does not occur, and successfully rebuilding overfished stocks on schedule.

1.8 Changes in the Economic, Social, or Cultural Value of Fishing Activities and Non-Consumptive Uses of Fishery Resources

Proposed management measures, and any changes in economic, social, or cultural values are discussed in **Chapter 4** of Dolphin Wahoo Amendment 5. Further analysis can be found in **Appendix G** (Regulatory Impact Review) and **Appendix H** (Regulatory Flexibility Act Analysis) of Dolphin Wahoo Amendment 5.

1.9 Changes in the Distribution of Benefits and Costs

The distribution of benefits and costs expected from actions in Dolphin Wahoo Amendment 5 are discussed in **Chapter 4, Appendices G** and **H** of the amendment, and summarized in **Section 1.5** of this BPA.

1.10 Social Effects

The social effects of all the measures are described in detail in **Chapter 4** of Dolphin Wahoo Amendment 5, and the relevant action is highlighted in **Section 1.6** of this BPA.

1.11 Conclusion

This section evaluates the practicability of taking additional action to minimize bycatch and bycatch mortality using the ten factors provided at 50 CFR 600.350(d)(3)(i). In summary, measures proposed in Dolphin Wahoo Amendment 5 would revise the ABCs, ACLs, recreational ACTs, and sector AMs for dolphin and wahoo; modify the framework procedure; and not establish commercial trip limits for dolphin. None of the actions in this amendment are expected to significantly increase or decrease the magnitude of bycatch or bycatch mortality in the dolphin wahoo fishery. Levels of bycatch in both sectors for dolphin and wahoo are not expected to change as a result of the implementation of this amendment. No additional action is needed to further minimize bycatch in the dolphin wahoo fishery.

References:

Alsop, III, F. J. 2001. Smithsonian Handbooks: Birds of North America eastern region. DK Publishing, Inc. New York, NY.

Blue Ocean Seafood Guide. 2010. Blue Ocean Institute. <http://www.blueocean.org/ seafood/seafood-guide>

Chuenpagdee, R., L. E. Morgan, S. M. Maxwell, E. S. Norse, and D. Pauly. 2003. Shifting gears: assessing collateral impacts of fishing methods in US waters. Front Ecol Environ 1(10): 517-524.

IUCN, 2013. IUCN Red List of Threatened Species. <www.iucnredlist.org>

McBride, R. S., A. K., Richardson, and K. L. Maki. (2008). Age, growth, and mortality of wahoo, *Acanthocybium solandri*, from the Atlantic coast of Florida and the Bahamas. Marine and Freshwater Research 59, 799–807. doi:10.1071/MF08021.

NMFS. 2012. Status of Stocks 2012 Annual Report to Congress on the Status of U.S. Fisheries. http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm.

Oxenford, H. A. 1999. Biology of the dolphinfish (*Coryphaena hippurus*) in the western central Atlantic: a review. Scientia Marina. 63 (3-4): 277-301.

Prager, M. H. 2000. Exploratory Assessment of Dolphinfish, *Coryphaena hippurus*, based on U.S. landings from the Atlantic Ocean and Gulf of Mexico. NMFS, SEFSC 18pp.

SAFMC (South Atlantic Fishery Management Council). 2003. Final Environmental Assessment, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 386 pp.

Schwenke, K. L., and J. A. Buckel. (2008). Age, growth, and reproduction of dolphinfish (*Coryphaena hippurus*) caught off the coast of North Carolina. Fishery Bulletin 106, 82–92.

Seafood Watch Program. 2010. Monterey Bay Aquarium. <http://www. montereybayaquarium.org/cr/cr_seafoodwatch/sfw_recommendations.aspx>

Van Voorhees, D., J.W. Schlechte, D.M. Donaldson, T.R. Sminkey, K.J. Anson, J.R. O'Hop, M.D.B. Norris, J.A. Shepard, T. Van Devender, and R.F. Zales, II. 2000. The new Marine Fisheries Statistics Survey method for estimating charter boat fishing effort. Abstracts of the 53rd Annual Meeting of the Gulf and Caribbean Fisheries Institute.

Whoriskey, S., R. Arauz, and J. K. Baum. 2011. Potential impacts of emerging mahi-mahi fisheries on sea turtle and elasmobranch bycatch species. Biological Conservation 144: 1841-1849.

MRFSS/MRIP Calibration Workshop
Ad-hoc Working Group Report

May 16, 2012

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One outcome of the MRFSS/MRIP Calibration Workshop was the formation of an ad-hoc working group charged with the following: 1) Establish a priority list in each region for which species assessments should be updated to incorporate the new MRIP-derived catch estimates; and, 2) Provide a technical approach (or approaches) to hind-casting and forecasting catch estimates, including examples. The ad-hoc working group included representatives from the NEFSC, SEFSC, GSMFC, ASMFC, and S&T Headquarters.

Species Prioritization

At the workshop participants discussed how priorities for conducting updated and benchmark assessments might be changed based on the results of re-estimation of 2004 to 2011 recreational catches for managed species. Although benchmark and updated assessment schedules are already set for 2012 and 2013, decisions have to be made on how to prioritize future assessments that will use the new MRIP numbers. The ad-hoc committee was asked to develop a metric that could be used to rank species based on the potential impact of the switch from MRFSS to MRIP estimates could have on assessment outcomes. The metric was based on criteria related to the magnitude and significance of differences between MRFSS and MRIP catch estimates and the relative importance of the recreational catch time series in the overall assessment model. It was noted during the workshop that many other criteria, unrelated to the re-estimation of MRFSS numbers, will likely also affect scheduling species for updated and benchmark assessments (e.g., socio-economic importance, stock status, and political considerations). Nevertheless, workshop participants did see value in having an objective and understandable set of recreational data metrics that could be used as part of the stock assessment

prioritization process.

Six criteria were used to rank species:

1. Total MRIP A and B1 in numbers
2. Mean percent difference between MRFSS and MRIP AB1 numbers calculated as:

$$100 * \frac{1}{n}\sum_{i=1}^{n} \frac{(\text{MRFSS AB1}_i - \text{MRIP AB1}_i)}{\text{MRFSS AB1}_i}$$

3. Mean percent difference between MRFSS and MRIP B2 numbers calculated as:

$$100 * \frac{1}{n}\sum_{i=1}^{n} \frac{(\text{MRFSS B2}_i - \text{MRIP B2}_i)}{\text{MRFSS B2}_i}$$

4. Fraction of discards to total catch

$$100 * \frac{1}{n}\sum_{i=1}^{n} \frac{\text{MRFSS B2}_i}{(\text{MRFSS AB1}_i + \text{MRFSS B2}_i)}$$

5. Multiple R^2 (Pearson correlation squared) between the annual MRIP AB1 and MRFSS AB1 values calculated from a linear regression of one versus the other or, equivalently:

$$\text{corr}(\text{MRFSS AB1}_{i,..n}, \text{MRIP AB1}_{i,...n})^2$$

6. Percent of total landings attributed to the recreational sector

The six criteria were chosen to represent a combination of factors that would be important in prioritization of species. First the total A plus B1 numbers give an idea of the magnitude of the recreational fishing mortality associated with landings. Next the percent difference between both AB1 and B2 (released alive) numbers provide an idea of the average difference between MRFSS and MRIP estimates; while noting that the average can be low if positive and negative differences cancel each other out. The fraction of discards provides a measure of the importance of discards which can be quite influential in many assessments. The correlation between the annual AB1 numbers provides an estimate of how well the estimates track each other, noting that the estimates could differ in magnitude but might still have the same trend. Finally, the percent of landings attributed to the recreational sector provide an idea of how influential the recreational landings may be in the assessment model, compared to commercial landings, and how sensitive the results may be to changes in recreational inputs.

For each of the six criterion species were initially assigned categorical ranks ranging from one through the total number of species. For example, 16 species were compared for Northeast region with one representing the lowest priority species for that criterion and 16 the highest priority. Ranks were then scaled back to a 10 point scale to provide relative ranks which could be compared across regions as follows:

Rank 10-point scale = 10 * Initial Rank/Number of Species

The overall priority rank score was calculated as the average of the categorical ranks across the six criteria. Tables 1, 2 and 3 give rankings for the Northeast, South Atlantic and Gulf of Mexico species,

respectively. It should be noted that regional separations were based upon MRIP subregions (Northeast = 4 & 5, South Atlantic = 6, and Gulf of Mexico = 7) which do not necessarily reflect the regional partitions used in all stock assessments.

Table 1. Metrics and rankings for Northeast species prioritization based on projected impact of changes in recreational time series data on stock assessments.

Northeast Region	MRIP AB1 (Number of Fish) Sum 2004-2011		Mean % Difference AB1 Catch		Mean % Difference B2 Catch		Relative Importance of Discards (B2 catch)		R2 Correlation Coefficient MRFSS and MRIP AB1		Avg % Recreational Landings (2004 - 2011)		Overall Priority Rank (higher values indicate greater priority)
Species	Value (1,000s)	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	
tautog	6,508	4.4	0.083	5.6	0.085	6.9	0.092	7.5	0.883	7.5	91%	10.0	**7.0**
scup	28,205	7.5	-0.157	9.4	-0.136	9.4	0.076	3.8	0.818	6.9	32%	4.4	**6.9**
spot	69,387	8.8	0.096	6.9	0.042	5.0	0.043	0.6	0.982	9.4	43%	5.6	**6.0**
spotted seatrout	104,875	10.0	-0.022	2.5	-0.024	3.1	0.080	4.4	0.770	5.0	87%	8.8	**5.6**
striped bass	18,350	5.6	-0.060	4.4	0.011	0.6	0.108	8.8	0.802	6.3	80%	8.1	**5.6**
weakfish	4,268	3.8	0.089	6.3	-0.014	1.9	0.090	6.9	0.991	10.0	41%	5.0	**5.6**
bluefish	52,848	8.1	0.020	1.9	0.011	1.3	0.081	5.0	0.956	8.1	71%	7.5	**5.3**
red drum	26,154	6.9	0.012	1.3	-0.041	4.4	0.089	6.3	0.748	3.8	89%	9.4	**5.3**
atlantic cod	2,908	3.1	0.242	10.0	0.313	10.0	0.086	5.6	0.516	0.6	18%	2.5	**5.3**
summer flounder	482	1.3	0.048	3.8	0.098	7.5	0.119	9.4	0.732	3.1	45%	6.3	**5.2**
atlantic croaker	82,482	9.4	-0.036	3.1	-0.048	5.6	0.074	3.1	0.796	5.6	26%	3.1	**5.0**
spiny dogfish	156	0.6	0.107	7.5	0.103	8.1	0.122	10.0	0.588	1.3	3%	0.6	**4.7**
pollock	1,348	1.9	0.121	8.1	0.064	6.3	0.054	1.3	0.968	8.8	8%	1.9	**4.7**
black sea bass	14,738	5.0	0.008	0.6	0.036	3.8	0.105	8.1	0.595	1.9	51%	6.9	**4.4**
winter flounder	1,736	2.5	0.148	8.8	0.129	8.8	0.055	1.9	0.611	2.5	5%	1.3	**4.3**
spanish mackerel	20,804	6.3	0.077	5.0	0.020	2.5	0.061	2.5	0.757	4.4	30%	3.8	**4.1**

Table 2. Metrics and rankings for South Atlantic species prioritization based on projected impact of changes in recreational time series data on stock assessments.

South Atlantic Region	MRIP AB1 (Number of Fish) Sum 2004-2011		Mean % Difference AB1 Catch		Mean % Difference B2 Catch		Relative Importance of Discards (B2 catch)		R2 Correlation Coefficient MRFSS and MRIP AB1		Avg % Recreational Landings (2004 - 2011)		
Species	Value (1,000s)	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	**Overall Priority Rank (higher values indicate greater priority)**
red snapper	313	3.6	0.185	8.6	0.123	6.8	0.102	9.5	0.978	8.6	74%	7.7	**7.5**
gray snapper	2,781	7.3	0.164	8.2	0.071	3.6	0.097	7.7	0.986	9.1	71%	6.8	**7.1**
mutton snapper	940	5.0	0.055	4.1	0.127	7.3	0.073	6.8	0.971	8.2	78%	8.2	**6.6**
black sea bass	4,023	8.2	0.083	5.0	0.074	4.1	0.104	10.0	0.958	7.7	36%	2.3	**6.2**
sheepshead	4,599	8.6	0.119	6.4	0.082	4.5	0.055	3.6	0.851	4.5	81%	8.6	**6.1**
wahoo	340	4.1	-0.088	5.5	-0.320	9.5	0.008	0.5	0.947	6.4	95%	9.1	**5.8**
blue runner	5,581	9.1	0.049	3.2	0.070	3.2	0.065	5.5	0.894	5.5	72%	7.3	**5.6**
red porgy	297	3.2	-0.288	9.1	-0.525	10.0	0.055	4.1	0.840	4.1	37%	2.7	**5.5**
red grouper	383	4.5	-0.369	10.0	0.028	0.9	0.087	7.3	0.900	5.9	40%	4.1	**5.5**
cero	132	1.8	0.162	7.7	-0.090	5.0	0.026	1.4	0.955	7.3	100%	9.5	**5.5**
yellow jack	60	0.9	0.123	7.3	0.052	2.3	0.049	2.7	0.988	10.0	100%	9.5	**5.5**
black grouper	29	0.5	-0.119	6.8	0.162	8.2	0.098	8.2	0.430	0.5	69%	6.4	**5.1**
greater amberjack	264	2.3	0.039	2.3	0.093	5.5	0.065	5.9	0.949	6.8	64%	5.5	**4.7**
gray triggerfish	1,072	5.5	0.045	2.7	0.095	5.9	0.066	6.4	0.748	1.8	58%	5.0	**4.5**
scamp	124	1.4	-0.319	9.5	-0.216	9.1	0.051	3.2	0.760	2.3	27%	1.4	**4.5**
spanish mackerel	7,741	10.0	0.103	5.9	0.069	2.7	0.044	2.3	0.839	3.6	34%	1.8	**4.4**
yellowtail snapper	2,005	6.4	-0.054	3.6	-0.129	7.7	0.064	5.0	0.825	2.7	16%	0.9	**4.4**
crevalle jack	2,596	6.8	-0.030	1.8	0.050	1.8	0.099	8.6	0.531	0.9	67%	5.9	**4.3**
vermilion snapper	1,303	5.9	0.067	4.5	0.099	6.4	0.057	4.5	0.651	1.4	38%	3.2	**4.3**
king mackerel	3,435	7.7	0.013	0.5	-0.032	1.4	0.034	1.8	0.987	9.5	52%	4.5	**4.2**
dolphin	7,454	9.5	0.026	0.9	-0.187	8.6	0.019	0.9	0.882	5.0	14%	0.5	**4.2**
gag	266	2.7	-0.027	1.4	0.004	0.5	0.099	9.1	0.832	3.2	38%	3.2	**3.3**

Table 3. Metrics and rankings for the Gulf of Mexico species prioritization based on projected impact of changes in recreational time series data on stock assessments.

Gulf of Mexico Region	MRIP AB1 (Number of Fish) Sum 2004-2011		Mean % Difference AB1 Catch		Mean % Difference B2 Catch		Relative Importance of Discards (B2 catch)		R2 Correlation Coefficient MRFSS and MRIP AB1		Avg % Recreational Landings (2004 - 2011)		Overall Priority Rank (higher values indicate greater priority)
Species	Value (1,000s)	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	
gray snapper	8,189	9.4	-0.088	5.0	-0.047	3.1	0.099	8.8	0.904	6.9	91%	8.8	**7.0**
gray triggerfish	1,824	5.6	-0.105	6.3	-0.306	7.5	0.049	3.1	0.978	9.4	96%	9.4	**6.9**
greater amberjack	615	3.8	-0.111	6.9	-0.212	6.9	0.089	6.3	0.905	7.5	73%	6.9	**6.4**
mutton snapper	238	2.5	-0.398	8.1	-0.851	10.0	0.069	4.4	0.865	5.6	78%	7.5	**6.4**
red grouper	1,651	5.0	-0.118	7.5	0.025	2.5	0.115	10.0	0.983	10.0	20%	1.9	**6.1**
gag	2,862	7.5	-0.055	3.8	0.013	1.9	0.111	9.4	0.968	8.8	69%	5.6	**6.1**
red snapper	6,629	8.8	-0.046	2.5	-0.100	4.4	0.090	6.9	0.957	8.1	65%	5.0	**5.9**
cero	211	1.3	-0.466	10.0	-0.540	8.8	0.022	1.3	0.809	3.8	100%	10.0	**5.8**
bluefish	1,588	4.4	0.092	5.6	0.119	5.0	0.096	8.1	0.815	4.4	63%	4.4	**5.3**
black grouper	93	0.6	-0.453	9.4	-0.508	8.1	0.096	7.5	0.652	1.9	60%	3.8	**5.2**
dolphin	2,525	6.9	-0.415	8.8	-0.646	9.4	0.033	1.9	0.562	1.3	14%	0.6	**4.8**
spanish mackerel	12,780	10.0	0.055	4.4	0.003	0.6	0.069	3.8	0.714	2.5	69%	5.6	**4.5**
cobia	298	3.1	0.047	3.1	0.062	3.8	0.081	5.6	0.763	3.1	90%	8.1	**4.5**
vermilion snapper	2,937	8.1	-0.004	0.6	-0.176	5.6	0.020	0.6	0.831	5.0	14%	0.6	**3.4**
king mackerel	2,355	6.3	0.010	1.3	-0.003	1.3	0.047	2.5	0.895	6.3	41%	3.1	**3.4**
scamp	229	1.9	-0.026	1.9	0.204	6.3	0.080	5.0	0.534	0.6	28%	2.5	**3.0**

Technical Calibration Approach

Workshop participants recognized the importance of strong, clear guidelines regarding calibration methods and how and when the methods should be used. Stock assessment scientists do not want to be in the position of developing ad hoc calibration methods on a species-by-species and region-by-region basis. While more sophisticated and time-consuming calibration approaches were discussed, workshop participants reached consensus that, prior to 2004 (or whichever year is the first year for which direct re-estimates are available, since ST is still working on re-estimation for years prior to 2004), hind-casted catch data should use a straight-forward ratio estimator (i.e., MRFSS/MRIP), either constant throughout time hind-casted time series or trended based on ancillary information. A MRFSS/MRIP ratio estimator was also suggested to approximate adjusted variances associated with the revised catch estimates.

Use of a ratio estimator approach for calibrating from MFRSS to MRIP should not preclude development of more extensive species-specific approaches as warranted. However, for many assessed species the use of a simple ratio estimator may be sufficient considering the relatively small differences found between MRFSS and MRIP numbers, and more importantly the anticipated small impact the revised recreational time series will have on assessment outcomes. The reliability and confidence in using a ratio estimator will increase considerably as more years of re-estimated MRIP numbers become available. At present, only eight years of side-by-side MRFSS-MRIP estimates (2004-2011) are available to develop ratio estimators that for some species will be applied to 23 years of data (1981-2003). ST is currently working on revised estimates for 1998-2003 and may eventually go back even further depending on the availability and quality of original data sources.

The ad-hoc working group recommends the ratio estimator be based on the “ratio of means” (across all comparison years included) rather than based on the “mean of ratios” for individual years. Based on sampling theory, the ratio of means should be less biased and more stable than the "mean of ratios" (Cochran 1977)and it also represents the least-squares estimator for a slope in a zero-intercept model when the variance of y (the MRIP estimate in this case) is proportional to x (the MRFSS estimates in this case). The estimate of the calibration factor that is a ratio of mean catches is calculated as:

Formula A

$$\hat{R}_{RM} = \frac{\bar{C}_{\text{MRIP}}}{\bar{C}_{\text{MRFSS}}} = \frac{\sum_{y=1}^{n} \hat{C}_{y,\text{MRIP}}}{\sum_{y=1}^{n} \hat{C}_{y,\text{MRFSS}}}$$

Calibrated catch estimates for 1982-2003 are then calculated as:

Formula B

$$\hat{C}_{y,\hat{R}} = \hat{R}\hat{C}_{y,MRFSS}$$

The same formulas can also be applied for calibrating variances associated with MRFSS catch estimates.

Variances of the adjusted catch estimates should include two components: 1) calibrated variance of the catch estimate, and 2) variance associated with the ratio estimator used for calibrating the catch estimate. The variance estimator for the ratio of means derived from the formula above can be approximated as:

Formula C

$$\hat{V}\left(\hat{R}_{RM}\right) = \hat{R}_{RM}^{2}\left[\frac{\hat{V}\left(\bar{C}_{MRIP}\right)}{\bar{C}_{MRIP}^{2}} + \frac{\hat{V}\left(\bar{C}_{MRFS}\right)}{\bar{C}_{MRFS}^{2}} - 2\frac{\hat{C}ov\left(\bar{C}_{MRFS}, \bar{C}_{MRIP}\right)}{\bar{C}_{MRFS}\bar{C}_{MRIP}}\right]$$

Where

$$\hat{V}\left(\bar{C}\right) = \frac{1}{n}\frac{\sum_{y=1}^{n}\left(\hat{C}_{y} - \bar{C}\right)^{2}}{n-1}$$

An estimate of the variance of the calibrated estimate of catch that accounts for uncertainty in the estimate of the calibration factor is calculated as:

Formula D

$$\hat{V}\left(\hat{C}_{y,\hat{R}}\right) = \hat{C}_{y,MRFSS}^{2}\hat{V}\left(\hat{R}\right) + \hat{R}^{2}\hat{V}\left(\hat{C}_{y,MRFSS}\right) - \hat{V}\left(\hat{R}\right)\hat{V}\left(\hat{C}_{y,MRFSS}\right)$$

This assumes the estimate of the ratio is independent of the estimate of the catch that is to be calibrated. The variances of the catches in the above equation, $\hat{V}\left(\hat{C}_{y,MRFSS}\right)$ are the values after being calibrated.

Ratio Estimator Approach Example – Summer Flounder

To show an example of the approach suggested above we will hind-casted summer flounder landings numbers (A+B1) estimates and variances for 2003 based on a comparison of 2004-2011 MRFSS and MRIP estimates. Table 4 shows summer flounder AB1 numbers estimates and associated variances for the eight years of MRFSS and MRIP side-by-side estimates.

Table 4. Virginia through Maine MRFSS and MRIP 2004-2011 summer flounder AB1 numbers estimates, variances, variance of means, and co-variances of means.

Year	MRFSS AB1 Numbers (in 1,000s)	MRFSS Variance (in 1,000s)	MRIP AB1 Numbers (in 1,000s)	MRIP Variance (in 1,000s)
2004	4,557	33,226	4,316	67,076
2005	4,110	42,230	4,028	58,396
2006	4,052	41,047	3,951	76,508
2007	3,393	18,420	3,109	34,795
2008	2,295	13,168	2,350	44,728
2009	1,910	9,120	1,807	16,001
2010	1,484	10,791	1,502	14,433
2011	1,782	25,722	1,830	21,439
Mean 2004-2011	2,948	24,215	2,862	41,672
Variance of the Mean	185,048	22,410,864	160,925	71,527,726
Co-variance of MRFSS and MRIP Means			150,486	28,832,853

Using the "ratio of means" approach (Formula A) the ratio estimator for landings numbers is calculated as:

= 2,862 / 2,948 = 0.970756

When this ratio is applied to the MRFSS 2003 estimate of 4,559 (X 1,000) the calibrated MRIP estimate is 4,425.7 (X 1,000).

Similarly, the ratio estimator for the landings estimate variance is calculated as:

= 41,672 / 24,215 = 1.7209

When this ratio is applied to the MRFSS 2003 variance of 33,255.2 (X 1,000) the calibrated MRIP variance is 57,228.4 (X 1,000).

The next step is to calculate the variance and PSE associated with the ratio estimator.
Using the Formula C provided above, the variance is approximated as:

= 0.9708^2 * (185,048 / 2,948^2 + 160,925 / 2,862^2 – 2 * 150,486 / (2,948 / 2,862))
= 0.004964

The PSE is calculated as:
= 100 * Sqrt (Variance) / (Mean)
= 100 * Sqrt (0.004964) / (0.9708)
= 7.3 %

Finally we calculate the variance and PSE associated with the calibrated landings estimates for each year (Formula D) as:

= (4,559^2 * 0.004964) + (0.9708^2 * 57,228.4) – (0.004964 * 57,228)
= 156,821.9

The PSE for the calibrated estimate is calculated as:
= 100 * Sqrt (Variance) / (Mean)
= 100 * Sqrt (156,821.9) / (4,425.7)
= 8.95 %

Table 5. Original MRFSS AB1 landings estimates, variances and PSEs alongside hind-casted MRIP AB1 landings estimates, variances, and PSEs for summer flounder from 1982-2003.

Year	MRFSS AB1 Numbers of Fish (in 1,000s)	MRFSS Variance (in 1,000s)	MRFSS PSEs	MRFSS AB1 Numbers (in 1,000s) with Ratio Adjustment	MRFSS Variance (in 1,000s) with Ratio Adjustment	Adjusted Variance with Ratio Estimator Variance Factor	Adjusted PSE with Ratio Estimator Variance Factor
1982	15,473	16,184,368	26	15,021	27,851,679	27,296,703	34.8
1983	20,996	2,160,077	7	20,383	3,717,276	5,672,877	11.7
1984	17,475	1,954,404	8	16,965	3,363,334	4,668,685	12.7
1985	11,066	1,763,372	12	10,743	3,034,586	3,452,504	17.3
1986	11,621	661,733	7	11,282	1,138,777	1,737,870	11.7
1987	7,865	154,646	5	7,635	266,130	556,535	9.8
1988	9,960	158,723	4	9,669	273,146	748,484	8.9
1989	1,717	10,613	6	1,667	18,264	31,755	10.7
1990	3,794	23,031	4	3,683	39,634	108,607	8.9
1991	6,068	58,913	4	5,891	101,383	277,815	8.9
1992	5,002	40,032	4	4,856	68,891	188,778	8.9
1993	6,494	67,475	4	6,304	116,118	318,192	8.9
1994	6,703	71,888	4	6,507	123,713	339,002	8.9
1995	3,326	17,700	4	3,229	30,459	83,466	8.9
1996	6,997	44,062	3	6,793	75,827	314,108	8.3
1997	7,167	82,185	4	6,958	141,433	387,560	8.9
1998	6,979	77,930	4	6,775	134,110	367,494	8.9
1999	4,107	26,988	4	3,987	46,444	127,266	8.9
2000	7,801	54,770	3	7,573	94,254	390,441	8.3
2001	5,294	44,842	4	5,139	77,169	211,462	8.9
2002	3,262	17,025	4	3,167	29,298	80,285	8.9
2003	4,559	33,255	4	4,426	57,229	156,821	8.9

Guidelines for Applying Ratio Estimator Approach

The ad-hoc working group recommends the following generally guidelines for applying a ratio estimator to calibrate recreational catch and variance estimates. These guidelines may not apply, or be practical, in all cases as the impact of changes in the recreational time series data will vary by assessment or particular management need:

- Ratio estimators should be calculated using stock level aggregate data to the extent possible. Caution should be used when calculating ratio estimates at finer geographic levels or by fishing mode.
- Ratio estimators can be based on either estimated numbers of fish or weights depending on which units are used directly in the assessment model. The exception may be if ratios based on weights appear unstable due to small sample sizes of weighed fish. In such cases it may be better to calculate a ratio estimator based on numbers and apply it to the weights.
- To the extent practicable, all years for which both MRFSS and MRIP estimates are available should be used to calculate ratios. If one or two years have ratios that are different enough from the other years so as to noticeably impact the overall ratio of means, a balanced trimmed mean approach which removes both the highest and lowest ratios is preferred over simply removing just the highest or lowest year.
- Trended ratio estimators are generally not recommended at present since only eight years are available for comparison. The basic ratio estimator itself could behave poorly with very few years of paired MRFSS and MRIP observations. As additional years of side-by-side estimates are made available bias in the ratio estimator will become negligible and it may be possible to develop trended ratio estimators that better reflect different MRFSS/MRIP ratios at different parts of the time series.
- It is recommended that stock assessment scientists conduct sensitivity analyses of the hind-casted recreational catch estimates (e.g., varying them by 5, 10, 20%) and length frequencies, as available, in order to gauge the overall impact of changes in the estimates on biological reference points. If the assessment results are sensitive to changes in the recreational time series there may be justification for developing more sophisticated models for hind-casting estimates than the ratio estimator approach suggested here.
- The ad-hoc working group did not fully evaluate a ratio estimator approach for calibrating length

frequencies as data were not available at the time of this report. The group did come up with two possible options but also recognized that other options may exist: 1) Adjust the numbers at length using the same ratio as used for total numbers, or 2) Estimate length-class specific ratios and adjust by length class, then sum the adjusted length classes for an alternative adjusted total number.

References

Cochran, W. G. 1977. Sampling techniques. Third Edition. Wiley and Sons. New York.

Appendix G. Regulatory Impact Review

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: (1) It provides a comprehensive review of the level and incidence of impacts associated with a regulatory action; (2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives which could be used to solve the problem; and (3) it ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way.

The RIR also serves as the basis for determining whether any proposed regulations are a significant regulatory action under certain criteria provided in Executive Order 12866 (E.O. 12866) and whether the approved regulations will have a significant economic impact on a substantial number of small business entities in compliance with the Regulatory Flexibility Act of 1980 (RFA).

1.1 Problems and Objectives

The purpose and need, issues, problems, and objectives of this action are presented in **Chapter 1** of Amendment 5 to the Dolphin Wahoo Fishery of the Atlantic Region, and are incorporated herein by reference.

1.2 Methodology and Framework for Analysis

This RIR assesses management measures from the standpoint of determining the resulting changes in costs and benefits to society. To the extent practicable, the net effects of the proposed measures for an existing fishery should be stated in terms of producer and consumer surplus, changes in profits, and employment in the direct and support industries. Where figures are available, they are incorporated into the analysis of the economic impacts of the different actions and alternatives.

1.3 Description of the Fishery

A description of the South Atlantic dolphin wahoo fishery is contained in **Chapter 3** of this amendment and is incorporated herein by reference.

1.4 Effects of the Management Measures

Action 1, Alternative 2 (Preferred). It is not expected that the increased Annual Catch Limit (ACL) for dolphin will be fully landed because in the recent years, the previous lower ACL has not been met by either sector therefore the change in the dolphin ACL is not expected to have significant economic effects on both commercial and recreational fishing participants. The previous lower ACL for wahoo for the recreational sector was exceeded in 2012, and the proposed increase is higher than what was landed. In 2012, the commercial sector came very close to meeting their sector ACL for wahoo. Higher ACLs, even where the ACL has not been met in the past, increase the probability there will be a yearlong fishery without any interruptions for both the commercial and recreational sectors. The preferred alternative for wahoo in **Action 1** is expected to slightly improve the economic environment for both the commercial and recreational sectors.

Action 2, Alternative 2 (Preferred), **Sub-alternative 2c (Preferred)**, and **Alternative 3 (Preferred)**, **Sub-alternative 3c (Preferred)** specify in clear terms when Accountability Measures (AMs) for dolphin and wahoo will be triggered. In each case, simply exceeding a sector ACL will not require paybacks of overages. The preferred alternatives will only require paybacks for the commercial sector if dolphin or wahoo are overfished and if the total ACL (commercial and recreational ACLs combined) are exceeded. The same conditions apply for the recreational sector but do not require the AM to be put in place unless the Regional Administrator believes after examining the best available science that recreational AMs are necessary. Since paybacks or shortened seasons have not occurred in the dolphin or wahoo fisheries, paybacks or shortened seasons would be even more unlikely under the preferred alternatives. Therefore the preferred alternatives are expected to have slightly positive economic effects.

Action 3, **Alternative 2 (Preferred)** and **Alternative 3 (Preferred)** were chosen as a way to update the language of the framework for dolphin and wahoo management. The preferred alternatives also allow the Council to change the ABC Control Rule through a framework procedure. This action also allows for revised ABCs and ACLs to be implemented for dolphin and wahoo. Doing so could have either positive or negative short-term direct economic effects on fishery participants. If the ACL is increased via framework, it could make more fish available to fishery participants more quickly and potentially increasing profitability. However, if an ACL is reduced via framework action, the short-term effects could be felt more quickly. Without such actions occurring, it is impossible to know the relative strength of those effects. However, the long-term economic effects of this action are expected to be positive by allowing the Council to implement management strategies more quickly that respond to current stock status, increasing the probability of future healthy stocks.

Action 4, Preferred Alternative 1 (No Action) does not institute a dolphin commercial trip limit for commercial dolphin wahoo permit holders. There has not been a commercial trip limit for South Atlantic Dolphin Wahoo Permit holders in the past. Therefore, economic effects to the overall economy are not anticipated from the alternative.

1.5 Public and Private Costs of Regulations

The preparation, implementation, enforcement, and monitoring of this or any Federal action involves the expenditure of public and private resources, which can be expressed as costs associated with the regulations. Costs associated with this amendment include, but are not limited to Council costs of document preparation, meeting, and other costs; NMFS administration costs of document preparation, meetings and review, and annual law enforcement costs. A preliminary estimate is up to $150,000 before annual law enforcement costs.

1.6 Determination of Significant Regulatory Action

Pursuant to E.O. 12866, a regulation is considered a “significant regulatory action” if it is expected to result in: (1) An annual effect of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or (4) raising novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order. Based on the information provided above, this regulatory action would not meet the first criterion. Therefore, this regulatory action is determined to not be economically significant for the purposes of E.O. 12866.

APPENDIX H

Regulatory Flexibility Act Analysis

Introduction

The purpose of the Regulatory Flexibility Act (RFA) is to establish a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure that such proposals are given serious consideration. The RFA does not contain any decision criteria; instead, the purpose of the RFA is to inform the agency, as well as the public, of the expected economic impacts of various alternatives contained in the FMP or amendment (including framework management measures and other regulatory actions). The RFA is also intended to ensure that the agency considers alternatives that minimize the expected impacts while meeting the goals and objectives of the FMP and applicable statutes.

With certain exceptions, the RFA requires agencies to conduct a regulatory flexibility analysis for each proposed rule. The regulatory flexibility analysis is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. In addition to analyses conducted for the RIR, the regulatory flexibility analysis provides: 1) A statement of the reasons why action by the agency is being considered; 2) a succinct statement of the objectives of, and legal basis for the proposed rule; 3) a description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; 4) a description of the projected reporting, record-keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; 5) an identification, to the extent practical, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule; and, 6) a description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities.

Additional information on the description of affected entities may be found in **Section 3.3,** and additional information on the expected economic effects of the proposed action may be found in **Chapter 4**.

Statement of Need for, Objectives of, and Legal Basis for the Rule

The purpose and need of the proposed rule are presented in **Section 1.4**. In essence, the purpose of this proposed rule is to revise the acceptable biological catch (ABCs), allowable catch limits (ACLs), recreational allowable catch targets (ACTs), and sector accountability measures (AMs) for dolphin and wahoo. The revisions incorporate updates to the recreational data, as per marine recreational information program (MRIP), as well as revisions to commercial and for-hire

landings. Additionally, this rule would revise the framework procedure for the dolphin and wahoo fishery management plan (FMP).

The intent of this proposed rule is to base conservation and management measures upon the best scientific information available, and to prevent unnecessary negative socio-economic impacts that may otherwise be realized in the dolphin-wahoo fishery and fishing community, in accordance with the provisions set forth in the Magnuson-Stevens Act.

The Magnuson-Stevens Fishery Conservation and Management Act, as amended, provides the statutory basis for this proposed rule.

The Chief Counsel for Regulation of the Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration that this rule, if adopted, would not have a significant economic impact on a substantial number of small entities. The factual basis for this determination is as follows:

This proposed rule is expected to directly affect commercial fishermen and for-hire operators in the South Atlantic. The Small Business Administration established size criteria for all major industry sectors in the U.S. including fish harvesters and for-hire operations. A business involved in fish harvesting is classified as a small business if independently owned and operated, is not dominant in its field of operation (including its affiliates), and its combined annual receipts are not in excess of $19.0 million (NAICS code 114111, finfish fishing) for all of its affiliated operations worldwide. For for-hire vessels, other qualifiers apply and the annual receipts threshold is $7.0 million (NAICS code 487210, fishing boat charter operation). The SBA periodically reviews and changes, as appropriate, these size criteria. On June 20, 2013, the SBA issued a final rule revising the small business size standards for several industries effective July 22, 2013 (78 FR 37398). This rule increased the size standard for commercial finfish harvesters from $4.0 million to $19.0 million. Neither this rule, nor other recent SBA rules, changed the size standard for for-hire vessels.

From 2008-2012, an annual average of 554 vessels with valid permits to operate in the commercial dolphin-wahoo fishery landed at least one pound of dolphin. These vessels generated average dockside revenues of approximately $4.4 million (2011) from all species caught in the same trips as dolphin, of which $591,000 (2011 dollars) were from dolphin. Each vessel, therefore, generated an average of approximately $8,000 in gross revenues, of which $1,000 were from dolphin. For the same period, an annual average of 211 vessels with valid permits to operate in the dolphin-wahoo fishery landed at least one pound of wahoo. These vessels generated dockside revenues of approximately $673,000 (2011) from all species caught in the same trips as wahoo, of which $71,000 (2011 dollars) were from wahoo. Each vessel, therefore, generated an average of approximately $3,183 in gross revenues, of which $335 were from wahoo. Vessels that caught and landed dolphin or wahoo may also operate in other fisheries, the revenues of which are not reflected in these totals. Based on revenue information, all commercial vessels affected by the rule can be considered small entities.

From 2008-2012, an annual average of 2,005 vessels had valid or renewable permits to operate in the for-hire sector of the South Atlantic dolphin-wahoo fishery. As of April 23, 2013, 1,623

vessels held South Atlantic for-hire dolphin-wahoo permits and about 75 are estimated to have operated as headboats in 2013. The for-hire fleet consists of charter boats, which charge a fee on a vessel basis, and headboats, which charge a fee on an individual angler (head) basis. Average annual revenues (2011 dollars) for charter boats are estimated to be $126,032 for Florida vessels, $53,443 for Georgia vessels, $100,823 for South Carolina vessels, and $101,959 for North Carolina vessels. For headboats, the corresponding estimates are $209,507 for Florida vessels and $153,848 for vessels in the other states. Headboat revenues for states other than Florida are aggregated to prevent disclosure of otherwise confidential information. Based on these average revenue figures, all for-hire operations that would be affected by the rule can be considered small entities.

The proposed rule would revise the ABCs, ACLs, and ACTs for dolphin and wahoo to reflect data from MRIP and other data updates. The resulting revisions would slightly increase the values for these parameters, thus resulting in slight economic benefits for the commercial and recreational sectors.

This rule would revise the commercial and recreational AMs for dolphin and wahoo by introducing payback provisions but only if the stocks are overfished and the aggregate commercial and recreational ACLs are exceeded. The no action alternative does not have payback provisions; however, AMs would apply regardless of stock status. In addition, the application of AMs is dependent only on a sector's ACL being exceeded or expected to be exceeded and not on the aggregate commercial and recreational ACLs. Since dolphin is neither overfished nor undergoing overfishing, introduction of a payback provision has no short-term economic effects on the commercial and recreational sectors. Although a stock assessment for wahoo will be done only in 2015, there are indications that the stock is healthy because of its life history. In addition and based on the last five years of landings, both the commercial and recreational ACLs for wahoo are unlikely to be exceeded in the near future. These revisions to the AMs for dolphin and wahoo are therefore expected to have no short-term economic effects on small entities.

This rule would also modify the framework procedure for the dolphin-wahoo FMP. The proposed revisions are administrative in nature and therefore have no direct economic effects on small entities.

No duplicative, overlapping, or conflicting Federal rules have been identified with this proposed rule. Moreover, this rule would not introduce any changes to reporting, record-keeping, and other compliance requirements which are currently required.

The information provided above supports a determination that this rule would not have a significant economic impact on a substantial number of small entities. The public is highly encouraged to submit comments on this determination.

Appendix I. Essential Fish Habitat and Move to Ecosystem Based Management

South Atlantic Fishery Management Council Habitat Conservation, Ecosystem Coordination and Collaboration

The Council, using the Essential Fish Habitat Plan as the cornerstone, adopted a strategy to facilitate the move to an ecosystem-based approach to fisheries management in the region. This approach required a greater understanding of the South Atlantic ecosystem and the complex relationships among humans, marine life, and the environment including essential fish habitat. To accomplish this, a process was undertaken to facilitate the evolution of the Habitat Plan into a Fishery Ecosystem Plan (FEP), thereby providing a more comprehensive understanding of the biological, social, and economic impacts of management necessary to initiate the transition from single species management to ecosystem-based management in the region.

Moving to Ecosystem-Based Management

The Council adopted broad goals for Ecosystem-Based Management to include maintaining or improving ecosystem structure and function; maintaining or improving economic, social, and cultural benefits from resources; and maintaining or improving biological, economic, and cultural diversity. Development of a regional FEP (SAFMC 2009a) provided an opportunity to expand the scope of the original Council Habitat Plan and compile and review available habitat, biological, social, and economic fishery and resource information for fisheries in the South Atlantic ecosystem. The South Atlantic Council views habitat conservation as the core of the move to EBM in the region. Therefore, development of the FEP was a natural next step in the evolution and expands and significantly updates the SAFMC Habitat Plan (SAFMC 1998a) incorporating comprehensive details of all managed species (SAFMC, South Atlantic States, ASMFC, and NOAA Fisheries Highly Migratory Species and Protected Species) including their biology, food web dynamics, and economic and social characteristics of the fisheries and habitats essential to their survival. The FEP therefore serves as a source document and presents more complete and detailed information describing the South Atlantic ecosystem and the impact of fisheries on the environment. This FEP updated information on designated Essential Fish Habitat (EFH) and EFH-Habitat Areas of Particular Concern; expanded descriptions of biology and status of managed species; presented information that will support ecosystem considerations for managed species; and described the social and economic characteristics of the fisheries in the region. In addition, it expanded the discussion and description of existing research programs and needs to identify biological, social, and economic research needed to fully address ecosystem-based management in the region. In is anticipated that the FEP will provide a greater degree of guidance by fishery, habitat, or major ecosystem consideration of bycatch reduction, prey-predator interactions, maintaining biodiversity, and spatial management needs. This FEP serves as a living source document of biological, economic, and social information for all Fishery Management Plans (FMP). Future Environmental Assessments and Environmental Impact Statements associated with subsequent amendments to Council FMPs will draw from or cite by reference the FEP.

The Fishery Ecosystem Plan for the South Atlantic Region encompasses the following volume structure:

FEP Volume I - Introduction and Overview of FEP for the South Atlantic Region
FEP Volume II - South Atlantic Habitats and Species
FEP Volume III - South Atlantic Human and Institutional Environment
FEP Volume IV - Threats to South Atlantic Ecosystem and Recommendations
FEP Volume V - South Atlantic Research Programs and Data Needs
FEP Volume VI - References and Appendices

Comprehensive Ecosystem-Based Amendment (CE-BA) 1 (SAFMC 2009b) is supported by this FEP and updated EFH and EFH-HAPC information and addressed the Final EFH Rule (e.g., GIS presented for all EFH and EFH-HAPCs). Management actions implemented in CE-BA 1 established deepwater Coral HAPCs to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine, deepwater coral ecosystems in the world.

The Fishery Ecosystem Plan, slated to be revised every 5 years, will again be the vehicle to update and refine information supporting designation and future review of EFH and EFH-HAPCs for managed species. Planning for the update is being conducted in cooperation with the Habitat Advisory Panel during the fall and winter of 2013 with initiation during 2014.

Ecosystem Approach to Deepwater Ecosystem Management

The South Atlantic Council manages coral, coral reefs and live/hard bottom habitat, including deepwater corals, through the Fishery Management Plan for Coral, Coral Reefs and Live/Hard Bottom Habitat of the South Atlantic Region (Coral FMP). Mechanisms exist in the FMP, as amended, to further protect deepwater coral and live/hard bottom habitats. The SAFMC's Habitat and Environmental Protection Advisory Panel and Coral Advisory Panel have supported proactive efforts to identify and protect deepwater coral ecosystems in the South Atlantic region. Management actions in Comprehensive Ecosystem-Based Amendment (CE-BA 1) (SAFMC 2009b) established deepwater coral HAPCs (C- HAPCs) to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine deepwater coral ecosystems in the world. In addition, CE-BA 1 established areas within the CHAPC, which provide for traditional fishing in limited areas, which do not impact deepwater coral habitat. CE-BA 1, supported by the FEP, also addressed non-regulatory updates for existing EFH and EFH- HAPC information and addressed the spatial requirements of the Final EFH Rule (i.e., GIS presented for all EFH and EFH-HAPCs). Actions in this amendment included modifications in the management of the following: octocorals; special management zones (SMZs) off the coast of South Carolina; and sea turtle release gear requirements for snapper grouper fishermen. The amendment also designated essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern (EFH-HAPCs).

CE-BA 2 established annual catch limits (ACL) for octocorals in the South Atlantic as well as modifying the Fishery Management Unit (FMU) for octocorals to remove octocorals off the coast

of Florida from the FMU (SAFMC 2011). The amendment also limited the possession of managed species in the SMZs off South Carolina to the recreational bag limit for snapper grouper and coastal migratory pelagic species; modified sea turtle release gear requirements for the snapper grouper fishery based upon freeboard height of vessels; amends Council fishery management plans (FMPs) to designate or modify EFH and EFH-HAPCs, including the FMP for Pelagic Sargassum Habitat; amended the Coral FMP to designate EFH for deepwater Coral HAPCs designated under CE-BA 1; and amended the Snapper Grouper FMP to designate EFH-HAPCs for golden and blueline tilefish and the deepwater Marine Protected Areas. The final rule was published in the federal register on December 30, 2011, and regulations became effective on January 30, 2012.

Building from a Habitat to an Ecosystem Network to Support the Evolution

Starting with our Habitat and Environmental Protection Advisory Panel, the Council expanded and
fostered a comprehensive Habitat network in our region to develop the Habitat Plan of the South Atlantic Region completed in 1998 to support the EFH rule. Building on the core regional collaborations, the Council facilitated an expansion to a Habitat and Ecosystem network to support development of the FEP and CE-BA as well as coordinate with partners on other regional efforts.

Integrated Ocean Observing System (IOOS) and Southeast Coastal and Ocean Observing Regional Association (SECOORA)

The Integrated Ocean Observing System (IOOS®) is a partnership among federal, regional, academic, and private sector parties that works to provide new tools and forecasts to improve safety, enhance the economy, and protect our environment. IOOS supplies critical information about our Nation's oceans, coasts, and Great Lakes. Scientists working to understand climate change, governments adapting to changes in the Arctic, municipalities monitoring local water quality, and industries affected by coastal and marine spatial planning all have the same need: reliable, timely, and sustained access to data and information that inform decision making. Improving access to key marine data and information supports several purposes. IOOS data sustain national defense, marine commerce, and navigation safety. Scientists use these data to issue weather, climate, and marine forecasts. IOOS data are also used to make decisions for energy siting and production, economic development, and ecosystem-based resource management. Emergency managers and health officials need IOOS information to make decisions about public safety. Teachers and government officials rely on IOOS data for public outreach, training, and education.

SECOORA is one of 11 Regional Associations established nationwide through the US Integrated Ocean Observing System (IOOS) whose primary source of funding is via US IOOS through a 5-year cooperative agreement titled Coordinated Monitoring, Prediction, and Assessment to Support Decision-Makers Needs for Coastal and Ocean Data and Tools, but was recently awarded funding via a NOAA Regional Ocean Partnership grant through the Governors' South Atlantic Alliance. SECOORA is the regional solution to integrating

coastal and ocean observing data in the Southeast United States to inform decision makers and the general public. The SECOORA region encompasses 4 states, over 42 million people, and spans the coastal ocean from North Carolina to the west Coast of Florida and is creating customized products to address these thematic areas: Marine Operations; Coastal Hazards; Ecosystems, Water Quality, and Living Marine Resources; and Climate Change. The Council is a voting member and Council staff was recently re-elected to serve on the Board of Directors for the Southeast Coastal Regional Ocean Observing Association (SECOORA) to guide and direct priority needs for observation and modeling to support fisheries oceanography and integration into stock assessments through SEDAR. Cooperation through SECOORA is envisioned to facilitate the following:

- Refining current or water column designations of EFH and EFH-HAPCs (e.g., Gulf Stream and Florida Current).
- Providing oceanographic models linking benthic, pelagic habitats, and food webs.
- Providing oceanographic input parameters for ecosystem models.
- Integration of OOS information into Fish Stock Assessment process in the SA region.
- Facilitating OOS system collection of fish and fishery data and other research necessary to support the Council's use of area-based management tools in the SA Region including but not limited to EFH, EFH-HAPCs, Marine Protected Areas, Deepwater Coral Habitat Areas of Particular Concern, Special Management Zones, and Allowable Gear Areas.
- Integration of OOS program capabilities and research Needs into the South Atlantic Fishery Ecosystem Plan.
- Collaboration with SECOORA to integrate OOS products with information included in the Council's Habitat and Ecosystem Web Services and Atlas to facilitate model and tool development.
- Expanding Map Services and the Regional Habitat and Ecosystem Atlas in cooperation with SECOORAs Web Services that will provide researchers access to data or products including those collected/developed by SA OOS partners.

SECOORA researchers are developing a comprehensive data portal to provide discovery of, access to, and metadata about coastal ocean observations in the southeast US. Below are various ways to access the currently available data.

One project recently funded by SECOORA initiated development of species specific habitat models that integrate remotely sensed and in situ data to enhance stock assessments for species managed by the Council. The project during 2013/2014 was initiated to address red porgy, gray triggerfish, black seabass, and vermilion snapper. Gray triggerfish and red porgy are slated for assessment through SEDAR in 2014/15 and 2015/16 respectively.

National Fish Habitat Plan and Southeast Aquatic Resource Partnership (SARP)

In addition, the Council serves on the National Habitat Board and, as a member of the Southeast Aquatic Resource Partnership (SARP), has highlighted this collaboration by including the Southeast Aquatic Habitat Plan (SAHP) and associated watershed conservation restoration

targets into the FEP. Many of the habitat, water quality, and water quantity conservation needs identified in the threats and recommendations Volume of the FEP are directly addressed by on-the-ground projects supported by SARP. This cooperation results in funding fish habitat restoration and conservation intended to increase the viability of fish populations and fishing opportunity, which also meets the needs to conserve and manage
Essential Fish Habitat for Council managed species or habitat important to their prey. To date, SARP has funded 53 projects in the region through this program. This work supports conservation objectives identified in the SAHP to improve, establish, or maintain riparian zones, water quality, watershed connectivity, sediment flows, bottoms and shorelines, and fish passage, and addresses other key factors associated with the loss and degradation of fish habitats. SARP also developed the Southern Instream Flow Network (SIFN) to address the impacts of flow alterations in the Southeastern US aquatic ecosystems which leverages policy, technical experience, and scientific resources among partners based in 15 states. Maintaining appropriate flow into South Atlantic estuarine systems to support healthy inshore habitats essential to Council managed species is a major regional concern and efforts of SARP through SIFN are envisioned to enhance state and local partners ability to maintain appropriate flow rates.

Governor's South Atlantic Alliance (GSAA)

Initially discussed as a South Atlantic Eco-regional Compact, the Council has also cooperated with South Atlantic States in the formation of a Governor's South Atlantic Alliance (GSAA). This will also provide regional guidance and resources that will address State and Council broader habitat and ecosystem conservation goals. The GSAA was initiated in 2006. An Executive Planning Team (EPT), by the end of 2007, had created a framework for the Governors South Atlantic Alliance. The formal agreement between the four states (NC, SC, GA, and FL) was executed in May 2009. The Agreement specifies that the Alliance will prepare a "Governors South Atlantic Alliance Action Plan" which will be reviewed annually for progress and updated every five years for relevance of content. The Alliance's mission and purpose is to promote collaboration among the four states, and with the support and interaction of federal agencies, academe, regional organizations, non-governmental organizations, and the private sector, to sustain and enhance the region's coastal and marine resources. The Alliance proposes to regionally implement science-based actions and policies that balance coastal and marine ecosystems capacities to support both human and natural systems. The GSAA Action Plan was released in December 2010 and describes the four Priority Issue Areas that were identified by the Governors to be of mutual importance to the sustainability of the region's resources: Healthy Ecosystems; Working Waterfronts; Clean Coastal and Ocean Waters; and Disaster-Resilient Communities. The goals, objectives, actions, and implementation steps for each of these priorities were further described in the GSAA Implementation Plan released in July 2011. The final Action Plan was released on December 1, 2010 and marked the beginning of intensive work by the Alliance Issue Area Technical Teams (IATTs) to develop implementation steps for the actions and objectives. The GSAA Implementation Plan was published July 6, 2011, and the Alliance has been working to implement the Plan through the IATTs and two NOAA-funded Projects. The Alliance also partners with other federal agencies, academia, non-profits, private industry, regional organizations, and others. The Alliance supports both national and state-level ocean and coastal policy by coordinating federal, state,

and local entities to ensure the sustainability of the region's economic, cultural, and natural resources. The Alliance has organized itself around the founding principles outlined in the GSAA Terms of Reference and detailed in the GSAA Business Plan. A team of natural resource managers, scientists, and information management system experts have partnered to develop a Regional Information Management System (RIMS) and recommend decision support tools that will support regional collaboration and decision-making. In addition to regional-level stakeholders, state and local coastal managers and decision makers will also be served by this project, which will enable ready access to new and existing data and information. The collection and synthesis of spatial data into a suite of visualization tools is a critical step for long-term collaborative planning in the South Atlantic region for a wide range of coastal uses. The Council's Atlas presents the spatial representations of Essential Fish Habitat, managed areas, regional fish and fish habitat distribution, and fishery operation information and it can be linked to or drawn on as a critical part of the collaboration with the RIMS.

South Atlantic Landscape Conservation Cooperative

One of the more recent collaborations is the Council's participation as Steering Committee member for the newly establish South Atlantic Landscape Conservation Cooperative (SALCC). Landscape Conservation Cooperatives (LCCs) are applied conservation science partnerships focused on a defined geographic area that informs on-the-ground strategic conservation efforts at landscape scales. LCC partners include DOI agencies, other federal agencies, states, tribes, non-governmental organizations, universities, and others. The newly formed Department of Interior Southeast Climate Services Center (CSC) has the LCCs in the region as their primary clients. One of the initial charges of the CSCs is to downscale climate models for use at finer scales.

The SALCC developed a Strategic Plan through an iterative process that began in December 2011. The plan provides a simple strategy for moving forward over the next few years. An operations plan was developed under direction from the SALCC Steering Committee to redouble efforts to develop version 1.0 of a shared conservation blueprint by spring-summer of 2014. The SALCC is developing the regional blueprint to address the rapid changes in the South Atlantic including but not limited to climate change, urban growth, and increasing human demands on resources which are reshaping the landscape. While these forces cut across political and jurisdictional boundaries, the conservation community does not have a consistent cross-boundary, cross-organization plan for how to respond. The South Atlantic Conservation Blueprint will be that plan. The blueprint is envisioned to be a spatially-explicit map depicting the places and actions need to sustain South Atlantic LCC objectives in the face of future change. The steps to creating the blueprint include development of: indicators and targets (shared metrics of success); the State of the South Atlantic (past, present, and future condition of indicators); and a Conservation Blueprint. Potential ways the blueprint could be used include: finding the best places for people and organizations to work together; raising new money to implement conservation actions; guiding infrastructure development (highways, wind, urban growth, etc.); creating incentives as an alternative to regulation; bringing a landscape perspective to local adaptation efforts; and locating places and actions to build resilience after major disasters (hurricanes, oil spills, etc.). Integration of connectivity,

function, and threats to river, estuarine and marine systems supporting Council managed species is supported by the SALCC and enhanced by the Council being a voting member of its Steering Committee.
In addition, the Council's Regional Atlas presents spatial representations of Essential Fish Habitat, managed areas, regional fish and fish habitat distribution, and fishery operation information and it be linked to or drawn on as a critical part of the collaboration with the recently developed SALCC Conservation Planning Atlas.

Building Tools to support EBM in the South Atlantic Region

The Council has developed a Habitat and Ecosystem Section of the website http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx and, in cooperation with the Florida Wildlife Research Institute (FWRI), developed a Habitat and Ecosystem Internet Map Server (IMS). The IMS was developed to support Council and regional partners' efforts in the transition to EBM. Other regional partners include NMFS Habitat Conservation, South Atlantic States, local management authorities, other Federal partners, universities, conservation organizations, and recreational and commercial fishermen. As technology and spatial information needs evolved, the distribution and use of GIS demands greater capabilities. The Council has continued its collaboration with FWRI in the now evolution to Web Services provided through the regional SAFMC Habitat and Ecosystem Atlas (http://ocean.floridamarine.org/safmc_atlas/) and the SAFMC Digital Dashboard (http://ocean.floridamarine.org/safmc_dashboard/). The Atlas integrates services for the following:

Species distribution and spatial presentation of regional fishery independent data from the SEAMAP-SA, MARMAP, and NOAA SEFIS systems; SAFMC Fisheries: (http://ocean.floridamarine.org/SA_Fisheries/)

Essential Fish Habitat and Essential Fish Habitat Areas of Particular Concern; SAFMC EFH: (http://ocean.floridamarine.org/sa_efh/)

Spatial presentation of managed areas in the region; SAFMC Managed Areas: (http://ocean.floridamarine.org/safmc_managedareas/)

An online life history and habitat information system supporting Council managed, State managed, and other regional species was developed in cooperation with FWRI. The Ecospecies system is considered dynamic and presents, as developed, detailed individual species life history reports and provides an interactive online query capability for all species included in the system: http://atoll.floridamarine.org/EcoSpecies

Web Services System Updates:

- Essential Fish Habitat (EFH) – displays EFH and EFH-HAPCS for SAFMC managed species and NOAA Fisheries Highly Migratory Species.
- Fisheries - displays Marine Resources Monitoring, Assessment, and Prediction (MARMAP) and Southeast Area Monitoring and Assessment Program South Atlantic (SEAMAP-SA) data.
- Managed Areas - displays a variety of regulatory boundaries (SAFMC and Federal) or management boundaries within the SAFMC's jurisdiction.
- Habitat – displays habitat data collected by SEADESC, Harbor Branch Oceanographic Institute (HBOI), and Ocean Exploration dives, as well as the SEAMAP shallow and ESDIM deepwater bottom mapping projects, multibeam imagery, and scientific cruise data.
- Multibeam Bathymetry - displays a variety of multibeam data sources and scanned bathymetry charts.
- Nautical Charts – displays coastal, general, and overview nautical charts for the SAFMC's jurisdictional area.

Ecosystem Based Action, Future Challenges and Needs

The Council has implemented ecosystem-based principles through several existing fishery management
actions including establishment of deepwater Marine Protected Areas for the Snapper Grouper fishery, proactive harvest control rules on species (e.g., dolphin and wahoo) which are not overfished, implementing extensive gear area closures which in most cases eliminate the impact of fishing gear on Essential Fish Habitat, and use of other spatial management tools including Special Management Zones. Pursuant to development of the Comprehensive Ecosystem-Based Amendment, the Council has taken an ecosystem approach to protect deepwater ecosystems while providing for traditional fisheries for the Golden Crab and Royal Red shrimp in areas where they do not impact deepwater coral habitat. The stakeholder based process taps in on an extensive regional Habitat and Ecosystem network. Support
tools facilitate Council deliberations and with the help of regional partners, are being refined to address long-term ecosystem management needs.

One of the greatest challenges to the long-term move to EBM in the region is funding high priority research, including but not limited to, comprehensive benthic mapping and ecosystem model and management tool development. In addition, collecting detailed information on fishing fleet dynamics including defining fishing operation areas by species, species complex, and season, as well as catch relative to habitat is critical for assessment of fishery, community, and habitat impacts and for Council use in place based management measures. Additional resources need to be dedicated to expand regional coordination of modeling, mapping, characterization of species use of habitats, and full funding of regional fishery independent surveys (e.g., MARMAP, SEAMAP, and SEFIS) which are linking directly to addressing high

priority management needs. Development of ecosystem information systems to support Council management should build on existing tools (e.g., Regional Habitat and Ecosystem GIS and Arc Services) and provide resources to regional cooperating partners for expansion to address long-term Council needs.

The FEP and CE-BA 1 complement, but do not replace, existing FMPs. In addition, the FEP serves as a source document to the CE-BAs. NOAA should support and build on the regional coordination efforts of the Council as it transitions to a broader management approach. Resources need to be provided to collect information necessary to update and refine our FEP and support future fishery actions including but not limited to completing one of the highest priority needs to support EBM, the completion of mapping of near-shore, mid-shelf, shelf edge, and deepwater habitats in the South Atlantic region. In developing future FEPs, the Council will draw on SAFEs (Stock Assessment and Fishery Evaluation reports) which NMFS is required to provide the Council for all FMPs implemented under the Magnuson-Stevens Act. The FEP, which has served as the source document for CE-BAs, could also meet some of the NMFS SAFE requirements if information is provided to the Council to update necessary sections.

EFH and EFH-HAPC Designations Translated to Cooperative Habitat Policy Development and Protection

The Council actively comments on non-fishing projects or policies that may impact fish habitat. **Appendix A** of the Comprehensive Amendment Addressing Essential Fish Habitat in Fishery Management Plans of the South Atlantic Region (SAFMC 1998b) outlines the Council's comment and policy development process and the establishment of a four-state Habitat Advisory Panel. Members of the Habitat Advisory Panel serve as the Council's habitat contacts and professionals in the field. AP members bring projects to the Council's attention, draft comment letters, and attend public meetings. With guidance from the Advisory Panel, the Council has developed and approved policies on:

1. Energy exploration, development, transportation, and hydropower re-licensing;
2. Beach dredging and filling and large-scale coastal engineering;
3. Protection and enhancement of submerged aquatic vegetation;
4. Alterations to riverine, estuarine, and nearshore flows;
5. Marine aquaculture;
6. Marine Ecosystems and Non-Native and Invasive Species: and
7. Estuarine Ecosystems and Non-Native and Invasive Species.

NOAA Fisheries, State and other Federal agencies apply EFH and EFH-HAPC designations and protection policies in the day-to-day permit review process. The revision and updating of existing habitat policies and the development of new policies is being coordinated with core agency representatives on the Habitat and Coral Advisory Panels. Existing policies are included at the end of this Appendix.

The Habitat and Environmental Protection Advisory Panel, as part of their role in providing continued policy guidance to the Council, is during 2013/14, reviewing and proposing revisions

and updates to the existing policy statements and developing new ones for Council consideration. The effort is intended to enhance the value of the statements and support cooperation and collaboration with NOAA Fisheries Habitat Conservation Division and State and Federal partners in better addressing the Congressional mandates to the Council associated with designation and conservation of EFH in the region.

South Atlantic Bight Ecopath Model

The Council worked cooperatively with the University of British Columbia and the Sea Around Us project to develop a straw-man and preliminary food web models (Ecopath with Ecosim) to characterize the ecological relationships of South Atlantic species, including those managed by the Council. This effort was envisioned to help the Council and cooperators in identifying available information and data gaps while providing insight into ecosystem function. More importantly, the model development process provides a vehicle to identify research necessary to better define populations, fisheries, and their interrelationships. While individual efforts are still underway in the South Atlantic, only with significant investment of new resources through other programs will a comprehensive regional model be further developed.

The latest collaboration builds on the previous Ecopath model developed through the Sea Around Us project for the South Atlantic Bight with a focus on beginning a dialogue on the implications of potential changes in forage fish populations in the region that could be associated with environmental or climate change or changes in direct exploitation of those populations.

Essential Fish Habitat and Essential Fish Habitat Areas of Particular Concern

Following is a summary of the current South Atlantic Council's EFH and EFH-HAPCs. Information supporting their designation was updated (pursuant to the EFH Final Rule) in the Council's Fishery Ecosystem Plan and Comprehensive Ecosystem Amendment:

Snapper Grouper FMP

Essential fish habitat for snapper grouper species includes coral reefs, live/hard bottom, submerged aquatic vegetation, artificial reefs, and medium to high profile outcroppings on and around the shelf break zone from shore to at least 600 feet (but to at least 2,000 feet for wreckfish) where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical complex. EFH includes the spawning area in the water column above the adult habitat and the additional pelagic environment, including *Sargassum*, required for larval survival and growth up to and including settlement. In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse snapper grouper larvae.

For specific life stages of estuarine dependent and nearshore snapper grouper species, essential fish habitat includes areas inshore of the 100-foot contour, such as attached macroalgae; submerged rooted vascular plants (seagrasses); estuarine emergent vegetated wetlands (saltmarshes, brackish marsh); tidal creeks; estuarine scrub/shrub (mangrove fringe); oyster reefs and shell banks; unconsolidated bottom (soft sediments); artificial reefs; and coral reefs

and live/hard bottom.

Areas which meet the criteria for EFH-HAPCs for species in the snapper-grouper management unit include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; nearshore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper (e.g., Primary and Secondary Nursery Areas designated in North Carolina); pelagic and benthic *Sargassum*; Hoyt Hills for wreckfish; the *Oculina* Bank Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; and Council-designated Artificial Reef Special Management Zones (SMZs). In addition, the Council through CEBA 2 (SAFMC 2011) designated the deepwater snapper grouper MPAs and golden tilefish and blueline tilefish habitat as EFH-HAPCs under the Snapper Grouper FMP as follows:

> EFH-HAPCs for golden tilefish to include irregular bottom comprised of troughs and terraces inter-mingled with sand, mud, or shell hash bottom. Mud-clay bottoms in depths of 150-300 meters are HAPC. Golden tilefish are generally found in 80-540 meters, but most commonly found in 200-meter depths.
>
> EFH-HAPC for blueline tilefish to include irregular bottom habitats along the shelf edge in 45-65 meters depth; shelf break or upper slope along the 100-fathom contour (150-225 meters); hardbottom habitats characterized as rock overhangs, rock outcrops, manganese-phosphorite rock slab formations, or rocky reefs in the South Atlantic Bight; and the Georgetown Hole (Charleston Lumps) off Georgetown, SC.
>
> EFH-HAPCs for the snapper grouper complex to include the following deepwater Marine Protected Areas (MPAs) as designated in Snapper Grouper Amendment 14: Snowy Grouper Wreck MPA, Northern South Carolina MPA, Edisto MPA, Charleston Deep Artificial Reef MPA, Georgia MPA, North Florida MPA, St. Lucie Hump MPA, and East Hump MPA.
>
> Deepwater Coral HAPCs designated in Comprehensive Ecosystem-Based Amendment 1 are designated as Snapper Grouper EFH-HAPCs: Cape Lookout Coral HAPC, Cape Fear Coral HAPC, Blake Ridge Diapir Coral HAPC, Stetson-Miami Terrace Coral HAPC, and Pourtalés Terrace Coral HAPC.

Shrimp FMP

For penaeid shrimp, Essential Fish Habitat includes inshore estuarine nursery areas, offshore marine habitats used for spawning and growth to maturity, and all interconnecting water bodies as described in the Habitat Plan. Inshore nursery areas include tidal freshwater (palustrine), estuarine, and marine emergent wetlands (e.g., intertidal marshes); tidal palustrine forested areas; mangroves; tidal freshwater, estuarine, and marine submerged aquatic vegetation (e.g., seagrass); and subtidal and intertidal non- vegetated flats. This applies from North Carolina through the Florida Keys.

For rock shrimp, essential fish habitat consists of offshore terrigenous and biogenic sand bottom habitats from 18 to 182 meters in depth with highest concentrations occurring between 34 and 55 meters. This applies for all areas from North Carolina through the Florida Keys. Essential fish habitat includes the shelf current systems near Cape Canaveral, Florida, which provide major transport mechanisms affecting planktonic larval rock shrimp. These currents keep larvae on the Florida Shelf and may transport them inshore in spring. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse rock shrimp larvae.

Essential fish habitat for royal red shrimp include the upper regions of the continental slope from 180 meters (590 feet) to about 730 meters (2,395 feet), with concentrations found at depths of between 250 meters (820 feet) and 475 meters (1,558 feet) over blue/black mud, sand, muddy sand, or white calcareous mud. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse royal red shrimp larvae.

Areas which meet the criteria for EFH-HAPCs for penaeid shrimp include all coastal inlets, all state-designated nursery habitats of particular importance to shrimp (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas), and state-identified overwintering areas.

Coastal Migratory Pelagics FMP

Essential fish habitat for coastal migratory pelagic species includes sandy shoals of capes and offshore bars, high profile rocky bottom, and barrier island ocean-side waters, from the surf to the shelf break zone, but from the Gulf Stream shoreward, including *Sargassum*. In addition, all coastal inlets and all state-designated nursery habitats of particular importance to coastal migratory pelagics (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas).

For Cobia essential fish habitat also includes high salinity bays, estuaries, and seagrass habitat. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse coastal migratory pelagic larvae.

For king and Spanish mackerel and cobia essential fish habitat occurs in the South Atlantic and Mid-Atlantic Bights.

Areas which meet the criteria for EFH-HAPCs include sandy shoals of Capes Lookout, Cape Fear, and Cape Hatteras from shore to the ends of the respective shoals, but shoreward of the Gulf stream; The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and Hurl Rocks (South Carolina); The Point off Jupiter Inlet (Florida); *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; nearshore hard bottom south of Cape Canaveral; The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The “Wall” off of the Florida Keys; Pelagic *Sargassum*; and Atlantic coast estuaries with high numbers of Spanish mackerel and cobia based on abundance data from the

ELMR Program. Estuaries meeting this criteria for Spanish mackerel include Bogue Sound and New River, North Carolina; Bogue Sound, North Carolina (Adults May-September salinity >30 ppt); and New River, North Carolina (Adults May-October salinity >30 ppt). For Cobia they include Broad River, South Carolina; and Broad River, South Carolina (Adults & juveniles May-July salinity >25ppt).

Golden Crab FMP

Essential fish habitat for golden crab includes the U.S. Continental Shelf from Chesapeake Bay south through the Florida Straits (and into the Gulf of Mexico). In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse golden crab larvae. The detailed description of seven essential fish habitat types (a flat foraminferan ooze habitat; distinct mounds, primarily of dead coral; ripple habitat; dunes; black pebble habitat; low outcrop; and soft-bioturbated habitat) for golden crab is provided in Wenner et al. (1987). There is insufficient knowledge of the biology of golden crabs to identify spawning and nursery areas and to identify HAPCs at this time. As information becomes available, the Council will evaluate such data and identify HAPCs as appropriate through the framework.

Spiny Lobster FMP

Essential fish habitat for spiny lobster includes nearshore shelf/oceanic waters; shallow subtidal bottom; seagrass habitat; unconsolidated bottom (soft sediments); coral and live/hard bottom habitat; sponges; algal communities (*Laurencia*); and mangrove habitat (prop roots). In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse spiny lobster larvae.

Areas which meet the criteria for EFH-HAPCs for spiny lobster include Florida Bay, Biscayne Bay, Card Sound, and coral/hard bottom habitat from Jupiter Inlet, Florida through the Dry Tortugas, Florida.

Coral, Coral Reefs, and Live/Hard Bottom Habitats FMP

Essential fish habitat for corals (stony corals, octocorals, and black corals) incorporate habitat for over 200 species. EFH for corals include the following:

A. Essential fish habitat for hermatypic stony corals includes rough, hard, exposed, stable substrate from Palm Beach County south through the Florida reef tract in subtidal waters to 30 m depth; subtropical (15°-35° C), oligotrophic waters with high (30-35$^{o}/_{oo}$) salinity and turbidity levels sufficiently low enough to provide algal symbionts adequate sunlight penetration for photosynthesis. Ahermatypic stony corals are not light restricted and their essential fish habitat includes defined hard substrate in subtidal to outer shelf depths throughout the management area.

B. Essential fish habitat for *Antipatharia* (black corals) includes rough, hard, exposed, stable substrate, offshore in high (30-35$^{o}/_{oo}$) salinity waters in depths exceeding 18 meters (54 feet), not restricted by light penetration on the outer shelf throughout the

management area.

C. Essential fish habitat for octocorals excepting the order Pennatulacea (sea pens and sea pansies) includes rough, hard, exposed, stable substrate in subtidal to outer shelf depths within a wide range of salinity and light penetration throughout the management area.

D. Essential fish habitat for Pennatulacea (sea pens and sea pansies) includes muddy, silty bottoms in subtidal to outer shelf depths within a wide range of salinity and light penetration.

Areas which meet the criteria for EFH-HAPCs for coral, coral reefs, and live/hard bottom include: The 10-Fathom Ledge, Big Rock, and The Point (North Carolina); Hurl Rocks and The Charleston Bump (South Carolina); Gray's Reef National Marine Sanctuary (Georgia); The *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; Oculina Banks off the east coast of Florida from Ft. Pierce to Cape Canaveral; nearshore (0-4 meters; 0-12 feet) hard bottom off the east coast of Florida from Cape Canaveral to Broward County); offshore (5-30 meter; 15-90 feet) hard bottom off the east coast of Florida from Palm Beach County to Fowey Rocks; Biscayne Bay, Florida; Biscayne National Park, Florida; and the Florida Keys National Marine Sanctuary. In addition, the Council through CEBA 2 (SAFMC 2011) designated the Deepwater Coral HAPCs as EFH-HAPCs under the Coral FMP as follows:

> Deepwater Coral HAPCs designated in Comprehensive Ecosystem-Based Amendment 1 as Snapper Grouper EFH-HAPCs: Cape Lookout Coral HAPC, Cape Fear Coral HAPC, Blake Ridge Diapir Coral HAPC, Stetson-Miami Terrace Coral HAPC, and Pourtalés Terrace Coral HAPC.

Dolphin and Wahoo FMP

EFH for dolphin and wahoo is the Gulf Stream, Charleston Gyre, Florida Current, and pelagic *Sargassum*. This EFH definition for dolphin was approved by the Secretary of Commerce on June 3, 1999 as a part of the South Atlantic Council's Comprehensive Habitat Amendment (SAFMC 1998b) (dolphin was included within the Coastal Migratory Pelagics FMP at that time).

Areas which meet the criteria for EFH-HAPCs for dolphin and wahoo in the Atlantic include The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and The Georgetown Hole (South Carolina); The Point off Jupiter Inlet (Florida); The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The "Wall" off of the Florida Keys; and Pelagic *Sargassum*. This EFH-HAPC definition for dolphin was approved by the Secretary of Commerce on June 3, 1999 as a part of the South Atlantic Council's Comprehensive Habitat Amendment (dolphin was included within the Coastal Migratory Pelagics FMP at that time).

Pelagic *Sargassum* Habitat FMP
The Council through CEBA 2 (SAFMC 2011) designated the top 10 meters of the water column in the South Atlantic EEZ bounded by the Gulfstream, as EFH for pelagic Sargassum.

Actions Implemented That Protect EFH and EFH-HAPCs

Snapper Grouper FMP

- Prohibited the use of the following gears to protect habitat: bottom longlines in the EEZ inside of 50 fathoms or anywhere south of St. Lucie Inlet, Florida; bottom longlines in the wreckfish fishery; fish traps; bottom tending (roller- rig) trawls on live bottom habitat; and entanglement gear.
- Established the *Oculina* Experimental Closed Area where the harvest or possession of all species in the snapper grouper complex is prohibited.
- Established deepwater Marine Protected Areas (MPAs) as designated in Snapper Grouper Amendment 14: Snowy Grouper Wreck MPA, Northern South Carolina MPA, Edisto MPA, Charleston Deep Artificial Reef MPA, Georgia MPA, North Florida MPA, St. Lucie Hump MPA, and East Hump MPA.

Shrimp FMP

- Prohibition of rock shrimp trawling in a designated area around the *Oculina* Bank,
- Mandatory use of bycatch reduction devices in the penaeid shrimp fishery,
- Mandatory Vessel Monitoring System (VMS) in the Rock Shrimp Fishery.
- A mechanism that provides for the concurrent closure of the EEZ to penaeid shrimping if environmental conditions in state waters are such that the overwintering spawning stock is severely depleted.

Pelagic Sargassum Habitat FMP

- Prohibited all harvest and possession of *Sargassum* from the South Atlantic EEZ south of the latitude line representing the North Carolina/South Carolina border (34° North Latitude).
- Prohibited all harvest of *Sargassum* from the South Atlantic EEZ within 100 miles of shore between the 34° North Latitude line and the Latitude line representing the North Carolina/Virginia border.
- Harvest of *Sargassum* from the South Atlantic EEZ is limited to the months of November through June.
- Established an annual Total Allowable Catch (TAC) of 5,000 pounds landed wet weight.
- Required that an official observer be present on each *Sargassum* harvesting trip. Require that nets used to harvest *Sargassum* be constructed of four inch stretch mesh or larger fitted to a frame no larger than 4 feet by 6 feet.

Coastal Migratory Pelagics FMP

- Prohibited of the use of drift gillnets in the coastal migratory pelagic fishery.

Golden Crab FMP

- In the northern zone, golden crab traps can only be deployed in waters deeper than 900 feet; in the middle and southern zones traps can only be deployed in waters deeper than 700 feet.

  Northern zone - north of the 28°N. latitude to the North Carolina/Virginia border;
  Middle zone - 28°N. latitude to 25° N. latitude; and
  Southern zone - south of 25°N. latitude to the border between the South Atlantic and Gulf of Mexico Fishery Management Councils.

Coral, Coral Reefs and Live/Hard Bottom FMP

- Established an optimum yield of zero and prohibiting all harvest or possession of these resources which serve as essential fish habitat to many managed species.
- Designated the *Oculina* Bank Habitat Area of Particular Concern.
- Expanded the *Oculina* Bank Habitat Area of Particular Concern (HAPC) to an area bounded to the west by 80°W. longitude, to the north by 28°30' N. latitude, to the south by 27°30' N. latitude, and to the east by the 100 fathom (600 feet) depth contour.
- Established the following two Satellite *Oculina* HAPCs: (1) Satellite *Oculina* HAPC #1 is bounded on the north by 28°30'N. latitude, on the south by 28°29'N. latitude, on the east by 80°W. longitude, and on the west by 80°3'W. longitude; and (2) Satellite *Oculina* HAPC #2 is bounded on the north by 28°17'N. latitude, on the south by 28°16'N. latitude, on the east by 80°W. longitude, and on the west by 80°3'W. longitude.
- Prohibited the use of all bottom tending fishing gear and fishing vessels from anchoring or using grapples in the *Oculina* Bank HAPC.
- Established a framework procedure to modify or establish Coral HAPCs.
- Established the following five deepwater CHAPCs:
  - Cape Lookout Lophelia Banks CHAPC;
  - Cape Fear Lophelia Banks CHAPC;
  - Stetson Reefs, Savannah and East Florida Lithoherms, and Miami Terrace (Stetson- Miami Terrace) CHAPC;
  - Pourtales Terrace CHAPC; and
  - Blake Ridge Diapir Methane Seep CHAPC.
- Within the deepwater CHAPCs, the possession of coral species and the use of all bottom damaging gear are prohibited including bottom longline, trawl (bottom and mid-water), dredge, pot or trap, or the use of an anchor, anchor and chain, or grapple and chain by all fishing vessels.

South Atlantic Council Policies for Protection and Restoration of Essential Fish Habitat

SAFMC Habitat and Environmental Protection Policy

In recognizing that species are dependent on the quantity and quality of their essential habitats, it is the policy of the SAFMC to protect, restore, and develop habitats upon which fisheries species depend; to increase the extent of their distribution and abundance; and to improve their productive capacity for the benefit of present and future generations. For purposes of this policy, "habitat" is defined as the physical, chemical, and biological parameters that are necessary for continued productivity of the species that is being managed. The objectives of the SAFMC policy will be accomplished through the
recommendation of no net loss or significant environmental degradation of existing habitat. A long-term objective is to support and promote a net-gain of fisheries habitat through the restoration and rehabilitation of the productive capacity of habitats that have been degraded, and the creation and development of productive habitats where increased fishery production is probable. The SAFMC will pursue these goals at state, Federal, and local levels. The Council shall assume an aggressive role in the protection and enhancement of habitats important to fishery species, and shall actively enter Federal, decision making processes where proposed actions may otherwise compromise the productivity of fishery resources of concern to the Council.

SAFMC EFH Policy Statements

In addition to implementing regulations to protect habitat from fishing related degradation, the Council in cooperation with NOAA Fisheries, actively comments on non-fishing projects or policies that may impact fish habitat. The Council adopted a habitat policy and procedure document that established a four-state Habitat Advisory Panel and adopted a comment and policy development process. Members of the Habitat Advisory Panel serve as the Council's habitat contacts and professionals in the field. With guidance from the Advisory Panel, the Council has developed and approved a number of habitat policy statements which are available on the Habitat and Ecosystem section of the Council website
(http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx).

References:

SAFMC (South Atlantic Fishery Management Council). 1998a. Habitat Plan for the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1998b. Comprehensive Amendment Addressing Essential Fish Habitat in Fishery Management Plans of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2009a. Fishery Ecosystem Plan for the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2009b. Comprehensive Ecosystem-Based Amendment 1 for the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Suite 201; North Charleston, SC 29405.

SAFMC (South Atlantic Fishery Management Council). 2011. Comprehensive Ecosystem-Based Amendment 2 for the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Suite 201; North Charleston, SC 29405.

Wenner, E. L., G. F. Ulrich, and J. B. Wise. 1987. Exploration for golden crab, Geryon fenneri, in the south Atlantic Bight: distribution, population structure, and gear assessment. Fishery Bulletin 85:547-560.

Appendix J. Fishery Impact Statement

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires a Fishery Impact Statement (FIS) be prepared for all amendments to Fishery Management Plans (FMPs). The FIS contains an assessment of the likely biological and socioeconomic effects of the conservation and management measures on: 1) fishery participants and their communities; 2) participants in the fisheries conducted in adjacent areas under the authority of another Council; and 3) the safety of human life at sea.

Actions Contained in Amendment 5 to the Fishery Management Plan for the Dolphin Wahoo Fishery of the Atlantic (Dolphin Wahoo Amendment 5)

The purpose of Dolphin Wahoo Amendment 5 is to revise the acceptable biological catch estimates (ABCs), annual catch limits (ACLs), recreational annual catch targets (ACTs), and sector accountability measures (AMs) for dolphin and wahoo. The revisions incorporate updates to the recreational data as per the new Marine Recreational Information Program (MRIP), as well as revisions to commercial and for-hire landings. The revisions are necessary to avoid triggering AMs for dolphin and wahoo based on ACLs that were established by the Comprehensive ACL Amendment (77 FR 15916) using recreational data under the Marine Recreational Fisheries Statistics Survey (MRFSS) system. National Marine Fisheries Service (NMFS) no longer uses MRFSS and now estimates recreational landings using MRIP. Additionally, this amendment would revise the framework procedure for dolphin and wahoo and establish commercial trip limits for dolphin. The intent of Dolphin Wahoo Amendment 5 is to base conservation and management measures upon the best scientific information available, and to prevent unnecessary negative socio-economic impacts that may otherwise be realized in the dolphin wahoo fishery and fishing community, in accordance with the provisions set forth in the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Assessment of Biological Effects

Under **Action 1**, although negligible, greater biological benefits are expected under **Preferred Alternative 2** as opposed to **Alternative 1** (**No Action**), because it is based on the best available data. While the percent differences in the revised ABCs and ACLs in Dolphin Wahoo Amendment 5 may be relatively small from the status quo levels, the data revealed by the new and updated methodology more accurately represent the fishing effort for these species, and would be more likely to trigger AMs when needed. In contrast, **Alternative 1 (No Action)** could either result in triggering an AM when it is not needed, or not triggering an AM when it is needed.

In **Action 2**, for the commercial sector, the biological benefits of **Preferred Alternative 2** and its sub-alternatives would be greater than **Alternative 1** (**No Action**). **Sub-alternative 2b** would have a greater biological benefit than either **Alternative 1 (No Action)** or **Sub-alternative 2a,** because **Sub-alternative 2b** is pro-active in nature, and would be effective if the overall ACL (commercial and recreational) is met, regardless of the overfished status. **Preferred Sub-alternative 2c** is similar to Sub-**alternative 2b**, with the exception that the commercial ACL in the following season would only be reduced if the total ACL is met, and the stock is overfished. Therefore, **Preferred Sub-alternative**

2c would be expected to yield the least amount of biological benefit among the sub-alternatives under **Preferred Alternative 2,** but a greater biological effect than **Alternative 1 (No Action)**. **Preferred Alternative 3** and its sub-alternatives address the recreational sector. Pay-back provisions under **Sub-alternatives 3a-3c (Preferred)** are the same as under **Sub-alternatives 2a-2c (Preferred)**. The difference from the commercial sector AMs is that in the recreational sector, if recreational landings exceed the recreational ACL, recreational landings will be monitored for a persistence in increased landings in the following year. Additionally, the length of the recreational season will only be reduced if the best scientific information available indicates a reduction is necessary. Under **Sub-alternative 3a**, the pay-back provision would reduce the recreational ACL in the following fishing year by the amount of the overage only if the stock is overfished. In contrast, **Alternative 1 (No Action)** reduces the length of the following recreational fishing season following a persistent ACL overage regardless of the overfished status of the stock. The biological benefits of **Alternative 1 (No Action)** would be expected to be greater than any of the sub-alternatives under **Preferred Alternative 3** because triggering the AM is based on only exceeding the recreational ACL and lacks any payback provision. The biological benefits of **Preferred Sub-alternative 3c** would be the least among the recreational AM sub-alternatives because an AM would only be triggered if the stock is overfished, and the commercial and recreational ACLs are exceeded. Therefore, **Alternative 3b** would be expected to have the greatest biological benefit among the recreational AM alternatives, followed by **Sub-alternative 3a, 3c (Preferred)** and **Alternative 1 (No Action)**.

Under **Preferred Alternatives 2** and **3** for **Action 3**, adjustments to the ABC Control Rule, ACLs, ACTs, AMs, MSY, and OY could be through a framework process rather than with a plan amendment. Additionally, an abbreviated process would allow changes to be made relatively quickly as new fishery and stock abundance information becomes available. These alternatives would likely be biologically beneficial for dolphin and wahoo because they would also allow periodic adjustments to harvest parameters, and management measures could be altered in a more timely manner in response to stock assessment, survey results, or other similar information. When stock assessments indicate large decreases in the ACLs are needed, a quick adjustment to the catch level would likely have positive biological effects. The SEDAR process currently only produces one stock assessment for a species every three to five years. As such, the data utilized in the assessment are at least one year old by the time the assessment results become available and can be used for management purposes. It is, therefore, advantageous to make any modifications to the existing management process, as proposed under **Preferred Alternatives 2** and **3**, to expedite fishing level adjustments for dolphin and wahoo.

Alternatives 2-7 in **Action 4** include a wide range of trip limits, from 1,000 lbs ww under **Alternative 2** (which is the most restrictive alternative), to 10,000 lbs ww under **Alternative 7** (which is the least restrictive alternative). **Alternatives 2-7** would have very little effect on constraining harvest of dolphin as 98% of the trips harvested 1,000 lbs ww or less of dolphin. Longline gear is more efficient at harvesting large quantities of dolphin than hook-and-line, and would be most affected by trip limits. Although there were very few trips, only the longline sector had trips of 3,000 lbs ww to 5,000 lbs ww (**Alternatives 4-6**), and they were the dominant gear for trips landing 1,000 lbs ww to 3,000 lbs ww (**Alternatives 2** to **4**). ACLs and AMs are in place to ensure overfishing of dolphin and wahoo does not occur; therefore, biological effects of **Preferred Alternative 1 (No Action)** and **Alternatives 2-7** for dolphin are expected to be similar. However, bycatch of protected species such as sea turtles are documented with longline gear; therefore, alternatives that would establish a higher trip limit, that

would likely be met using longline gear, and would be expected to have lower biological benefits.

Assessment of Economic Effects

Preferred Alternative 2 of **Action 1** is expected to have increased positive economic effects for both the commercial and recreational sectors for dolphin and wahoo compared to **Alternative 1 (No Action)**. Neither sector had landings of dolphin in recent years that would necessitate an early closure due to a sector ACL having been met. However, the commercial ACL for wahoo was nearly met in 2012 and the recreational sector exceeded its ACL by 9% in 2012. The increase in the ACL provides some room for each sector in the future. Had the recreational sector ACL from **Preferred Alternative 2** been in place during the 2012 season, the recreational sector would not have exceeded their sector ACL.

Among the alternatives of **Action 2**, **Alternative 1** (**No Action**) has the highest likelihood of allowing overages to consistently occur over time. Without adopting more restrictive corrective measures over time, such as more stringent bag/size limits, area/seasonal closures, lower trip limits, etc., this alternative could raise issues regarding the long-term sustainability of the stock and its ability to support commercial and recreational fishing activities over time. In a sense, this alternative has the highest likelihood that economic benefits would erode over time, first due to the adoption of more restrictive management measures as overfishing occurs and later as fishing opportunities diminish with an overfished stock. In a similar manner, alternatives, such as **Preferred Sub-alternatives 2c** and **3c**, which have a lower probability of adopting paybacks would be associated with higher probability of allowing overfishing to occur over time that could possibly lead to an overfished condition for the stock. A similar statement may be made for the remaining sub-alternatives. In summary, the lower the probability of arresting overfishing due to consistent ACL overages, the higher the likelihood that long-term economic benefits would be eroded.

One key issue brought about by the scenario just described is the appropriate balancing of higher economic benefits in the short term but lower benefits in the long term, by adopting such AM alternative as **Alternative 1** (**No Action**) or **Preferred Sub-alternatives 2c** and **3c;** or of possibly lower economic benefits in the short term but a more sustainable fishery in the long term, by adopting any of the other sub-alternatives, particularly **Sub-alternatives 2b** and **3b**. Currently available economic information is not sufficient to estimate the net short-term and long-term effects of the various alternatives. However, there appears to be a better chance of higher net economic benefits with AMs that have a higher likelihood of limiting consistent ACL overages over time.

The proposed adjustments in the framework procedure (**Action 3, Preferred Alternatives 2** and **3**) are expected to benefit fishermen economically by allowing for timeliness in the regulatory process and providing an avenue for the South Atlantic Council to make faster adjustments to ACLs. When stock assessments indicate ACLs can be increased, quick adjustments for ACLs would allow for positive economic effects without negatively impacting the sustainability of the stock. When stock assessments indicate large decreases in the ACLs are needed, a quick adjustment to the catch level would likely result in negative economic effects in that quickly reducing catch levels would occur.

Action 4, Preferred Alternative 1 (No Action) imposes no trip limits on commercial dolphin catches and therefore would not be expected to have economic effects. Trip limits would have minimal economic impact for any hook and line trips, or on longline trips south of 31° n. latitude. In order from least to most expected direct economic effects, **Alternative 2** would be expected to have the greatest effects at $249,762 annually, followed in order by **Alternative 3**, **4**, **5**, **6**, and **7**. These effects assume that forgone revenues by those affected by the trip limit would not be recouped by other vessels especially in the event the trip limits were effective in extending the fishing season. If the commercial fishing season for dolphin remained open throughout the year even without the trip limit and no additional vessels enter that portion of the dolphin wahoo fishery, then the revenue reductions shown in **Table 4-3** would likely occur.

Assessment of the Social Effects

Although, the proposed updated ACLs in **Action 1** are considered to be based on the best available information, the proposed changes may not prevent AMs from being triggered or minimize impacts. However, the proposed changes under **Preferred Alternative 2** would still be expected to improve management of the dolphin wahoo fishery and possibly minimize negative social impacts on AMs more than under **Alternative 1 (No Action)**. Some impacts may not occur immediately but could be expected in the future. This is particularly significant for the recreational sector of the dolphin and wahoo fishery because ACLs (of any level) may constrain growth in recreational effort, which is tied to the increasing pattern of coastal population growth, and national population growth in general. Therefore, even if recent recreational catch of a particular species does not meet or even come close to the adjusted recreational ACLs for dolphin and wahoo under **Preferred Alternative 2,** there may still be future impacts on private recreational anglers because there would be a limited number of fish available to a continually increasing number of people.

Action 2, Alternative 1 (No Action) would put no new AMs in place and would risk further harm to the stock if bag limits in place were not sufficient to keep the ACLs from being exceeded. This would avoid short-term negative social impacts mentioned above, but may incur longer term impacts if stock status were jeopardized. The addition of a payback provision for the commercial sector in **Sub-alternatives a-c (Preferred)** under **Preferred Alternative 2** could result in some negative impacts on the commercial fleet if there was a substantial reduction in the subsequent year's commercial ACL. However, some short-term negative social and economic impacts could be lessened with the requirement that the stock must be overfished and the total ACL exceeded under **Preferred Sub-alternative 2c**. This could allow the ACLs to be consistently exceeded over time and possibly impair the status of the stocks, which in turn could result in long-term negative social and economic impacts on fishing participants and their associated communities. The addition of a payback provision for the recreational sector in **Sub-alternatives a-c (Preferred)** under **Preferred Alternative 3** could also result in some negative impacts if the reduced ACL for the subsequent year reduces the fishing opportunities for dolphin or wahoo. However, the flexibility in requirements for payback under **Preferred Sub-alternative 3c** would likely result in the lowest level of negative impacts on the recreational sector.

Preferred Alternative 2 and **Preferred Alternative 3** of **Action3** would generate indirect positive effects on the social environment with the framework modifications to incorporate a procedure for

adjusting ACLs in a timely manner. Updating text to reflect adoption of SEDAR as the source of stock assessment information (**Preferred Alternative 2** and **Preferred Alternative 3**) would provide consistency in language with regulatory changes and have few effects on the social environment. Consistency and timeliness in the regulatory process are positive social benefits as they remove uncertainty and subsequent displeasure with regard to changes in management while protecting the stock.

Action 4, Preferred Alternative 1 (No Action) would be expected to generate little or no social impacts (positive or negative). The highest proposed trip limit under **Alternative 7** would be the most beneficial to vessels harvesting dolphin, and **Alternative 2** would be the most restrictive for vessels with the capacity to harvest more 1,000 lbs ww. Although lower trip limits may contribute to a longer fishing season, the more restrictive limits may cause some vessels to target other species to increase the economic efficiency of fishing trips. Requiring a trip limit only for certain areas under **Sub-alternatives a** and **b** under **Alternatives 2-7** could result in some issues of fairness between fishermen in the northern and southern areas. However, different trip limits in different areas could reduce the likelihood of localized depletion or user conflicts.

Assessment of the Administrative Effects

Administrative impacts associated with the actions in this amendment are primarily associated with data monitoring, outreach, and enforcement.

For **Action 1**, the mechanisms for monitoring and documentation of ABCs, ACLs, ACTs, and AMs are already in place through implementation of the Comprehensive ACL Amendment (SAFMC 2011a), Amendment 17A to the Snapper Grouper FMP (SAFMC 2010a), and Amendment 17B to the Snapper Grouper (SAFMC 2010b), under **Alternative 1** (**No Action**). Other administrative burdens that may result from revising the values under **Preferred Alternative 2** would take the form of development and dissemination of outreach and education materials for fishery participants and law enforcement.

Current AMs for dolphin and wahoo were implemented through the Comprehensive ACL Amendment, therefore, the mechanisms for monitoring and enforcing the ACLs are already in place. The South Atlantic Council is working towards having consistent AMs for all its managed species. Consistency in regulations among different species could help reduce confusion by the general public, could better aid law enforcement, and could possibly reduce the instances of ACLs being exceeded. Therefore, while in the short term, there might be additional administrative costs from **Alternatives 2** and **3** (including their **Sub-alternatives 2a**, **2b**, **Preferred Sub-alternative 2c**, **Sub-alternatives 3a**, **3b**, and **Preferred Sub-alternative 3c**) in **Action 3**, these might be offset in the long term by fewer instances of AMs being triggered and their related administrative costs.

Alternative 1 (No Action) under **Action 3** would be the most administratively burdensome of the three alternatives being considered, because all modifications to ABC Control Rule, ACLs, ACTs, and AMs would need to be implemented through a plan amendment, which is a more laborious and time consuming process than a framework action. **Preferred Alternatives 2** and **3** would allow modifications to the ABC Control Rules, ACLs, AMs, ACTs, to be modified via a framework procedure expedited to shorten the length of time it takes to implement routine changes in harvest

limits. Additionally, the framework procedure would reflect SEDAR and SSC roles in setting MSY, OY, and ABC. It is anticipated that this streamlined approach would eliminate the lengthy regulatory amendment process, and would minimize administrative impacts since a regulatory amendment would not be required to make such changes.

Alternatives 2 through **7** would add administrative burdens when compared with **Preferred Alternative 1** (**No Action**) in **Action 4**. Enforcement costs could increase due to the establishment of commercial trip limits, since these would now have to be monitored and enforced. Additionally, legal costs would be incurred from prosecuting any violations that could occur.

Assessment of Effects on Safety at Sea

The actions contained in Dolphin Wahoo Amendment 5 are not expected to change the manner in which the dolphin wahoo fishery is prosecuted in the Atlantic. Therefore, the implementation of the actions in this amendment is not expected to affect safety at sea.