MAGNUSON – STEVENS ACT/NEPA SCOPING DOCUMENT

REVISED DRAFT

Regulatory Amendment 17 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Marine Protected Areas)

MARCH 24, 2014

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Background: At the March 2013 meeting, the Council approved the following motion:
MOTION #54: BRING THE MPA ISSUE BACK TO THE SNAPPER GROUPER COMMITTEE AT THE SEPTEMBER MEETING TO DEVELOP A PURPOSE AND NEED AND POTENTIALLY CONSIDER OPTIONS FOR RECONFIGURATIONS AND SPAWNING.

At the September 2013 meeting, the Council approved the following motions:
MOTION #24: REQUEST PRESENTATIONS FOR THE DECEMBER 2013 MEETING FROM SAFMC STAFF, MARMAP, NOAA LAW ENFORCEMENT AND NMFS SEFSC ON WHICH OF THE NEEDS IDENTIFIED IN AMENDMENT 14 HAVE BEEN MET AND WHICH ARE OUTSTANDING.

MOTION #25: DIRECT STAFF/IPT TO WORK ON A SYSTEM MANAGEMENT PLAN FOR THE EXISTING 8 MPAs.

MOTION #26: APPROVE THE FOLLOWING PURPOSE AND NEED FOR REGULATORY
AMENDMENT 17:
Purpose: *Develop options to reduce bycatch of speckled hind and warsaw grouper by reconfiguration of deepwater MPAs (Amendment 14) and/or addition of new MPAs that contain evidence of occurrence and/or spawning of speckled hind or warsaw grouper. Develop and implement monitoring/evaluation/enforcement plans for any new marine protected areas.*
Need: *Protect speckled hind and warsaw grouper and their deepwater habitat from fishing and monitor and assess the effectiveness of MPAs, as outlined in a system management plan, in meeting the stated goals.*
****Guidance to clarify that reconfiguration includes modification to size, etc.****

MOTION #27: DIRECT STAFF TO STRUCTURE THE ACTIONS/ALTERNATIVES WITH ONE ACTION FOR EACH STATE AND ALTERNATIVES, INCLUDING NO ACTION, FOR EACH STATE.
Acton 1. *North Carolina (repeat for each of the other states).*
Alternative 1. *No action*
Alternative 2. *Modification of existing sites*
Sub-option 1. *Site x*
Sub-option 2. *Site y*
And so on for other sites from the list recommended by the expert working group
Alternative 3. *Spawning sites*
Sub-option 1. *Site x*
Sub-option 2. *Site y*
And so on for other sites from the list recommended by the expert working group
Alternative 4. *New sites with occurrence*
Sub-option 1. *Site x*
Sub-option 2. *Site y*
And so on for other sites from the list recommended by the expert working group

MOTION #28: STATE THAT THE MPAs BEING CONSIDERED IN REGULATORY AMENDMENT 17 ARE TYPE 2 MPAs.

MOTION #29: DIRECT STAFF TO (1) PREPARE A DRAFT REGULATORY AMENDMENT 17 DOCUMENT FOR REVIEW AT THE DECEMBER 2013 MEETING; (2) APPROVE FOR SCOPING (ASSUMING AN ENVIRONMENTAL IMPACT ASSESSMENT IS NECESSARY) AT THE DECEMBER 2013 MEETING; (3) CONDUCT IN-PERSON SCOPING MEETINGS IN JANUARY 2014; (4) REVIEW SCOPING COMMENTS AT THE MARCH 2014 MEETING TO PROVIDE GUIDANCE FOR MORE COMPLETE ANALYSES; (5) REVIEW ANALYSES AND APPROVE FOR PUBLIC HEARINGS AT THE JUNE 2014 MEETING; (6) CONDUCT PUBLIC HEARINGS IN AUGUST 2014; (7) REVIEW COMMENTS AT THE SEPTEMBER 2014 MEETING TO APPROVE ACTIONS; AND (8) FINAL REVIEW OF REGULATORY AMENDMENT 17 AND APPROVE FOR SECRETARIAL REVIEW AT THE DECEMBER 2014 MEETING.

At the December 2013 meeting, the Council approved the following motions:
MOTION #1: TAKE ALL ALTERNATIVES TO SCOPING IN AUGUST AND HAVE THE ADVISORY PANEL RECEIVE THE PRESENTATIONS AND PROVIDE THEIR RECOMMENDATIONS TO THE COUNCIL AT THE COUNCIL'S JUNE 2014 MEETING.

MOTION #22: APPROVE THE TIMING AND TASKS AS FOLLOWS.
2. Snapper Grouper Regulatory Amendment 17

a. The committee gave direction to staff to work on the System Management Plan to evaluate what needs have been met, which needs remain, and to bring their recommendations on priorities to the Council in 2014.

b. The committee gave direction to staff to have the same presentations given to the Snapper Grouper AP at their April 2014 meeting and to have Will Heyman present his approach to choosing MPA sites. Any additional presentations on work in the South Atlantic and/or Gulf that would be helpful should also be considered. The committee also directed staff to prepare charts with the catch by Logbook grid (similar to those presented to the committee) for use at the Snapper Grouper AP meeting.

Spawning: Council staff reviewed the March 5-6, 2013 snapper grouper committee minutes to clarify which species "spawning" included. On pages 162-163 Mr. Hartig indicated that spawning referred to spawning speckled hind and Warsaw grouper. This was reiterated in discussion about the motion on page 169 of those minutes.

Type 1 versus Type 2: The issue of Type 1 (no fishing) versus Type 2 (no bottom fishing; no snapper grouper species) was discussed on page 148 of the March 5-6, 2013 committee minutes. The Expert Workgroup has recommend Type 1 while the committee/Council made the decision during the June 2012 meeting that these MPAs were going to be Type 2 MPAs. Note: There is disagreement among workgroup members on whether the recommendation for Type 1 is an "official" recommendation since it does not appear in the written report.

Type 2 MPAs allow for pelagic trolling, however, no fishing for, possession, or retention of snapper grouper species is allowed. The use of shark bottom longline gear is prohibited. Vessels (both commercial and recreational) may transit (direct, non-stop progression) through the MPAs with snapper grouper species onboard with fishing gear appropriately stowed (see regulations for definition).

The Council is considering the following actions in Regulatory Amendment 17:

- **Action 1. Retain and/or modify the existing Snowy Wreck MPA, and establish new MPAs off North Carolina (Type 2).**
- **Action 2. Retain and/or modify the existing Northern SC, Edisto, and Charleston Deep Artificial Reef MPAs, and establish new MPAs off South Carolina (Type 2).**
- **Action 3. Retain and/or modify the existing Georgia MPA, and establish new MPAs off Georgia (Type 2).**
- **Action 4. Retain and/or modify the existing North Florida, St. Lucie Hump, and East Hump MPAs, and establish new MPAs off Florida (Type 2).**

NEED FOR ACTION

This document provides background information on the possible actions that will be considered for analysis in Snapper Grouper Regulatory Amendment 17.

Snapper Grouper Amendment 14 established a series of deepwater marine protected areas in the South Atlantic Exclusive Economic Zone. The amendment was approved by the Council during its June 2007 meeting and submitted to NOAA Fisheries for approval by the Secretary of Commerce on July 18, 2007. The Amendment was approved on January 13, 2009 and became effective February 12, 2009.

History of Management: Speckled hind and warsaw grouper regulations in the South Atlantic went from inclusion in the five grouper aggregate recreational bag limit in 1992 (56 FR 56016), to a commercial and recreational limit of one per vessel of each species with a commercial sale prohibition of these species in 1994 (59 FR 27242), to a complete harvest prohibition of both species in 2011 (75 FR 82280).

Stock Assessments:
"Warsaw grouper was assessed by catch curve analysis using data from 1988 and 1990 (Huntsman et al. 1992). Because warsaw grouper are infrequently caught, a single length frequency was constructed from several years (e.g., 1983-1988) for the assessment of the 1988 fishing year and 1989-1990 length samples were used for the 1990 fishing year. A limited age length key was applied to the length frequency to obtain catch-at-age data. No reproductive biology data were available; therefore, for SPR calculations the assumption for age-at-maturity was based on ½ L_∞. Static SPR values for warsaw grouper were 0.2%

and 6% for 1988 and 1990 fishing years, respectively." [SG Amendment 17B, section 3.3.9]

"Speckled hind was assessed for the 1988, 1990, 1996, and 1999 fishing years (NMFS 1991; Huntsman et al. 1992; Potts and Brennan 2001). Length frequencies for each fishing year assessed was constructed from that year's data. Length samples came primarily from the commercial fishery. Lengths for 1996 and 1999 were limited by the management restriction of one speckled hind per trip. Age and growth data were available but there were no reproductive biology data. The assumption of ½ L_∞ as the age of maturity was used for estimating the static SPR. SPR values were 25%, 12%, 8%, and 5% for 1988, 1990, 1996, and 1999 fishing years, respectively. " [SG Amendment 17B, section 3.3.10]

Current Stock Status (NOAA Report to Congress): Note: Status of stocks report for 2012 lists red snapper, red grouper, speckled hind, and warsaw grouper as undergoing overfishing. Snowy grouper, red snapper, red grouper, and red porgy are listed as overfished.

Current Stock Status Conclusions from the April 2012 SSC Report: "It is possible that SH and WG are not undergoing overfishing, given all the regulations for associated species and the current analysis from the Regional Office; however, there is not sufficient evidence to indicate overfishing has ended. Additional closed areas could further decrease bycatch mortality beyond current levels.
Based on the current info, the SSC cannot determine what benefits an additional closure will provide to the stocks of SH and WG, what amount of area closure is necessary to reduce bycatch mortality, or if additional closed areas are even necessary.
Additional monitoring and data needs to be collected in order to be able to conduct an assessment of these species."

Current level of bycatch (numbers of fish) from logbooks and observer programs: (see included graphs from Nick Farmer, NMFS SERO; **Appendix C**)

Bycatch	**2011**	**2011**	**2012**	**2012**
By Sector	**Speckled Hind**	**Warsaw**	**Speckled Hind**	**Warsaw**
Commercial	51	84	26	180
Headboat	31	33	28	22
Private/Charter	333	0	420	0
Total	415	117	474	202

Gulf & South Atlantic Fisheries Development Foundation Observer Project – concluded the bycatch level of speckled hind/warsaw grouper was too low to generate an estimate of bycatch for the South Atlantic commercial snapper grouper fishery.

The Snapper Grouper Advisory Panel reviewed the Summary Document for Regulatory Amendment 17 at their November 19-20, 2013 meeting in North Charleston, South Carolina. Council staff reviewed the Summary Document, including the proposed

timeline for development and the impacts of proposed MPAs developed by the SERO (**Appendix D**). The AP had a number of questions and/or points:

1. What level of reduction in bycatch is needed? A lot has been done for these 2 species and we don't know the benefits. Doing more without knowing the effects of what was done is not appropriate.
2. These species will take a while to recover and may take long to see any benefits. These are not the best 2 species to use to justify more MPAs.
3. Need to protect fish when spawning. Be specific with the areas and make them as small as possible. Consider closing when spawning. The AP approved a motion addressing protecting spawning fish (see below).
4. The estimates of economic impacts are way off. Commercial fishermen can only choose 1 grid on a trip and the grids are very large. The impact analysis does not include private recreational and you cannot use the headboat impacts as a proxy because private recreational boats fish in different locations. The actual impacts from these alternatives are higher than shown (see motion below).
5. Information on how well the previous MPAs have worked and information on the economic value of switching/changing existing MPAs not provided which makes it difficult for the AP to comment.

The Advisory Panel approved the following motions addressing Regulatory Amendment 17 at their November 2013 meeting:

MOTION #1: PROTECTING SPAWNING FISH IS A COMMON-SENSE APPROACH TO MANAGEMENT. THE COUNCIL SHOULD PRIORITIZE AREAS OF KNOWN SPAWNING ACTIVITY WHEN IT CONSIDERS REGULATORY AMENDMENT 17 AND PUT IN PLACE TARGETED CLOSURES TO BOTTON-FISHING ONLY, TO ALLOW FOR SURFACE TROLLING AND MINIMIZE SOCIOECONOMIC IMPACTS OF THE PROPOSED MPAS.
APPROVED BY SG AP

MOTION #2: THE COUNCIL AND SEFSC REMOVE THE IMPACT TABLE FROM THE AMENDMENT DUE TO THE DIFFERENT INFORMATION FROM FISHERMEN VERSUS WHAT THE TABLE SHOWS.
APPROVED BY SG AP

<u>NC Potential MPA Sites</u>:
MOTION: KEEP SNOWY WRECK MPA THE SAME SIZE.
APPROVED BY SG AP

MOTION: DO AWAY WITH THE SOUTH CAPE LOOKOUT MPA & SOUTHERN NORTH CAROLINA MPA; ADD 780 BOTTOM & MALCHASE WRECK AS TEST SITES; AND REQUIRE MONITORING.
APPROVED BY SG AP

SC Potential MPA Sites:
MOTION: CONSIDER REDUCING THE SIZE OF THE DEVILS HOLE/GEORGETOWN HOLE MPA TO 1 SQUARE MILE
APPROVED BY SG AP

MOTION: SUPPORT ALTERNATIVE 1 (NO ACTION)
APPROVED BY SG AP

GA Potential MPA Sites:
MOTION: EXTEND THE EXISTING MPA WESTWARD TO THE SAME DEPTH AS THE PROPOSED SITES
DISAPPROVED BY SG AP

FL Potential MPA Sites:
MOTION: ESTABLISH THE WARSAW HOLE AS A MPA.
DISAPPROVED BY SG AP

MOTION: USE ALTERNATIVE 1 (NO ACTION) AS PREFERRED
APPROVED BY SG AP

Purpose & Need (approved by Council at September 2013 meeting):

Purpose: Develop options to reduce bycatch of speckled hind and warsaw grouper by reconfiguration of deepwater MPAs (Amendment 14) and/or addition of new MPAs that contain evidence of occurrence and/or spawning of speckled hind or warsaw grouper. Develop and implement monitoring/evaluation/enforcement plans for any new marine protected areas.
Need: Protect speckled hind and warsaw grouper and their deepwater habitat from fishing and monitor and assess the effectiveness of MPAs, as outlined in a system management plan, in meeting the stated goals.

Purpose & Need (IPT recommended modifications):

Purpose: Reduce bycatch of speckled hind and warsaw grouper by reconfiguration of deepwater MPAs (Type 2; Amendment 14) and/or addition of new MPAs that contain evidence of occurrence and/or spawning of speckled hind or warsaw grouper. Develop and implement monitoring/evaluation/enforcement plans for any new marine protected areas.
Need: Reduce bycatch mortality of speckled hind and warsaw grouper and protect their deepwater habitat. Monitor and assess the effectiveness of MPAs, as outlined in a system management plan, in meeting the stated goals.

COMMITTEE ACTION:
1. Discuss/modify the Purpose & Need
2. Approve the Purpose & Need

How to Measure Impacts for the proposed MPAs?

The following section is taken directly from Amendment 14:

"**4.1.6 Data on Impacts**
At their June 2006 meeting the Council's Scientific and Statistical Committee (SSC) reviewed the draft amendment and recommended that a quantitative estimate of impacts be added to the document.

The Southeast Logbook Program provides catch by statistical grid (1 degree squares). Initially impacts were going to be estimated by looking at the total snapper grouper catch in a grid containing a Type 2 MPA (or any portion of a MPA) and assuming that the catch from the Type 2 MPA was between zero and the total catch in the grid. This would certainly have placed an upper and lower bound on the level of catch impacted. Another method would have used the percentage of the grid covered by a proposed Type 2 MPA and assumed that the catch would be reduced by the same percentage. Both of these methods would have resulted in quantitative estimates of the level of potential impact.

Preliminary estimates of these levels of catch were presented during the Informational Public Hearings to try and get those attending to further refine our estimates. This effort was not successful.

The Interdisciplinary Team decided to not include these quantitative estimates in favor of including a qualitative discussion of the level of impacts.

The NMFS Southeast Regional Office and Southeast Fisheries Science Center conducted a Delphi study to develop a quantitative estimate of impacts. Results were reviewed by the SSC and the Council at the December 3-8, 2006 meeting and are included in the final EIS and Amendment.

Acting on direction from the Council, the SSC was also presented with the estimations from the logbook data and the results from the Delphi study and was asked to determine the best source for estimating impacts of the alternatives. The SSC concluded that both estimates of impacts should be included and thus they have been added under the Economic Impacts section of each management measure."

For Regulatory Amendment 17, the NMFS SERO developed a model to measure impacts (**Attachment C**). The NMFS SEFSC reviewed this model and concurred that this is the appropriate methodology to measure the impacts of proposed MPAs in Regulatory Amendment 17. Impacts are minimal as shown in **Table 1** of **Attachment C**.

The Snapper Grouper Advisory Panel reviewed these impacts at their November 19-20, 2013 meeting in North Charleston, South Carolina and their motion is shown below:

MOTION: THE COUNCIL AND SEFSC REMOVE THE IMPACT TABLE FROM THE AMENDMENT DUE TO THE DIFFERENT INFORMATION FROM FISHERMEN VERSUS WHAT THE TABLE SHOWS
APPROVED BY SG AP

Council staff will review a chart used for red snapper that shows the catch by grid for commercial, headboat, and private recreational. Such an approach could be updated as a way to provide another estimate of impacts.

COMMITTEE ACTION:

1. Discuss the methods to measure impacts
2. Provide guidance to staff & IPT on how to measure impacts for Regulatory Amendment 17.

POSSIBLE ACTIONS

The Snapper Grouper Advisory Panel reviewed the Summary Document for Regulatory Amendment 17 at their November 19-20, 2013 meeting in North Charleston, South Carolina and their motions are shown below for each action.

Action 1. Retain and/or modify the existing Snowy Wreck MPA, and establish new MPAs off North Carolina (Type 2).

Note: Multiple sub-alternatives under an alternative may be chosen. The existing MPA site(s) would remain unless specifically modified or removed. The Alternatives progress from what is currently in place (No Action) to reconfigurations to existing MPAs, to sites with spawning, and then to sites with occurrence of speckled hind and/or warsaw grouper. If an alternative does not meet the spawning or reconfiguration criteria, then it is shown in yellow strike-thru. It is anticipated that the Council will choose one criteria for each state and then select one or more sub-alternatives for that alternative.

Alternative 1. No action. Snapper Grouper Amendment 14 (2007; regulations effective 2/12/09) established the 190 square mile Snowy Wreck MPA (Type 2) off North Carolina.

Alternative 2. Modify the existing Snowy Wreck MPA (Type 2) through reconfiguration.
Sub-alternative 3a. Snowy Wreck MPA (Type 2) modified from 190 to 18 square miles.
Sub-alternative 3b. Snowy Wreck MPA (Type 2) modified from 190 to 4 square miles.
Sub-alternative 3c. Snowy Wreck MPA (Type 2) modified from 190 to 1 square miles.
MOTION: KEEP SNOWY WRECK MPA THE SAME SIZE
APPROVED BY SG AP

Alternative 3. Establish the following new North Carolina MPAs (Type 2) based on documented occurrence of speckled hind and/or warsaw grouper.
Sub-alternative 2a. 780 Bottom MPA (Type 2; 22 square miles)
Sub-alternative 2b. South Cape Lookout MPA (Type 2; 72 square miles)
Sub-alternative 2c. Southern North Carolina MPA (Type 2; 89 square miles)
MOTION: DO AWAY WITH THE SOUTH CAPE LOOKOUT MPA & SOUTHERN NORTH CAROLINA MPA; ADD 780 BOTTOM & MALCHASE WRECK AS TEST SITES; AND REQUIRE MONITORING
APPROVED BY SG AP

~~**Alternative 4.** Establish the following new North Carolina MPAs (Type 2) based on documented spawning of speckled hind and/or warsaw grouper. No new sites off North Carolina have documented spawning of speckled hind and/or warsaw grouper.~~

COMMITTEE ACTION:
1. Discuss these sites
2. Approve sites to be included for scoping

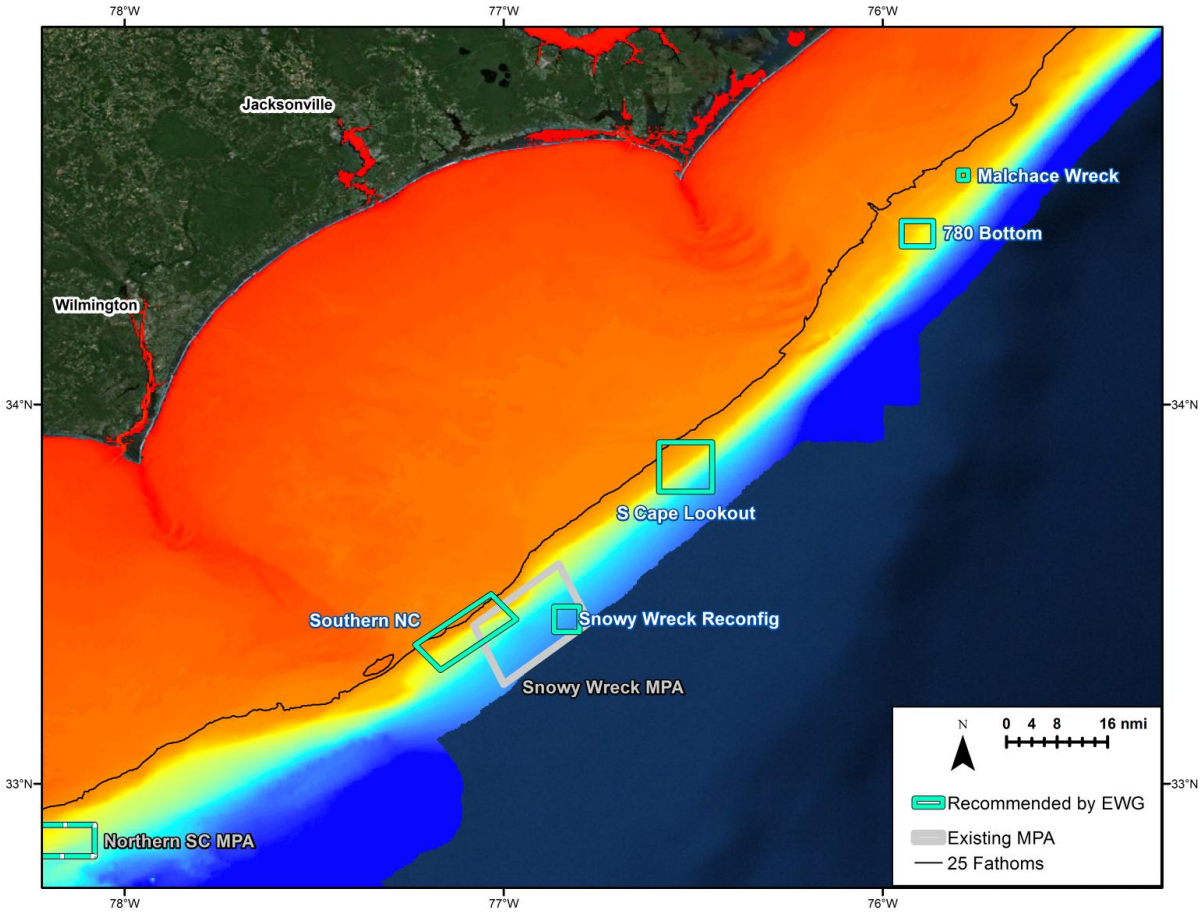

Figure 1. North Carolina MPA sites showing bottom depth.
Source: Nick Farmer, NMFS SERO

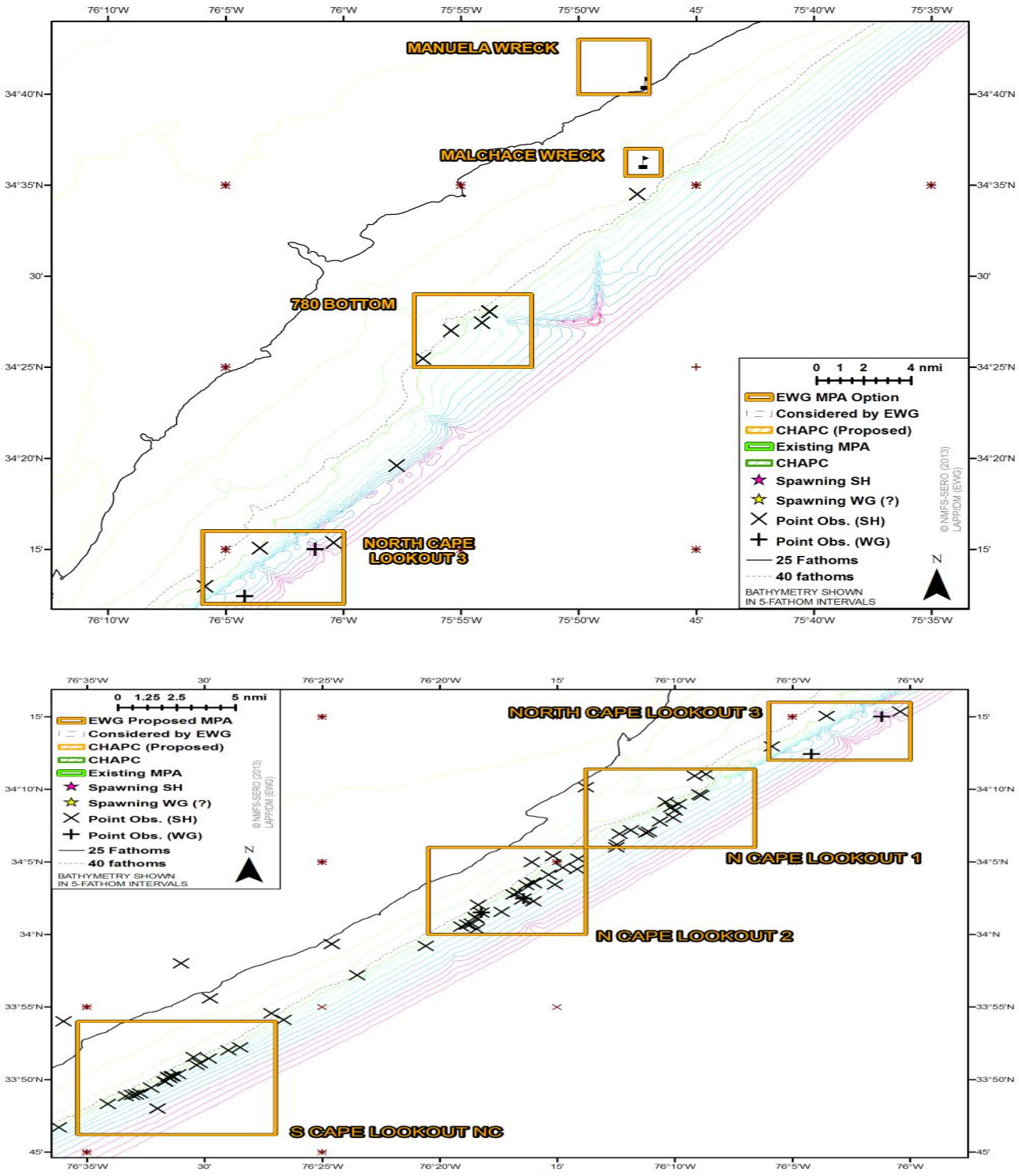

Figure 1b. North Carolina MPA sites showing spawning and/or occurrence data.
Source: Nick Farmer, NMFS SERO

Action 2. Retain and/or modify the existing Northern SC, Edisto, and Charleston Deep Artificial Reef MPAs, and establish new MPAs off South Carolina (Type 2).

Note: Multiple sub-alternatives under an alternative may be chosen. The existing MPA site(s) would remain unless specifically modified or removed. The Alternatives progress from what is currently in place (No Action) to reconfigurations to existing MPAs, to sites with spawning, and then to sites with occurrence of speckled hind and/or warsaw grouper. If an alternative does not meet the spawning or reconfiguration criteria, then it is shown in yellow strike-thru. It is anticipated that the Council will choose one criteria for each state and then select one or more sub-alternatives for that alternative.

Alternative 1. No action. Snapper Grouper Amendment 14 (2007; regulations effective 2/12/09) established the Northern SC MPA (Type 2; 67 square miles), the Edisto MPA (Type 2; 66 square miles), and the Charleston Deep Artificial Reef MPA (Type 2; 28 square miles) off South Carolina.
MOTION: SUPPORT ALTERNATIVE 1 (NO ACTION)
APPROVED BY SG AP

Alternative 2. Modify the existing Northern SC MPA and/or Edisto MPA (Type 2) through reconfiguration.
Sub-alternative 3a. Northern SC Extension MPA (Type 2; 13 square miles).
Sub-alternative 3b. Edisto Reconfiguration 3 MPA (Type 2; 81 square miles).

Alternative 3. Establish the following new South Carolina MPAs (Type 2) based on documented spawning of speckled hind and/or warsaw grouper.
Sub-alternative 4a. Northern SC Extension MPA (Type 2; 13 square miles).
Sub-alternative 4b. Devils Hole/Georgetown Hole MPA (Type 2; 27 square miles).
MOTION: CONSIDER REDUCING THE SIZE OF THE DEVILS HOLE/GEORGETOWN HOLE MPA TO 1 SQUARE MILE
APPROVED BY SG AP

Alternative 4. Establish the following new South Carolina MPAs based on documented occurrence of speckled hind and/or warsaw grouper.
Sub-alternative 2a. Northern SC Extension MPA (Type 2; 13 square miles).
Sub-alternative 2b. Devils Hole/Georgetown Hole MPA (Type 2; 27 square miles).
Sub-alternative 2c. Edisto Reconfiguration 3 MPA (Type 2; 81 square miles).

COMMITTEE ACTION:
1. Discuss these sites
2. Approve sites to be included for scoping

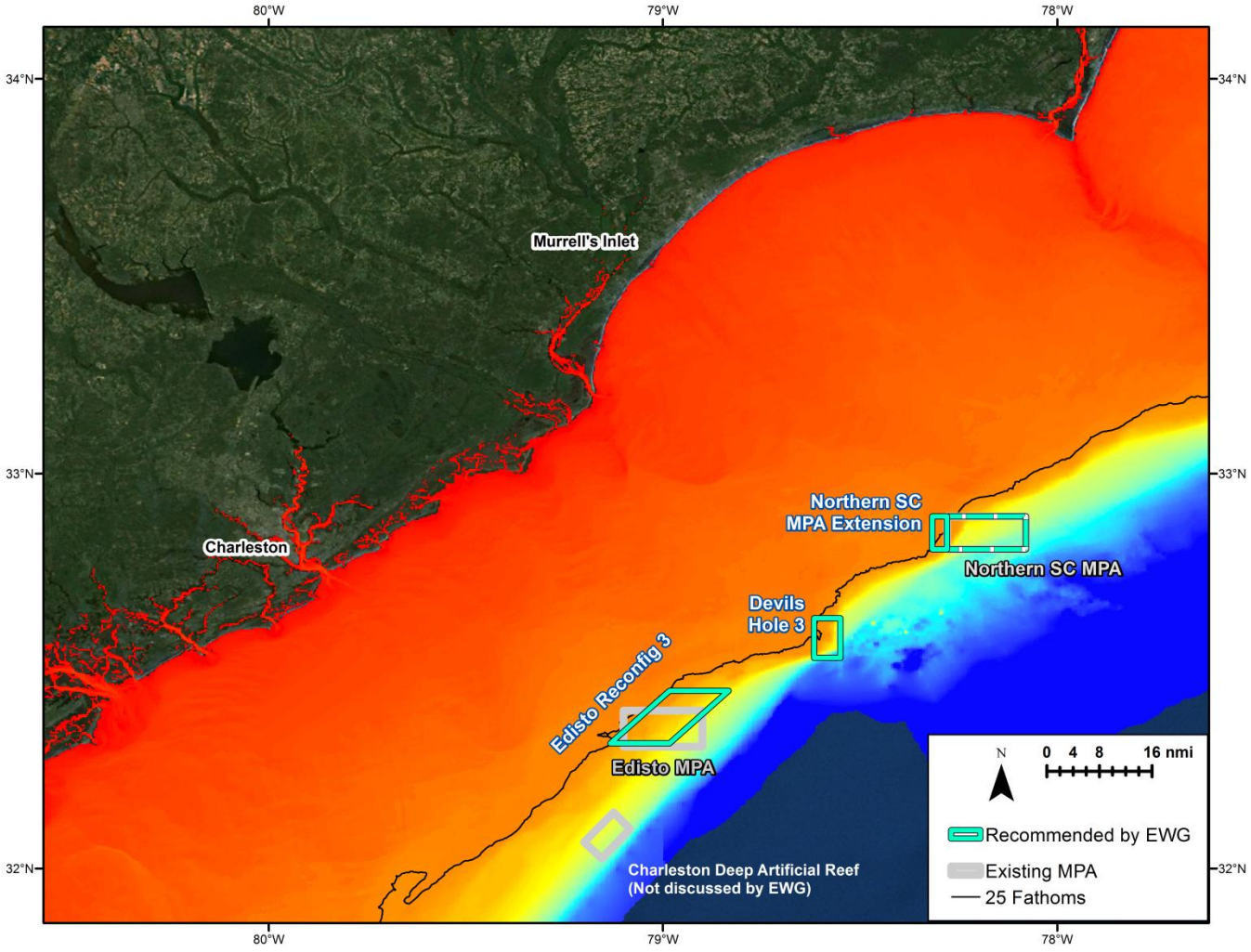

Figure 2a. South Carolina MPA sites showing bottom depth.
Source: Nick Farmer, NMFS SERO

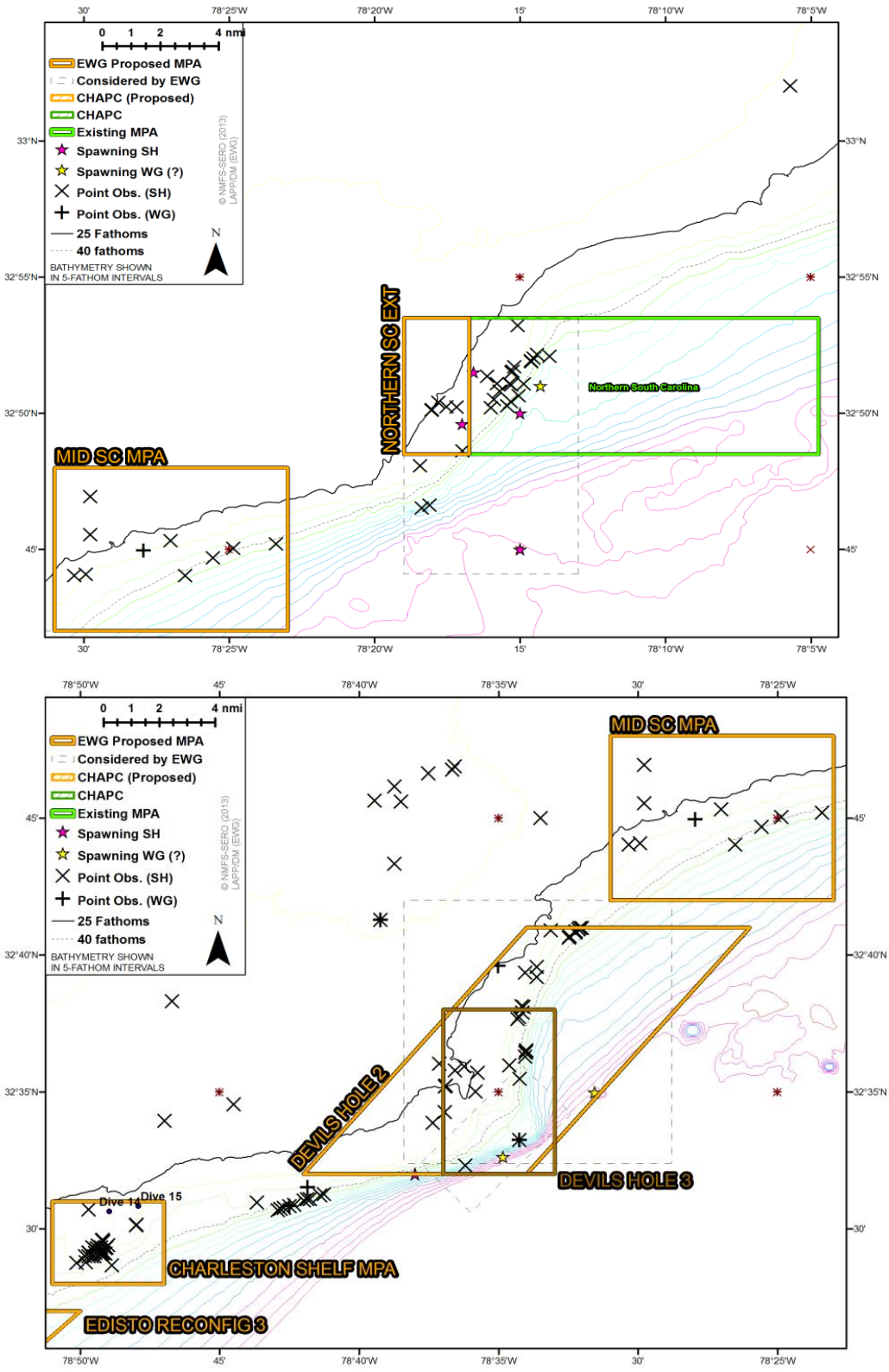

Figure 2b. South Carolina MPA sites showing spawning and/or occurrence data.
Source: Nick Farmer, NMFS SERO

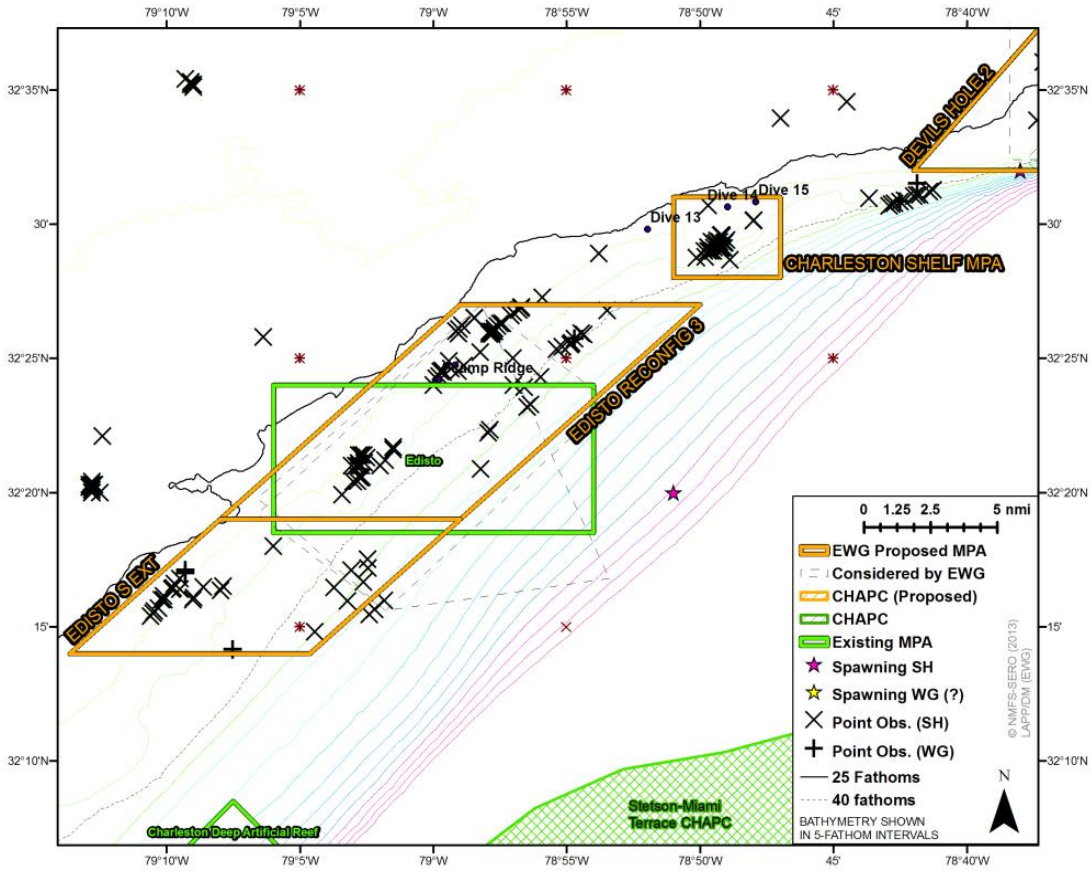

Figure 2c. South Carolina MPA sites showing spawning and/or occurrence data.
Source: Nick Farmer, NMFS SERO

Action 3. Retain and/or modify the existing Georgia MPA, and establish new MPAs off Georgia (Type 2).

Note: Multiple sub-alternatives under an alternative may be chosen. The existing MPA site(s) would remain unless specifically modified or removed. The Alternatives progress from what is currently in place (No Action) to reconfigurations to existing MPAs, to sites with spawning, and then to sites with occurrence of speckled hind and/or warsaw grouper. If an alternative does not meet the spawning or reconfiguration criteria, then it is shown in yellow strike-thru. It is anticipated that the Council will choose one criteria for each state and then select one or more sub-alternatives for that alternative.

Alternative 1. No action. Snapper Grouper Amendment 14 (2007; regulations effective 2/12/09) established the 102 square mile Georgia MPA (Type 2) off Georgia.

Alternative 2. Establish the following new Georgia MPAs (Type 2) based on documented occurrence of speckled hind and/or warsaw grouper.
Sub-alternative 2a. Georgia MPA Reconfiguration MPA (Type 2; 79 square miles)
Sub-alternative 2b. St. Simons Extension 2 MPA (Type 2; 45 square miles)
MOTION: EXTEND THE EXISTING MPA WESTWARD TO THE SAME DEPTH AS THE PROPOSED SITES
DISAPPROVED BY SG AP

~~**Alternative 3.** Establish the following new Georgia MPAs (Type 2) based on reconfiguration of existing MPA sites. No new sites off Georgia are modifications of the existing Georgia MPA.~~

~~**Alternative 4.** Establish the following new Georgia MPAs (Type 2) based on documented spawning of speckled hind and/or warsaw grouper. No new sites off Georgia have documented spawning of speckled hind and/or warsaw grouper.~~

COMMITTEE ACTION:

1. Discuss these sites
2. Approve sites to be included for scoping

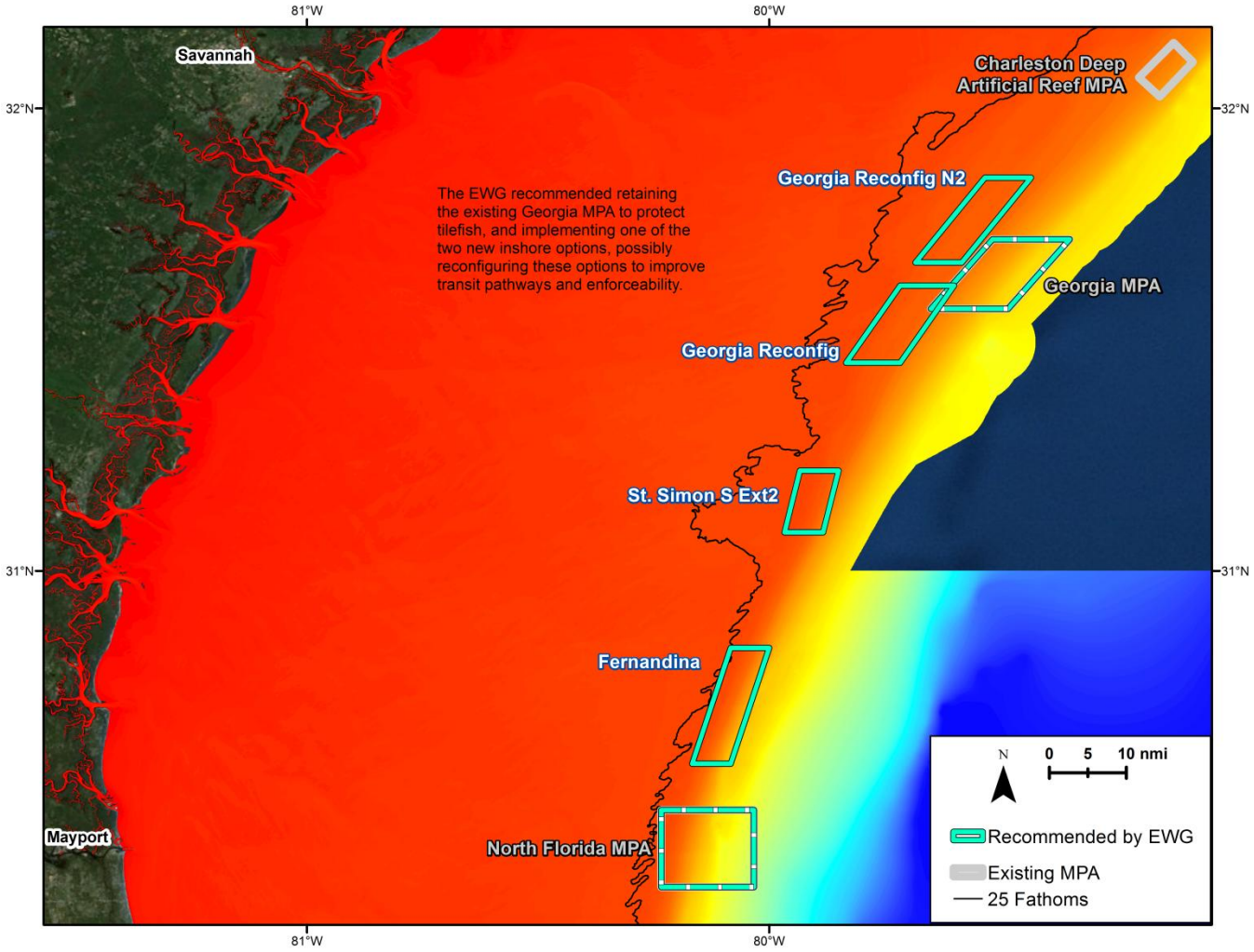

Figure 3a. Georgia MPA sites showing bottom depth.
Source: Nick Farmer, NMFS SERO

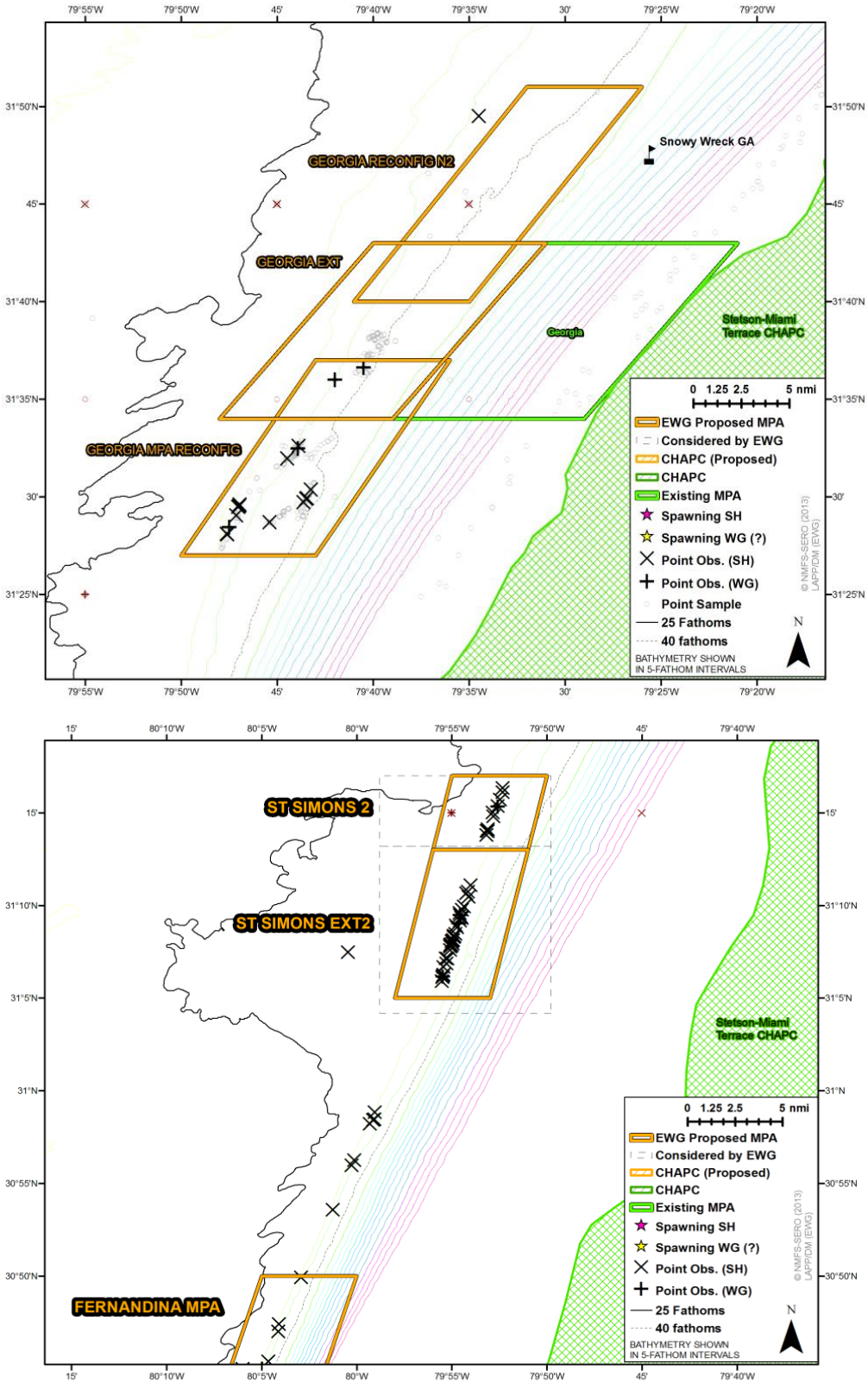

Figure 3b. Georgia MPA sites showing spawning and/or occurrence data.
Source: Nick Farmer, NMFS SERO

Action 4. Retain and/or modify the existing North Florida, St. Lucie Hump, and East Hump MPAs, and establish new MPAs off Florida (Type 2).
Note: Multiple sub-alternatives under an alternative may be chosen. The existing MPA site(s) would remain unless specifically modified or removed. The Alternatives progress from what is currently in place (No Action) to reconfigurations to existing MPAs, to sites with spawning, and then to sites with occurrence of speckled hind and/or warsaw grouper. If an alternative does not meet the spawning or reconfiguration criteria, then it is shown in yellow strike-thru. It is anticipated that the Council will choose one criteria for each state and then select one or more sub-alternatives for that alternative.

Alternative 1. No action. Snapper Grouper Amendment 14 (2007; regulations effective 2/12/09) established the North Florida MPA (Type 2; 137 square miles), the St. Lucie Hump MPA (Type 2; 9 square miles), and the East Hump MPA (Type 2; 66 square miles) off Florida. The Oculina Bank Experimental Closed area functions as a MPA and provides similar benefits as the other MPAs. The Oculina Bank CHAPC and the proposed Extension provide some protection by prohibiting bottom tending gear (e.g., bottom longline) and anchoring.
MOTION: USE ALTERNATIVE 1 (NO ACTION) AS PREFERRED
APPROVED BY SG AP

Alternative 2. Establish the Warsaw Hole MPA (Type 2; 2 square miles) as a new Florida MPA (Type 2) based on documented spawning of ~~speckled hind and/or~~ warsaw grouper.
Note: Spawning by warsaw grouper has been reported from this site but not speckled hind.
MOTION: ESTABLISH THE WARSAW HOLE AS A MPA.
DISAPPROVED BY SG AP

Alternative 3. Establish the following new Florida MPAs (Type 2) based on documented occurrence of speckled hind and/or warsaw grouper.
Sub-alternative 2a. Fernandina MPA (Type 2; 85 square miles)
Sub-alternative 2b. St. Augustine 2 MPA (Type 2; 32 square miles)
Sub-alternative 2c. Daytona Ledge MPA (Type 2; 11 square miles)
Sub-alternative 2d. Daytona Steeples MPA (Type 2; 27 square miles)
Sub-alternative 2e. Oculina Bank CHAPC (Type 2; 279 square miles)
Sub-alternative 2f. Oculina Bank CHAPC Extension (Type 2; 242 square miles)
Sub-alternative 2g. Oculina Bank Experimental Closed Area (Type 2; 108 square miles)
Sub-alternative 2h. Push Button Hill MPA (Type 2; 9 square miles)
Sub-alternative 2i. Juno Beach MPA (Type 2; 4 square miles)
Sub-alternative 2j. Warsaw Hole MPA (Type 2; 2 square miles)

~~**Alternative 4.** Establish the following new Florida MPAs (Type 2) based on reconfiguration of existing MPA sites. No new sites off Florida are modifications of the existing Florida MPAs.~~

COMMITTEE ACTION:
1. Discuss these sites
2. Approve sites to be included for scoping

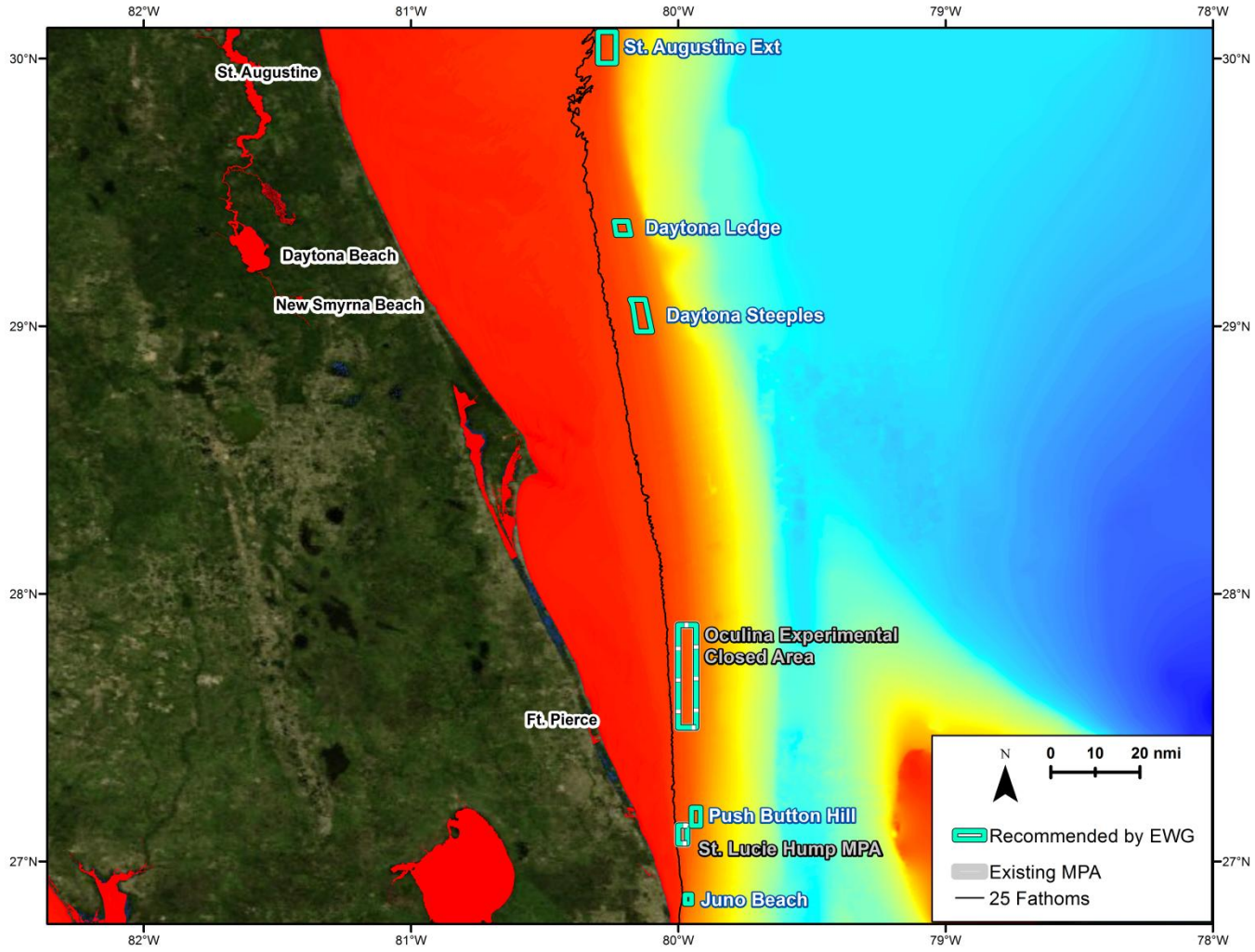

Figure 4a. Mid to North Florida MPA sites showing bottom depth.
Source: Nick Farmer, NMFS SERO

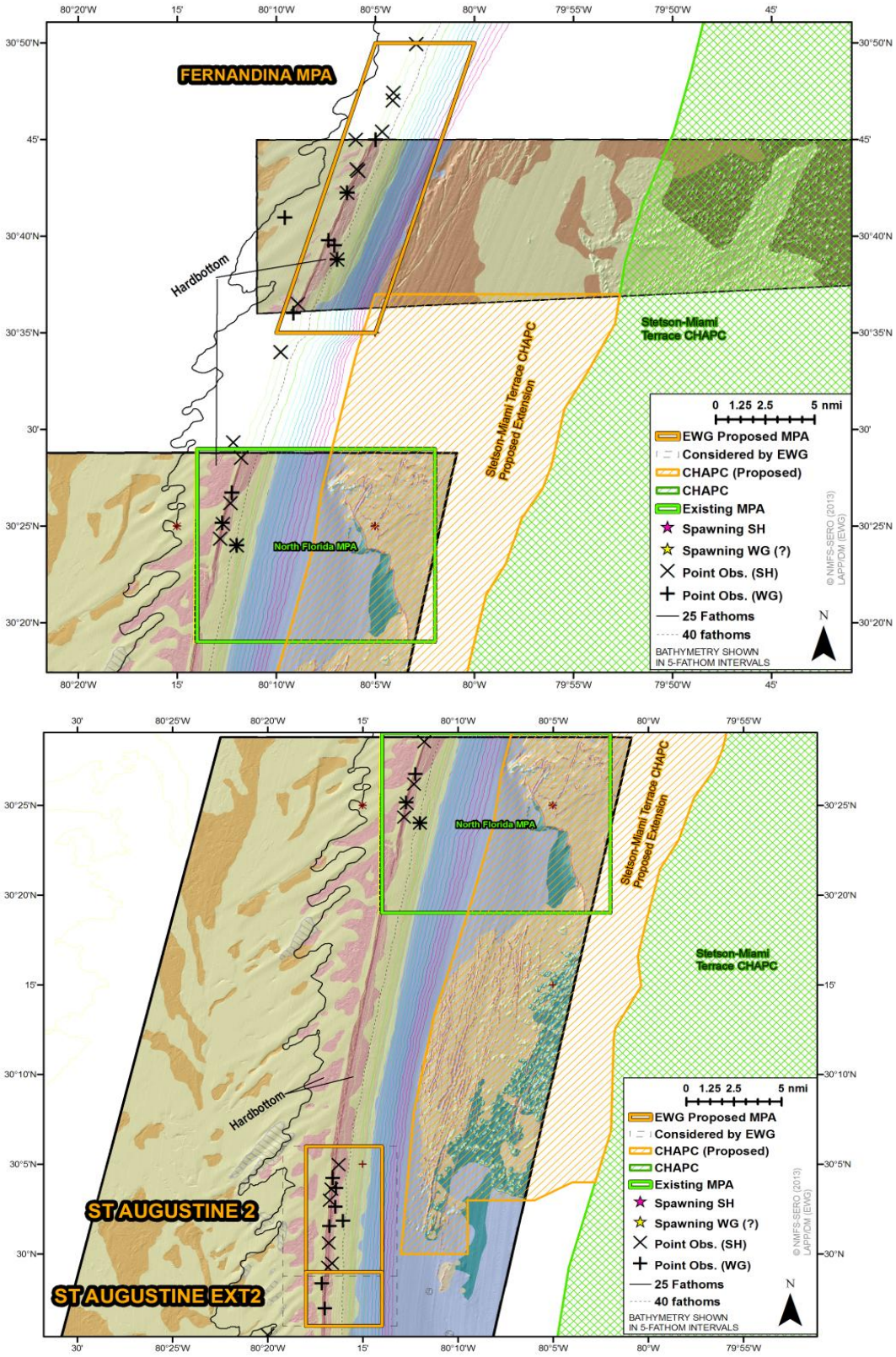

Figure 4b. Mid to North Florida MPA sites showing spawning and/or occurrence.
Source: Nick Farmer, NMFS SERO

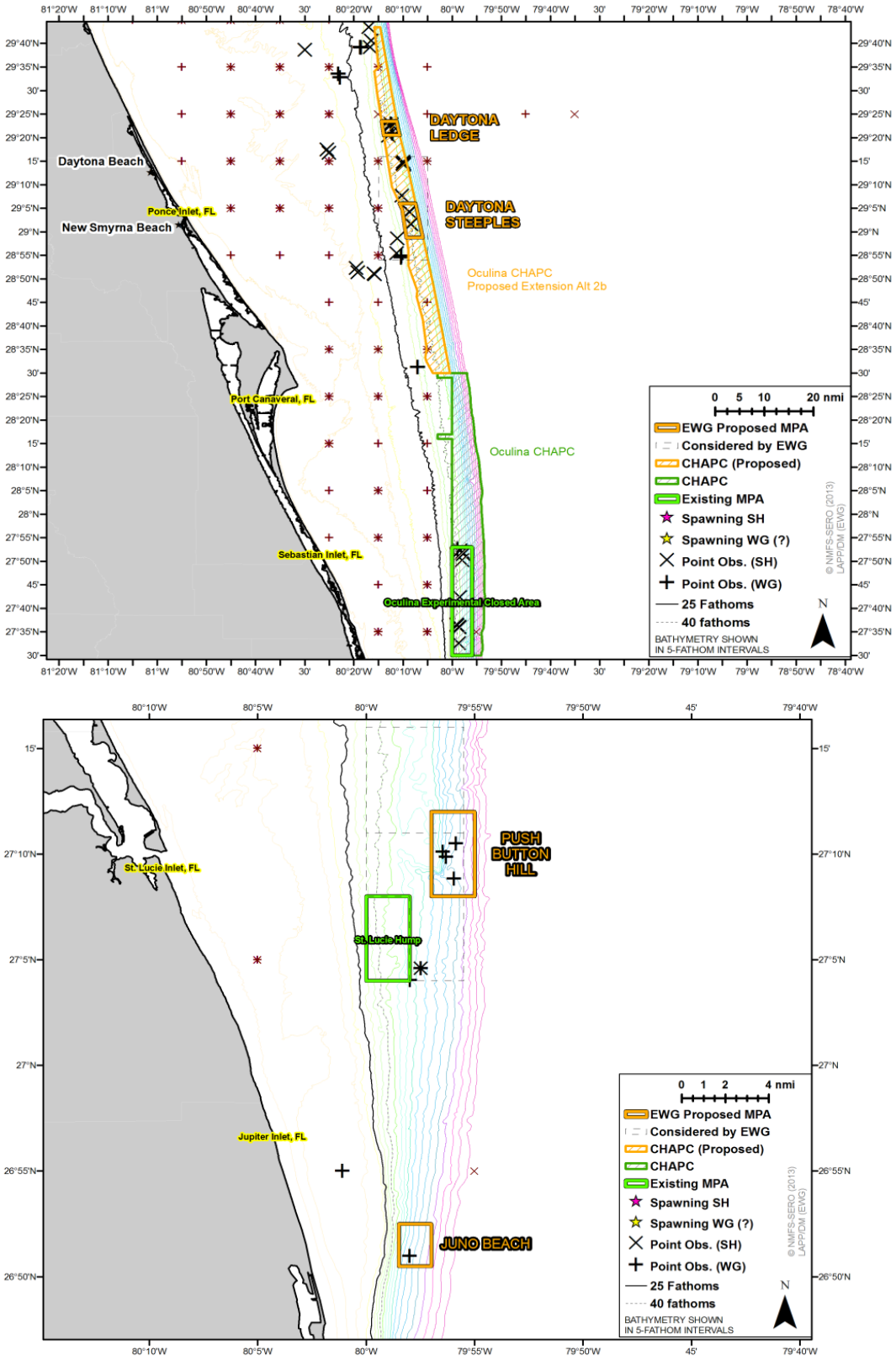

Figure 4c. Mid to North Florida MPA sites showing spawning and/or occurrence.
Source: Nick Farmer, NMFS SERO

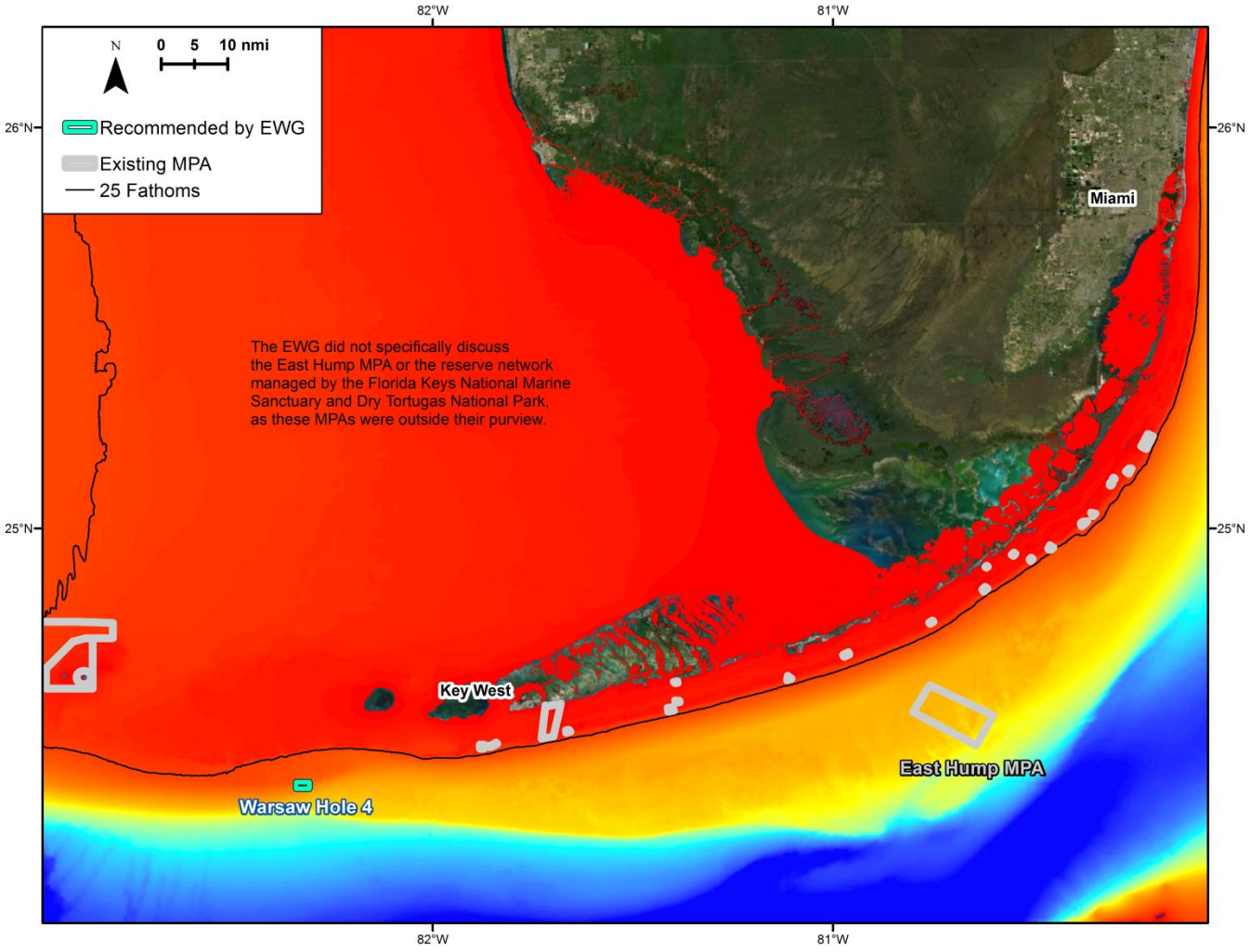

Figure 5a. South Florida MPA sites showing bottom depth.
Source: Nick Farmer, NMFS SERO

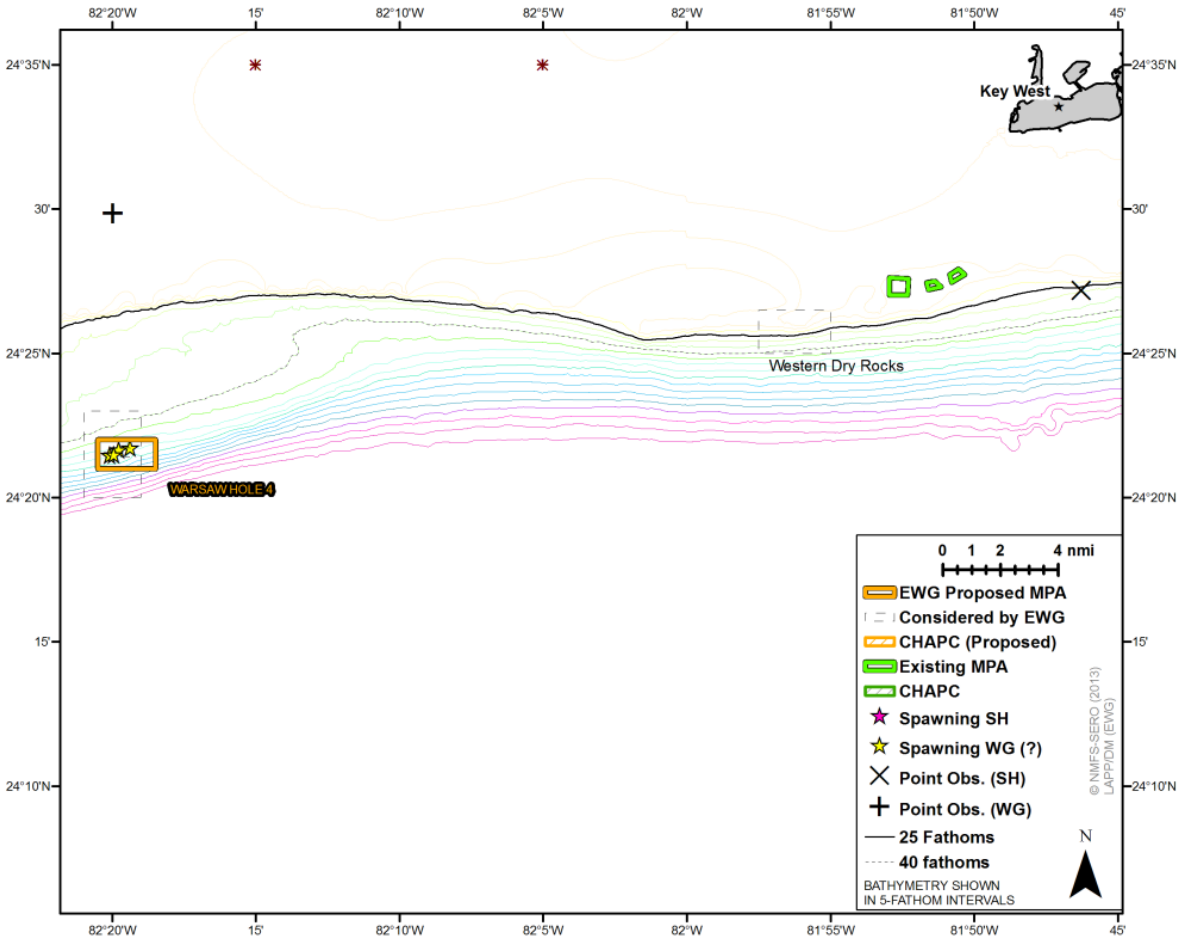

Figure 5b. South Florida MPA sites showing bottom depth.
Source: Nick Farmer, NMFS SERO

The following tables (Tables 1-3) show additional information about the sites being considered.

Table 1. Sites from the Expert Workgroup list that meet the Council's criteria of reconfiguration and targeting speckled hind/warsaw grouper.

These sites meet the Council's criteria of reconfigureation and spawning for speckled hind/warsaw grouper.								
Site #	**Location (Type 2 MPAs)**	**Size (sq. mi.)**	**Existing**	**New**	**Reconfiguration**	**Include Spawning Sites**		
						SpHind	**Warsaw**	**Others**
	North Carolina							
1a	***Snowy Wreck MPA***	190	**X**					**X**
1b	Snowy Wreck MPA Reconfiguration	190->18->4->1			**X**			**X**
	South Carolina							
2	***Northern SC***	67	**X**			**X**	**X**	**X**
3a	***Edisto MPA***	66	**X**					**X**
3b	*Edisto Reconfiguration 3*	81			**X**			**X**
4	***Charleston Deep Artifical Reef MPA***	28	**X**					
5	Devils Hole/Georgetown Hole	27		**X**			**X**	**X**
6	Northern SC Extension	13			**X**	**X**		**X**
	Georgia							
7	***Georgia MPA***	102	**X**					
	Florida							
8	***North Florida MPA***	137	**X**					
9	***St. Lucie Hump MPA***	9	**X**					
10	***East Hump MPA***	66	**X**					
11	**Oculina Experimental Closed Area***	108		**X**				**X**
12	Warsaw Hole	2		**X**			**X**	
	Green Italics = existing MPA							
	Green* = Oculina Experimental Closed Area - no SG fishing							

Table 2. Sites suggested by the Expert Workgroup.

Sites suggested by the Expert Workgroup.								
Site #	**Location (Type 1 MPAs)**	**Size (sq. mi.)**	**Existing**	**New**	**Reconfiguration**	**Include Spawning Sites**		
						SpHind	**Warsaw**	**Others**
	North Carolina							
1	***Snowy Wreck MPA***	190->18->4->1	X		X			X
2	780 Bottom	22		X				X
3	Malchace Wreck	2.47		X				X
4	South Cape Lookout	72		X				X
5	Southern NC	89		X				X
	South Carolina							
6	***Northern SC***	67	X			X	X	X
7	***Edisto Reconfiguration 3***	81	X		X			X
8	Devils Hole/Georgetown Hole	27		X			X	X
9	Northern SC Extension	13			X	X		X
	Georgia							
10	***Georgia MPA***	102	X					
11	Georgia MPA Reconfiguration	79		X				X
12	Georgia MPA Reconfiguration N2	74		X				
13	St. Simons Extension 2	45		X				X
	Florida							
14	***North Florida MPA***	137	X					
15	***St. Lucie Hump MPA***	9	X					
16	Fernandina	85		X				X
17	St. Augustine 2	32		X				
18	Daytona Ledge	11		X				
19	Daytona Steeples	27		X				
20	Oculina Bank CHAPC	279		X				
21	Oculina Bank CHAPC Extension	242		X				
22	**Oculina Experimental Closed Area***	108	X					X
23	Push Button Hill	9		X				X
24	Juno Beach	4		X				
25	Warsaw Hole	2		X			X	
26	FKNMS SPAs and ERs	247		X				
	Green Italics = existing MPA							
	Green* = Oculina Experimental Closed Area - no SG fishing							
27	The workgroup is not recommending dropping the East Hump *MPA*							
28	The workgroup is not recommending dropping the *Charleston Deep Artificial Reef MPA*							

Table 3. Sites from the Expert Workgroup list that meet the Council's criteria of occurrence.

Sites suggested by the Expert Workgroup.										
Site #	**Location (Type 1 MPAs)**	**Size (sq. mi.)**	**Existing**	**New**	**Reconfiguration**	**Include Spawning Sites**			**Occurrence of**	
						SpHind	**Warsaw**	**Others**	**SpHind**	**Warsaw**
	North Carolina									
1	***Snowy Wreck MPA***	190->18->4->1	X		X			X	X	X
2	780 Bottom	22		X				X	X	
~~3~~	~~Malchace Wreck~~	~~2.47~~		~~X~~				~~X~~		
4	South Cape Lookout	72		X				X	X	
5	Southern NC	89		X				X	X	
	South Carolina									
6	***Northern SC***	67	X			X	X	X	X	X
7	***Edisto Reconfiguration 3***	81	X		X			X	X	
8	Devils Hole/Georgetown Hole	27		X			X	X	X	X
9	Northern SC Extension	13			X	X		X	X	
	Georgia									
10	***Georgia MPA***	102	X							
11	Georgia MPA Reconfiguration	79		X				X	X	X
~~12~~	~~Georgia MPA Reconfiguration N2~~	~~74~~		~~X~~						
13	St. Simons Extension 2	45		X				X	X	
	Florida									
14	***North Florida MPA***	137	X						X	X
15	***St. Lucie Hump MPA***	9	X							
16	Fernandina	85		X				X	X	X
17	St. Augustine 2	32		X					X	X
18	Daytona Ledge	11		X					X	X
19	Daytona Steeples	27		X					X	
20	Oculina Bank CHAPC	279		X					X	
21	Oculina Bank CHAPC Extension	242		X					X	X
22	**Oculina Experimental Closed Area***	108	X					X	X	X
23	Push Button Hill	9		X				X		X
24	Juno Beach	4		X						X
25	Warsaw Hole	2		X			X			X
~~26~~	~~FKNMS SPAs and ERs~~	~~247~~		~~X~~						
27	The workgroup is not recommending dropping the East Hump *MPA*									
28	The workgroup is not recommending dropping the *Charleston Deep Artificial Reef MPA*									

What Next?

Scoping meetings for Regulatory Amendment 17 will be held as shown below. The scoping document, PowerPoint presentation, and video presentation will be made available on the Council's website prior to the scoping meetings.

The scoping meetings will begin at 4 p.m. and end at 7 p.m. DATES AND CITIES ARE FINAL BUT THE SPECIFIC LOCATIONS MAY CHANGE.

August 6, 2014 North Myrtle Beach, SC Phone: 843-	**August 7, 2014** Atlantic Beach, NC Phone: 252
August 11, 2014 Key West, Florida Phone: 305-	**August 12, 2014** Doubletree by Hilton Oceanfront 2080 North Atlantic Ave. Cocoa Beach, FL 32931 Phone: 321-783-9222
August 13, 2014 Jacksonville, FL 32256 Phone: 904	**August 14, 2014** Richmond Hill City Center 520 Cedar Street Richmond Hill, GA 31324 Phone: 912-445-0043

Written comments must be received by 5 P.M. on August 18, 2014. All comments will be considered by the Council in drafting Snapper Grouper Regulatory Amendment 17. There will be a number of opportunities to provide public input if the Council moves forward to develop an amendment. A simplified schematic of the Council process is presented in **Appendix B**.

References:

Huntsman, G.R., J. Potts, R. Mays, R.L. Dixon, P.W. Willis, M. Burton, and B.W. Harvey. 1992. A stock assessment of the snapper grouper complex in the U.S. South Atlantic based on fish caught in 1990. Report to the South Atlantic Fishery Management Council. June 1992. NMFS Beaufort Lab, 101 Pivers Island Road, Beaufort, NC, 28516-9722.

NMFS (National Marine Fisheries Service). 1991. South Atlantic snapper grouper assessment. 1991. DOC/NOAA/NMFS/SEFSC. Staff report by NMFS Beaufort Lab, 101 Pivers Island Road, Beaufort, NC 28516. Unpublished manuscript. 6pp.

Potts, J.C. and K. Brennan. 2001. Trends in catch data and static SPR values for 15 species of reef fish landed along the southeastern United States. Report for South Atlantic Fishery Management Council, Charleston, SC.

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

Appendix A. South Atlantic Fishery Management Council 2013-2014 Membership

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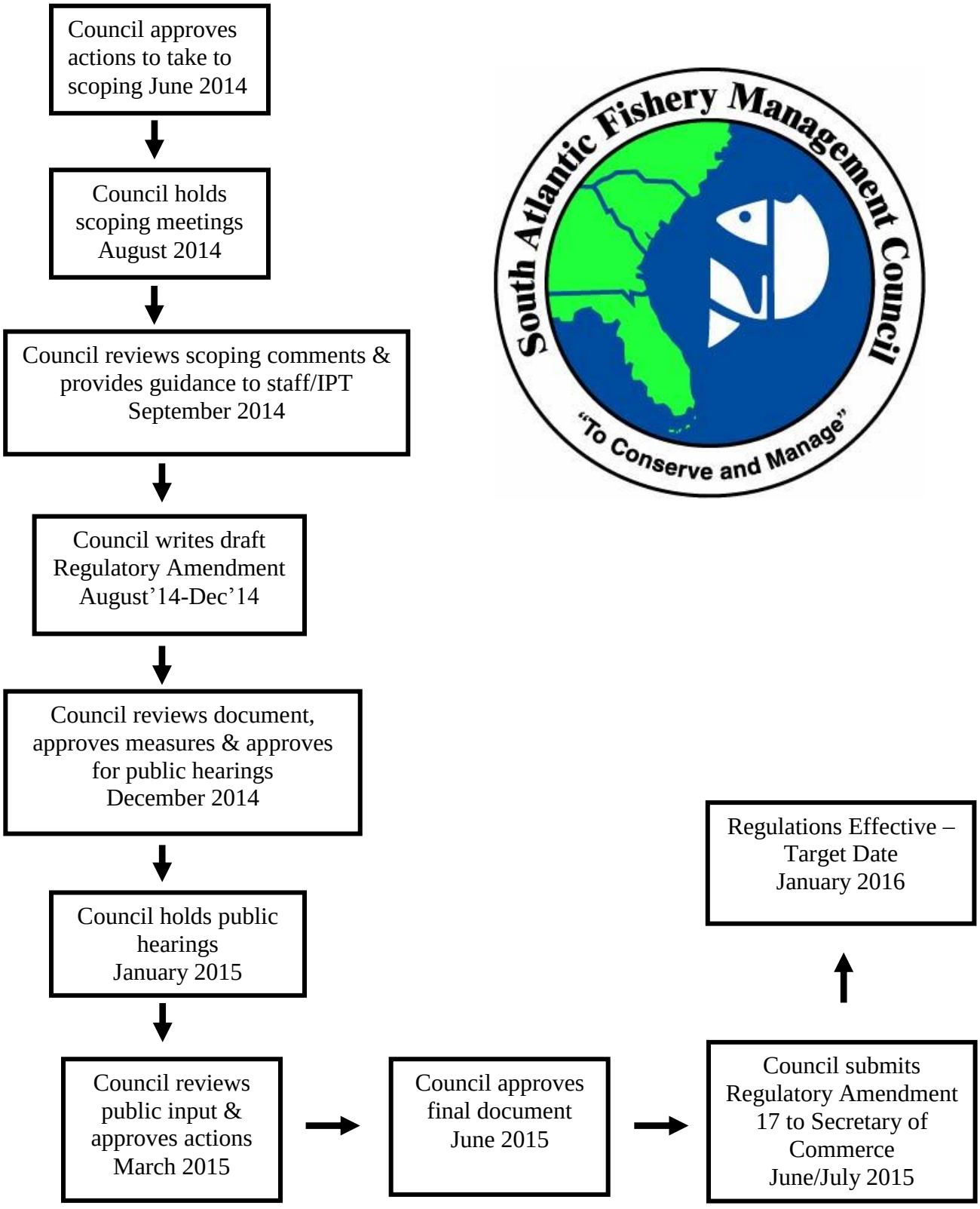
Appendix B. A Simplified Schematic of the Council Process.



July 30, 2013

SAFMC SPECKLED HIND AND WARSAW GROUPER LANDINGS AND DISCARDS

NOAA FISHERIES SERVICE, SOUTHEAST REGIONAL OFFICE

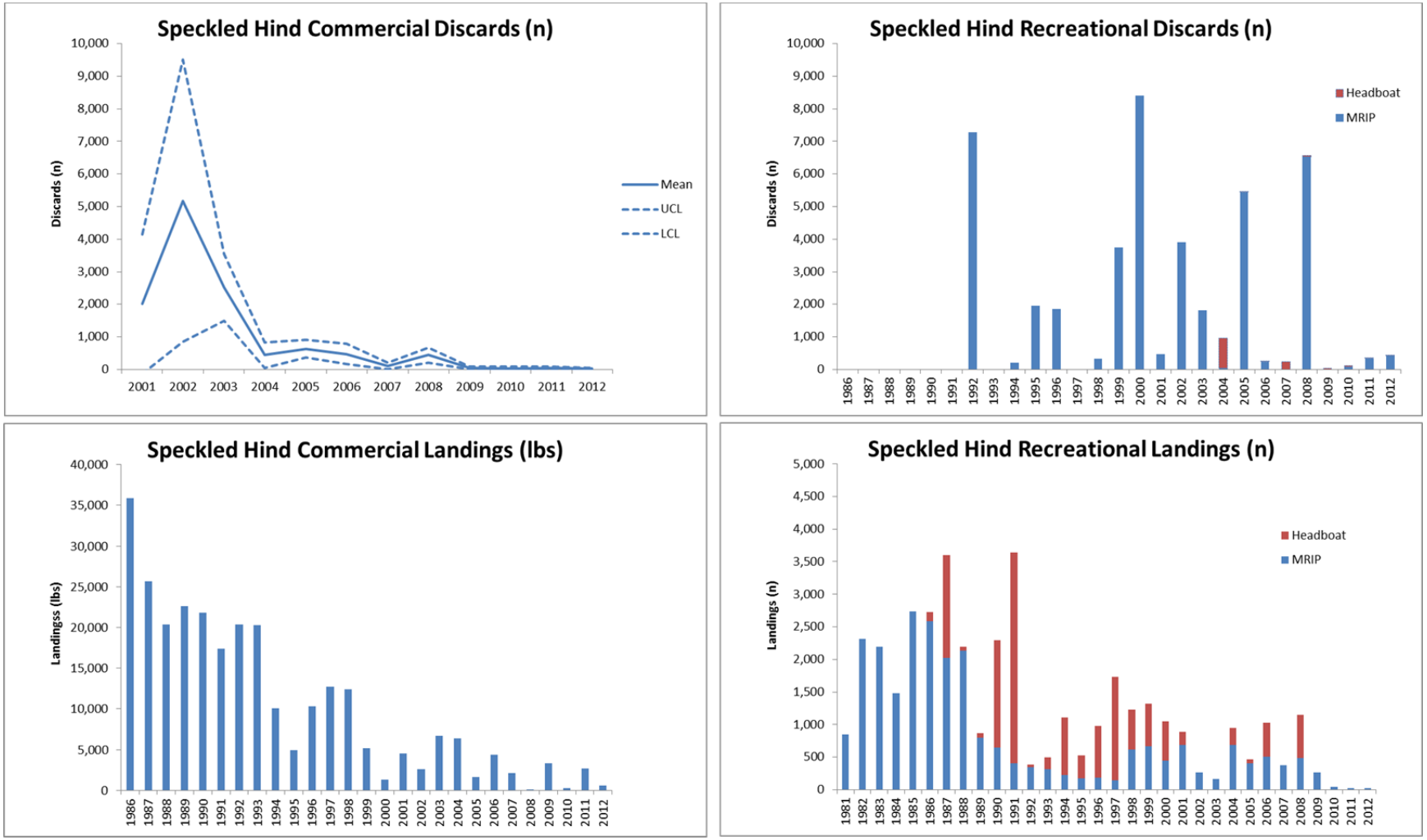


Figure 1. Trends in speckled hind commercial discards (2001-2012), recreational headboat and MRIP private/charter discards (1986-2012), commercial landings (1986-2012), and recreational headboat and private/charter landings (1986-2012) in the SAFMC's jurisdiction.

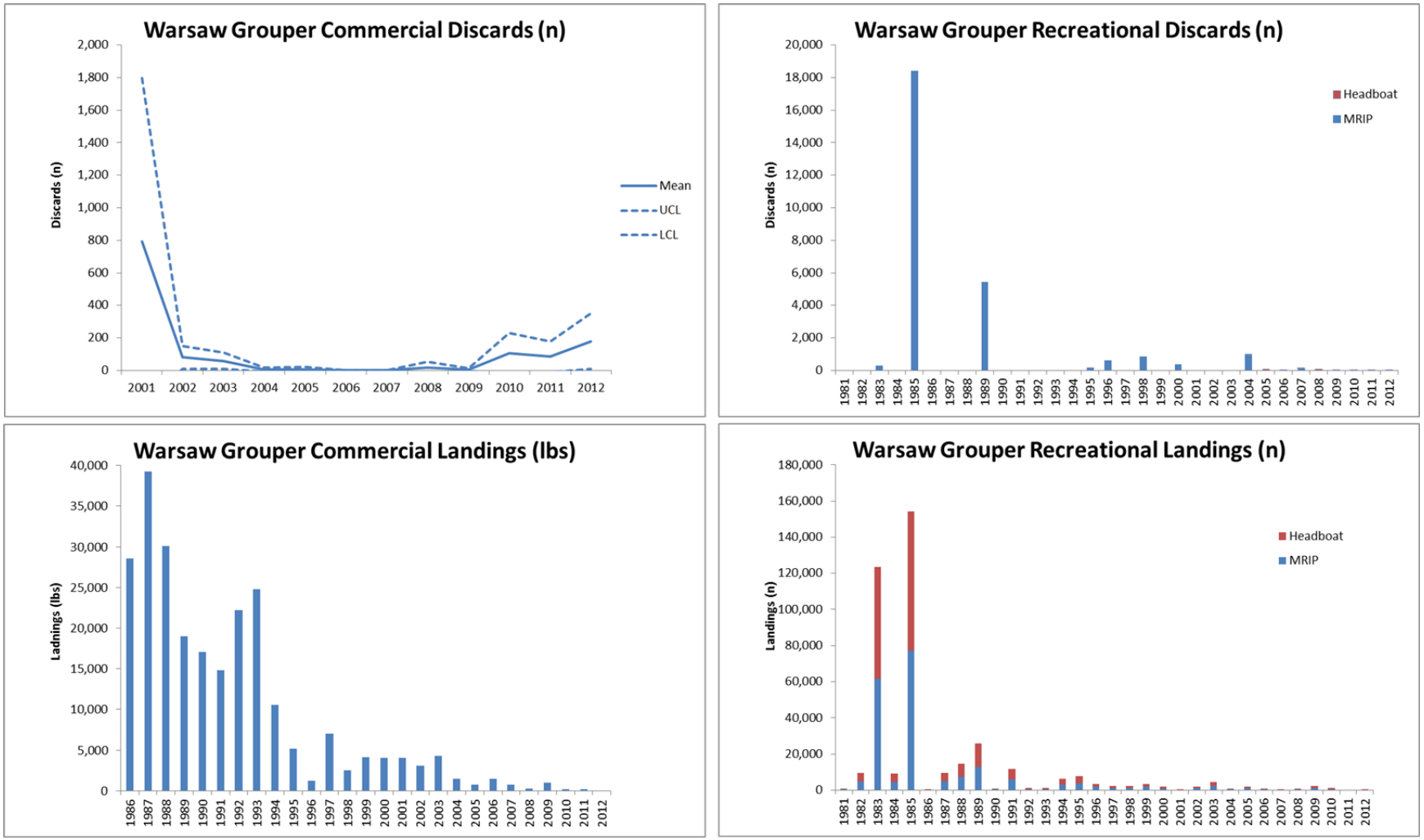


Figure 2. Trends in warsaw grouper commercial discards (2001-2012), recreational headboat and MRIP private/charter discards (1986-2012), commercial landings (1986-2012), and recreational headboat and private/charter landings (1986-2012) in the SAFMC's jurisdiction.

Sources: MRIP Private/Charter 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 commercial discard estimates are for vertical line gear only.

Note: Discard estimates for commercial are computed by expanding commercial discard logbook observed discard rates by total SAFMC effort; vessels which never report discards (for any stock) are excluded from discard rate computations.

Regulatory Amendment 17

Evaluation of socioeconomic impacts of proposed spatial closures

NOAA Fisheries Service, Southeast Regional Office
St. Petersburg, Florida

Introduction

The South Atlantic Fishery Management Council (SAFMC) is currently considering implementing new spatial closures through Snapper-Grouper Regulatory Amendment 17 that would reduce the bycatch of speckled hind and warsaw grouper. Spatial closure alternatives were recommended by the SAFMC Marine Protected Area Expert Workgroup (MPA EWG) during workshops in 2012 and 2013. There is a need to estimate the potential socioeconomic impacts of these spatial closures, especially in regard to displacement or removal of fishing opportunities to the commercial and recreational sectors. The following is an excerpt from a much larger report discussing the distribution of speckled hind and warsaw grouper, the biological and conservation benefits of spatial closures, and potential socioeconomic consequences. The distribution of speckled hind and warsaw grouper and the conservation benefits of MPA EWG proposed closures are currently in-press with PLoS One (Farmer & Karnauskas 2013).

Methods

Data sources

The SEFSC's commercial logbook program (accessed May 2012) consisted of self-reported landings on a trip level from commercial fishermen. This dataset provided species-specific landings (in lbs), primary gear used, primary area and depth of capture. The SEFSC's supplemental discard commercial logbook program began in 2001 and includes a random sample of 20% of commercial vessels. Commercial logbook and supplemental discard logbook data were merged into a combined dataset for the years 2001-2011. All trip records with a recorded landing or discard of warsaw grouper or speckled hind were retained. Area fished was based on reported 1° longitude by 1° latitude commercial logbook statistical areas. A single depth of fishing was reported in the commercial logbooks for each species per trip from 2005 onward, although they may be encountered at numerous depths during multiple sets. Very little depth of capture information was available prior to 2005, and no landings information was available prior to the prohibition in 1994.

The recreational headboat sector of the snapper-grouper fishery was evaluated using HBS logbook data (accessed 2 Feb 2011) reported by headboat operators. Headboats are large, for-hire vessels that typically accommodate 20 or more anglers on half- or full-day trips. HBS records contain trip-level information on number of anglers, trip duration, date, area fished, landings (number of fish), and releases (number of fish) of each species. Headboat encounters (landings plus releases) were summarized by species, year, month, and area fished for the years

1973-2011. Reporting of area fished has improved through time, with resolution ranging from state level to 0.17° by 0.17° grids. For cluster analysis, area fished was aggregated at the most common reporting level (1° latitude by 1° longitude). As with the commercial fishery data, area fished is self-reported and this could have introduced error into the analysis. Additionally, vessels fishing in multiple areas during a trip would be constrained by the current data form to select one area fished for the trip, which limits the spatial precision of the analysis. Depth fished was not reported.

Lost or displaced fishing opportunities

The impacts of proposed spatial closures upon other stocks were evaluated by overlaying proposed MPAs upon commercial logbook and headboat logbook plots of landings for species associated with speckled hind and warsaw grouper. Associations were examined at the trip level from commercial and headboat logbooks and at the set-level using MARMAP and Reef Fish Observer data to identify the suite of species evaluated for impacts (SERO-LAPP-2010-06; SERO-LAPP-2011-06).

Commercial data were plotted in areas 1° tall by 5 fathoms wide. Headboat data were plotted in areas 1/6°x1/6° square. Plots were generated for mean Snapper-Grouper landings and effort (number of trips) from 2005-2011 for commercial and headboat to visually examine long-term distribution of fishing landings and pressure relative to proposed sites. The years 2005-2011 were selected for these plots to address specific concerns from fishermen on the MPA EWG who felt that a longer-term picture prior to major regulatory changes 2009-2011 was necessary to evaluate the cumulative impact of spatial closures in the SAFMC.

Additionally, the percentage of average landings (2009-2011) within each logbook-area was computed. The years 2009-2011 were selected as the most recent 3 years of complete data at the time of the analysis, reflecting the most current picture of the spatial distribution of fishing pressure in the SAFMC. The total area of each logbook-area and the sliced area contained within each MPA were computed. The potential percent reduction in landings that could occur due to MPA implementation, assuming no effort shifting, was computed as the ratio of the logbook area within the MPA relative to the total area of each logbook-area multiplied by the percentage of mean landings within each logbook-area *i*:

$$\%Impact_i = \overline{\%Landings_i}^{2009-2011} * \frac{area_i^{protected}}{area_i^{total}}$$

This approach assumes landings are distributed uniformly within the logbook-areas and fishermen do not redistribute effort to compensate for lost catches by fishing in other areas. Redistribution of effort could partially or completely offset reductions in landings due to area closures, assuming catch rates are equivalent or effort is increased.

Results

Lost or displaced fishing opportunities

Impacts on mean commercial landings (2005-2011) across all Snapper-Grouper stocks were highest in the 'Mid-SC,' 'Devils Hole 2,' 'Devils Hole 3,' 'Edisto Reconfig 3,' 'Charleston Shelf MPA,' 'Fernandina,' and 'N Cape Lookout' sites (**Figure 1**). Impacts on mean commercial Snapper-Grouper fishing effort (2005-2011) were highest in the 'Southern NC,' 'Mid-SC,' 'Devils Hole 2,' 'Devils Hole 3,' and 'Charleston Shelf MPA' sites (**Figure 2**). Impacts on mean recreational landings (2005-2011) across all Snapper-Grouper stocks were highest in the existing 'North Florida MPA' (**Figure 3**). Impacts on mean recreational Snapper-Grouper effort (2005-2011) were also highest in the existing 'North Florida MPA' (**Figure 4**).

Assuming landings were uniformly distributed within the highest resolution reported for catch and that no effort shifting took place to compensate for lost catch, the maximal predicted impacts from the establishment of individual no-take MPAs were relatively small (**Table 1**). No individual proposed MPA reduced landings by more than 3% from the historical (2009-2011) average for any given exploited stock when considered across the entire SAFMC jurisdiction. Maximum landings reductions if all non-overlapping reserves were selected averaged 3.8% for commercial stocks (range 1.8%-6.3%) and 1.7% for recreational stocks (range 0.9%-2.5%). If all non-overlapping proposed reserves were selected, the cumulative predicted reduction or displacement in commercial and recreational landings across all stocks considered would be 26.3% and 11.8%, respectively. If all EWG-recommended closures were selected, maximum estimated reductions or displacements in landings would average 2.3% (range 1.1-3.9%) for the commercial and 0.9% (range 0.0-1.9%) for the recreational sectors, respectively. If all EWG-recommended closures were selected, the cumulative reduction or displacement in landings for all stocks considered for the commercial and recreational sectors would be 16.2% and 6.4%, respectively. The only sites exceeding a 1% reduction in landings on a species-specific basis were estimated recreational reductions in scamp landings at the 'Devils Hole 2' and 'Devils Hole 3' sites, and commercial reductions in red grouper landings in the 'Southern NC' site. Other sites with reasonably high estimated reductions in commercial landings were the 'Devils Hole 2', 'Edisto Reconfig 3' and 'Devils Hole 3' sites for scamp, the 'Devils Hole 3' site for vermilion snapper, and the 'Southern NC' site for red grouper. Other sites with reasonably high estimated reductions in recreational landings were the 'North Cape Lookout 3' site for red grouper, the 'Devils Hole 3' site for gag, and the 'North Cape Lookout NC' site for blueline tilefish.

Discussion

The selection of MPA alternatives presented in this study will involve a tradeoff of predicted biological benefits and potential economic effects. In general, larger MPAs or MPAs closer to population centers are predicted to have the greatest economic impacts; however, these MPAs also provide the greatest proportional reduction in fishing pressure. Our analyses suggested that none of the proposed MPA alternatives would reduce catches by more than 3% of historical averages for any given snapper-grouper stock. This analysis has some limitations that are important to consider. First, it is reliant upon the distribution of fishing landings and effort 2009-2011 to represent future trends in landings along the SAFMC shelf-edge. Fisher behavior is notoriously difficult to predict, and is subject to management regulations, availability of quota,

market demands, price of fuel, weather, and other complicating factors. Second, the analysis assumes that fishing is uniformly distributed within the finest spatial scale to which the data could be parsed; for commercial, this was a 5-fathom wide by 1° tall depth-grid; for recreational, this was a 1/6°x1/6° cell. If the primary landings location were located within the proposed closed area, the impact could be greater than predicted. The analysis assumes a non-directional bias associated with commercial logbook fishing locations reported; however, a single location is reported for multi-day trips that may include fishing on both the shelf-edge and in deeper waters. It is possible that locations reported are biased towards shallower waters, which would lead to associations in the data between shelf-edge and deeper-water species that might not occur if the data were reported at the set level.

The incorporation of a habitat suitability modeling component was suggested during review of this analysis. Incorporation of this component could be considered for future work. The analysis currently utilizes fishery-dependent catch location records for stocks open to harvest. Available SEAMAP habitat categorization data for the South Atlantic shelf-edge could be used to further distribute commercial landings within reported depth-grids and headboat data within reported subgrids. Issues may arise given the high abundance of unclassified cells and errors within SEAMAP hardbottom classification assignments (NMFS-SEFSC, pers. comm.).

This analysis assumes that fishermen will not redistribute effort to offset lost fishing opportunities due to spatial closures. If the fishermen redistribute their effort to land stocks in different areas, the impact could be less than predicted. Given that all exploited stocks in the SAFMC are managed by Annual Catch Limits (ACLs) and projected impacts for individual stocks within a single closed area are not estimated to exceed a 3% reduction, effort shifting may allow fishermen to compensate for the spatial closure, and actual reductions in landings may be less than predicted unless the core site for the stock is below the resolution of the reported data and is located within the implemented MPA. Some closed areas may not have adequate fishing habitats in their surroundings; in these cases, local impacts may be high even if effort redistribution at the regional offsets losses in local landings.

Finally, the analysis uses the spatial distribution of headboat fishing pressure to represent the entire recreational sector, due to the lack of spatially-resolved fishing pressure data for the private and charter sectors. The estimated impacts of proposed shelf-edge closures to headboats are much lower than commercial fishers; likely due to distance from shore off most states. It is likely that private and charter fishers would be impacted less by proposed spatial closures than headboats, as larger headboat vessels are more likely to make the long run to the shelf-edge than smaller private and charter vessels. Obviously, there would be exceptions to this trend, on a vessel-specific basis and off Florida and North Carolina, where the shelf-edge is more accessible from shore during times of calm weather.

Enforcement is a critical ingredient towards MPA success, as even low-levels of poaching can rapidly erode MPA benefits (SERO-LAPP-2009-07-Rev). Configuring MPA boundaries so that they are easily interpreted and enforced is an important consideration. Simplifying regulatory language to make long-distance determination of illegal fishing activities reduces the need for enforcement to board vessels. Mandatory use of Vessel Monitoring Systems (VMS) would ease the burden on enforcement substantially (SAFMC 2012). Additional cost-effective enforcement

may be achieved by the deployment of passive acoustic listening devices that could record the sounds of illegal fishing operations (SAFMC 2012).

References

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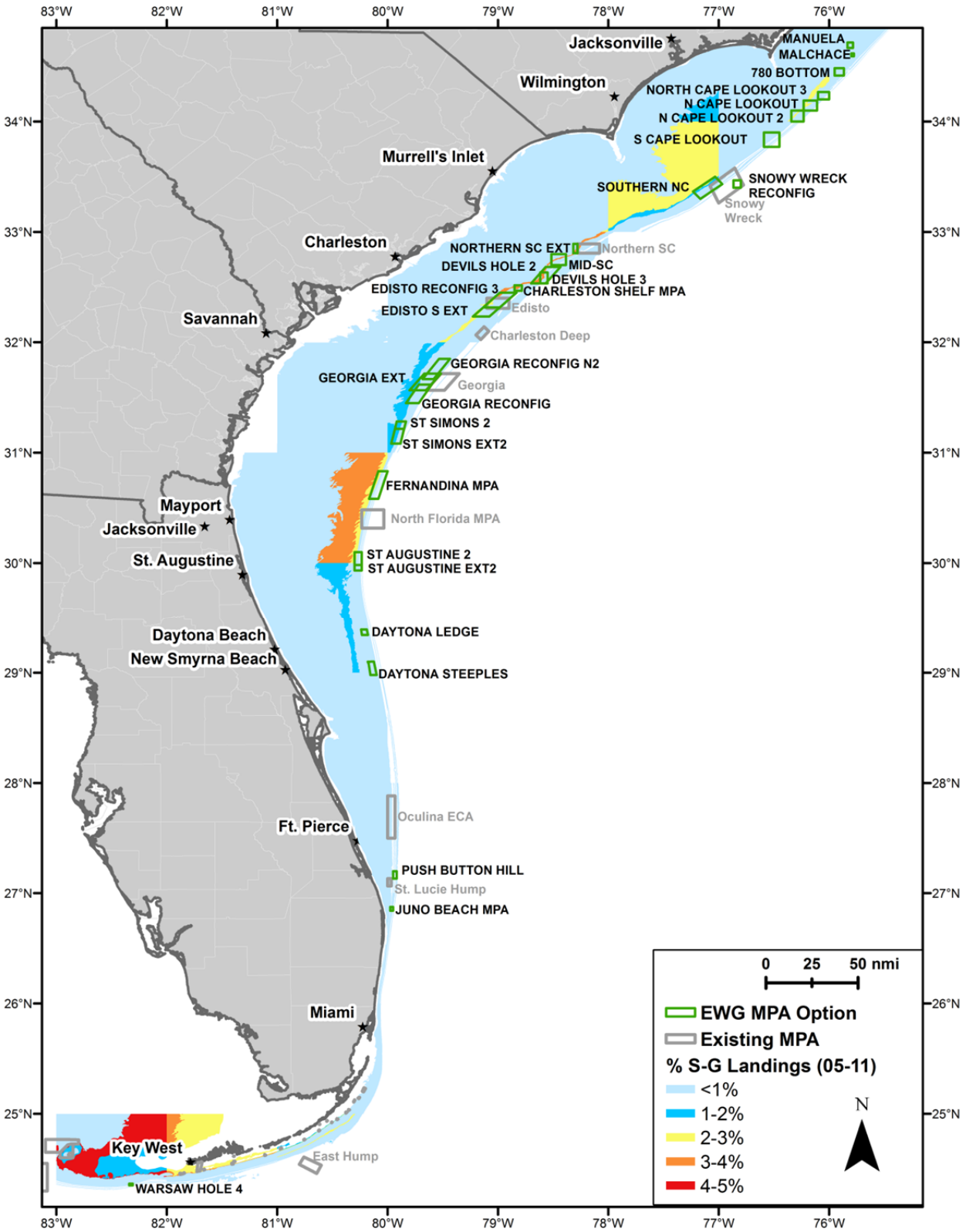

Figure 1. Distribution of mean commercial SAFMC Snapper-Grouper landings (2005-2011) relative to SAFMC Expert Working Group recommended marine protected areas.

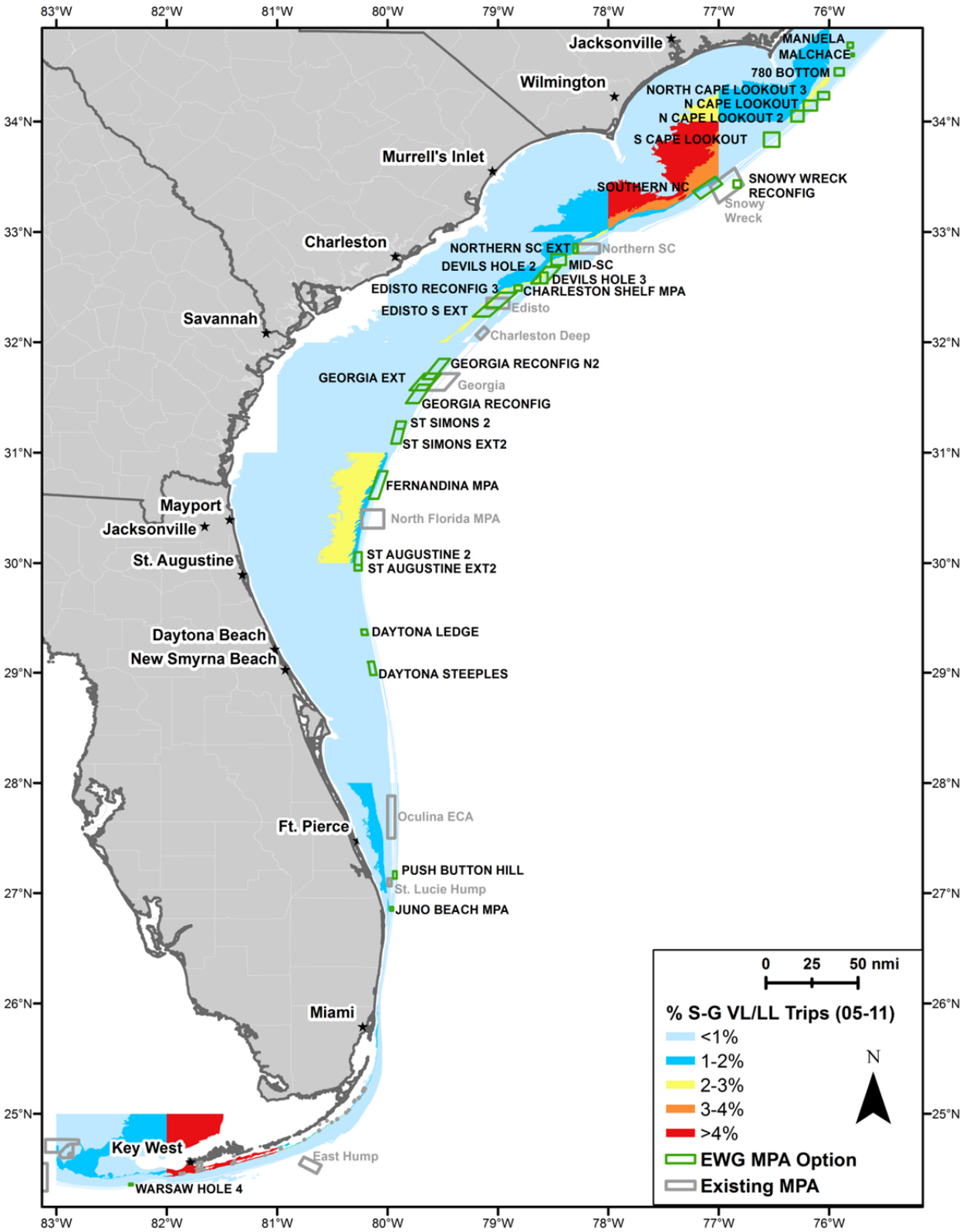

Figure 2. Distribution of mean commercial SAFMC Snapper-Grouper effort (2005-2011) relative to SAFMC Expert Working Group recommended marine protected areas.

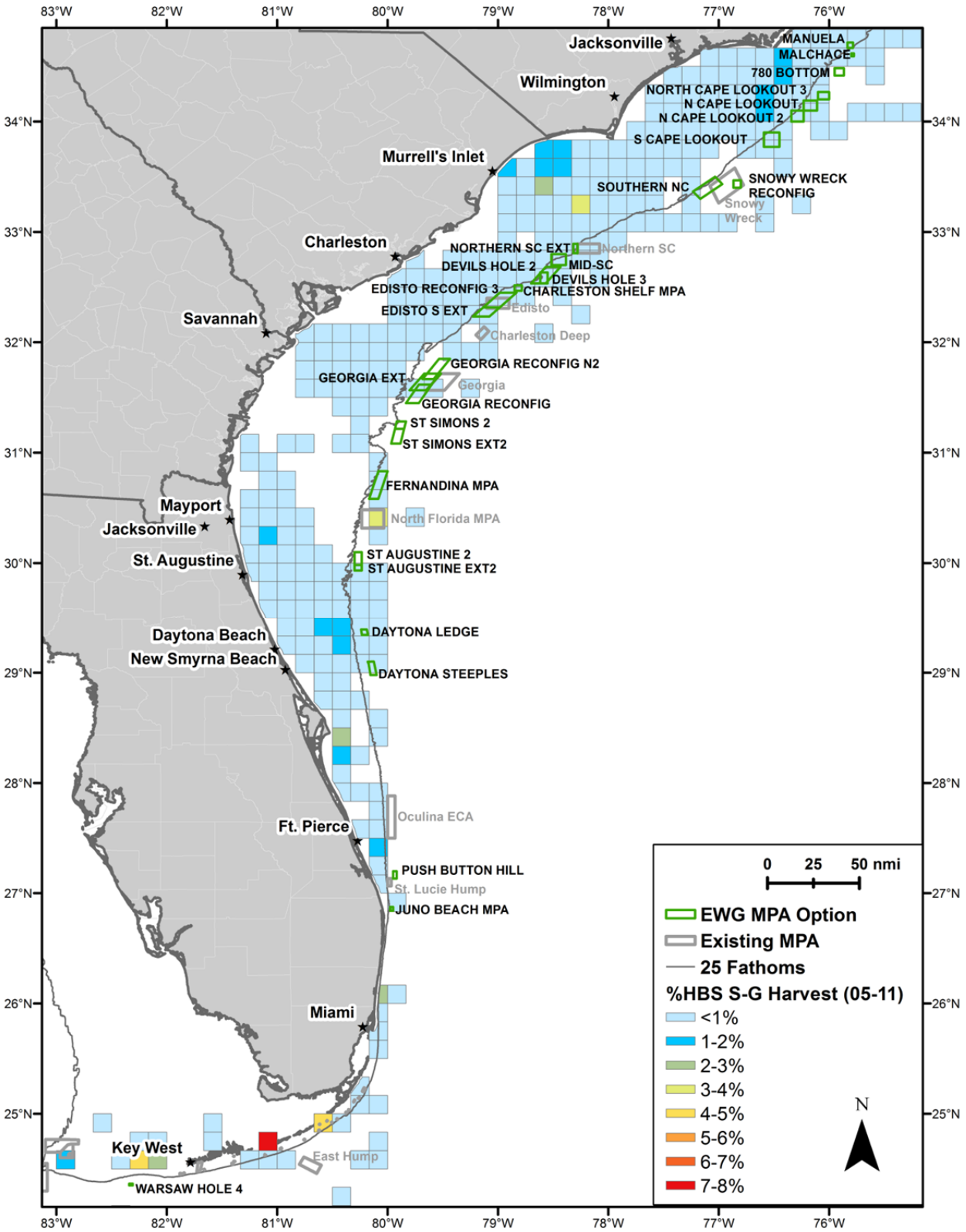

Figure 3. Distribution of mean recreational headboat SAFMC Snapper-Grouper landings (2005-2011) relative to SAFMC Expert Working Group recommended marine protected areas.

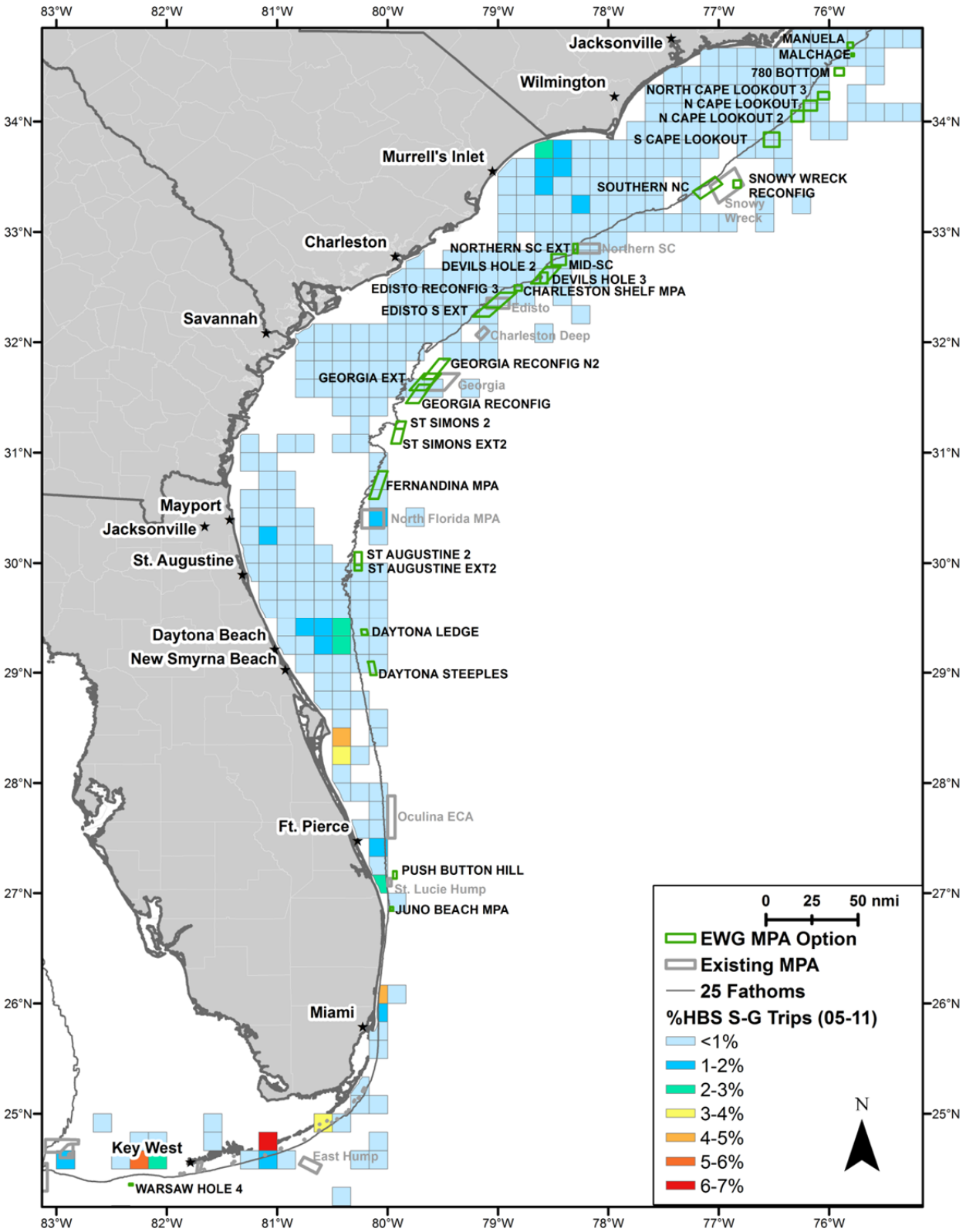

Figure 4. Distribution of mean recreational headboat SAFMC Snapper-Grouper effort (2005-2011) relative to SAFMC Expert Working Group recommended marine protected areas.

Table 1. Estimated percent lost or redistributed commercial ('Com') and recreational ('Hbt') landings for most commonly landed species in proposed spatial closure areas.

NAME	TYPE	EWG Rec?	AREA (mi2)	POTENTIAL LANDINGS REDUCTIONS													
				Red Porgy		Vermilion Snapper		Scamp		Greater Amberjack		Blueline Tilefish		Gag		Red Grouper	
				Com	Hbt	Com	Hbt	Com	Hbt	Com	Hbt	Com	Hbt	Com	Hbt	Com	Hbt
NORTH CAROLINA																	
780 BOTTOM	*New*	1	22.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MANUELA WRECK	*New*	0	9.9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MALCHACE WRECK	*New*	1	2.5	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
N CAPE LOOKOUT 2	*New*	0	44.3	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.2%	0.0%
N CAPE LOOKOUT NC	*New*	0	42.8	0.1%	0.2%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	0.1%	0.7%	0.0%	0.2%	0.2%	0.5%
NORTH CAPE LOOKOUT 3	*New*	0	26.4	0.0%	0.7%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.9%
S CAPE LOOKOUT NC	*New*	1	72.4	0.0%	0.6%	0.0%	0.4%	0.0%	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.3%	0.0%	0.7%
SNOWY WRECK RECONFIG	*Reconfig.*	1	17.8														
SOUTHERN NC	*Reconfig.*	1	88.7	0.4%	0.0%	0.3%	0.0%	0.7%	0.0%	0.1%	0.0%	0.2%	0.0%	0.2%	0.0%	1.2%	0.0%
SOUTH CAROLINA																	
Charleston Deep	Existing	0	25.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHARLESTON SHELF MPA	*New*	0	13.4	0.1%	0.0%	0.2%	0.0%	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%	0.0%
DEVILS HOLE 2	*New*	0	80.4	0.6%	0.4%	0.5%	0.4%	0.9%	2.8%	0.2%	0.3%	0.3%	0.0%	0.3%	0.8%	0.4%	0.1%
Edisto	Existing	0	73.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDISTO RECONFIG 3	*Reconfig.*	1	80.6	0.5%	0.4%	0.6%	0.1%	0.9%	0.5%	0.3%	0.2%	0.2%	0.0%	0.3%	0.3%	0.2%	0.0%
EDISTO S EXT	*Extension*	0	50.4	0.3%	0.0%	0.3%	0.0%	0.6%	0.1%	0.2%	0.0%	0.1%	0.0%	0.2%	0.0%	0.1%	0.0%
DEVILS HOLE 3	*New*	1	26.8	0.7%	0.1%	0.8%	0.1%	0.8%	1.1%	0.2%	0.1%	0.0%	0.0%	0.5%	0.3%	0.5%	0.0%
MID SC MPA	*New*	0	53.5	0.4%	0.0%	0.3%	0.0%	0.6%	0.5%	0.1%	0.1%	0.1%	0.0%	0.2%	0.1%	0.2%	0.0%
Northern SC	Existing	1	66.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NORTHERN SC EXT	*Extension*	1	12.5	0.2%	0.0%	0.1%	0.0%	0.3%	0.0%	0.1%	0.1%	0.1%	0.0%	0.1%	0.0%	0.1%	0.0%
GEORGIA																	
Georgia	Existing	1	101.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GEORGIA MPA RECONFIG	*Reconfig.*	1	79.0	0.2%	0.0%	0.3%	0.0%	0.3%	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%	0.0%	0.2%	0.0%
GEORGIA EXT	*Extension*	0	91.3	0.6%	0.0%	0.6%	0.0%	0.6%	0.0%	0.1%	0.0%	0.0%	0.0%	0.3%	0.0%	0.5%	0.0%
GEORGIA RECONFIG N2	*Reconfig.*	1	74.3	0.1%	0.0%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
ST SIMONS 2	*New*	0	22.6	0.2%	0.0%	0.3%	0.0%	0.3%	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%	0.0%
ST SIMONS EXT2	*New*	1	45.3	0.3%	0.0%	0.5%	0.0%	0.5%	0.0%	0.2%	0.0%	0.2%	0.0%	0.2%	0.0%	0.2%	0.0%

NAME	TYPE	EWG Rec?	AREA (mi2)	POTENTIAL LANDINGS REDUCTIONS													
				Red Porgy		Vermilion Snapper		Scamp		Greater Amberjack		Blueline Tilefish		Gag		Red Grouper	
				Com	Hbt	Com	Hbt	Com	Hbt	Com	Hbt	Com	Hbt	Com	Hbt	Com	Hbt
NORTHEAST FLORIDA																	
FERNANDINA MPA	*New*	1	85.4	0.2%	0.0%	0.3%	0.1%	0.1%	0.0%	0.1%	0.2%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%
North Florida	Existing	1	137.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oculina Bank CHAPC*	Existing	1	503.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oculina ECA	Existing	1	107.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DAYTONA STEEPLES	*New*	1	26.6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DAYTONA LEDGE	*New*	1	11.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ST AUGUSTINE 2	*New*	1	32.1	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
ST AUGUSTINE EXT2	*New*	0	13.8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SOUTHEAST FLORIDA																	
FKNMS SPAs & Ers	Existing	1	246.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNO BEACH MPA	*New*	1	3.5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PUSH BUTTON HILL	*New*	1	9.4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
St. Lucie Hump	Existing	1	9.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WARSAW HOLE 4	*New*	1	2.4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%