

# Timing of Accountability Measure-Based Closures



## Options Paper (DRAFT)



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## Table of Contents

Chapter 1. Introduction .....	1
1.1    What Actions are Being Proposed? .....	1
1.2    Who is Proposing the Action? .....	1
1.3    Where is the Project Located? .....	2
1.4    Why is the Council Considering Action? .....	2
Purpose for Action .....	3
Need for Action.....	3
1.5    Management History.....	4
1.6    Accountability Measures for Council Managed Species .....	5
Chapter 2. Management Options to Modify the Timing of Accountability Measure-Based Closures.....	7
2.1    Overview.....	7
2.2    Options for the Establishment of Accountability Measure-Based Closures.....	10
ACTION 1: Select an approach to modify the timing for the implementation of AM-based closures in the U.S. Caribbean exclusive economic zone.....	10
ACTION 2: Specify how often the approach to set the timing of AM-based closures selected in Action 1 should be revisited. ....	21
Chapter 3. References .....	22

## List of Figures

Figure 1.3. Jurisdictional boundaries of the Caribbean Fishery Management Council, the Commonwealth of Puerto Rico, and the Territory of the U.S. Virgin Islands, including management areas.....	2
Figure 1.4. Biological, economic, and socio-cultural goals of the proposed action. ....	3

## List of Tables

Table 2.1.1. Example of important market dates identified by Caribbean Fishery Management Council members and fishery participants for each of Puerto Rico, St. Thomas/St. John, and St. Croix. ....	8
Table 2.1.2. Calendar of seasonal fishing closures in federal waters, Puerto Rico commonwealth waters, and U.S. Virgin Islands territorial waters (state waters). ....	9
Table 2.2.2. Closure dates resulting from Sub-Options 4a through 4c for Puerto Rico fishery management units in the <i>recreational</i> sector. ....	14
Table 2.2.3. Closure dates resulting from Sub-Options 4a through 4c for St. Thomas/St. John fishery management units. ....	15
Table 2.2.4. Closure dates resulting from Sub-Options 4a through 4c for St. Croix fishery management units. ....	16
Table 2.2.5. Closure dates resulting from Sub-Options 4a through 4c for Caribbean-wide fishery management units: tilefish and aquarium trade species. ....	17

# Chapter 1. Introduction

## 1.1 What Actions are Being Proposed?

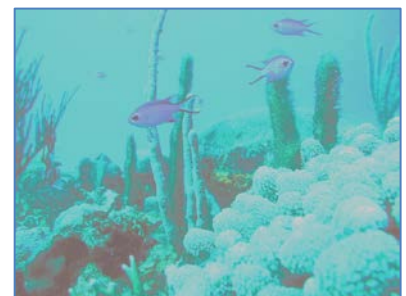
Presently in U.S. Caribbean federal waters, accountability measures (AMs) require the National Marine Fisheries Service (NMFS) to shorten the length of the fishing season for a fishery management unit (FMU) (i.e., species/species complex) for which the annual catch limit (ACL) has been exceeded. The fishing season would be shortened in the year following an overage determination by the amount necessary to constrain landings to the ACL. These AM-based reductions in the length of the fishing season, for any FMU (e.g., goatfish, parrotfish) for which the ACL has been exceeded<sup>1</sup>, are implemented beginning on December 31<sup>st</sup> of the appropriate year and extend backward in the year for the number of days necessary to achieve the required reduction in landings. The timing of these AM closures may result in negative socio-economic impacts to U.S. Virgin Islands (USVI) and Puerto Rico fishers. Therefore, actions in this Options Paper propose to implement a mechanism that allows for the establishment of fishery closure dates other than the standard end of the year closure in the event a species or species complex exceeds its assigned ACL.

<sup>1</sup>See Section 1.6 for more information about accountability measures in federal waters of the U.S. Caribbean and their applicability.

## 1.2 Who is Proposing the Action?

The Caribbean Fishery Management Council (Council) proposes the actions in this Options Paper. The proposed actions would be implemented through a comprehensive amendment to the four Council fishery management plans (FMPs): Reef Fish, Spiny Lobster, Queen Conch, and Corals and Reef Associated Plants and Invertebrates (Coral). The Council develops the plan amendments and submits them to NMFS who ultimately approves, disapproves, or partially approves the actions in the amendment on behalf of the Secretary of Commerce, and implements the regulations.

Through this Options Paper, NMFS and the Council evaluate potential management options to address identified issues with the current approach to implementing AMs. This may result in changes to the management of federal fisheries in the U.S. Caribbean. This Options Paper is the next step to gather additional information and discuss management options before further development of an amendment to the Council FMPs.



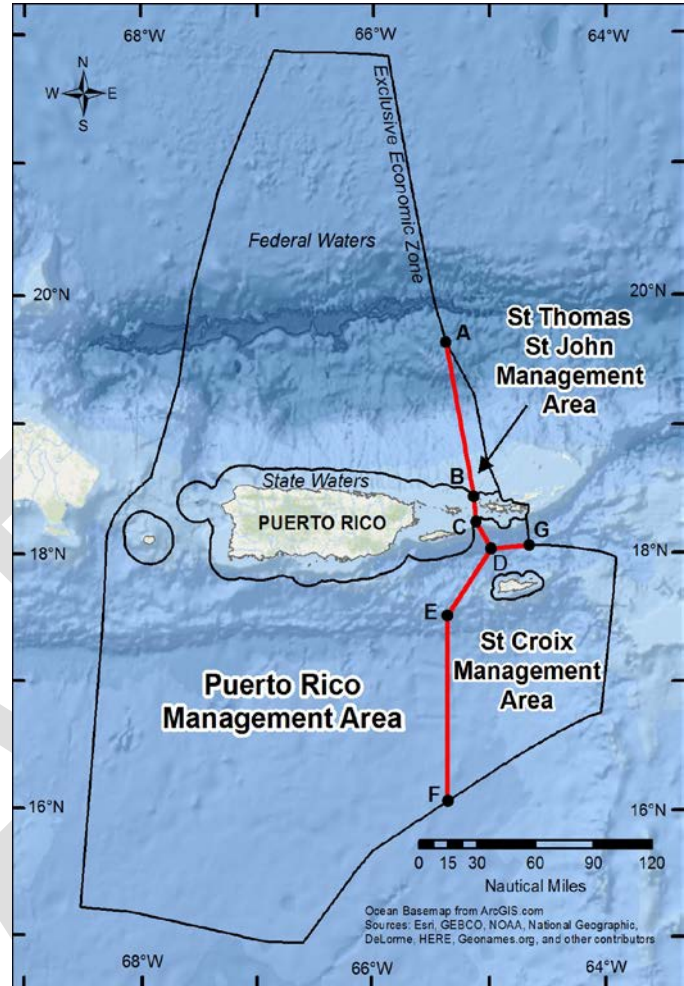
*Photo credit: NOAA NCCOS/UNCW – T. Battista*

### 1.3 Where is the Project Located?

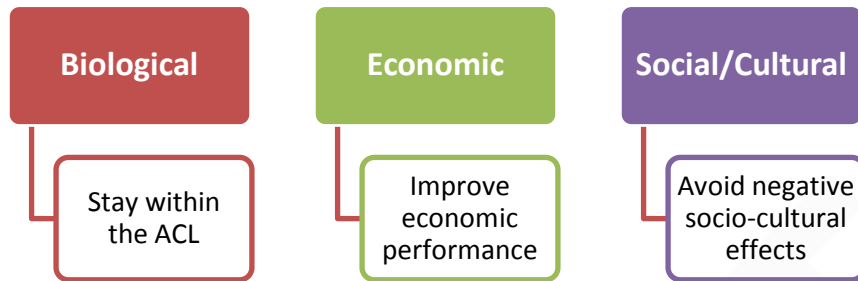
The Council is responsible for managing fishery resources in federal waters of the U.S. Caribbean. Federal waters in the U.S. Caribbean are located in the 3 - 200 nautical mile (nm) (6 - 370 kilometers [km]) U.S. exclusive economic zone (EEZ) off the USVI, and in the 9 - 200 nm (17 - 370 km) EEZ off the Commonwealth of Puerto Rico (Fig. 1.3).

### 1.4 Why is the Council Considering Action?

Fishers in the USVI and Puerto Rico have expressed to the Council that the timing of AM-based closures results in negative socio-economic impacts, for example, by resulting in repetitive and potentially overlapping closures during the important Christmas holiday season. To address this issue, the Council is proposing to develop and implement a mechanism that allows them and NMFS to establish closure dates other than the standard end of the year closures in the event of an overage of the ACL for a species or group of species. The proposed closure dates may occur during times of the year when the economic and/or cultural impacts are less severe. The Council's goals for this action are to remain within the ACL and lessen the socio-economic impact of AMs (Figure 1.4).



**Figure 1.3.** Jurisdictional boundaries of the Caribbean Fishery Management Council, the Commonwealth of Puerto Rico, and the Territory of the U.S. Virgin Islands, including management areas.



**Figure 1.4.** Biological, economic, and socio-cultural goals of the proposed action.

## Purpose for Action

The purpose of this action is to develop and establish a mechanism that would consider economic and social effects in the protocol to set the timing of accountability measure (AM)-based closures. The ultimate goal of this action is to limit harvest to the annual catch limits (ACLs) while minimizing adverse socio-economic effects of AM-based closures.

## Need for Action

There is a need to establish a policy and create an environment that provides the National Marine Fisheries Service and the Caribbean Fishery Management Council with closure options other than an end of the year closure in the event of an ACL overage, thus lessening the socio-economic impact of AMs to fishers.

## 1.5 Management History

The history of federal management until 2011 for managed species in the U.S. Caribbean Reef Fish, Queen Conch, Coral, and Spiny Lobster FMPs can be found in the 2010 and 2011 Caribbean ACL Amendments (CFMC 2011a, b) and is incorporated herein by reference. These two amendments established ACLs and AMs for Council managed species. Management measures included in these amendments are summarized below.

### 2010 Caribbean ACL Amendment (CFMC 2011a)

Amendment 2 to the FMP for the Queen Conch Fishery of Puerto Rico and the U.S. Virgin Islands and Amendment 5 to the Reef Fish FMP of Puerto Rico and the U.S. Virgin Islands (2010 Caribbean ACL Amendment), including Environmental Impact Statement (EIS), Regulatory Impact Review (RIR), and Regulatory Flexibility Act Analysis (RFA) (CFMC 2011a) became effective on January 30, 2012 (76 FR 82404) and accomplished the following:

- Amended the unit composition in the Reef Fish FMUs;
- Revised management reference points (maximum sustainable yield, optimum yield, overfishing limit, acceptable biological catch) for snapper, grouper, parrotfish, and queen conch in the U.S. Caribbean;
- Established island-specific ACLs and AMs in response to harvesting activities on a single island (Puerto Rico, St. Croix) or island group (St. Thomas/St.

John) while minimizing the effects of fishing activities on the other islands or island groups;

- Established separate ACLs for each of the commercial and recreational sectors for the Puerto Rico EEZ management area, an area where landings data are available for both the commercial and recreational sectors;
- Set management measures with specific emphasis on harvest prohibition for three parrotfish species (midnight, blue, rainbow) that serve an essential ecological function and that are relatively long-lived;
- Established recreational bag limits for snappers, groupers, and parrotfishes.
- Provided guidelines for triggering AMs and applying those AMs;
- Established framework provisions separately for the Reef Fish and Queen Conch FMPs.

### 2011 Caribbean ACL Amendment (CFMC 2011b)

Amendment 6 to the Reef Fish FMP, Amendment 5 to the FMP for the Spiny Lobster Fishery, Amendment 3 to the FMP for the Queen Conch Resources, and Amendment 3 to the Coral FMP of Puerto Rico and the U.S. Virgin Islands (2011 Caribbean ACL Amendment), including EIS, Biological Assessment, RIR, RFA, and Social Impact Assessment (CFMC 2011b) became effective on January 29, 2012 (76 FR 82414) and accomplished the following:

- Established ACLs and AMs for reef fish and spiny lobster, and for aquarium trade species in the Reef Fish and Coral FMPs that were not determined to be undergoing overfishing.
- Allocated ACLs among island management areas;
- Established recreational bag limits for reef fish and spiny lobster;
- Removed eight conch species from the Queen Conch FMP;
- Established framework procedures for the Spiny Lobster FMP and modified framework measures for the Coral FMP;
- Revised management reference points and status determination criteria for selected reef fish, spiny lobster, and aquarium trade species.

### Recent Council Actions

Caribbean actions implemented in 2013 affected the Coral, Queen Conch, and Reef Fish FMPs. Updated management histories for these FMPs can be found in: Amendment 4 to the Coral FMP (CFMC 2013a), Regulatory Amendment 2 to the Queen Conch FMP (CFMC 2013b), and Regulatory Amendment 4 to the Reef Fish FMP (CFMC 2013c), respectively. In addition, the Council is currently developing an amendment that will affect the Reef Fish and the Spiny Lobster FMPs. This amendment proposes to modify current regulations in the three red hind spawning aggregation areas in western Puerto Rico: Abrir la Sierra Bank, Tourmaline Bank, and Bajo de Sico. The Council is also developing an action to transition fisheries management from species-based FMPs to island-based FMPs.

## 1.6 Accountability Measures for Council Managed Species

Accountability measures apply to all Council-managed species, including prohibited corals and species with harvest moratoria (e.g., goliath and Nassau groupers). Accountability measures require the NMFS' Assistant Administrator to reduce the length of the fishing season if it has been determined that prior year(s) landings exceeded the ACL for that FMU. For purposes of ACL monitoring, for each FMU a multi-year average of landings is compared against the applicable ACL to identify any overages. The fishing season would be shortened in the year following an overage determination by the amount

necessary to constrain landings to the ACL. These are implemented beginning on December 31<sup>st</sup> of the closure year and extending backward in the year for the number of days necessary to ensure the ACL is not again exceeded.

If NMFS determines the ACL for an FMU has been exceeded based upon the pre-defined average of landings, scientists (in consultation with managers) evaluate the cause of the reported catch increase prior to making a determination that AMs must be applied. Specifically, they would consider whether the reported overage represents an



actual increase in landings or just improved data collection and monitoring. The intent of this definition is to eliminate any disincentive for fishermen to enhance their reporting behaviors and practices. Fishers fear that if they improve their reporting, landings will increase relative to the established baseline averages even though actual catch has not increased. The result would be an unnecessary and unfair application of AMs.

In 2013, NMFS determined that several ACLs were exceeded based on the analysis of the average landings for previous years, triggering AMs to reduce the length of the fishing seasons in the 2013 fishing year by the amounts necessary to ensure landings did not again exceed the ACLs. Thus in 2013, the commercial sector of snapper unit 2 (SU2) in Puerto Rico, the recreational sector of wrasses in Puerto Rico, triggerfish and filefish (commercial and recreational) in St. Croix, spiny lobster (commercial and

recreational) in St. Croix, and groupers (commercial and recreational) in St. Thomas/St. John had AM-based closures (FR 78 18247).

In 2014, commercial SU2 in Puerto Rico was found to have exceeded their ACL based on the average landings from the previous three years, but AMs were not applied due to reduced rates of harvest and a resultant prediction that the ACL will not again be exceeded. NMFS determined that the Puerto Rico commercial ACL for wrasses was exceeded, thus triggering AMs that reduced the length of the fishing season in the 2014 fishing year (79 FR 62575). This fishery was closed from October 20, 2014 through December 31, 2014. None of the USVI FMUs exceeded their corresponding ACLs, and AMs were not triggered in the USVI during 2014.

## Chapter 2. Management Options to Modify the Timing of Accountability Measure-Based Closures

### 2.1 Overview

In 2013, the Caribbean Fishery Management Council (Council) established a committee (Ad Hoc Committee) to evaluate options for choosing accountability measure (AM)-based closure periods that would be more socially and economically advantageous to the fishermen. This committee was composed of representatives from the U.S. Virgin Islands (USVI) and Puerto Rico fishery sectors, and representatives from the Council and the National Marine Fisheries Service (NMFS). For this purpose, the Council's economist prepared a general model (Seasonal Choices Model) that incorporated ecological, economic, and social considerations to help guide the selection of the most appropriate closure periods for each management unit and island. Even though the model was not directly used for the development of the management options proposed in this version of the draft options paper, it provided invaluable guidance.

Council members and meeting attendees at the 147<sup>th</sup> Council meeting, held in August 2013, expressed the need to get fishers involved in the process to select potential AM-based closure dates. Factors such as revenue maximization and least amount of days that a species/species complex can be closed are very important to the fishermen. The Council is currently developing this action to establish a mechanism that would consider economic and socio-cultural effects when setting AM-based closures. The objectives of this action are 1) to evaluate and consider potential mechanisms to choose AM-based closure dates; 2) to establish a new process (if a new mechanism is chosen) to follow when AMs are triggered; and 3) to add a new policy into the Council's fishery management plans (FMPs) to guide when AM closures are implemented consistent with provisions of the framework.

Council members have identified some dates (date ranges) of important economic, cultural, and market conditions that they would like to take into consideration during the analysis of alternate dates for the implementation of AM closures (e.g., higher demand, lower demand) (Table 2.1.1). It is expected that the Council, in cooperation with their District Advisory Panels (APs), will update and finalize this list, considering that not all identified dates may be feasible for exclusion or inclusion in the potential suite of dates to implement AM closures. Table 2.1.2 shows existing federal and/or state seasonal closures for various species, which will also be considered when determining which dates are appropriate to establish alternate AM closure dates.

**Table 2.1.1.** Example of important market dates identified by Caribbean Fishery Management Council members and fishery participants for each of Puerto Rico, St. Thomas/St. John, and St. Croix.

Island Management Area	Pre-identified Date Ranges	Reason (change in demand from average)
Puerto Rico	March 1 - April 30	Higher demand due to Lent
	May 1 - July 31	Higher demand due to summer vacation
	Aug 1 - Oct 31	Lower demand due to back to school costs
St. Thomas/St. John, USVI	Jan 1 – June 30	Higher demand due to tourism (lobster, yellowtail)
	March 1 - April 30	Higher demand due to Lent (all reef fish)
	July 1 - Sept 30	Lower demand due to summer hotel/restaurant closures (yellowtail, lobster)
	Aug 1 - Sept 30	Lower demand due to saving for beginning of school year (all species)
	Sept 1 - Nov 30	Higher demand due to elections activities (all species, alternate years)
	Oct 1 - Dec 31	Higher demand due to tourism season (yellowtail, lobster)
	Dec 1 - Dec 31	Higher demand due to Christmas holiday (all species)
St. Croix, USVI	Jan 1 - May 31	Higher demand due to tourism season
	Feb 1 - Feb 28	Higher demand before, during, and after Agriculture and Food Fair
	March 1 - April 30	Higher demand due to Lent
	Aug 1 - Sept 30	Lower demand due to back to school costs
	Nov 1 - Nov 30	Slightly higher demand due to tourism season and election activities
	Dec 1 - Dec 31	Higher demand due to tourism season

**Table 2.1.2.** Calendar of seasonal fishing closures in federal waters, Puerto Rico commonwealth waters, and U.S. Virgin Islands territorial waters (state waters).

<b>Island Management Area</b>	<b>Species</b>	<b>Seasonal Closure Dates in Federal and in State Waters</b>
Puerto Rico	yellowfin, red, tiger, black, and yellowedge groupers	Federal: Feb 1 – Apr 30
	yellowfin grouper	State: Feb 1 – Apr 30
	red hind grouper	Federal: Red Hind Spawning Aggregation Areas: Bajo de Sico, Tourmaline, Abrir La Sierra, western Puerto Rico - Dec 1 – Feb 28
		State: Dec 1 – last day of February
	silk, black, blackfin, and vermilion snappers	Federal: Oct 1 – Dec 31
	silk and blackfin snappers	State: Oct 1 – Dec 31
	mutton and lane snappers	Federal - Apr 1 – Jun 30
	Mutton snapper	State: Apr 1 – May 31
	All Council managed reef fish	Federal: Bajo de Sico, western Puerto Rico - Oct 1 – Mar 31
All species	Federal: Tourmaline Bank and Abrir La Sierra, western Puerto Rico – Dec 1 – Feb 28	
U.S. Virgin Islands (St. Thomas/St/ John, St. Croix)	yellowfin, red, tiger, black, and yellowedge groupers	Federal and State : Feb 1 – Apr 30
	red hind grouper	Federal: Red Hind Spawning Aggregation Area: Lang Bank in St. Croix – Dec 1 – Feb 28
	silk, black, blackfin, and vermilion snappers	Federal: October 1 – December 31
	silk and blackfin snappers	State: St. Thomas/St. John ONLY – October 1 – December 31
	mutton and lane snappers	Federal and State: April 1 – June 30
	All species (except HMS)	Grammanik Bank, St. Thomas – Feb 1 – Apr 30
	All species	Hind Bank, St. Thomas – YEAR ROUND
	All species	Mutton Snapper Spawning Aggregation Area, St. Croix – Mar 1 – Jun 30

## 2.2 Options for the Establishment of Accountability Measure-Based Closures

This amendment would consist of two actions. Action 1 deals with an approach to modify the timing of AM-based closures. In this action, the Council could choose to implement a mechanism that allows them and NMFS to establish closure dates other than the standard end of the year closures in the event of an overage of an ACL. Action 2 would specify how often the chosen approach should be reevaluated.

### **ACTION 1: Select an approach to modify the timing for the implementation of AM-based closures in the U.S. Caribbean exclusive economic zone.**

**Option 1** – No action. Continue AM-based closures resulting from an ACL overage beginning on December 31<sup>st</sup> of the closure year and extending backward in the year for the number of days necessary to achieve the required reduction in landings.

**Option 2.** Accountability measure-based closures resulting from an ACL overage will begin on September 30<sup>th</sup> of the closure year and would extend backward into the year for the number of days necessary to achieve the required reduction in landings. This closure start date would apply to all FMUs for each of Puerto Rico commercial and recreational sectors, St. Thomas/St. John, St. Croix, and Caribbean-wide. If for any FMU in any year, the number of days left in the year is not enough to achieve the required reduction in landings, then those additional days would be captured in the opposite direction.

**Option 3.** Accountability measure-based closures resulting from an ACL overage will begin on January 1<sup>st</sup> of the closure year and would extend forward into the year for the number of days necessary to achieve the required reduction in landings. This closure start date would apply to all FMUs for each of Puerto Rico commercial and recreational sectors, St. Thomas/St. John, St. Croix, and Caribbean-wide.

**Option 4.** Modify the AM-based closure date by selecting and establishing a fixed fishing closure start date for the implementation of AMs for each FMU (i.e., species/species complex) by island/island group (Puerto Rico, St. Thomas/St. John, St. Croix, and Caribbean-wide). A different start date may be chosen for each FMU on each island/island group, but that start date would apply every year AMs need to be triggered for that FMU on that island. The start date will either begin on the first day of the identified month and go forward towards the end of the year, or begin on the last day of the identified month and go backward towards the beginning of the year. If for any FMU in any year, the number of days left in the year is not enough to

achieve the required reduction in landings, then those additional days would be captured in the opposite direction.

## **A. Puerto Rico**

### **I. Commercial**

**Sub-Option 4a.** Closure to start either the first day or the last day of the month that has the highest landings based on the most recent three years of available landings data. A specific date for each FMU is shown in Table 2.2.1 (commercial) below.

**Sub-Option 4b.** Closure to start either the first day or the last day of the month with lowest landings based on the most recent three years of available landings data. A specific date for each FMU is shown in Table 2.2.1 (commercial) below.

**Sub-Option 4c.** Closure to start either the first day or the last day of the month with the least negative economic, social, and cultural effects. A specific date for each FMU is shown in Table 2.2.1 (commercial) below.

### **II. Recreational**

**Sub-Option 4a.** Closure to start either the first day or the last day of the month that has the highest landings based on the most recent three years of available landings data. A specific date for each FMU is shown in Table 2.2.2 (recreational) below.

**Sub-Option 4b.** Closure to start either the first day or the last day of the month with lowest landings based on the most recent three years of available landings data. A specific date for each FMU is shown in Table 2.2.2 (recreational) below.

**Sub-Option 4c.** Closure to start either the first day or the last day of the month with the least negative economic, social, and cultural effects. A specific date for each FMU is shown in Table 2.2.2 (recreational) below.

## **B. St. Thomas/St. John, USVI (Commercial and Recreational combined)**

**Sub-Option 4a.** Closure to start either the first day or the last day of the month that has the highest landings based on the most recent three years of available landings data. A specific date for each FMU is shown in Table 2.2.3 below.

**Sub-Option 4b.** Closure to start either the first day or the last day of the month with lowest landings based on the most recent three years of available landings data. A specific date for each FMU is shown in Table 2.2.3 below.

**Sub-Option 4c.** Closure to start either the first day or the last day of the month with the least negative economic, social, and cultural effects. A specific date for each FMU is shown in Table 2.2.3 below.

**C. St. Croix, USVI (Commercial and Recreational combined)**

**Sub-Option 4a.** Closure to start either the first day or the last day of the month that has the highest landings based on the most recent three years of available landings data (shortest closure time). A specific date for each FMU is shown in Table 2.2.4 below.

**Sub-Option 4b.** Closure to start either the first day or the last of the month with lowest landings based on the most recent three years of available landings data. A specific date for each FMU is shown in Table 2.2.4 below.

**Sub-Option 4c.** Closure to start either the first day or the last day of the month with the least negative economic, social, and cultural effects. A specific date for each FMU is shown in Table 2.2.4 below.

**D. Caribbean-Wide (Commercial and Recreational combined)**

**Sub-Option 4a.** Closure to start either the first day or the last day of the month that has the highest landings based on the most recent three years of available landings data (shortest closure time). A specific date for each FMU is shown in Table 2.2.5 below.

**Sub-Option 4b.** Closure to start either the first day or the last of the month with lowest landings based on the most recent three years of available landings data. A specific date for each FMU shown in Table 2.2.5 below.

**Sub-Option 4c.** Closure to start either the first day or the last day of the month with the least negative economic, social, and cultural effects. A specific date for each FMU is shown in Table 2.2.5 below.

**Table 2.2.1.** Closure dates resulting from **Sub-Options 4a** through **4c** for Puerto Rico fishery management units in the *commercial* sector. **Sub-Option 4a** and **4b** are based on monthly average landings through time from the most recent years of available landings data (2011-2012) (2013 data is not currently available, therefore it was not included). Dates in **Sub-Option 4c** will be based on input from the Council.

### Puerto Rico Commercial FMUs

Option 4	Sub-Option 4a (highest landings)	Sub-Option 4b (lowest landings)	Sub-Option 4c (least negative economic, social, and cultural effects)
<b>FMU</b>			
Parrotfish	Mar 1	Dec 1	TBD
Snapper Unit 1 (silk, black, blackfin, and vermillion)	Jan 1	October 1 or Jun 1 <sup>1</sup>	TBD
Snapper Unit 2 (queen and cardinal)	Jan 1	Nov 1	TBD
Snapper Unit 3 (mutton, lane, gray, dog, schoolmaster, and mahogany)	Dec 1	May 1 or Jul 1 <sup>2</sup>	TBD
Snapper Unit 4 (yellowtail)	Mar 1	Dec 1	TBD
Groupers	Mar or Aug 1 <sup>3</sup>	Dec 1 <sup>4</sup>	TBD
Angelfish <sup>5</sup>	No Landings		
Boxfish	Feb 1	Jun 1	TBD
Goatfish	Feb 1	May 1	TBD
Grunts	Feb 1	Nov 1	TBD
Wrasses	Sept 1	Nov 1	TBD
Jacks	Mar 1	No 1	TBD
Scups & Porgies	Mar 1	Nov 1	TBD
Squirrelfish	Mar 1	Aug 1	TBD
Surgeonfish <sup>5</sup>	No Landings		
Triggerfish & Filefish	Aug 1	Nov 1	TBD
Spiny Lobster	Feb 1	May 1	TBD

Note: A closure can start on the first day of the month and go forward or start on the last day of the month and go backward. If the proposed AM closure month in Sub-Options 4a or 4b is December, then the Council may choose to begin this closure starting from November 30<sup>th</sup> backward to ensure enough time is available for the closure and to avoid socio-economic impacts during the holiday season.

<sup>1</sup>Harvest of Snapper Unit 1 (SU1) is prohibited in federal waters from October 1 – December 31. In Puerto Rico waters, only the harvest of silk and blackfin snappers is prohibited during this date. Lowest landings for SU1 occur during the seasonal closure months (October through December). The next month with lowest landings outside of the seasonal closure is June.

<sup>2</sup>Harvest of mutton and lane snappers from Snapper Unit 3 (SU3) is prohibited in federal waters from April 1 – June 30. These two species are the biggest contributors to SU3 landings. In Puerto Rico state waters, only the harvest of mutton snapper is prohibited and the closure goes from April 1 through May 31. Lowest landings for SU3 occur during the seasonal closure months of May and June. The next month with lowest landings outside of the seasonal closure is July.

<sup>3</sup>The highest landings for groupers occur in March. This date partially overlaps with the February 1 through April 31 seasonal closure for yellowfin, black, red, and tiger groupers in federal waters, and the closure for yellowfin only in Puerto Rico state waters. However, most of the landings in March are dominated by red hind grouper, whose season just opened (seasonal closure goes from December 1 – February 28 in Puerto Rico waters and in federal



portions of Tourmaline, Abrir La Sierra, and Bajo de Sico). The next month with highest landings outside of the seasonal closure is August.

<sup>4</sup>The lowest landings for grouper occur in December, with the majority of landings dominated by misty grouper and red hind. Harvest of red hind is prohibited from December 1 through February 28 in Puerto Rico state waters, and in federal waters of Bajo de Sico, Abrir La Sierra, and Tourmaline Bank in western Puerto Rico. The next months with the lowest landings are January and February, when red hind harvest is closed, and then November. The closure could be implemented in November 30 backward, which is a month with low landings.

<sup>5</sup>No landings of angelfish and surgeonfish were reported during 2011 and 2012.

**Table 2.2.2.** Closure dates resulting from **Sub-Options 4a** through **4c** for Puerto Rico fishery management units in the *recreational* sector. Recreational landings data are reported in two-month waves. **Sub-Option 4a** and **Sub-Option 4b** are based on bi-monthly average landings through time from the most recent three years of available landings data (2011-2013). \*Dates in **Sub-Option 4c** would be based on input from the Council.

#### Puerto Rico Recreational FMUs

<b>Option 4</b>	<b>Sub-Option 4a</b> (highest landings – first month in wave)	<b>Sub-Option 4b</b> (lowest landings – first month in wave)	<b>Sub-Option 4c</b> (least negative economic, social, and cultural effects)
<b>FMU</b>			
Parrotfish	Jan 1	Jul 1	TBD
Snapper Unit 1	Mar 1	No landings Nov-Dec <sup>1</sup> ; Jul 1 (lowest landings)	TBD
Snapper Unit 2	Jan 1	No landings from Mar-Dec <sup>2</sup> ; Feb 1 (lowest landings)	TBD
Snapper Unit 3	May 1 <sup>3</sup> or Nov 1	Jul 1	TBD
Snapper Unit 4	Mar 1	Sept 1	TBD
Groupers	Mar 1 <sup>4</sup> or Sep 1	Nov 1	TBD
Angelfish	Jan 1	No landings Mar-Jun and Sept-Dec; Jul 1 (lowest landings)	TBD
Boxfish	Jan 1	Jul 1	TBD
Goatfishes	Sept 1	No landings Jan-Apr, Nov-Dec; Jul 1 (lowest landings)	TBD
Grunts	Mar 1	July 1	TBD
Wrasses	Mar 1	No landings Nov-Dec; May 1 (lowest landings)	TBD
Jacks	Mar 1	Jan 1	TBD
Porgies	Nov 1	Jul 1	TBD
Squirrelfish	Nov 1	Jan 1	TBD
Surgeonfish		No Landings <sup>5</sup>	
Triggerfish & Filefish	Mar 1	No landings July-Aug, Nov-Dec; Sept 1 (lowest landings)	TBD

Note: A closure can start on the first day of the month and go forward or start on the last day of the month and go backward. If the proposed AM closure month in Sub-Options 4a or 4b is December, then the Council may choose to begin this closure starting from November 30<sup>th</sup> backward to ensure enough time is available for the closure and to avoid socio-economic impacts during the holiday season.

<sup>1</sup> Harvest of silk, black, blackfin, and vermilion snappers in federal waters and only for silk and blackfin in Puerto Rico state waters is closed from October 1 through December 31 each year. Lowest landings for SU1 occur during the seasonal closure months of November and December (zero landings reported). The next two-month wave with lowest landings outside of the seasonal closure is July-August.

<sup>2</sup> SU2 only had reported landings during January (highest) and February (lowest).

<sup>3</sup> Harvest of mutton and lane snappers from SU3 is prohibited in federal waters from April 1 through June 30, and in Puerto Rico state waters only for mutton snapper from April 1 through May 31. The month with the highest landings for groupers is May, with catches dominated by lane snapper. The next two month wave with the highest landings outside of the seasonal closure is November-December, with catches from lane snapper dominating the landings.

<sup>4</sup> The highest landings for groupers occur in March. This date partially overlaps with the February 1 through April 31 seasonal closure for yellowfin, black, red, and tiger groupers in federal waters, and the closure for yellowfin only in Puerto Rico state waters. However, most of the landings in March are dominated by red hind grouper, whose season goes from December 1 – February 28 in Puerto Rico waters and in the federal portions of Tourmaline, Abrir La Sierra, and Bajo de Sico). The next two-month wave with highest landings outside of the seasonal closure is September-October with catches dominated by red hind and to a much lesser extent, by coney.

<sup>5</sup> There were no reported recreational landings of surgeonfish from 2011-2013.

**Table 2.2.3.** Closure dates resulting from **Sub-Options 4a** through **4c** for St. Thomas/St. John fishery management units. **Sub-Option 4a** and **4b** are based on monthly average landings through time from the most recent three years of available landings data (2011-2013). \*Dates in **Sub-Option 4c** would be based on input from the Council.

#### St. Thomas Commercial FMUs

Option 4	Sub-Option 4a (highest landings)	Sub-Option 4b (lowest landings)	Sub-Option 4c (least negative economic, social, and cultural effects)
<b>FMU</b>			
Parrotfish	Mar 1	Nov 1	TBD
Snapper	Apr 1 or Sept 1 or Sept 30 <sup>1</sup>	Dec 1 or Aug 1 <sup>2</sup>	TBD
Grouper	Jan 1 or Oct 1 <sup>3</sup>	Apr 1 or Dec 1 <sup>4</sup>	TBD
Angelfish	Aug 1	Feb 1	TBD
Boxfish	Jan 1	Dec 1	TBD
Goatfish <sup>5</sup>	Jan 1 or May 1	No landings Feb-Apr, June, and Aug-Dec; Jul 1 (lowest landings)	TBD
Grunts	Jan 1	Dec 1	TBD
Wrasses	Aug 1	Feb 1	TBD
Jacks	May 1	Dec 1	TBD
Scups & Porgies	Jan 1	Feb 1	TBD
Squirrelfish	Aug 1	Apr 1	TBD
Surgeonfish	Jan 1	Dec 1	TBD
Triggerfish & Filefish	Jan 1	Dec 1	TBD
Spiny Lobster	Jan 1	Sept 1	TBD

Note: A closure can start on the first day of the month and go forward or start on the last day of the month and go backward. If the proposed AM closure month in Sub-Options 4bi or 4bii is December, then the Council may choose

to begin this closure starting from November 30<sup>th</sup> backward to ensure enough time is available for the closure and to avoid socio-economic impacts during the holiday season.

<sup>1</sup>The highest landings for snappers occur in April but this overlaps with the seasonal closure already in place for lane and mutton snappers in federal and USVI waters that runs from April 1 through June 30. The month with the next highest landings is September. If the AM closure needs to be longer than 30 days, then the closure could instead begin in September 30 and go backward to avoid overlapping with the seasonal closure already in place for silk, black, blackfin, and vermillion in federal waters which begins on October 1 through December 31. The next month with highest landings outside of the seasonal closure is March, followed by June.

<sup>2</sup>Lowest landings for snappers occur during the silk, black, blackfin, and vermillion snapper seasonal closure months of December, November, and October in federal waters and St. Thomas/St. John waters. The next month with lowest landings outside of the seasonal closure is August.

<sup>3</sup>Highest landings for grouper occur in January. Depending on how long the AM closure needs to be to account for the ACL overage, a January 1 closure will partially overlap with the closure for yellowfin, red, tiger, black, and yellowedge groupers in federal and USVI waters that goes from February 1 – April 30, and with the Grammanik Bank closure during this date. The next month with highest landings outside of the seasonal closure is October.

<sup>4</sup>Lowest landings for grouper occur in April. This proposed AM closure will partially overlap with the closure for yellowfin, red, tiger, black, and yellowedge groupers in federal and USVI waters from February 1 – April 30, and with the Grammanik Bank closure during this date. The next month with lowest landings outside of the seasonal closure is December, followed by November.

<sup>5</sup>Landings of Goatfish are very small and amount to less than 20 pounds on average annually for 2011-2013.

**Table 2.2.4.** Closure dates resulting from **Sub-Options 4a** through **4c** for St. Croix fishery management units. **Sub-Option 4a** and **4b** are based on monthly average landings through time from the most recent three years of available landings data (2011-2013). \*Dates in **Sub-Option 4c** would be based on input from the Council.

#### St. Croix Commercial FMUs

Option 4b	Sub-Option 4a (highest landings)	Sub-Option 4b (lowest landings)	Sub-Option 4c (least negative economic, social, and cultural effects)
<b>FMU</b>			
Parrotfish	Mar 1	Sept 1	TBD
Snappers	July 1	Sept 1 or Sept 30 <sup>1</sup>	TBD
Groupers	Jul 1	Dec 1	TBD
Angelfish	Oct 1	Jun 1	TBD
Boxfish	June 1	Jan 1	TBD
Goatfish <sup>2</sup>	Feb 1 or Nov 1	Aug 1	TBD
Grunts	Jul 1	Dec 1	TBD
Wrasses <sup>2</sup>	Nov 1	No landings in Feb – Apr, Jun, Aug, and Oct; Jan 1 or Sept 1 (lowest landings)	TBD
Jacks	Feb 1	Dec 1	TBD
Scups & Porgies	Jan 1	Oct 1	TBD
Squirrelfish <sup>2</sup>	Jul 1	Jan 1 or Apr 1	TBD
Surgeonfish	Jul 1	Dec 1	TBD
Triggerfish & Filefish	Mar 1	Dec 1	TBD
Spiny Lobster	Mar 1	Sept 1	TBD

Note: A closure can start on the first day of the month and go forward or start on the last day of the month and go backward. If the proposed AM closure month in Sub-Options 4a or 4b is December, then the Council may choose to begin this closure starting from November 30<sup>th</sup> backward to ensure enough time is available for the closure and to avoid socio-economic impacts during the holiday season.

<sup>1</sup>The lowest landings for snappers occur in December but this overlaps with the seasonal closure already in place for silk, black, blackfin, and vermilion snapper in federal waters from October 1 through December 31. The next month with lowest landings outside of the seasonal closure is September. If the AM closure needs to be longer than 30 days, then the closure could instead begin in September 30 and go backward to avoid overlapping with the October 1 seasonal closure.

<sup>2</sup>Landings of goatfish, squirrelfish, and wrasses FMUs are very small, amounting to less than 1,000 pounds on average annually for 2011-2013.

**Table 2.2.5.** Closure dates resulting from **Sub-Options 4a** through **4c** for Caribbean-wide fishery management units: tilefish and aquarium trade species. **Sub-Option 4a** and **4b** are based on monthly average landings through time from the most recent three years of available landings data. \*Dates in **Sub-Option 4c** would be based on input from the Council.

#### Caribbean-wide FMUs

Option 4	Sub-Option 4a (highest landings)	Sub-Option 4b (lowest landings)	Sub-Option 4c (least negative economic, social, and cultural effects)
FMU			
Tilefish <sup>1</sup>	Jul 1	No landings Jan-April, Nov-Dec May 1 (lowest landings)	TBD
Aquarium trade species <sup>2</sup>	Nov 1	No landings May-Aug; Sept 1 (lowest landings)	TBD

Note: A closure can start on the first day of the month and go forward or start on the last day of the month and go backward.

<sup>1</sup>Average annual reported landings of Tilefish totaled less than 200 pounds in 2011-2013.

<sup>2</sup>Average annual reported landings of Aquarium Trade species totaled approximately 1,000 pounds from 2011-2013.

## Discussion of Options in Action 1

### Option 1 – No Action

The Council could choose to take no action through **Option 1**, thus AM-based closures would continue to be implemented beginning on December 31<sup>st</sup> of the appropriate year and extending backward in the year for the number of days necessary to prevent such an overage from occurring again. This current approach of closing the season from December 31<sup>st</sup> backward has been identified by fishermen as having negative social and economic effects. In addition, closing the season from December 31<sup>st</sup> backward results in the fishery being closed during the important Christmas holiday season. For example, fishers in the USVI have identified this time period as a very important market. On the other hand, AM closures that start on December and go backward

into the year guarantee that the time needed to account for the exceedance of the ACL can be fully accomplished during the year.

**Option 2 – September 30<sup>th</sup> Start Date for AM Closures for all FMUs per Island/Island group**

**Option 2** would consist of establishing September 30<sup>th</sup> as the closure start date for all FMUs within each island/island group. The closure would start on the last day of September of the appropriate year and extend backward into the year for the number of days necessary to prevent such an overage from occurring again. This closure start date would apply every year AMs need to be triggered for that particular FMU, unless and until the chosen closure date is revised as described in Action 2. This fixed start date for all the FMUs (e.g., species/species complexes) would be implemented through regulations. If for any FMU in any year, the number of days left in the year is not enough to achieve the required reduction in landings, then those additional days would be captured in the opposite direction.

The Council DAPs and SSC provided input to the Council on which dates were desired for the AM closures (i.e., month, day, closure to go backward or forward). **Option 2** ensures the time needed to make sure the ACL is not exceeded again is least likely to extend through the Christmas season, as had been identified beforehand by the Council with public input. The DAPs for each of Puerto Rico, St. Croix, and St. Thomas/St. John met during March 2015 and unanimously proposed September 30<sup>th</sup> going backward as the preferred start date for all FMUs. This date has been identified as a slow fishing season and also purposely avoids the December holiday season, a time which has been identified by USVI fishers, as economically and culturally important. This start date is also outside of the time during which spawning seasonal closures occur for some FMUs in the U.S. Caribbean (i.e., Oct 1 – Dec 31, Snapper Unit 1; Dec 1- Feb 28, red hind grouper). Depending on the species/species complex that experiences the AM and the amount of time required for the closure, an AM closure may overlap with existing seasonal or area closures (see Table 2.1.2) (note that already established seasonal closure dates are skipped from the analysis to determine the extension of the AM closure). Thus in the amendment, in addition to analyzing the biological, socio-economic, and administrative effects of a September 30<sup>th</sup> start date for all FMUs, the impacts of lengthy closures would also need to be analyzed.

Although not expected to occur based on the history of AM closures, if the number of days left in the year is not enough to achieve the required reduction in landings and the closure thus needs to move in the opposite direction (for example, move forward toward the end of the year) then depending on the species/species complex that experiences the AM, the AM closure may run into a federal or state spawning closure that occurs late in the year or the closure could extend into the December holiday season. These factors would also need to be incorporated into the effects analysis.

### **Option 3 – January 1<sup>st</sup> Start Date for AM Closures for all FMUs per Island/Island group**

**Option 3** would establish January 1<sup>st</sup> as the closure start date for all FMUs within each island/island group. This closure start date would apply every year AMs need to be triggered for that particular FMU, unless and until the chosen closure date is revised as described in Action 2. This fixed start date for all FMUs would be implemented through regulations.

**Option 3** contrasts with **Option 1** (no action) in the sense that closures would start in the beginning of the year and go forward towards the end of the year instead of starting at the end of the year and moving backward into the beginning of the year. When compared to **Option 2**, choosing a January 1<sup>st</sup> start date provides a direct, continuous closure regardless of how long the closure must be. Overlapping AM closures could occur in any of **Options 1** through **3** if AMs need to be applied to more than one species/species complex in a particular island/island group in a given year.

Depending on the length of the closure needed for the AM and the FMU to which the AMs would be applied, a January 1<sup>st</sup> going forward start date has a greater chance of overlapping with spawning seasonal closures for groupers and snappers and seasonal area closures that occur early in the year. For example, if the grouper ACL for St. Thomas/St. John is determined to have been exceeded for an  $x$  amount of pounds and an AM closure of 45 days needs to be implemented for this FMU, then a January 1<sup>st</sup> start date would overlap with the seasonal closure for groupers that starts on February 1<sup>st</sup> and extends through April 30<sup>th</sup> each year. Those already established closure dates are skipped from the analysis to determine the extension of the AM closure, and the AM closure would extend past those seasonal closure months until the required closure time is achieved. Thus the amendment, in addition to analyzing the biological, socio-economic, and administrative effects of January 1<sup>st</sup> as a start date, it would also need to analyze the impacts of lengthy closures.

### **Option 4 – Pre-determined AM Closure Start Date for each FMU per Island/Island Group**

**Option 4** would consist of establishing a pre-determined closure date specific to each FMU by FMU basis for each of Puerto Rico, St. Croix, St. Thomas/St. John, and Caribbean-wide. The closure date would apply every year AMs need to be triggered for that particular FMU, unless and until the chosen closure dates are revised as described in Action 2. The Council would choose a fixed start date as the preferred closure date for each FMU per island/island group and in the case of Puerto Rico, they may choose a different date for each of the commercial and recreational fishing sectors. The selected fixed start date for each FMU will be implemented through regulations. If for any FMU in any year, the number of days left in the year is not enough to achieve the required reduction in landings, then those additional days would be captured in the opposite direction.

**Option 4** allows the Council to choose a fixed starting date (i.e., month, day, closure to go backward or forward) for each FMU or for a combination of FMUs for each of the Puerto Rico commercial and recreational sectors, St. Croix, St. Thomas/St. John, and Caribbean-wide based on specific criteria (highest landings, lowest landings, or least economic, social, and/or cultural effects). In contrast to **Option 2** where the start date results from Council input, the potential dates for **Sub-options 4a** and **4b** in **Option 4** result from an analysis of the most recent three years of available landings data for all FMUs per island/island group and for each of the Puerto Rico fishing sectors. Depending on the date resulting from the sub-option chosen, the Council would determine if the AM closure will go forward or backward. For example, a closure can start the first day of the identified month and go forward (e.g., closure starting on March 1 and going forward towards the end of the year) or could start the last day of the identified month and go backward (e.g., closure starting on November 30 and going backward towards the beginning of the year). The exception is December, a month for which the Council may want to avoid additional closures in consideration of socio-economic importance of the Christmas season. The full closure must be achieved, regardless of the start day chosen. Just as in **Option 2** and **Option 3**, if for any FMU in any year the number of days left in the year is not enough to achieve the required reduction in landings, then those additional days would be captured in the opposite direction.

At the Council's request, other options could be developed by staff showing when closures occur across the various FMUs in an effort to ensure that some fisheries will be open when others are not. The Council can also explore the possibility of establishing multiple closure dates for any FMU or group of FMUs, occurring during discrete periods of time throughout the year.

For an FMU that exceeds its ACL, **Sub-Option 4a** proposes to close the fishery on the first day or the last day of the month that, based on an analysis of recent landings data, results in the highest landings. Closing the fishery on that date would theoretically result in the shortest closure time. **Sub-Option 4b** proposes to close the fishery on the first or the last day of the month that, based on analysis of landings data, results in the lowest landings. This would result in the longest closure period but will likely occur at a time during the year when fishing for that particular fishery may be relatively less important. **Sub-Options 4a** and **4b** propose to start the AM fishery closure on either the first day or the last day of the identified month because the landings data used for the analysis are based on monthly data.

Lastly **Sub-Option 4c** proposes to close the fishery on either the first day or the last day of the month that is identified as having the least negative economic, social, and cultural effects. In March 2015, the Council DAPs of each of Puerto Rico, St. Croix, and St. Thomas/St. John provided input on the dates for AM closures for **Sub-Option 4c**. District Advisory Panel members were not supportive of establishing separate dates for each FMU, and instead proposed the September 30<sup>th</sup> going backward date (as in **Option 2**) as their preferred date choice for

implementation of AMs that could apply to all FMUs in each island/island group, including Caribbean-wide.

When compared to **Options 1, 2 and 3**, choosing different dates for each FMU or for a group of FMUs in **Option 4** may decrease the possibility of overlapping AM closures in the event that multiple AMs need to be implemented in a particular island/island group. The biological, socio-economic, and administrative analyses needed for all sub-options in **Option 4** would primarily involve a qualitative discussion on the effects of selecting and establishing different dates for each FMU or for a group of FMUs. It would also involve the analysis of the impacts of lengthy closures in the event that a selected fixed closure date for a particular FMU overlaps with a pre-established seasonal or area closure.

**ACTION 2: Specify how often the approach to set the timing of AM-based closures selected in Action 1 should be revisited.**

**Option 1.** Do not specify how often the approach chosen should be revisited.

**Option 2.** Review the chosen approach no longer than 3 years from implementation.

**Option 3.** Review the chosen approach no longer than 5 years from implementation.

**Discussion of Options in Action 2**

The purpose of Action 2 is to provide options to review the approach chosen. Under any of the options proposed, the Council could choose to review the approach at any time; however, **Option 2** and **Option 3** ensure a reevaluation is conducted within a specified timeframe. **Option 1** is the no action option, and does not set a timeframe for the action to be reviewed. Under **Option 2** and **Option 3**, the Council should schedule a review of the approach every 3 years or 5 years after implementation, respectively. Reviewing the approach that sets the timing for AM closures can involve reviewing the dates selected, criteria for choosing the dates, or any other aspect of the rule.



## Chapter 3. References

CFMC. 2011a. Amendment 2 to the Fishery Management Plan for the Queen Conch Fishery of Puerto Rico and the U.S. Virgin Islands and Amendment 5 to the Reef Fish Fishery Management Plan of Puerto Rico and the U.S. Virgin Islands. Caribbean Fishery Management Council, San Juan, Puerto Rico. September 22, 2011. 523 pp + Appendices. Available at: [http://sero.nmfs.noaa.gov/sustainable\\_fisheries/caribbean/2010\\_acl/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/caribbean/2010_acl/index.html)

CFMC. 2011b. Comprehensive Annual Catch Limit (ACL) Amendment for the Fishery Management Plans of the U.S. Caribbean. Caribbean Fishery Management Council, San Juan, Puerto Rico. October 25, 2011. 407 pp. Available at: [http://sero.nmfs.noaa.gov/sustainable\\_fisheries/caribbean/2011\\_acl/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/caribbean/2011_acl/index.html)

CFMC. 2013a. Amendment 4 to the Fishery Management Plan for Corals and Reef Associated Plants and Invertebrates of Puerto Rico and the U.S. Virgin Islands: Seagrass Management. Including Final Environmental Assessment, Regulatory Impact Review, and Regulatory Flexibility Act Analysis. Caribbean Fishery Management Council, San Juan, Puerto Rico. May 2013. 88 pp. Available at: [http://sero.nmfs.noaa.gov/sustainable\\_fisheries/caribbean/coral/am4/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/caribbean/coral/am4/index.html)

CFMC. 2013b. Regulatory 2 to the Fishery Management Plan for the Queen Conch Resources of Puerto Rico and the U.S. Virgin Islands: Compatibility of Trip and Bag Limits in the Management Area of St. Croix, U.S. Virgin Islands. Including Final Environmental Assessment, Regulatory Impact Review, and Regulatory Flexibility Act Analysis. Caribbean Fishery Management Council, San Juan, Puerto Rico. August 2013. 133 pp. Available at: [http://sero.nmfs.noaa.gov/sustainable\\_fisheries/caribbean/conch/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/caribbean/conch/index.html).

CFMC. 2013c. Regulatory Amendment 4 to the Fishery Management Plan for the Reef Fish Resources of Puerto Rico and the U.S. Virgin Islands: Parrotfish Minimum Size Limits. Including Final Environmental Assessment, Regulatory Impact Review, and Regulatory Flexibility Act Analysis. Caribbean Fishery Management Council, San Juan, Puerto Rico. February 2013. 188 pp. Available at: [http://sero.nmfs.noaa.gov/sustainable\\_fisheries/caribbean/reef\\_fish/reg\\_am4/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/caribbean/reef_fish/reg_am4/index.html).