

Wreckfish ITQ Draft Review

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1.0 Introduction and Background

This review is intended to evaluate progress made in meeting the goals of the Wreckfish Individual Transferable Quota (ITQ) program. The review does not attempt to comprehensively evaluate management of the snapper-grouper fishery. The South Atlantic Fishery Management Council (South Atlantic Council) is required by law to review the ITQ program every five to seven years. This will be the first official review of this program. This review provides a historical overview of the commercial wreckfish sector before and after ITQ implementation, discusses social, economic, and biological trends as they relate to ITQ management, and offers conclusions and recommended changes to the program based on this review. Data and information contained in this report were obtained from a variety of sources, including, but not limited to peer-reviewed literature, the Southeast Fisheries Science Center (SEFSC) coastal logbook program, SEFSC accumulated landings system, and National Institute of Occupational Safety and Health. This report constitutes the findings of the South Atlantic Council and their comprehensive review of the ITQ program.

1.1 Legal requirements for the review

The National Marine Fisheries Service (NMFS) established Guidance for Conducting Reviews of Catch Share Programs (Guidance) in 2017 (NMFS, 2017).¹ This Guidance is based on the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), as well as other agency guidance in NOAA's Catch Share Policy (CS Policy)² and The Design and Use of Limited Access Privilege Programs (LAPPs) (Holliday and Anderson 2007).³ The goals of the Guidance are to ensure these reviews meet statutory requirements, are generally consistent across the country, and are carried out in a transparent, efficient, and effective manner. The objectives of the Guidance are to specify the process that should be followed, the elements a review should contain, and the program components that should be addressed when completing a review.

The Magnuson-Stevens Act specifies that fishing privileges established under LAPPs are not permanent and may be revoked, limited, or modified at any time. If a program is meeting its stated objectives, then it will likely be continued. However, the Council reserves the right to terminate or modify a program for cause, including if the system is found to have jeopardized the sustainability of the stock or the safety of fishermen. The review provision specified by the Magnuson-Stevens Act requires the Council to evaluate the effectiveness of the program and determine whether it should be modified,

¹ <http://www.nmfs.noaa.gov/op/pds/index.html>

² http://www.nmfs.noaa.gov/sfa/management/catch_shares/about/documents/noaa_cs_policy.pdf

³ <http://spo.nmfs.noaa.gov/tm/tm86.pdf>

extended, or terminated. More specifically, the Magnuson-Stevens Act 303A(c)(1)(G) requires the Council and Secretary of Commerce (Secretary) to:

“include provisions for the regular monitoring and review by the Council and the Secretary of the operations of the program, including determining progress in meeting the goals of the program and this Act, and any necessary modification of the program to meet these goals, with a formal and detailed review 5 years after the implementation of the program and thereafter to coincide with scheduled Council review of the relevant fishery management plan (but not less frequently than once every 7 years);”

For programs established prior to January 12, 2007, the initial review should commence no later than 5 years after the program was implemented. For CSPs established prior to January 12, 2007, the requirement to initiate the first review 5 years after implementation does not apply. The South Atlantic Council completed an initial review of the Wreckfish ITQ program in 2009.⁴ Because the CS Policy indicates that periodic reviews are expected of all Catch Share programs (CSPs), reviews for CSPs established prior to January 12, 2007, should be initiated no later than 7 years after the CS Policy went into effect in 2010 (i.e., no later than the end of calendar year 2017), consistent with MSA’s requirement for subsequent reviews. Subsequent reviews should coincide with scheduled Council review of the relevant FMP, but no less frequently than once every 7 years. This review is the first subsequent review of the Wreckfish ITQ program. Although the Councils and NMFS should also follow any timelines for additional program reviews specified by the Fishery Management Plan (FMP) or FMP amendments (hereinafter collectively referred to as “FMP”) that created or modified the program, no additional timelines for reviewing the wreckfish program are currently specified in the Snapper-Grouper FMP.

The review is considered a Council document. Once a review is completed, the results are to be submitted to the Council for approval and NMFS for concurrence that the review meets the requirements of the Magnuson-Stevens Act and is consistent with the Guidance.

Best available scientific information should be used for the review. If quantitative analyses are not available, qualitative assessments may suffice. The review of a Catch Share Program (CSP) is a retrospective evaluation of an established program. Thus, rather than analyzing the program’s expected effects, as is done in the implementing FMP, the task in a review is to describe and analyze the effects that have actually taken place since the “baseline” time period. Therefore, Councils need to consider an appropriate baseline for comparison. A baseline period of at least 3 years is preferable, but this may be modified depending on the circumstances. For subsequent program reviews, such as this review, analyses should discuss changes since the last review and need not evaluate the program’s performance in years prior to the last review.

The review should contain the following eight elements. If a Council determines that one or more of these elements is not applicable to a specific review, the Council should document its rationale for not conducting a more formal analysis of that element. The eight elements are:

- 1) purpose and need of the review (discuss legal/policy requirements),
- 2) goals and objectives of the program, the FMP, and the MSA,
- 3) history of management, including a description of management prior to the program’s implementation, a description of the program at the time of implementation (including enforcement, data collection, and monitoring), and any changes made since the program’s implementation or the previous review (including an explanation of why those changes were made),
- 4) a description of biological, ecological, economic, social, and administrative environments before and since the program’s implementation,
- 5) an analysis of the program’s biological, ecological/environmental, economic, social, and administrative effects,

⁴ SAFMC. 2009. Wreckfish Individual Transferable Quota (ITQ) Program Review. 39 pp.

- 6) an evaluation of those effects with respect to meeting the goals and objectives (i.e., program performance), including a summary of the conclusions arising from the evaluation,
- 7) a summary of any unexpected effects (positive or negative) which do not fall under the program's goals and objectives, and
- 8) identification of issues associated with the program's structure or function and the potential need for additional data collection and/or research.

In general, the review should use as holistic an approach as possible given available data and resources. Interdependencies between related fisheries and programs can generate spillover effects that may be unexpected or unintended. When this occurs and it is difficult to separate the effects of the CSP under review from the effects of other programs or management measures in other fisheries, these programs or fisheries should be considered together. Councils should determine if analyzing the CSP under review without considering other fisheries will likely mischaracterize the program's performance, and the program's effects on human communities, fish stocks, and the ecological communities/environment.

1.2 Pre-ITQ management

Wreckfish were not an original species managed under the Snapper-Grouper Fishery Management Plan (SAFMC 1990 Amendment 3). The stock on the Charleston Bump was discovered accidentally in the mid-1980s by swordfish fishermen recovering lost longline gear in the area (Gauvin, Ward, and Burgess 1994). Harvest grew very quickly, as noted in Table 1.2.1 below from SAFMC SG Amendment 3 pg 3:

Wreckfish Catch & Effort over Times		
Year	Number Vessels	Landings (pounds)
1987	2	28,849
1988	6	307,607
1989	25	2,017,000
1990 (Jan-Mar)	40	3,000,000

Entrance into the fishery was eased by the complete lack of regulations and permits and the ease in converting over boats with already-existing mechanized hydraulic gear from the swordfish, shark, snapper-grouper, and deepwater shrimp fisheries. The wreckfish were larger (~30 lbs.) than local grouper species and trips were correspondingly lucrative. Fearing a biological collapse, the Council passed SG Amendment 3 at its February/March 1990 meeting, which imposed the following regulations:

1. Added wreckfish to the management unit
2. Defined optimum yield
3. Defined overfishing
4. Required a permit to fish for, land, or sell wreckfish.
5. Collected data necessary for management
6. Established a control date of March 28, 1990 for a limited-entry program.

7. Established a fishing year beginning April 1.
8. Established a total allowable catch (initially set at 2M pounds).
9. Established a 10,000 lb trip limit.
10. Established a spawning season closure from January 15 through April 15.

These initial regulations were quickly found to be insufficient for restricting catch to the desired TAC, as the newly permitted fishermen caught the entire 2M lb TAC in the first four months of the 1991-1992 season. Snapper-Grouper Amendment 4 (1991) was not primarily directed at regulating wreckfish, but did add one significant restriction with the banning of bottom longline gear in the wreckfish fishery. Before that longline ban went into effect in October 1991, however, the Council passed Amendment 5 (1991), which introduced the ITQ program that is still in place today.

1.3 ITQ program description

As noted in the preceding chapter, the wreckfish ITQ was created when the Council passed Amendment 5 to the Snapper-Grouper Fishery Management Plan at the end of 1991. Catch levels in the fishery peaked in 1990 at approximately four million pounds, and were forced to decline to the new two million pound TAC the subsequent year while the Council worked on new restrictions.

The wreckfish ITQ is the oldest finfish ITQ in the United States and the second oldest ITQ overall (after ocean quahog / surf clam). As one of the first ITQs introduced in the United States, Amendment 5 introduced a regulatory system of transferable and divisible rights to catch and sell wreckfish in the area under the Council's jurisdiction. On the first page of Amendment 5, the ITQs are defined in two separate but related ways. Percentage shares are an individual "fisherman's permanent holding in the fishery based on the initial allocation of shares that can be modified by trading". Individual quotas are "the quantity of wreckfish that a percentage share translates into in a particular year." Amendment 5 introduced a system for tracking and monitoring both percentage share and individual quota transactions, and these are still the systems in use today. The ITQs did not replace the vessel permit system in place since Amendment 3, and wreckfish fishermen are still required to acquire such permits before engaging in fishing. Wreckfish dealers have also been required to be permitted since Amendment 5. Both fishermen and dealers must comply with the data reporting requirements of the wreckfish ITQ as outlined in Amendment 5.

1.3.1 ITQ Goals and Objectives

According to Section 303A(c)(1)(G) of the MSA, a primary goal of the review is to assess progress in meeting the goals of the program and the MSA and the CS Policy indicates it is necessary to examine objectives as well, including those of the FMP. Thus, the goals and objectives in this case include those identified in the implementing Amendment, the FMP, the CS Policy, and the MSA, particularly those specific to LAPPs, though the primary focus should be on those identified in the implementing Amendment. The goals and objectives of the Amendment and FMP should be evaluated with respect to whether they are clear, measurable (at least qualitatively), achievable (i.e., are two or more objectives mutually exclusive?), and still appropriate under the current circumstances. Fishery performance changes over time, and for other reasons than the effects of the program or other management measures. Such changes should be taken into account when evaluating the efficacy of the original goals and objectives. If certain goals and objectives are found not to be clear, measurable, achievable, and/or still appropriate, the review should note deficiencies for the Council to address. Thus, one specific purpose of the reviews is to encourage Councils and NMFS to clearly identify specific performance standards that can be used in assessing whether, or to what extent, the goals and objectives have been met.

If the program is performing as expected at the time of implementation, then the various goals and objectives either should have been achieved or substantial progress should have been made towards

achieving them. If the analysis concludes otherwise, such conclusions may serve as the basis for future changes to the program.

In addition to the specific goals of the wreckfish IYEQ program, there are goals and objectives as related to the Magnuson-Stevens Act. The goals of Magnuson-Stevens Act as they relate to LAP programs, include but are not limited to:

- preventing overfishing,
- basing conservation and management measures on the best available science,
- establishing conservation and management measures that consider efficiency in utilization of resources, except that no such measure shall have economic allocation as its sole purpose,
- establishing conservation and management measures that, where practicable, minimize costs and avoid unnecessary duplication, establishing conservation and management measures that take into account variations among, and contingencies in fisheries, fishery resources, and catches,
- accounting for the importance of fishery resources to fishing communities by utilizing economic and social data to maintain sustained participation of such communities and to the extent practicable, minimize adverse economic impacts on such communities,
- minimizing bycatch and bycatch mortality to the extent practicable,
- promoting safety at sea,
- ensuring initial allocations are fairly and equitably distributed, and
- ensuring that limited access privilege holders do not acquire an excessive share of the limited access privilege program.

Given that the programs have been in place for several years, the Council should use this review to evaluate

1. whether the original goals of the program have been met or if further progress is needed toward achieving the goals, and
2. should new goals be added to address changes in the fishery that have come about as a result of the IFQ programs. For the goals, this review should help the Council to determine whether the goals have been achieved or further progress is necessary.

As noted in Amendment 4, the rapid escalation of effort and vessels in the wreckfish fishery threatened the species with overfishing. Amendment 4 attempted to resolve that with the introduction of a TAC. Amendment 5 noted that a number of new problems had since surfaced as a result of that new TAC, here listed in abbreviated form:

1. Excess capacity. "The size and capacity of the wreckfish fleet exceeds that needed for the present TAC" as well as any likely future TACs.
2. Inefficiency. The effort to control harvest would require a number of new measures that would raise fishing costs and hence decrease benefits.
3. Low conservation and compliance incentives, as voluntary attempts to conserve the resource "may be appropriated by other fishermen or new entrants."
4. Potential conflicts between competing vessels over the fishing area.
5. High regulatory costs.
6. Low marketing incentives because of "short run oversupply and lack of product continuity."

Amendment 5 hence listed a number of objectives to address these problems. Note that preceding the ITQ, the wreckfish fishery required a permit, but was still an open-access fishery. Amendment 5 moved the fishery from open- to closed-access and did this through the mechanism of an ITQ. The goals and objectives listed below from Amendment 5 justify both closing access to the fishery and doing it through an ITQ regulatory system:

1. “Develop a mechanism to vest fishermen in the wreckfish fishery and create incentives for conservation and regulatory compliance whereby fishermen can realize potential long-run benefit ...”
2. “Provide a management regime which promotes stability and facilitates long-range planning and investment by harvesters and fish dealers while avoiding, where possible, the necessity for more stringent management measures and increasing management costs over time.”
3. “Develop a mechanism that allows the marketplace to drive harvest strategies...”
4. “Promote management regimes that minimize gear and area conflicts...”
5. “Minimize the tendency for over-capitalization in the harvesting and processing/distribution sectors.”
6. “Provide a reasonable opportunity for fishermen to make adequate returns from commercial fishing by controlling entry so that returns are not regularly dissipated by open access, while also providing avenues for fishermen not initially included in the limited entry program to enter the program.”

1.3.2 ITQ Design and Structure

The technical aspects of the wreckfish ITQ did not supersede the actions present in Amendments 3 and 4 (see Section 1.2). A wreckfish permit is required to fish for wreckfish, but this permit is still open access, with the ITQ acting as the access-restricting mechanism. A spawning season closure still exists, and the ban on bottom longline gear was never removed. The only pre-ITQ regulation that was removed by Amendment 5 is the 10,000 lb trip limit.

The wreckfish season runs from April 16 until January 15 of the following year. Before the beginning of the fishing season, the Southeast Fisheries Regional Office distributes paper coupons in 100 and 500 pound increments to current shareholders based on the current percentages of the commercial sector (currently 95%) of the wreckfish TAC. Wreckfish fishermen must also have a valid South Atlantic Unlimited Snapper/Grouper permit in order to harvest wreckfish. The Snapper/Grouper permit is limited access permit and subject to its own set of regulations and reporting.

Upon harvesting wreckfish, wreckfish fishermen must land the species at an approved dealer who collects the coupons and send them to the Southeast Fisheries Science Center along with a wreckfish dealer report on a monthly basis. Wreckfish fishermen are also responsible for filling out a wreckfish logbook, which is likewise submitted to the Southeast Fisheries Science Center. Fishermen may lease quota from another shareholder, but only current shareholders may lease quota. Temporarily and permanent transfers of quota are done through the Regional Office.

1.3.3 Conclusions and Recommendations from Initial Review

2.0 Data Collection and Reporting within the Wreckfish ITQ Program

2.1 Overview

According to Section 303A(c)(1)(H) of the MSA, each LAPP must include “an effective system for enforcement, monitoring, and management of the program, including the use of observers or electronic monitoring systems.” This review should highlight any important data gaps or deficiencies, including gaps in the ability to validate collected data and any cost estimates for filling any gaps or deficiencies as some data improvements may be cost prohibitive given current resources and other factors. This

review should document the reporting burden on participants, evaluate if current data collection programs are redundant, and identify any potential means to reduce reporting burden.

3.0 Environment

3.1 Biological

Stock Status and Assessment Issues

In the 2017 3rd quarter report of status of stocks to U.S. Congress, wreckfish in the South Atlantic is listed as not undergoing overfishing and is not overfished

(http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries/archive/2017/third/q3-2017-stock-status-table.pdf).

A statistical catch-at-age assessment of the wreckfish stock in the South Atlantic was initially conducted in 2012 (Butterworth and Rademeyer, 2012) and determined that wreckfish in the South Atlantic was not undergoing overfishing and was not overfished. Following the November 2012 South Atlantic Fishery Management Council’s (Council) Scientific and Statistical Committee (SSC) meeting, and based on the recommendations of the SSC, the Council adopted a new third-party peer review process in 2013, and determined that this assessment should be subject to that process. The SSC reviewed the revised assessment at their April/May 2014 meeting (Rademeyer and Butterworth, 2014), accepted it as representing the best scientific information available on the current status of wreckfish in South Atlantic waters, and recommended it as appropriate for management decisions.

Catch Levels

Regulatory Amendment 22 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region implemented the following catch levels for wreckfish (**Table 3.1.1**) based on the results of the assessment described above.

Table 3.1.1. Acceptable biological catch (ABC) and ACLs for wreckfish specified under Regulatory Amendment 22 where ACL = optimum yield (OY) = ABC. The ACL for 2020 would remain in place until modified.

Year	New ABC lbs ww	ACL	Commercial ACL (95%)	Recreational ACL (5%)
2015	433,000	433,000	411,350	21,650
2016	423,700	423,700	402,515	21,185
2017	414,200	414,200	393,490	20,710
2018	406,300	406,300	385,985	20,315
2019	396,800	396,800	376,960	19,840
2020	389,100	389,100	369,645	19,455

Wreckfish Mortality (Natural vs Discards) and Bycatch

Very little is known outside of the fishery dependent data available from the fishery conducted at the Charleston Bump off South Carolina. Available life history data reflect data from older and bigger fish, with low sample sizes for smaller, younger fish. Rademeyer and Butterworth (2014) estimated natural

mortality (M) for wreckfish at 0.037 per year. Lytton et al. (2016) recommends using M at 0.09 for wreckfish stock assessment.

In the wreckfish commercial sector, barrelfish (*Hyperoglyphe perciformes*) and red bream (*Beryx decadactylus*) are caught as bycatch (Goldman and Sedberry 2011) and are likely sold or used for personal consumption. Other species collected by Goldman and Sedberry (2011) on vertical lines with baited hooks from 400 to 800 m depth, on and around Charleston Bump were: splendid alfonsino (*Beryx splendens*), conger eel (*Conger oceanicus*), gulper shark (*Centrophorus granulosus*), roughskin dogfish (*Cirrhigaleus asper*), and shortspine dogfish (*Squalus mitsukurii*). Fishermen could harvest one of these species and return co-occurring species to the water as “regulatory discards” (e.g., if the fish are under the size limit) or if undesirable; however, a portion of the discarded fish would not survive due to the depths at which these fish are caught. Wreckfish are rarely encountered by recreational fishermen and discard mortality would be 100% due to the depths at which they are captured.

3.2 Economic

3.3 Social

Because of its small size, when describing the social environment of the wreckfish fishery, the issue of confidentiality quickly constrains the types of information that can be presented to the public. As is often the case with other social environments, in order to meet National Standard 8, a summary of communities involved and their dependence upon fishing is often presented. Because of the small footprint of the wreckfish fishery that type of description is not possible. Both the number of vessels and dealers are so few that little description is possible without revealing confidential information. See SAFMC 2011 for another recent description of the social environment.

In the initial wreckfish ITQ review, Quigley (2009) described a pattern of participation that has shown a steady decline from 1991 to 2009 for both the number of vessels and dealers active in the fishery. Since 2009, there has been a slight increase in participation, although for some vessels it has been sporadic (Figure 3.3.1). Some vessels participated for one year only, while others enter and leave only to enter again a year or two later. Vessel 14 is the only one that has consistently participated over the time period, although both vessels 5 and 9 have only one year they did not have landings (Figure 3.3.1). In 2016 there were 7 vessels (with known vessel IDs) participating in the fishery with landings.

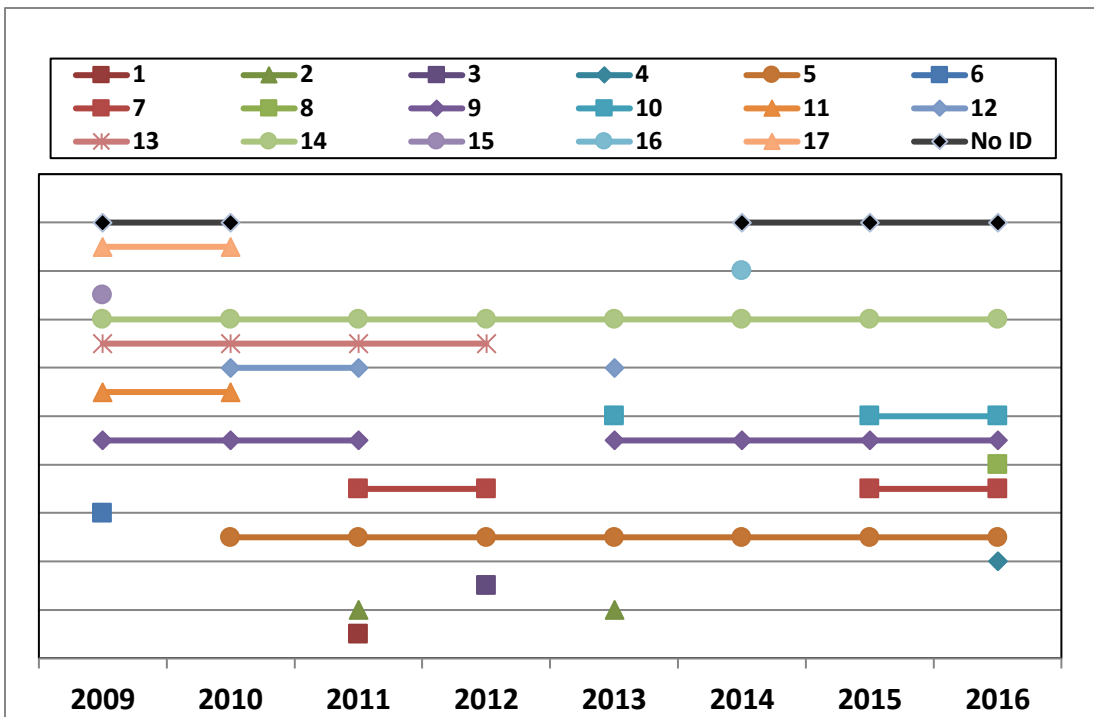


Figure 3.3.1. Vessels participating in the wreckfish fishery with landings 2009-2016. SEFSC 2018

Participation in the wreckfish fishery is a concern for stakeholders who have suggested that declines in participation due to shifts by some participants to other fisheries may not have been sufficiently considered in the setting of ABCs and ACLs (Quigley 2009).

Wreckfish has been primarily landed in the states of Florida and South Carolina from 2010 to 2016 with vessels homeported in the communities of Holden Beach, Key Largo, Port Orange, Florida and Charleston, South Carolina. However, shareholders also live in the Jacksonville, Florida area among other towns and communities along with South Atlantic coast. Dealers who handle wreckfish in Florida are in the communities of Daytona Beach, Islamorada, Key Largo, Marathon, Palm Beach Gardens, Port Orange and Tavernier. In South Carolina dealers are located in Charleston, McClellanville and Wadmalaw Island.

With recent changes to the ACLs fishermen have often switched to other fisheries to compensate for reduced quota and for other reasons (Yandle and Crosson 2015). This is evident in Figure 3.3.1 as vessels often drop out of the wreckfish fishery. It is assumed that they have switched to other more lucrative fisheries, but may not always be the case.

Figure 3.3.2 shows the overall commercial fishing engagement for those communities with either vessels homeported or dealers located within the community. Overall commercial engagement is a measure of the importance of fishing within the community as measured by the amount and value of landings, number of vessels and vessel owners located within a community by vessel homeport. Only three communities in Figure 3.3.2 do not exceed both thresholds for fishing engagement in all years. Daytona Beach, Florida and Wadmalaw Island, South Carolina both have at least one year that reaches the lower threshold of ½ standard deviation, while Port Orange exceeds the lower threshold for

all years but reaches the highest threshold in only four out of the six years. All other communities score above the highest threshold for all years.

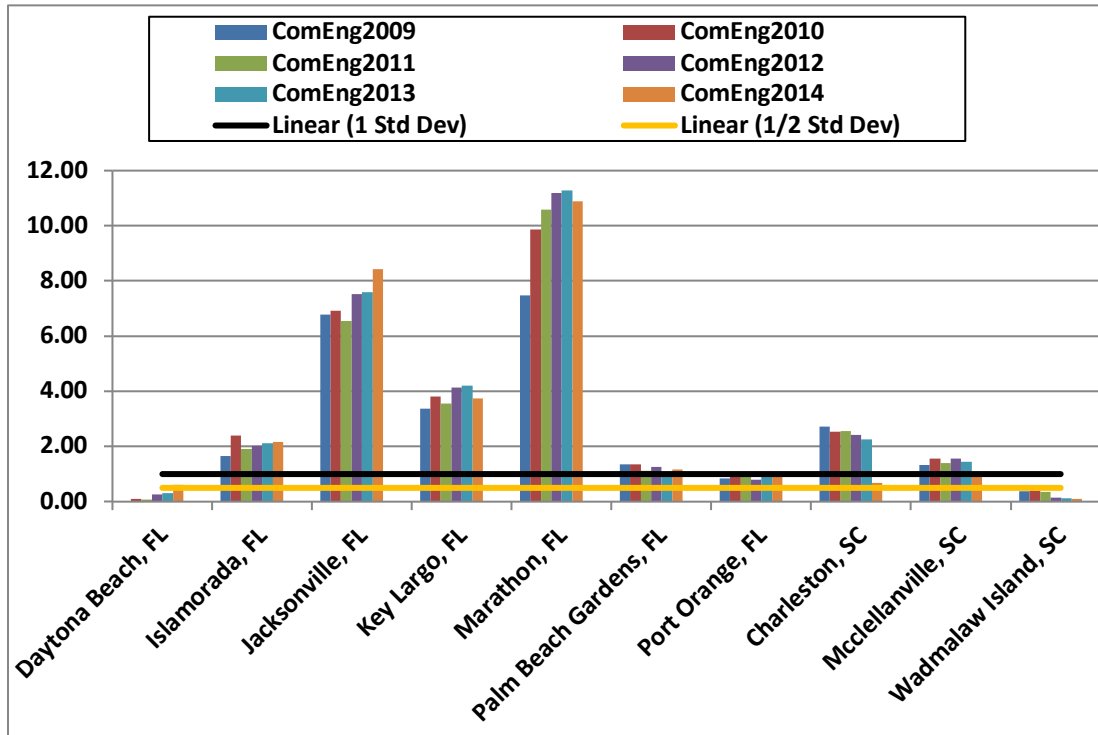


Figure 3.3.2. Overall commercial fishing engagement 2009-2014 for communities with vessels, shareholders or dealers in the wreckfish fishery.

Source: NMFS SERO Community Social Vulnerability Indicators Database (ACS 2014) 2014.

With most communities exceeding the thresholds in all years, it is likely that commercial fishing plays an important role in the local economy. Other communities that are below the thresholds may have other sectors of their economy that play a larger role or the community defined is not easily demarcated like Wadmalaw Island which is not recognized as a census designated place and placing people within that boundary is more difficult.

Environmental Justice

Executive Order 12898 requires that federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. This executive order is generally referred to as environmental justice (EJ).

In order to assess whether a community may be experiencing EJ issues, a suite of indices created to examine the social vulnerability of coastal communities (Colburn and Jepson 2012) is presented in Figures 3.3.3 for those communities that appear in Figure 3.3.1. The three indices are poverty, population composition, and personal disruptions. The variables included in each of these indices have been identified as important components that contribute to a community’s vulnerability. Indicators such

as increased poverty rates for different groups, more single female-headed households and children under the age of 5, disruptions such as higher separation rates, higher crime rates, and unemployment all are signs of vulnerable populations. These indicators are closely aligned to previously used measures of EJ which used thresholds for the number of minorities and those in poverty. For those communities that exceed the threshold, it is expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

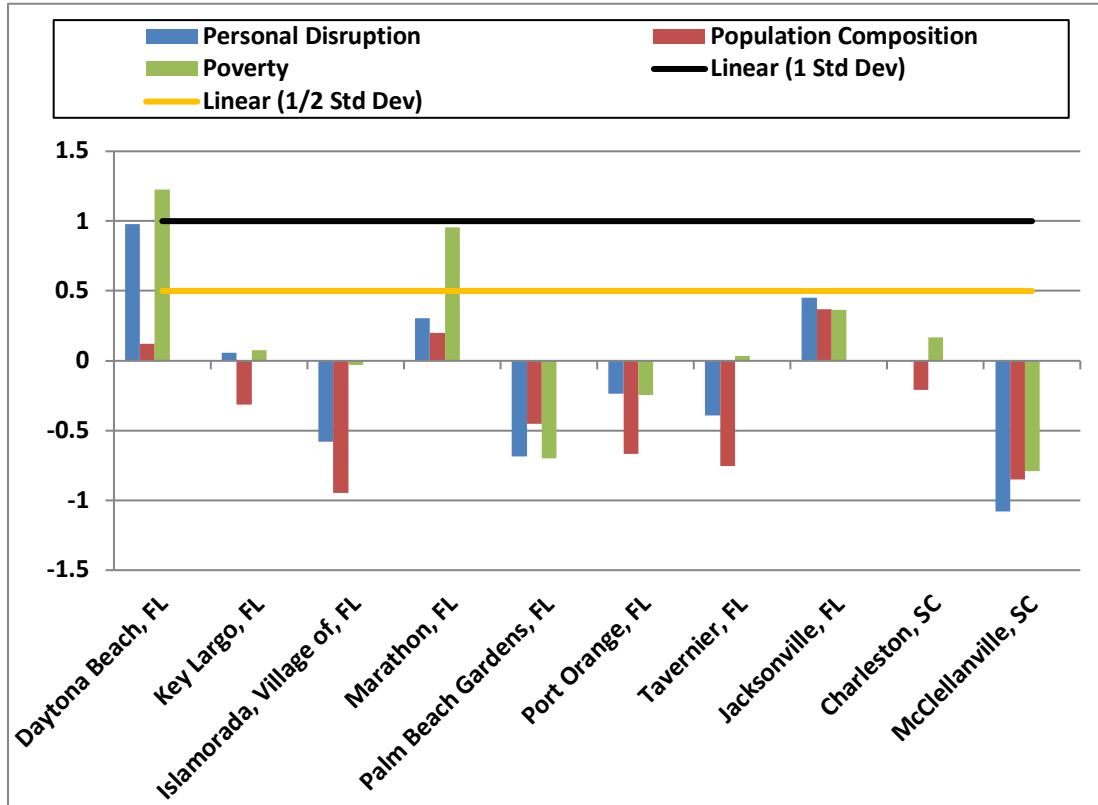


Figure.3.3.3. Social vulnerability indicators for wreckfish fishing communities.
 Source: NMFS SERO Community Social Vulnerability Indicators Database (ACS 2014) 2014.

The communities in Figure 3.3.3 demonstrate few social vulnerabilities, with Daytona Beach the only community that exceeds both thresholds for poverty and close to both thresholds for personal disruption. Marathon is the only other community that exceeds a threshold and that is the 1/2 standard deviation threshold for poverty.

4.0 Eligibility and Participation in the Wreckfish ITQ Program

4.1 Overview

Section 303A(c)(1)(D) of the MSA indicates that eligibility requirements must be established for LAPPs. Eligibility requirements determine who is allowed to hold shares or allocation (e.g., owner on board provisions, etc.). The section will determine if any restrictions on eligibility are inhibiting or precluding the achievement of the program’s goals and objectives or if any additional restrictions are necessary to achieve particular objectives.

4.2 Eligibility

Eligibility to participate in the Wreckfish ITQ program was established in Snapper Grouper Amendment 5 (SAFMC 1992). Participation requirements included commercial snapper grouper fishermen who could document wreckfish landings during the period beginning January 1, 1989 and ending September 24, 1990 (the effective control date). In addition, the applicant had to be able to document having landed at least an aggregate of 5,000 pounds (dressed weight) of wreckfish between January 1, 1987 and September 24, 1990.

The additional 5,000 lbs aggregate minimum wreckfish landings from 1987-1990 was incorporated into the eligibility formula because public comment at the time indicated that a small number of individuals who landed wreckfish in either 1989 or 1990 made only one trip or a partial trip to try wreckfish fishing and never made another trip. The Council did not want to award an initial allocation to those who were not really in the wreckfish fishery. Those who experimented with the fishery and made only one abbreviated trip would have received nearly the same initial allocation as someone who entered the fishery relatively recently, but stayed in the fishery and made a number of trips. The 5,000 lbs threshold was not arrived at arbitrarily; it represented one-half of the trip limit amount, roughly 5-7 days of fishing based on average fishing conditions (SAFMC 1992).

Furthermore, Snapper Grouper Amendment 20A (2012) redistributed inactive shares that removed eligibility to fish for wreckfish by some shareholders. Amendment 20A defined inactive shares as shares belonging to any ITQ shareholder who had not reported wreckfish landings between April 16, 2006, and January 14, 2011, and revert inactive shares for redistribution among active shareholders. Reverted shares were redistributed to remaining shareholders based on their wreckfish landings history from April 16, 2006, through January 14, 2011.

In December 2011 as it was preparing the Comprehensive ACL Amendment (Snapper Grouper Amendment 25; SAFMC 2011), the South Atlantic Council reviewed the SSC's recommended wreckfish ABC value and passed a motion to adjust the ACL to reflect the reduced ABC adopted by the SSC. Because of the significant reduction in the annual allocation, each shareholder's allocation was also reduced significantly. Thus, active shareholders, captains, crew, and dealers who depended on a certain level of wreckfish production to maintain their operations would have been particularly affected by the proposed reduction in the amount of wreckfish the sector could harvest. Therefore, in Amendment 20A wreckfish ITQ shares were redistributed in order to help achieve optimum yield for wreckfish.

5.0 Allocations, Transferability, and Caps within the Wreckfish ITQ Program

5.1 Overview

The MSA requires initial allocations to be fair and equitable under all LAPPs. Section 303A(c)(7) of the MSA requires a Council to establish a policy and criteria for the transferability of limited access privileges (shares and allocation). Transferability is generally thought to improve technical efficiency and thus aid in achieving economic efficiency in a fishery (i.e., National Standard 5 goal). Restrictions on transferability may serve to meet other objectives, such as equity (i.e., National Standard 4 goal), providing for the sustained participation of and minimizing adverse economic effects on fishing communities (i.e., National Standard 8 goal), or reducing adverse effects on particular types of habitat.

Section 303A(c)(5)(D) of the MSA requires Councils and NMFS to establish limits or caps to prevent the excessive accumulation of harvesting privileges. The accumulation of excessive shares is thought to potentially create market power in the product market, input markets (e.g., gear, bait, labor, etc.), and/or the markets for shares and allocation. Market power creates economic inefficiency, and excessive shares should be avoided for equity/distributional reasons. One of the anticipated effects of limits and caps is to limit the degree of consolidation within the fleet. Consolidation would typically be expected to result in a reduction in capacity and overcapacity, which is a goal of most CSPs. Since allocation, transferability, and caps are explicitly linked together and changes in one may have potential changes in the others, they are reviewed together in this section. This section will review:

- allocations between individuals or entities within the program and the allocations between commercial and recreational sectors
- if the equity/distributional impacts of existing caps and the impacts those caps have had on the creation of market power by affected entities
- whether existing transferability provisions are conducive to achieving the specified objectives, keeping in mind that trade-offs often exist between objectives.

5.2 Recreational Allocation of Wreckfish

Snapper Grouper Amendment 25 (SAFMC 2011) made the first specific allocation of wreckfish to the recreational sector. That amendment allocated 95% of the total ACL to the commercial sector and 5% to the recreational sector. Only in 2012 did the Marine Recreational Information Program (MRIP) have a single encounter with only one wreckfish being caught. No other years intercepted wreckfish landings by the recreational sector. With wreckfish MRIP intercepts being so rare, it is uncertain how many are actually being caught by the recreational sector.

6.0 Price Analyses

6.1 Overview

The following chapter examines share, coupon, and ex-vessel prices for the wreckfish fishery. These different components can be used as measures of economic performance in fisheries managed under a catch share program. Share price can reveal the anticipated net present value of future profits from participating in a fishery (Holland et al. 2014). Purchasing coupons is equivalent to a transfer of allocation between parties. Prices for allocation transfers can provide a measure of marginal profitability in a fishery (Holland et al. 2014). Ex-vessel price is a key input when determining profitability and can provide insight on demand for a fishery product.

The price data examined is grouped according to the fishing year in which it occurred, with a fishing year running from April 1 of one year through March 31 of the following year. Prices are further divided into “baseline” and “current” time periods. The fishing years from 2009/10 through 2011/12 are considered the “baseline” and the fishing years from 2012/13 through 2016/17 are considered the “current” time period. This division in fishing years is selected due to the reduction wreckfish quota that occurred in the 2012/2013 fishing year when the quota changed from 2 million pounds gutted weight (gw) to 223,350 pounds (gw).

When shares of wreckfish are transferred between parties, the price of the transaction is recorded if it provided by either party. Reporting such information is not mandatory, and several share transactions did not include a recorded price. To convert share transfers into a price per pound, the percentage of

total wreckfish quota transferred is multiplied by the total wreckfish quota at the time of the transaction to get an equivalent number of pounds transferred. If provided, the monetary value of the transaction is divided by the equivalent pounds to obtain a price per pound for the share transfer transaction.

Where applicable, the total number of coupons purchased are recorded on a wreckfish logbook trip report form by coupon type and the total dollar amount paid. This self-reported information can be used to calculate an implied price per pound for coupon purchases by dividing the total pound value of the coupons by the purchase price of the coupon. Ex-vessel price data are collected from wreckfish dealer reports. For each transaction, a dealer is asked for the price per pound of wreckfish purchased. Inflation adjusted share, coupon, and ex-vessel prices are reported in 2016 dollars, unless nominal values are also noted. All nominal dollar values were converted to 2016 dollars using the annual GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

6.2 Analysis and discussion

Share prices

The ability to sell and redistribute shares is an integral part of a catch share program. Shareholders have the ability to sell a portion of their ownership of the quota or purchase shares from other quota holders to increase their own holdings. Reporting of share prices is challenging, as relatively few share transactions occurred in the examined time series (42 transactions) and price coverage for those transactions was not always reported, with a little over half of the transactions including a price. In the “baseline” period (fishing years 2009/10 through 2011/12), the majority of share transfers did include a reported price. On a per-pound basis, the average price during this period was \$0.21 (**Table 6.1**). In the “current” period (fishing years 2012/13 through 2016/17), there were fewer share transactions and most transactions did not include a price. The majority of share transactions that occurred during this time period were due to revocation or redistribution under Snapper Grouper Amendment 20A, therefore no price was applicable. The remaining share transfers cannot be reported for this period due to concerns over confidentiality. It is worth noting that the relatively few prices recorded during the “current” period were substantially higher than the “baseline” period, by over an order of magnitude, which is likely a response to the drastic reduction in the total wreckfish quota.

Table 6.1. Statistics for share transfer price per pound (gw), 2009/10 through 2016/17 fishing years (2016 dollars).

Fishing Years	Number of transactions	Percent of transactions	Inflation adjusted average price per pound	Inflation adjusted median price per pound
2009/10 through 2011/12	29	72%	\$0.21	\$0.15
2012/13 through 2016/17 ¹	13	23%	-	-

Source: SERO Wreckfish Share Transfer Dataset.

¹Share transfer prices cannot be reported due to concerns over confidentiality.

Coupon prices

As a transfer of allocation, wreckfish fishery participants can purchase coupons from other shareholders which allows these participants to land above their share of the wreckfish quota. These coupons are available in 100-pound and 500-pound gutted weight (gw) increments. There were no coupon purchases made during the 2009/10 through 2011/12 fishing years (**Table 6.2**). For the 2012/13 through 2016/17

fishing years, there were 437 coupons transferred in 47 transactions, or in 19% of the transactions. This was likely a response to the drastically reduced total wreckfish quota that occurred in 2012. A little over half of these coupons (54%) were in the 500-pound increment. The most common nominal price for a coupon through the time series was \$0.50 per pound (gw) and other prices were mostly within \$0.10 of this value. Five observations included coupon purchase prices of \$1.00 or more per pound (gw). The relatively stable nominal price per pound for coupon purchases through the time series, despite an increasing ex-vessel price per pound for wreckfish and variations in trip costs, suggests that coupon prices may not have been driven by market rates, but rather by other factors. As such, they may be an unsuitable metric to estimate marginal profits or economic performance of the fishery.

Table 6.2. Statistics for coupon price per pound (gw), 2009/10 through 2016/17 fishing years (2016 dollars).

Fishing Years	Number of coupons	Number of transactions	Percent of transactions	Inflation adjusted average price per pound	Inflation adjusted median price per pound
2009/10 through 2011/12	0	0	0%	-	-
2012/13 through 2016/17	437	47	19%	\$0.74	\$0.51

Source: SEFSC Wreckfish Logbook Dataset.

Ex-vessel prices

Ex-vessel prices were provided for all wreckfish transactions in the examined time period from the 2009/10 fishing year through the 2016/17 fishing year. In general, the ex-vessel price per pound for wreckfish increased through most of the time period on both a nominal basis and inflation adjusted basis (**Table 6.3**). When comparing prices between the “baseline” time period and the “current” time period, average prices increased 26 percent on a nominal basis and 18 percent on an inflation adjusted basis. Comparing the first and last year in the time series, the price per pound for wreckfish increased 50 percent nominally and 35 percent in inflation adjusted terms.

Table 6.3. Statistics for ex-vessel price per pound (gw), 2009/10 through 2016/17 fishing years.

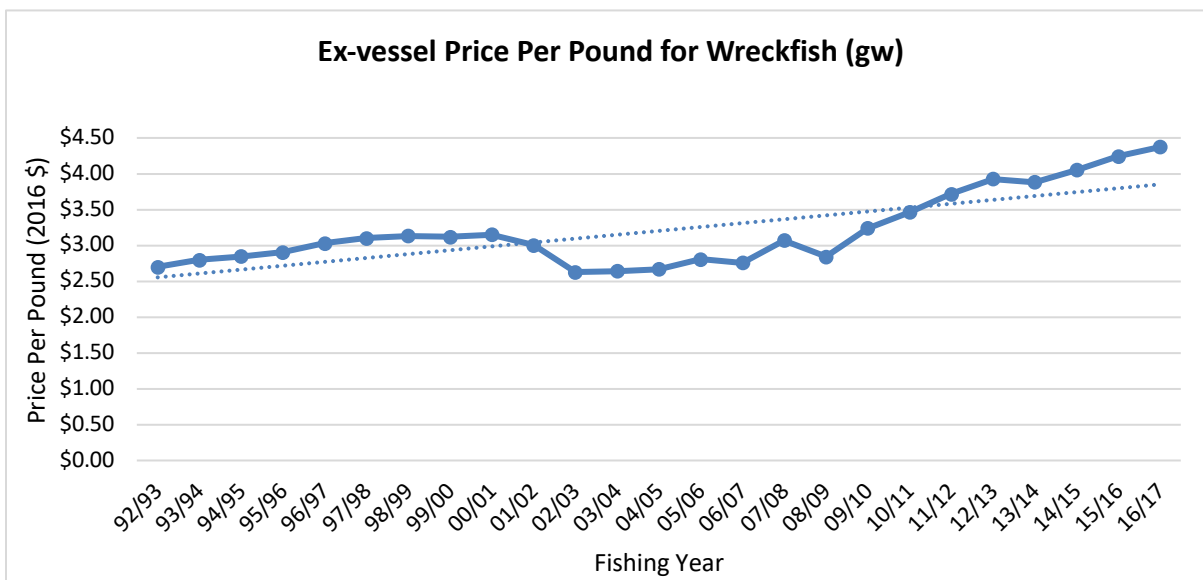
Fishing Year	Number of observations	Nominal average price per pound	Inflation adjusted average price per pound ¹	Nominal median price per pound	Inflation adjusted median price per pound ¹
2009/10	51	\$2.91	\$3.24	\$2.95	\$3.29

2010/11	43	\$3.15	\$3.46	\$3.00	\$3.30
2011/12	76	\$3.45	\$3.72	\$3.25	\$3.51
2009/10 through 2011/12	170	\$3.21	\$3.51	\$3.00	\$3.34
2012/13	42	\$3.71	\$3.93	\$3.75	\$3.97
2013/14	36	\$3.73	\$3.88	\$3.75	\$3.91
2014/15	36	\$3.96	\$4.05	\$3.90	\$3.99
2015/16	73	\$4.19	\$4.25	\$4.00	\$4.05
2016/17	67	\$4.37	\$4.37	\$4.10	\$4.10
2012/13 through 2016/17	254	\$4.06	\$4.15	\$4.00	\$4.05

Source: SEFSC Wreckfish Dealer Report Dataset.

¹Converted to 2016 dollars using the annual GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

Ex-vessel price data was first collected via wreckfish dealer reports during the 1992/93 fishing year. When examining a longer time series, ex-vessel prices for wreckfish have generally increased since the implementation of the ITQ system in the fishery (**Figure 6.1**). Prices did drop in the 2001/02 and 2002/03 fishing years, but steadily recovered. Starting in 2009/10, price growth increased at a faster rate than the previous fishing years, with the highest ex-vessel prices seen in the 2016/17 fishing year.



Source: SEFSC Wreckfish Dealer Report Dataset.

Figure 6.1. Ex-vessel price per pound (gw) for wreckfish, 1992/93 through 2016/17 (2016 dollars).

For comparison purposes, ex-vessel price performance for wreckfish substitute species commonly landed in the South Atlantic region were examined. Ex-vessel price data for shallow water groupers (gag, red, scamp, black, coney, red hind, rock hind, graysby, yellowmouth, and yellowfin) and three deep water species (snowy grouper, blueline tilefish, and golden tilefish) was examined over a similar time series (**Table 6.4**). None of the commercial fisheries for these other species operate under an ITQ system, but the commercial snapper grouper fishery is limited entry and there are further restrictions limiting the number of vessels that can land golden tilefish using bottom longline gear. All species examined exhibited a generally increasing ex-vessel price per pound through the time series, with the highest prices observed in 2016. When comparing average prices from the “baseline” time period with the “current” time period, wreckfish price performance was inline with or exceeded the other species examined. If the change in price between the first and last year in the analysis is examined, the growth in

the ex-vessel price of wreckfish exceeded that of shallow water groupers and snowy grouper but was below the growth of blueline tilefish and golden tilefish in the South Atlantic.

Table 6.4. Statistics for ex-vessel prices (gw) of wreckfish and wreckfish-substitute species landed in the South Atlantic, 2009-2016 (2016 dollars).

	Wreckfish	Shallow Water Groupers	Snowy Grouper	Blueline Tilefish	Golden Tilefish
2009 through 2011 ex-vessel price	\$3.51*	\$4.74	\$4.15	\$2.34	\$3.07
2012 through 2016 ex-vessel price	\$4.15**	\$5.39	\$4.76	\$2.76	\$3.63
Percent change in ex-vessel price between time periods	18%	14%	15%	18%	18%
Percent change in ex-vessel price between the first and last year in time series	35%	26%	29%	68%	59%

Source: SEFSC Coastal Fisheries Logbook (Accessed January 2018).

*Average inflation adjusted price per pound for the 2009/10 through 2011/12 fishing years.

**Average inflation adjusted price per pound for the 2012/13 through 2016/17 fishing years.

6.3 Conclusions

7.0 Catch and Sustainability

7.1 Overview

MSA section 303(a)(15) requires that FMPs must establish mechanisms for specifying annual catch limits (ACLs) at a level such that overfishing does not occur in the fishery, including measures to ensure accountability. This section will review if the GT-IFQ has helped to keep harvests/landings within the applicable limits, if the program is encouraging full utilization of the quota, and describe and analyze changes in the status of stocks within the GT-IFQ. The section will also review if changes in bycatch and discard mortality, consistent with National Standard 9.

8.0 Safety at Sea

Commercial fishing is one of the most dangerous professions, experiencing a high rate of occupational injury (Pfeiffer and Gratz 2016). Commercial fishermen experience a unique set of challenges including working long hours and operating heavy machinery, often in dangerous weather far from shore. In 2016, fishermen and related fishing workers experienced a fatal injury rate of 86 deaths per 100,000 full-time equivalent (FTE) workers. This fatal injury rate is second only to the logging industry (136.5 deaths per 100,000 FTE) and is higher than the national average of 3.6 deaths per 100,000 (BLS 2017). The National Institute for Occupational Safety and Health’s (NIOSH) Commercial Fishing Safety Research and Design Program conducts in depth studies of fishing fatalities to identify hazards present in fisheries throughout the country. NIOSH reported an average of 12 commercial fishing fatalities annually for East Coast fisheries from 2010-2014. This is down an annual average of 17 commercial fishing fatalities from 2000-2009 (NIOSH 2017).

There have been several pieces of legislation aimed at addressing safety issues in the commercial fishing industry. The Commercial Fishing Industry Vessel Safety Act of 1988 allowed the United States Coast Guard to recommend safety standards for all commercial fishing vessels. Additionally, it required fish processing vessels to be examined once every two years to ensure they are meeting the necessary

requirements. The enforcement of the Commercial Fishing Industry Vessel Regulations in 1991 further addressed safety issues in the commercial fishing industry. Additionally, the Coast Guard Authorization Act of 2010 requires training for commercial fishing vessel operators and outlines design and construction requirements for newly constructed vessels.

Open access fisheries often result in a race-to-fish where commercial fishermen feel pressure to complete fishing trips regardless of safety considerations. As a result, commercial fishermen often operate in dangerous weather and at-sea conditions. One objective of catch share programs is improving fishermen safety by allowing for more flexibility in trip scheduling. Improvements in safety at sea have been seen in several IFQ programs implemented in the United States. Woodley (2002) and Hughes and Woodley (2007) illustrate that IFQ programs in the Alaskan halibut and sablefish fishery have improved safety at sea by curtailing the race to fish therefore reducing fatigue and the incentive to fish in poor weather. Additionally, a survey of Alaskan halibut fishermen found more than 85% of respondents believed that IFQs has made fishing for halibut safer (Knapp 1999). In the West Coast sablefish fixed gear fishery, Pfeiffer and Gratz (2016) found that a switch to ITQs in 2001 decreased the annual rate of fishing in high wind days by 79%. Marvasti and Dakhli (2016) found that the Gulf of Mexico red snapper and grouper-tilefish IFQ programs had reduced the incentive for fishermen to operate in poor weather conditions.

Prior to the implementation of ITQs, the Wreckfish fishery was experiencing a race-to-fish scenario. In 1990, the Council established a permit system and a new total allowable catch (TAC) of 2 million pounds. This new TAC was caught within four months (Gauvin et al. 1994). This derby resulted in fishermen operating in less than ideal conditions. Wreckfish are caught farther offshore than other species making dangerous weather conditions particularly hazardous. Since the implementation of the ITQ program in 1992, the size of the wreckfish fleet has shrunk considerably, with many participants moving on to other more lucrative fisheries (Yandle and Crosson 2015). This small size gives participants the flexibility to choose whether to fish depending on weather conditions and other factors related to safety at sea.

9.0 New Entrants in the Wreckfish ITQ Program

9.1 Discussion

The issue of new entrants is one that cuts across multiple program design features, including but not necessarily limited to allocations, transferability, duration, and auctions. Consistent with Section 303A(g) of the MSA, there should be considerations of loan programs to help new entities. This section will review the costs for new entrants, existing or potential loan programs, and potential means to aid new entrants.

10.0 Monitoring and Enforcement in the Wreckfish ITQ Program

10.1 Overview

According to Section 303A(c)(1)(H) of the MSA, each LAPP must include “an effective system for enforcement, monitoring, and management of the program, including the use of observers or electronic monitoring systems.” Wide-spread non-compliance can adversely affect the ability of other CSP attributes to achieve their desired goals and objectives. This section assesses whether the current

enforcement provisions and activities, including resources for conducting the latter, are sufficient to ensure a high rate of compliance with program requirements.

11.0 Administration and Cost Recovery in the Wreckfish ITQ Program

11.1 Overview

According to Section 303A(c)(1)(H) of the MSA, each LAPP must include “an effective system for enforcement, monitoring, and management of the program, including the use of observers or electronic monitoring systems.” This section will review if the total administrative costs are being minimized to the extent practicable, which is consistent with National Standard 7. It is likely there will be trade-offs in the various types of administrative costs.

Cost recovery was not included in the wreckfish ITQ program when it was implemented in 1992 and cost recovery is currently not in place.

12.0 Privilege Duration and Subsequent Distribution in the Wreckfish ITQ Program

12.1 Overview

Shares are not issued in perpetuity. According to Section 303A(f) of the MSA, their lifespan is limited to 10 years if the program was established after January 12, 2007, though they will be renewed if not revoked, limited, or modified.⁵

13.0 Conclusions

13.1 Progress Towards Goals and Objectives

13.1 Suggested Modifications to the Wreckfish ITQ Program

13.3 Future Research Needs

14.0 References

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⁵ For example, see the rules to revoke inactive QS in the wreckfish ITQ program (<https://www.federalregister.gov/articles/2012/09/26/2012-23731/fisheries-of-the-caribbean-gulf-of-mexico-and-south-atlantic-snapper-grouper-fishery-off-the>) and the Pacific halibut/sablefish IFQ program (<https://alaskafisheries.noaa.gov/sites/default/files/finalrules/77fr29556.pdf>)

SAFMC 2011. Comprehensive Annual Catch Limit (ACL) Amendment for the South Atlantic Region. Amendment 2 to the Fishery Management Plan for the Dolphin Wahoo Fishery of the Atlantic, Amendment 2 to the Fishery Management Plan for Pleagic Sargassum Habitat of the South Atlantic Region, Amendment 5 to the Fishery Management Plan for the Golden Crab Fishery of the South Atlantic Region, and Amendment 25 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Suite 210, North Charleston, South Carolina 29405.

14.1 Appendices

14.1.1 Data Sources

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14.1.2 AP Committees recommendations

14.1.3 Shareholder recommendations

14.1.4 SSC/SEP recommendations

14.1.5 Council recommendations

Appendix 1 Overview of review data sources