Framework Action 3 under the St. Croix and St. Thomas and St. John Fishery Management Plans: Modification of Status Determination Criteria and Management Reference Points based on the SEDAR 80 Queen Triggerfish Stock Assessments

Including an Environmental Assessment, Regulatory Flexibility Act Analysis and Regulatory Impact Review

March 2025

Environmental Assessment Cover Sheet

Name of Action

Environmental Assessment for Framework Action 3 under the St. Croix and St. Thomas and St. John Fishery Management Plans: Modification of Status Determination Criteria and Management Reference Points based on the SEDAR 80 Queen Triggerfish Stock Assessments

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Abbreviations and Acronyms Used in this Document

ABC	acceptable biological catch
AM	accountability measure
ACL	annual catch limit
CEA	cumulative effects analysis
CFMC	(Council); Caribbean Fishery Management Council
DPNR	Department of Planning and Natural Resources (United States Virgin Islands)
DPS	distinct population segment
ESA	Endangered Species Act
EA	environmental assessment
EFH	essential fish habitat
EEZ	exclusive economic zone
FEP	fishery ecosystem plan
FMP	fishery management plan
MFMT	maximum fishing mortality threshold
MSA	(Magnuson-Stevens Act); Magnuson-Stevens Fishery Conservation and Management Act
MSST	minimum stock size threshold
MSY	maximum sustainable yield
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
OY	optimum yield
OFL	overfishing limit
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
SSC	Scientific and Statistical Committee
SEDAR	Southeast Data, Assessment, and Review (stock assessment)
SEFSC	Southeast Fisheries Science Center
SDC	status determination criteria
USVI	United States Virgin Islands

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Chapter 1. Introduction

1.1 What Action is Proposed?

Framework Action 3 under the St. Croix Fishery Management Plan (FMP) and Framework Action 3 under the St. Thomas/St. John FMP (collectively Framework Action 3) includes an action to update the status determination criteria (SDC) and other management reference points for queen triggerfish (*Balistes vetula*) in both management areas. This action applies to both FMPs and is based on the Southeast Data, Assessment, and Review (SEDAR) 80 stock assessments for St. Croix and St. Thomas/St. John queen triggerfish, completed in 2024, hereafter referred to as SEDAR 80.

Status determination criteria are the measurable and objective factors, maximum fishing mortality threshold (MFMT), minimum stock size threshold (MSST), and overfishing limit (OFL), or their proxies, which are used to determine if overfishing has occurred, or if the stock or stock complex is overfished. 50 CFR 600.310(e)(2)(i)(A).

Status Determination Criteria Definitions

Maximum Fishing Mortality Threshold (MFMT) – Level of fishing mortality (F), on an annual basis, above which overfishing is occurring. The MFMT or reasonable proxy may be expressed either as a single number (a fishing mortality rate or F value), or as a function of spawning biomass or other measure of reproductive potential.

Minimum Stock Size Threshold (MSST) – Biomass level below which the capacity of the stock to produce maximum sustainable yield (MSY) on a continuing basis has been jeopardized.

Overfishing Limit (OFL) – Annual amount of catch that corresponds to the estimate of MFMT applied to a stock or stock complex's abundance and is expressed in terms of numbers or weight of fish.

Overfishing occurs when a stock or stock complex is subjected to a level of fishing mortality or total catch that jeopardizes the capacity to produce MSY on a continuing basis.

Overfished – A stock or stock complex is considered overfished when its biomass has declined below the MSST.

Under the National Standard 1 guidelines, SDC, maximum sustainable yield (MSY), optimum yield (OY), acceptable biological catch (ABC), and annual catch limit (ACL) are collectively referred to as "reference points," 50 CFR 600.310(b)(2)(iv). The SDC and other management reference points are collectively referred to as reference points throughout this document.

Management reference points for each queen triggerfish stock updated in Framework Action 3 under the St. Croix FMP and the St. Thomas/St. John FMP include the MFMT, MSST, OFL, MSY or MSY proxy, ABC, OY, and ACL.

Management Reference Points Definitions

Maximum Sustainable Yield (MSY) – The largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological, environmental conditions and fishing technology characteristics (e.g., gear characteristics) and the distribution of catch among fleets.

Acceptable Biological Catch (ABC) – The catch level recommended by a Council's Scientific and Statistical Committee and set at or below OFL to account for scientific uncertainty.

Annual Catch Limit (ACL) – The limit of total annual catch for a stock or stock complex that serves as the basis for invoking accountability measures. The ACL cannot exceed the ABC.

Optimum Yield (OY) – The amount of fish that provides the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems.

1.2 Why is the Council Considering Action?

The St. Croix and St. Thomas/St. John FMPs, adopted by the Caribbean Fishery Management Council (Council) in 2020 and implemented by the National Marine Fisheries Service (NMFS) in 2022, uses a tiered ABC control rule to specify management reference points for each stock and stock complex (see Appendix G in the FMPs for a description of the process). At the time the FMPs were developed and adopted, no stock assessments were available for any of the managed stocks, and the Council and its Scientific and Statistical Committee (SSC) used Tier 4 of the ABC control rule (data limited, no accepted assessment available). Under Tier 4, the MSY proxy, MFMT, and MSST were defined, but were not quantified due to data limitations. Similarly, under Tier 4, the OFL could not be quantified and a new reference point, the sustainable yield level (SYL),[1] which is a level of landings that can be sustained over the long-term, was quantified and used as the OFL proxy and an additional MSY proxy. The Council set ACLs from the ABCs based on their level of management uncertainty for the stocks, which for queen triggerfish in each management area was a five percent reduction (Table 1.1).

Table 1.1. Queen triggerfish SYLs, ABCs, and ACLs under the St. Croix and St. Thomas/St. John FMPs. Values are in pounds whole weight.

FMP	SYL (OFL proxy)	ABC	ACL
St. Croix	45,158	22,579	21,450
St. Thomas/St. John	205,621	102,810	97,670

Through this framework action, the Council updates reference points for queen triggerfish in the St. Croix FMP and the St. Thomas/St. John FMP by incorporating information from SEDAR 80,

[1] The SYL is intended to be used when the information or resources needed to produce a quantitative stock assessment are not available to determine the MSY or corresponding reference point such as the OFL.

which is considered the best available scientific information for each stock. Following SEDAR 80, the queen triggerfish stocks in the FMPs changed from Tier 4 to Tier 3 (data limited, accepted assessment available) in the Council's ABC control rule.

Under Tier 3, if the biomass of the stock falls below MSST, the stock would be determined to be overfished and the Council would need to develop a rebuilding plan capable of returning the stock to a level that allows the stock to achieve MSY on a continuing basis. Additionally, under Tier 3, in years when there is a stock assessment, if fishing mortality exceeds the MFMT, the stock would be considered to be undergoing overfishing, because this level of fishing mortality, if continued, would reduce the stock biomass to an overfished condition. In years in which there is no assessment, overfishing would occur if landings exceed the OFL.[2]

1.2.1 Stock Assessment Outcomes and Acceptable Biological Catch Rule

The SEDAR 80 stock assessments were not able to estimate the overfished status for the St. Croix or St. Thomas/St. John queen triggerfish stocks; thus, their status remains unknown. However, each model was able to estimate short-term harvest levels that would prevent overfishing (i.e., the OFL) by assuming that future recruitment would continue at recent levels. For both St. Croix and St. Thomas/St. John queen triggerfish, the models indicated that overfishing is not occurring.

The Council's SSC reviewed results from SEDAR 80 at its April 2024 meeting and supported the stock assessments as providing the best scientific information available, and determined that the stock assessments were suitable for short-term (i.e., 5 years) management advice. After discussion of the uncertainties[3] that exist in the models, the SSC recommended ABCs for the St. Croix and St. Thomas/St. John queen triggerfish stocks using Tier 3b of the ABC control rule. Under Tier 3b, the ABC is determined from the OFL as buffered to account for scientific uncertainty (ABC = buffer *OFL), where the buffer must be ≤ 0.9. The OFL values projected by the SEDAR 80 models used a proxy F_{MSY} based on a spawning potential ratio (SPR) of 0.4. The constant catch at the F_{MSY} proxy was used to establish the ABC. The ABC recommended for each queen triggerfish stock was a constant value, with buffers that vary each year relative to the OFL (Table 1.2). The SSC presented its ABC recommendations for queen triggerfish at the April 2024 Council meeting. The Council accepted those recommendations and through this framework action derive the ACL for each stock from the ABC, reduced by a management uncertainty[4] buffer.

[2] Under Tier 3 of the ABC control rule, overfishing would be determined to be occurring if one year of landings exceeds the annual OFL for the stock.
[3] There is high uncertainty in life history (especially steepness, which strongly determines fishing mortality reference points), and therefore stock productivity that determines how much a population can be fished, and the scale of the population, or how many fish are available to be caught.
[4] Management uncertainty refers to uncertainty in the ability of managers to constrain catch so the ACL is not exceeded, and the uncertainty in quantifying the true catch amounts (i.e., estimation errors).

Table 1.2. Overfishing limit and acceptable biological catch values recommended for the St. Croix and St. Thomas/St. John queen triggerfish stocks for years 2024-2027, based on results of the accepted SEDAR 80 stock assessment.

Year	St. Croix		St. Thomas/St. John	
	OFL	ABC	OFL	ABC
2024	24,651	18,808	283,918	97,809
2025	22,773	18,808	193,378	97,809
2026	22,316	18,808	166,220	97,809
2027	22,025	18,808	148,223	97,809

1.2.2 Statement of Purpose and Need

The purpose of this framework action is to update management reference points for the queen triggerfish stocks under the St. Croix FMP and St. Thomas/St. John FMP to account for the SEDAR 80 stock assessments and application of the Council's ABC control rule.

The need for this action is to update management measures for the St. Croix and St. Thomas/St. John queen triggerfish stocks based on best scientific information available to prevent overfishing and achieve OY, consistent with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act.

1.3 Where Would the Action Have an Effect?

The areas affected by this framework action include federal waters around St. Croix and St. Thomas/St. John, which are managed by the Council under the St. Croix FMP (CFMC 2019a) and the St. Thomas/St. John FMP (CFMC 2019b) (Figure 1.1). Federal waters around St. Croix and St. Thomas/St. John range from 3-200 nautical miles (6-370 kilometers) from the shore of the respective island to the outer boundary of the U.S Caribbean exclusive economic zone.

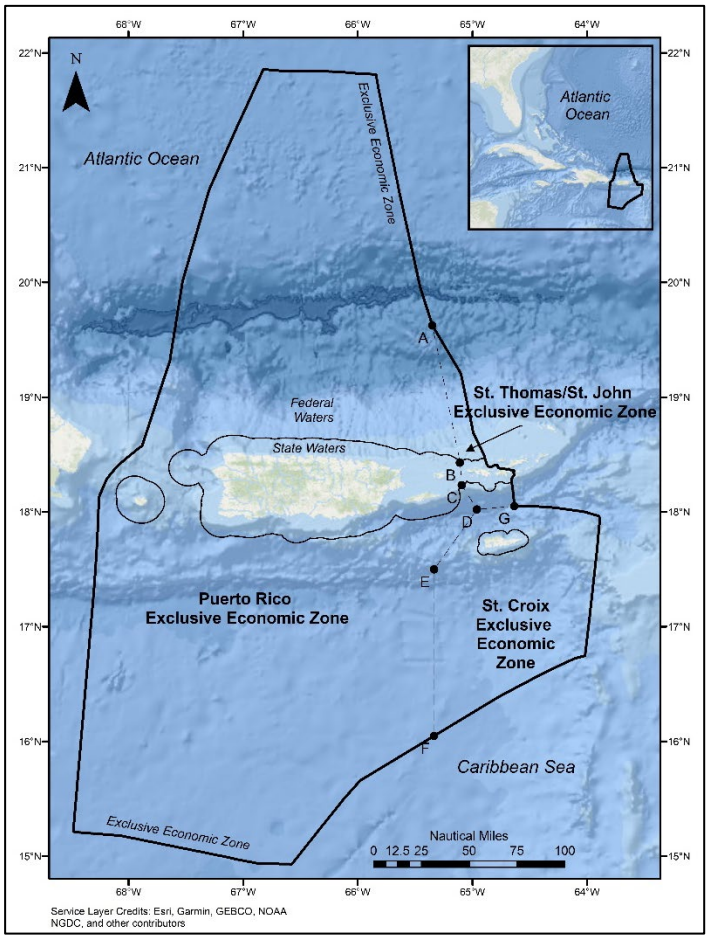

Figure 1.1. U.S. Caribbean region with boundaries between the Puerto Rico, St. Croix, and St. Thomas and St. John management areas.

1.4 History of Federal Fisheries Management

The St. Croix FMP (2019a) and the St. Thomas/St. John FMP (2019b) established management measures for federal waters around each management area. These included (1) updating the list of species included for federal management and how those species would be grouped into stocks or stock complexes; (2) setting management reference points for managed stocks and stock complexes using a tiered ABC control rule; (3) updating accountability measures; (4) describing essential fish habitat for managed species; and (5) updating framework procedures included under each plan. The FMPs retained other management measures established under the previous U.S. Caribbean-wide FMPs that were applicable to federal waters around St. Croix or St. Thomas/St. John (e.g., seasonal and area closures, minimum size limits, recreational bag limits).

Prior to the development of the St. Croix and St. Thomas/St. John FMPs, queen triggerfish was managed under the Reef Fish FMP of Puerto Rico and the U.S. Virgin Islands, as amended. The history of management under the Reef Fish FMP is summarized in Appendix C1 in the St. Croix FMP and in the St. Thomas/St. John FMP. The Secretary of Commerce approved the St. Croix FMP and the St. Thomas/St. John FMP on September 22, 2020, both of which became effective on October 13, 2022.

Amendment 1 (CFMC 2022) to the Puerto Rico, St. Croix, and St. Thomas/St. John FMPs prohibits the use of buoy gear for those fishing recreationally in federal waters around the management areas. For those fishing commercially in federal waters around Puerto Rico, St. Croix, and St. Thomas/St. John, the amendment modifies the definition of buoy gear by increasing the maximum number of hooks allowed between the buoy and the terminal end from 10 to 25. The regulations implementing Amendment 1 became effective on August 21, 2023 (88 FR 46692).

Amendment 2 (CFMC 2024) to the Puerto Rico, St. Croix, and St. Thomas/St. John FMPs (in rulemaking) prohibits the use of trawl gear (bottom and mid-water trawls), and certain types of drift net gear (gillnets, trammel nets, and purse seines) in U.S. Caribbean federal waters. The proposed rule implementing Amendment 2 published on September 30, 2024 (89 FR 79492).

Chapter 2. Proposed Action and Alternatives

Framework procedures included in the St. Croix and St. Thomas/St. John Fishery Management Plans (FMP) allow the Caribbean Fishery Management Council (Council) to modify management measures when a new stock assessment indicates changes should be made to reference points.

2.1 Action: Update Reference Points for Queen Triggerfish

Framework Action 3 under the St. Croix and St. Thomas/St. John FMPs would update the maximum sustainable yield (MSY) or MSY proxy, maximum fishing mortality threshold (MFMT), minimum stock size threshold (MSST), overfishing limit (OFL), and acceptable biological catch (ABC) for queen triggerfish in each FMP based on SEDAR 80. The OFLs and ABCs are listed in Tables 2.1 and 2.2, and the other reference points that would be updated for the queen triggerfish stocks are:

- MSY = long-term yield at F_{MSY} or its proxy; in this case, F_{SPR} 40%;
- MFMT = F_{MSY} or a proxy; in this case, F_{SPR} 40% (estimated at 0.14 for St. Croix queen triggerfish and 0.16 For St. Thomas/St. John queen triggerfish); and
- MSST = 0.75*SSB_{MSY}, where SSB_{MSY} is the long-term spawning stock biomass produced when fishing at F_{MSY} or its proxy.

The Council also selected as preferred its level of management uncertainty to derive the annual catch limit (ACL) from the ABC for queen triggerfish in both the St. Croix and in St. Thomas/St. John management areas in this framework action. The ACLs will be set equal to optimum yield (OY) for each stock. This framework action includes the same alternatives for setting the ACL from the ABC for queen triggerfish under each FMP. The Council could select a different alternative as preferred for each FMP. To facilitate that decision and to reduce repetition within this chapter, Sub-alternatives specific to each FMP were included for the three action alternatives that update the queen triggerfish reference points.

2.1.1 Proposed Alternatives

Alternative 1. No Action. Reference points (MSY proxy, MFMT, MSST, OFL proxy [sustainable yield level], ABC, ACL) for the queen triggerfish stock would remain as specified under the St. Croix and St. Thomas/St. John FMPs (Tables 2.1 and 2.2).

Alternative 2. Update reference points (MSY proxy, MFMT, MSST, OFL, ABC) for the queen triggerfish stock based on SEDAR 80 and set the ACL (which equals OY) **equal to** the ABC recommended by the Council's Scientific and Statistical Committee (SSC).

Sub-alternative 2a (Preferred). St. Croix

Sub-alternative 2b. St. Thomas/St. John

Alternative 3. Update reference points (MSY proxy, MFMT, MSST, OFL, ABC) for the queen triggerfish stock based on SEDAR 80 and set the ACL (which equals OY) **equal to 95%** of the ABC recommended by the Council's SSC.

Sub-alternative 3a. St. Croix

Sub-alternative 3b (Preferred). St. Thomas/St. John

Alternative 4. Update reference points (MSY proxy, MFMT, MSST, OFL, ABC) for the queen triggerfish stock based on SEDAR 80 and set the ACL (which equals OY) **equal to 90%** of the ABC recommended by the Council's SSC.

Sub-alternative 4a. St. Croix

Sub-alternative 4b. St. Thomas/St. John

Table 2.1. Reference points (in pounds whole weight) under each alternative for queen triggerfish in St. Croix.

Year	Alternative 1 (no action)			Alternative 2 Preferred Sub-alt. 2a (ACL = ABC)			Alternative 3, Sub-alt. 3a (ACL = ABC*0.95)			Alternative 4, Sub-alt. 4a (ACL = ABC*0.90)		
	SYL*	ABC	ACL	OFL	ABC	ACL	OFL	ABC	ACL	OFL	ABC	ACL
2024	45,158	22,579	21,450	24,651	18,808	18,808	24,651	18,808	17,868	24,651	18,808	16,927
2025	45,158	22,579	21,450	22,773	18,808	18,808	22,773	18,808	17,868	22,773	18,808	16,927
2026	45,158	22,579	21,450	22,316	18,808	18,808	22,316	18,808	17,868	22,316	18,808	16,927
2027	45,158	22,579	21,450	22,025	18,808	18,808	22,025	18,808	17,868	22,025	18,808	16,927

* Under Alternative 1, the sustainable yield level is the overfishing limit proxy.

Table 2.2. Reference points (in pounds whole weight) under each alternative for queen triggerfish in St. Thomas/St. John.

Year	Alternative 1 (no action)			Alternative 2, Sub-alt. 2b (ACL = ABC)			Alternative 3 Preferred Sub-alt. 3b (ACL = ABC*0.95)			Alternative 4, Sub-alt. 4b (ACL = ABC*0.90)		
	SYL*	ABC	ACL	OFL	ABC	ACL	OFL	ABC	ACL	OFL	ABC	ACL
2024	205,621	102,810	97,670	283,918	97,809	97,809	283,918	97,809	92,919	283,918	97,809	88,028
2025	205,621	102,810	97,670	193,378	97,809	97,809	193,378	97,809	92,919	193,378	97,809	88,028
2026	205,621	102,810	97,670	166,220	97,809	97,809	166,220	97,809	92,919	166,220	97,809	88,028
2027	205,621	102,810	97,670	148,223	97,809	97,809	148,223	97,809	92,919	148,223	97,809	88,028

* Under Alternative 1, the sustainable yield level is the overfishing limit proxy.

2.1.2 Discussion of Alternatives

Alternative 1 would not update the queen triggerfish reference points (MSY proxy, MFMT, MSST, OFL proxy, ABC, and ACL) following the accepted SEDAR 80 stock assessments, and thus, would not be based on the best scientific information available. The Magnuson-Stevens

Fishery Conservation and Management Act (Magnuson-Stevens Act) and the National Standard (NS) 2 Guidelines state that conservation and management measures shall be based upon the best scientific information available. 50 CFR 600.315(a). For both St. Croix and St. Thomas/St. John queen triggerfish stocks, **Alternative 1** would be inconsistent with this requirement of the Magnuson-Stevens Act and NS2 Guidelines. The Magnuson-Stevens Act also specifies that ACLs cannot exceed the ABC recommended by the Council's SSC. MSA § 302(h)(6); 50 CFR 600.310(f)(1)(iii). For the St. Croix queen triggerfish stock, the current ACL (21,450 pounds [lbs] whole weight [ww]) exceeds the ABC recommended by the Council's SSC (18,808 lbs ww), further making this alternative inconsistent with the Magnuson-Stevens Act and NS 2 Guidelines.

Alternative 2, **Alternative 3**, and **Alternative 4** would update the MFMT, MSY proxy, and MSST and set the OFLs and ABCs for the queen triggerfish stocks using the best scientific information available (i.e., SEDAR 80 and Tier 3 of the ABC control rule) and would set ACL values based on varying degrees of management uncertainty for St. Croix (Sub-alternatives 2a, 3a, and 4a) and St. Thomas/St. John (Sub-alternatives 2b, 3b, and 4b). Applying the best scientific information available ensures that federally managed stocks are harvested sustainably while protecting reproductive capacity and maintaining effective ecological contributions.

The range of reduction buffers proposed in **Alternatives 2-4** for the queen triggerfish stock in each of St. Croix and St. Thomas/St. John, account for the Council's level of management uncertainty for the harvest of queen triggerfish. **Alternative 2**, would set the ACL equal to the ABC, resulting in the greatest harvest allowed when compared to **Alternative 3** and **Alternative 4**. The 10% buffer applied to the ABC in **Alternative 4** would provide an ACL that is more conservative than the 5% reduction buffer applied to the ABC in **Alternative 3** and would allow for the least amount of harvest of the action alternatives. **Alternative 4** would also have the greatest buffer between the ACL and the OFLs projected for years 2024-2027, which would provide a lesser risk of overfishing the resource.

After discussion at the 185th regular meeting, the Council recommended setting the ACL equal to the ABC for the St. Croix queen triggerfish stock (**Preferred Alternative 2, Sub-alternative 2a**). The St. Croix reef fish commercial fishery is mostly comprised of spear fishers, who mainly target fish specifically requested by their customers (i.e., desired species and amount). According to the testimony received during the Council meeting, there is little demand for queen triggerfish in St. Croix. For example, it is no longer offered on St. Croix restaurant menus, and the species is not actively targeted by commercial fishermen on the island. Moreover, there is little to no commercial bycatch of queen triggerfish with this gear type. Furthermore, recent commercial landings for the species have been lower than any of the proposed ACL alternatives (see Table 3.3.2). For these reasons, the Council recommended setting the ACL equal to the

ABC (**Preferred Alternative 2, Sub-alternative 2a**), which assumes no management uncertainty for this stock.

The demand for queen triggerfish in St. Thomas/St. John is greater than in St. Croix (e.g., the species is still included on restaurant menus) and commercial fishermen are able to sell what they catch from a predominantly trap-gear fishery. Although recent commercial landings of queen triggerfish in St. Thomas/St. John were also below the proposed ACLs (see Table 3.3.6), the Council recommended setting the ACL equal to 95% of the ABC for the St. Thomas/St. John queen triggerfish stock (**Preferred Alternative 3, Sub-alternative 3b**) to provide a 5% uncertainty buffer and to reflect the differences between the St. Thomas/St. John and St. Croix fisheries and markets.

For St. Croix, **Preferred Alternative 2, Sub-alternative 2a** would decrease the current ACL (21,450 lbs) by 2,642 lbs, **Alternative 3, Sub-alternative 3a** would decrease the current ACL by 3,582 lbs, and **Alternative 4, Sub-alternative 4a** would decrease the current ACL by 4,523 lbs.

For St. Thomas/St. John, **Alternative 2, Sub-alternative 2b** would increase the current ACL (97,670 lbs) by 139 lbs, **Preferred Alternative 3, Sub-alternative 3b** would decrease the current ACL by 4,751 lbs, and **Alternative 4, Sub-alternative 4b** would decrease the current ACL by 9,642 lbs.

Under all alternatives, if landings exceed the ACL, accountability measure (AM)-based closures could be required in subsequent fishing years to prevent repeated ACL overages. Additionally, if landings exceed the OFL, the National Marine Fisheries Service and the Council may take action to protect against future overfishing. However, current landings (see Tables 3.3.2 and 3.3.6) are well below the current and proposed ACLs, and if harvest remains at those levels, AMs would not be required. Similarly, the risk of overfishing occurring is not expected under all alternatives, as the OFL values are greater than the ACLs.

Chapter 3. Affected Environment

This section describes the environment and resources included within federal waters off St. Croix and St. Thomas/St. John that would be affected by the proposed action. Additional information on the physical, biological/ecological, economic, social, and administrative environments of each island management area are described in detail in the St. Croix Fishery Management Plan (FMP) (CFMC 2019a) and the St. Thomas/St. John FMP (CFMC 2019b), and are incorporated by reference and summarized below.

3.1 Description of the Physical Environment

The U.S. Caribbean exclusive economic zone (EEZ) covers approximately 75,687 square miles (mi^2) (196,029 square kilometers [km^2]), which, for management purposes, is divided into the Puerto Rico, St. Croix, and St. Thomas/St. John management areas (see Figure 1.1). This action applies only to federal waters around St. Croix and St. Thomas/St. John.

3.1.1 St. Croix and St. Thomas/St. John

Federal waters around each of St. Croix and St. Thomas/St. John extend seaward from 3 nautical miles (nm) (5.6 km) from shore to the offshore boundary of the U.S. Caribbean EEZ, covering approximately 9,216 mi^2 (23,870 km^2) and 1,103 mi^2 (2,856 km^2), respectively. St. Croix is located about 46 mi (74 km) south of St. Thomas/St. John and lies on a different geological platform, which is separated by a 2.5 mi (4 km) deep trench. The St. Croix shelf is much narrower and shallower than St. Thomas/St. John, with an approximate area of 99 nm^2 (343 km^2). Most of the shelf area is less than 80 feet (ft) (24.4 meters [m]) deep.

The islands of St. Thomas/St. John are bordered by the Atlantic Ocean to the north and the Caribbean Sea to the south. The island of St. Thomas is bordered to the west by the Puerto Rico islands of Vieques and Culebra, and to the east by St. John, which is bordered on the east by the British Virgin Islands. The shelf shared by the islands of St. Thomas/St. John is about 8 mi (12.9 km) wide on the south and 20 mi (32.2 km) wide on the north with an approximate area of 510 nm^2 (1751 km^2). Most of the shelf area is greater than 80 ft (24.4 m) deep.

3.1.2 Habitat Environment and Essential Fish Habitat

The coastal marine environment of the U.S. Virgin Islands (USVI) is characterized by a wide variety of habitat types, with 21 distinct benthic habitat types delineated. The Essential Fish Habitat Final Environmental Impact Statement (CFMC 2004) summarized the percent distribution for all habitats in the U.S. Caribbean from the 2,121 mi^2 (5,494 km^2) of total bottom area mapped from aerial photographs. This total included both Puerto Rico (1,934 mi^2 [5,009 km^2]) and the USVI (187 mi^2 [485 km^2]), and covered from the shoreline to about 66 ft (20 m)

depth. Appendix J in the St. Croix and St. Thomas/St. John FMPs describes the preferred habitats for queen triggerfish.

Essential Fish Habitat

Essential fish habitat (EFH) is defined in the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) as "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S. C. 1802(10)). EFH information for Reef Fish species, including queen triggerfish, is described in the St. Croix and St. Thomas/St. John FMPs and incorporated herein by reference and summarized below.

EFH for Reef Fish consists of all waters from mean high water to the outer boundary of the U.S. Caribbean EEZ (habitats used by eggs and larvae) and all substrates from mean high water to 100 fathoms depth (habitats used by other life stages).

3.2 Description of the Biological and Ecological Environments

The species directly affected by this action is the queen triggerfish *Balistes vetula*. The St. Croix and St. Thomas/St. John FMPs include descriptions of the biological and ecological environments for queen triggerfish in federal waters around each island management area such as life history, distribution and habitat, diet, reproduction and spawning characteristics, which are incorporated herein by reference and summarized below.

3.2.1 Life history

Distribution

Queen triggerfish are widely distributed in tropical and sub-tropical waters of the western Atlantic, from the coast of North Carolina, throughout the Caribbean Sea, and as far south as Atlantic waters of southern Brazil. Queen triggerfish are generally found over rocky or coral areas, from depths of 2-275 m, but have also been observed over sand and grassy areas. These reef-associated species are known to exhibit high levels of fidelity to specific areas (Bryan et al. 2019). There is high connectivity across the region with no isolation detected for fish sampled from waters throughout the U.S. Caribbean or beyond (SEDAR 80).

Reproduction

Queen triggerfish is a sexually dimorphic species (i.e., two sexes of the species have different characteristics, like size or color) with males attaining larger sizes compared to females (Rivera Hernández and Shervette 2024). Rivera Hernández et al. (2018) sampled queen triggerfish from St. Croix from 2013-2018, and identified the smallest sexually mature male at 184 millimeters (mm) fork length (FL) and female at 219 mm FL. The length at 50% sexual maturity (L50) was 211 mm FL for males and 245 mm FL for females. All males larger than 251-275 mm FL were mature and all females 351-375 mm were mature.

The queen triggerfish is a nesting benthic spawner (i.e., deposit their eggs on the sea floor). Rivera Hernández et al. (2018) indicate that in the U.S. Caribbean, the spawning season can start as early as the week after the full moon in December and extend until August. The monthly percentage of spawning-capable queen triggerfish samples peaked during January and February in St. Croix. The overall number of days between spawning events in a female is 19, indicating that a female can spawn around 13 times over the estimated 270-day spawning season (Rivera Hernández and Shervette 2024).

3.2.2 Status of the Stock

Previous stock assessments for U.S. Caribbean queen triggerfish have attempted to quantify stock status and condition using traditional stock assessment procedures. For queen triggerfish, SEDAR 30 (2013) and SEDAR 46 (2016) were the most recent assessments prior to SEDAR 80. SEDAR 30 resulted in unsatisfactory determination of stock status due to the lack of sufficient data to develop the models. SEDAR 46 addressed stock assessments for data-limited species in the U.S. Caribbean using data-limited techniques. The Caribbean Fishery Management Council's (Council) Scientific and Statistical Committee (SSC) required some improvements before specific model results could be used to develop overfishing limits (OFL) and acceptable biological catches.

SEDAR 80 used a statistical catch at age model in the context of a data-limited modeling framework to provide management advice for U.S. Caribbean resources. The intent was to evaluate new information for the queen triggerfish not available during the SEDAR 30 or SEDAR 46 assessments in an integrated analytical framework using the Stock Synthesis model with data through 2019.

The SEDAR 80 stock assessments were not able to estimate the overfished status for the St. Croix or St. Thomas/St. John queen triggerfish stocks; thus, their status remains unknown. However, each model was able to estimate short-term harvest levels that would prevent overfishing (i.e., the OFL) by assuming that future recruitment will continue at recent levels. For both St. Croix and St. Thomas/St. John queen triggerfish, the models indicated that overfishing is not occurring.

3.2.3 Responses to Climate Change

Climate-related impacts observed in the Southeast region include species distribution shifts, coral bleaching and disease, extreme precipitation events leading to freshwater diversions and marine mammal mortality, changes in tropical cyclone dynamics, and more intense harmful algal blooms, among others (NMFS Southeast Regional Action Plan 2023).

Key climate drivers expected to impact marine resources in the Caribbean region include increasing sea surface temperatures, increasing ocean acidification, sea level rise, and increasing frequency and severity of tropical storms and hurricanes. Climate change projections predict increases in sea-surface temperature and sea level; decreases in sea-ice cover; and changes in salinity, wave climate, and ocean circulation (IPCC). Climate change can affect reef fish populations as the coral reef ecosystems in which they reside shift due to increases in water temperatures, extreme weather events (e.g., hurricanes) and shifts in ocean currents. These climate change-related shifts can also affect the food chain that reef fish and pelagic species rely on (for additional information, see https://www.fisheries.noaa.gov/insight/understanding-our-changing-climate). For reef fishes, Burton (2008) and Morley et al. (2018) speculated climate change could cause shifts in spawning seasons, changes in migration patterns, and changes to basic life history parameters such as growth rates. Changes specific to spawning could be related to changes in temperature, for example, by causing changes to the reproduction and recruitment of spawners during those months, or causing changes to the length of larval periods. In the U.S. Caribbean, for reef fish such as triggerfish species, climate change related shifts in species distribution may be related to depth distribution changes, with species moving to deeper cooler waters in response to warming sea temperatures (SSC Meeting, Nov/Dec 2022). The Council and other fishery management councils have and will continue to have to deal with (as impacts become larger in the near future) challenges associated with shifting baselines and respond to the effects of those shifts on managed fish populations (SSC Meeting, Nov/Dec 2022).

The Council in partnership with National Marine Fisheries Service's (NMFS) Southeast Regional Office is developing a Fishery Ecosystem Plan (FEP) that would evaluate how best to integrate ecosystem approaches into existing fisheries management in the U.S. Caribbean. The data collection process in the FEP includes the acquisition of datasets that can provide information on changes through time, that may allow identifying and responding to climate variability and climate change impacts on Caribbean marine ecosystems/fisheries (NMFS Southeast Regional Action Plan, May 2023).

Integrating the potential effects of climate change into the fisheries assessment process is currently difficult due to the assessment rarely projecting through a time span that would include detectable climate change effects (GMFMC 2021). Ecosystem models are being developed that incorporate future, potential, climate change effects (GMFMC 2021). These complex factors do not change the reality of climate change impacts on managed species and the need to incorporate this information into stock assessments. Better planning and collaboration with managers is currently being pursued to include this type of data into the assessment process (GMFMC 2021).

3.2.4 Bycatch

Each FMP includes a bycatch practicability analysis for its managed species, which are incorporated herein by reference, and summarized below.

The reef fish component of the St. Croix and St. Thomas/St. John fisheries target multiple species, including queen triggerfish. In St. Croix, reef fish are mainly harvested commercially in federal and territorial waters by hand or spear while diving, although pots/traps and hook and line gear are also used. In St. Thomas/St. John, reef fish are primarily harvested commercially in federal and territorial waters by pots/traps. Recreational harvest of reef fish in federal waters is thought to mostly be conducted with hook and line, though recent recreational data are not available at this time.

Queen triggerfish harvested by hand or spear likely have very little, if any, bycatch. Generally all queen triggerfish caught in traps are retained, although fish that are too big or too small may be returned to the water. Queen triggerfish is known to be a hardy species and less sensitive to barotrauma effects than other reef fishes. Testimony from fishermen at Council meetings note that discard mortality for queen triggerfish returned to the water seems to be low. Potential discard mortality was not considered for queen triggerfish in the St. Croix or St. Thomas/St. John SEDAR 80 assessments. The Council recently approved the requirement to have descending devices available on vessels when fishing for reef fish and, once implemented, is expected to reduce mortality of reef fish species returned to the water.

This action is not expected to significantly increase or decrease the magnitude of bycatch or discard mortality in the St. Croix or St. Thomas/St. John fisheries. Since fishermen in the U.S. Caribbean region traditionally utilize most resources harvested, and the amount of bycatch from the fisheries is minimal and is not expected to change under this action; little to no affect to mammals or birds would be expected.

3.2.5 Protected Species

Within the U.S. Caribbean, some species and their habitats are protected under the Marine Mammal Protection Act, the Endangered Species Act (ESA), or both. Information on these two laws and more information is available on the NMFS Office of Protected Resources website.[5]

NMFS completed a biological opinion on September 21, 2020, which evaluated the impacts of the Puerto Rico, St. Croix, and St. Thomas/St. John fisheries on ESA-listed species and designated critical habitat that occur in the U.S. Caribbean region (NMFS 2020). In the biological opinion, NMFS determined that the authorization of the fisheries is not likely to adversely affect sperm, sei, and fin whales, Northwest Atlantic distinct population segments (DPS) of loggerhead sea turtle, leatherback sea turtle, giant manta ray, or critical habitat

[5] https://www.fisheries.noaa.gov/protecting-marine-life

designated for green, hawksbill, or leatherback sea turtles.[6,7] NMFS also determined that the authorization of the fisheries is not likely to jeopardize the continued existence of the North and South Atlantic DPSs of green sea turtle, hawksbill sea turtle, Nassau grouper, oceanic whitetip shark, Central and Southwest Atlantic DPS of scalloped hammerhead shark, elkhorn coral, staghorn coral, rough cactus coral, pillar coral, lobed star coral, mountainous star coral, or boulder star coral, or result in the destruction or adverse modification of designated *Acropora* critical habitat.[8]

Since issuing the biological opinion, in a memorandum dated December 20, 2023, NMFS concluded that the activities associated with the FMPs may adversely affect critical habitat designated for five species of ESA-listed Caribbean corals (*Orbicella annularis*, *O. faveolata*, *O. franksi*, *Dendrogyra cylindrus*, and *Mycetophyllia ferox*), thus triggering the need for reinitiation of consultation. In the same December 20, 2023, memorandum, NMFS concluded that the operations of the fisheries in U.S. Caribbean federal waters during the reinitiation period would not violate Section 7(a) (2) or 7(d) of the ESA. Since the initial reinitiation request, NMFS published final rules listing the queen conch as threatened under the ESA and designating critical habitat for Nassau grouper, as well as a proposed rule to designate critical habitat for the North Atlantic and South Atlantic DPSs of the green sea turtle. In a memorandum dated July 18, 2024, the Sustainable Fisheries Division revised its reinitiation request to include the queen conch and newly designated and proposed to be designated critical habitat. The July 18, 2024, memorandum also determined that the operation of the fisheries during the reinitiation period would not violate Section 7(a) (2) or 7(d).

This framework action is not anticipated to modify the operation of the St. Croix or St. Thomas/St. John fisheries in a manner that would cause effects to ESA-listed species or critical habitat that were not considered in the 2020 biological opinion. Additionally, this action does not independently trigger reinitiation of consultation on the activities associated with the St. Croix FMP or the St. Thomas/St. John FMP and implementation of the action would not change the determinations in the memoranda relative to Sections 7(a)(2) and 7(d) of the ESA.

For a list of ESA-listed species in the U.S Caribbean region, please see Appendix A.

[6] Designated critical habitat for green turtles and hawksbill turtles included the waters extending seaward 3 nautical miles (5.6 kilometers) from the mean high water line surrounding Culebra, Mona, and Monito Islands, Puerto Rico (63 FR 46693, September 2, 1998).
[7] Designated critical habitat for leatherback turtles include waters adjacent to Sandy Point, St. Croix, USVI, up to and inclusive of the waters from the hundred fathom curve shoreward (77 FR 4170, January 26, 2012).
[8] Designated critical habitat of *Acropora* corals in Puerto Rico and the USVI extended from the mean low water line seaward to the 98 foot (30 meter) depth contour (73 FR 72210, November 26, 2008), the majority of which occur in state waters.

3.3 Description of the St. Croix and St. Thomas/St. John Fisheries that Target Queen Triggerfish

The fisheries of the U.S. Caribbean region provide food, livelihoods, and income to residents. The region's fisheries (federal and state) can be divided into commercial, recreational, and subsistence sectors. Commercial fishermen pursue multiple species using multiple gear types and are characterized as "artisanal" because their fishing vessels tend to be less than 45 ft (13.7 m) long, have small crews, yield small revenues (when compared to revenues from commercial fishing in the continental U.S.), and the marine resources they harvest have a small seafood supply chain. The St. Croix and St. Thomas/St. John FMPs contain comprehensive descriptions of the fisheries and sectors occurring within federal waters, which are incorporated herein by reference.

3.3.1. Queen Triggerfish Management

Queen triggerfish is managed under the St. Croix and St. Thomas/St. John FMPs as individual stocks. Management measures for queen triggerfish in each FMP include (1) annual catch limits (ACL), (2) accountability measures (AM) to prevent exceedances of the ACL, (3) an aggregate bag limit for recreational harvest of reef fish[9], and (4) area closures that protect spawning populations of specific reef fish species and the habitat that support those aggregations.

Currently, the ACL for queen triggerfish in St. Croix is 21,450 pounds (lbs) (9,730 kilograms [kg]) and the ACL for queen triggerfish in St. Thomas/St. John is 97,670 lbs (44,302 kg). In the USVI, only commercial harvest data are collected for Council-managed fish. However, the ACL and the AM (described below) governs all harvest, whether commercial or recreational.

An AM would be triggered if commercial landings exceed the ACL, unless NMFS' Southeast Fisheries Science Center (SEFSC) determines the overage occurred because data collection/monitoring improved rather than because catch increased. If an AM is triggered, NMFS would reduce the length of the fishing season for the stock by the amount necessary to ensure (to the greatest practicable extent) landings do not again exceed the ACL.

At the time this document was prepared, the most recent commercial landings (from fishing year 2022) of queen triggerfish were 34.9% and 30.3% of the current St. Croix and St. Thomas/St. John ACLs, respectively; thus AMs were not triggered in 2024.

[9] Recreational bag limits for reef fish that apply to queen triggerfish are: 5 fish per person/day, of which no more than 1 may be surgeonfish, or, if 3 or more persons are aboard, 15 fish total per vessel/day, of which no more than 4 may be surgeonfish.

3.3.2 Participants, Gear, and Landings

In the USVI, commercial landings are available from self-reported fishermen logbooks, which are assumed to be fully reported and thus correction factors are not used like they are in Puerto Rico. The St. Croix and St. Thomas/St. John commercial fisheries are small, artisanal fisheries that primarily catch benthic, coastal pelagic, and deep-water pelagic fish, spiny lobster, and queen conch (Kojis et al. 2017). The fisheries are operated almost exclusively from small boats and the fishermen market the daily catch themselves. Rivera Hernández and Shervette (2024) found that commercial fishermen prefer "plate-size" queen triggerfish, defined as 9.3-16.0 inches (235-405 mm) FL, which acts as a self-imposed slot size limit and results in fewer of the small- and large-sized individuals removed by the fisheries.

3.3.2.1 St. Croix

In 2023, there were 167 registered fishermen on St. Croix, of which 56 (34%) were active (Department of Planning and Natural Resources [DPNR] Division of Fish and Wildlife [DFW] Fisheries Bureau Chief, pers. comm.). For most years from 2012-2022, more than half of the total commercial landings in St. Croix were reported from federal waters (Table 3.3.1). During those years, an annual average of 24 fishermen reported 9,222 lbs (whole weight [ww]) of queen triggerfish (Table 3.3.2). In St. Croix, the primary fishing gear used by the commercial fishery to catch queen triggerfish includes SCUBA with spear guns and fish traps (Table 3.3.3; Martínez Rivera et al. 2022). Other species that are landed on trips that report queen triggerfish include spiny lobster and stoplight parrotfish (Table 3.3.4).

Table 3.3.1. Commercial landings of all species (in pounds ww) in St. Croix for 2012-2022 with the percent reported from state waters (0-3 nautical miles), federal waters (3-200 nautical miles), or unknown location.

Year	#Fishermen	Landings	Trips	% from State Waters	% from Federal Waters	% from Unknown Waters
2012	85	511,745	3,791	48	51	0
2013	78	469,896	3,331	69	29	3
2014	62	398,856	2,666	58	37	5
2015	59	379,839	2,369	32	50	18
2016	74	433,874	2,489	34	56	10
2017	65	389,504	2,134	33	61	6
2018	44	107,333	804	38	61	1
2019	48	114,983	962	46	41	12
2020	51	258,747	1,292	29	64	6
2021	61	343,595	2,234	35	65	1
2022	60	273,352	1,724	33	64	3

Source: SERO 2024

Table 3.3.2. Commercial landings of queen triggerfish (in pounds ww) in St. Croix for 2012-2022 with the percent reported from state waters (0-3 nautical miles), federal waters (3-200 nautical miles), or unknown location.

Year	#Fishermen	Landings	Trips	% from State Waters	% from Federal Waters	% from Unknown Waters
2012	33	22,262	1,464	46	54	0
2013	28	13,646	1,020	61	37	2
2014	29	8,666	625	66	30	4
2015	25	8,906	553	48	45	7
2016	30	9,125	583	42	50	7
2017	25	9,397	499	59	31	10
2018	18	4,395	210	56	44	0
2019	17	3,024	207	57	35	8
2020	20	4,476	281	32	65	2
2021	21	10,066	607	56	44	0
2022	23	7,476	339	37	60	3

Source: SERO 2024

Table 3.3.3. Percentage of commercial landings (by weight) for fishing trips that reported queen triggerfish in St. Croix from 2012-2022 by gear type and jurisdiction.

Jurisdiction	Hook and Line	Spear or Hand	Traps	Nets
State Waters	3	82	12	3
Federal Waters	1	79	17	3
Unknown	7	24	55	13

Source: SERO 2024

Table 3.3.4. Pounds of queen triggerfish and co-occurring species landed by trap gear or spear or hand collection for 2012-2022 combined.

Species	Spear or Hand	Traps
Lobsters, Spiny	175,426	31,193
Parrotfish, Stoplight	135,250	1,787
Triggerfish, Queen	79,602	15,857
Parrotfish, Redfin	48,856	2,790
Grouper, Red Hind	41,480	8,735
Conch, Queen	50,025	120
Parrotfish, Redtail	41,637	2,341
Schoolmaster	26,500	15,156
Parrotfish, Princess	38,513	842
Parrotfish, Redband	37,207	1,472

Species	Spear or Hand	Traps
Parrotfish, Queen	37,135	1,363
Grouper, Coney	30,470	5,270
Grunt, Bluestriped	32,902	1,761
Snapper, Blackfin	25	32,482
Snapper, Silk	44	29,365
Surgeonfish, Blue Tang	20,803	7,053
Grunt, White	15,021	10,727
Snapper, Gray	22,592	1,205
Snapper, Mutton	15,568	6,240
Angelfish, French	20,106	574
Surgeonfish, Ocean	16,810	2,988
Angelfish, Gray	18,225	1,334
Surgeonfish, Doctorfish	8,037	7,093
Angelfish, Queen	12,468	782

Source: SERO 2024

3.3.2.2 St. Thomas/St. John

In 2023, there were 141 registered fishermen on St. Thomas/St. John, of which 70 (50%) were active (DPNR DFW Fisheries Bureau Chief, pers. comm.). For most years from 2012-2022, more than half of the total commercial landings in St. Thomas/St. John were reported from federal waters (Table 3.3.5). During those years, an annual average of 37 fishermen reported 40,053 lbs (ww) of queen triggerfish (Table 3.3.6). In St. Thomas/St. John, the commercial fishery primarily catches queen triggerfish using fish traps (Table 3.3.7; Martínez Rivera et al. 2022). Other species that are landed on trips that report queen triggerfish in trap gear include spiny lobster and red hind (Table 3.3.8).

Table 3.3.5. Commercial landings of all species (in pounds ww) in St. Thomas/St. John for 2012-2022 with the percent reported from state waters (0-3 nautical miles), federal waters (3-200 nautical miles), or unknown location.

Year	#Fishermen	Landings	Trips	% from State Waters	% from Federal Waters	% from Unknown Waters
2012	74	392,581	2,440	34	66	0
2013	67	348,272	2,021	20	67	13
2014	72	414,511	2,013	22	68	10
2015	65	394,075	2,144	32	63	6
2016	65	433,055	2,482	38	56	5
2017	64	346,010	1,918	47	52	1
2018	67	346,801	1,756	51	49	0

Year	#Fishermen	Landings	Trips	% from State Waters	% from Federal Waters	% from Unknown Waters
2019	71	342,224	1,685	39	61	1
2020	70	325,421	1,775	32	66	1
2021	63	313,564	1,791	36	64	1
2022	63	310,534	1,876	40	59	1

Source: SERO 2024

Table 3.3.6. Commercial landings of queen triggerfish (in pounds ww) in St. Thomas/St. John for 2012-2022 with the percent reported from state waters (0-3 nautical miles), federal waters (3-200 nautical miles), or unknown location.

Year	#Fishermen	Landings	Trips	% from State Waters	% from Federal Waters	% from Unknown Waters
2012	47	44,835	1,265	25	75	0
2013	39	43,771	1,083	17	74	9
2014	36	49,903	1,073	14	84	2
2015	45	49,551	973	24	70	6
2016	46	45,445	1,064	35	60	6
2017	37	31,790	835	44	55	1
2018	32	35,762	765	42	58	-
2019	35	31,183	691	27	72	1
2020	30	39,395	762	22	77	0
2021	34	39,312	778	21	79	-
2022	31	29,633	732	35	65	-

Source: SERO 2024

Table 3.3.7. Percentage of commercial landings (by weight) for fishing trips that reported queen triggerfish in St. Thomas/St. John from 2012-2022 by gear type and jurisdiction.

Jurisdiction	Hook and Line	Spear or Hand	Traps
State Waters	2	1	97
Federal Waters	1	0	99
Unknown	2	0	98

Source: SERO 2024

Table 3.3.8. Pounds of queen triggerfish and co-occurring species landed by trap gear for 2012-2022 combined.

Species	Traps
Lobsters, Spiny	444,314
Triggerfish, Queen	434,523
Grouper, Red Hind	282,801
Angelfish, Gray	127,758
Grunt, White	104,957
Surgeonfish, Doctorfish	95,344
Cowfish, Scrawled	84,286
Porgy, Saucereye	74,705
Parrotfish, Stoplight	63,481
Parrotfish, Redtail	61,859
Snapper, Mutton	56,010
Snapper, Yellowtail	37,164
Snapper, Blackfin	39,923
Squirrelfish, Longspine	39,707
Grunt, Bluestriped	39,352
Triggerfish, Unspecified	38,094
Squirrelfish	33,909
Grouper, Coney	29,774
Surgeonfish, Blue Tang	29,780
Hogfish	28,714
Lionfish	28,193
Angelfish, French	26,799
Grunt, Margate	18,446
Snapper, Silk	17,611
Angelfish, Queen	17,886
Grunt, Cottonwick	16,680
Grouper, Yellowfin	15,073
Grouper, Red	13,061
Snapper, Lane	10,194

Source: SERO 2024

3.4 Description of the Economic Environment

3.4.1 St. Croix Commercial Queen Triggerfish Sector

Reported commercial landings of all species in St. Croix averaged 334,702 lbs annually during the 2012-2022 period with an associated value of $2,097,342 (Table 3.4.1). Landings in 2018 and 2019 were abnormally low (likely the result of infrastructure damage associated with

Hurricanes Irma and Maria), but had largely returned to the long-term average by 2021. The inflation-adjusted value of all landings (i.e., the inflation-adjusted revenues received by the commercial fishing sector expressed in 2023 dollars) averaged $2,561,195 annually during the period, but was substantially below the long-term average in 2018 and 2019 in conjunction with abnormally low landings. Price information associated with the commercial landings in St. Croix and St. Thomas/St. John used in this economic analysis was provided by the SEFSC.

The number of fishermen and trips associated with commercial landings of all species in St. Croix was given in Table 3.3.1. Based on these numbers, estimates of annual pounds harvested per fishermen and trip along with the associated values (i.e., revenues to the commercial fishing sector) are given in Table 3.4.2. Annual pounds harvested per fisherman, as indicated, ranged from less than three thousand (2018 and 2019) to more than six thousand (2012 through 2015) and averaged 5,359. The annual inflation-adjusted value of these landings (i.e., average inflation-adjusted revenues per fisherman expressed in 2023 dollars) ranged from less than $20,000 (2018 and 2019) to more than $50,000 (2015) and averaged about $41,000. Annual catch per trip generally fell in the 130-pound to 200-pound range during 2012-2022 and averaged 155 lbs. With a couple of notable exceptions, the annual inflation-adjusted value per trip (i.e., average inflation-adjusted revenues per trip expressed in 2023 dollars) ranged from about $1,100 to $1,400 and averaged $1,184.

Table 3.4.1. Reported commercial landings of all species (in pounds ww, values, and prices) by St. Croix commercial fishermen, 2012-2022.

Year	Pounds	Current Value	Current Price	Inflation-Adjusted Value[a]	Inflation-Adjusted Price
2012	511,745	$3,200,588	$6.25	$4,199,387	$8.21
2013	469,896	$2,784,532	$5.93	$3,592,485	$7.65
2014	398,856	$2,427,620	$6.08	$3,078494	$7.71
2015	379,839	$2,496,386	$6.57	$3,136,419	$8.26
2016	433,874	$2,738,170	$6.31	$3,407,801	$7.85
2017	389,504	$2,236,355	$5.74	$2,734,416	$7.02
2018	107,833	$633,985	$5.91	$757,788	$7.06
2019	114,983	$750,500	$6.53	$1,117,378	$7.68
2020	258,747	$1,636,310	$6.32	$1,898,766	$7.34
2021	343,595	$2,283,969	$6.65	$2,534,369	$7.38
2022	273,352	$1,882,346	$6.89	$1,950,960	$7.13
Average	334,702	$2,097,342	$6.27	$2,561,195	$7.65

[a] Current values (revenues) and prices were converted to 2023 dollars using the BEA Implicit Price Deflator (GDP Deflator by Year).
Source: SERO and SEFSC 2024

Table 3.4.2. Average pounds ww and value (per fisherman and trip) of all species landed by commercial fishermen in St. Croix, 2012-2022.

Year	--------Per Fisherman-------			------Per Trip------		
	Pounds	Current Value	Inflation - Adjusted Value[a]	Pounds	Current Value	Inflation-Adjusted Value
2012	6,021	$37,654	$49,407	135	$844	$1,107
2013	6,024	$35,699	$46,056	141	$836	$1,078
2014	6,433	$39,155	$49,653	150	$911	$1,155
2015	6,437	$42,315	$53,160	160	$1,054	$1,324
2016	5,883	$37,002	$46,051	174	$1,100	$1,369
2017	5,992	$34,406	$42,068	183	$1,048	$1,281
2018	2,498	$14,409	$17,222	133	$789	$943
2019	2,395	$15,635	$18,380	120	$780	$917
2020	5,073	$32,085	$37,231	200	$1,266	$1,470
2021	5,633	$37,442	$41,547	154	$1,022	$1,134
2022	4,555	$31,891	$32,516	158	$1,092	$1,132
Average	5,359	$33,582	$41,008	155	$970	$1,184

[a] Current values (per fisherman and per trip) were converted to 2023 dollars using the BEA Implicit Price Deflator (GDP Deflator by Year).
Source: SERO and SEFSC 2024

A multitude of income-producing species are harvested by the St. Croix commercial fishing sector with queen triggerfish being just one of them. The harvest of queen triggerfish by the St. Croix commercial fishing sector averaged 9,222 lbs annually during the 2012-2022 (Table 3.4.3) or about 2.8% of the total average annual commercial landings during the period (334,702 lbs). The annual inflation-adjusted value (i.e., inflation-adjusted revenues received by the commercial sector expressed in 2023 dollars) associated with queen triggerfish harvest ranged from less slightly less than $21,000 (2019) to almost $150,000 (2012) and averaged $60,075. This average annual inflation-adjusted value represents about 2.3% of the average annual total inflation-adjusted value (i.e., $2,561,195) of the St. Croix commercial fishing sector during the 2012-2022 period. Finally, there appears to be no trend in the annual inflation-adjusted price of the harvested product which averaged $6.51 per pound. This average annual inflation-adjusted price is substantially less than the 'all species' comparable price of $7.65 (Table 3.4.1) and the price differential has been relatively consistent throughout the 11-year period of analysis.

Table 3.4.3. Reported commercial landings of queen triggerfish (pounds ww, value, and price) by St. Croix, commercial fishermen, 2012-2022.

Year	Pounds	Current Revenues	Current Price	Inflation-Adjusted Value[a]	Inflation-Adjusted Price
2012	22,262	$111,310	$5.00	$146,046	$6.58
2013	13,646	$68,230	$5.00	$88,027	$6.45
2014	8,666	$43,330	$5.00	$54,947	$6.34
2015	8,906	$49,161	$5.52	$61,765	$6.94
2016	9,125	$50,188	$5.50	$62,461	$6.85
2017	9,397	$48,489	$5.16	$59,288	$6.31
2018	4,395	$23,806	$5.42	$28,455	$6.47
2019	3,024	$17,377	$5.75	$20,428	$6.76
2020	4,476	$25,484	$5.69	$29,571	$6.61
2021	10,066	$58,184	$5.78	$64,562	$6.41
2022	7,476	$43,865	$5.86	$45,464	$6.08
Average	9,222	$49,024	$5.32	$60,075	$6.51

[a] Current values (revenues) and prices were converted to 2023 dollars using the BEA Implicit Price Deflator (GDP Deflator by Year).
Source: SERO and SEFSC 2024

The number of St. Croix commercial fishermen reporting the harvest of queen triggerfish and number of trips where queen triggerfish was reported was given in Table 3.3.2. Based on this information, annual landings of queen triggerfish per fisherman averaged 359 lbs with the annual inflation-adjusted value (revenues) of these landings equaling $2,287 (Table 3.4.4). In general, there appears to be no discernable trend in either landings per fishermen or inflation-adjusted revenues per fisherman.

Among those trips where queen triggerfish was reported to be harvested, annual queen triggerfish landings averaged 16.6 lbs per trip annually (Table 3.4.4) while the inflation adjusted value of these landings (i.e., deflated revenues per trip from queen triggerfish) averaged $103. As with average pounds and deflated revenues per fisherman, average pounds and deflated revenues per trip showed no discernable trends.

A comparison of the information in Table 3.3.2 with that in Table 3.4.2 suggests that approximately 40% of the St. Croix commercial fishermen report harvesting queen triggerfish in any given year (an average of about 40% during the 2012-2022 period). Yet the average annual values per fisherman (or trip) of queen triggerfish (Table 3.4.4) represent but a small share of total values (revenues) per fisherman (or trip) as provided in Table 3.4.2. This would suggest that the approximately 40% of the St. Croix commercial fishermen who report the harvest of

queen triggerfish on an annual basis also harvest a significant amount of other species. This factor is subsequently considered in greater detail.[10]

Table 3.4.4. Average pounds ww and value of queen triggerfish landings (per fisherman and trip) by commercial fishermen in St. Croix, for those trips where queen triggerfish was reported, 2012-2022.

Year	--------Per Fisherman-------			------Per Trip------		
	Pounds	Current Value	Inflation Adjusted Value[a]	Pounds	Current Value	Inflation Adjusted Value
2012	675	$3,374	$4,426	15.2	$76	$100
2013	487	$2,437	$3,144	13.4	$67	$86
2014	299	$1,494	$1,895	13.9	$69	$88
2015	356	$1,966	$2,471	16.1	$89	$112
2016	304	$1,673	$2,082	15.7	$86	$107
2017	376	$1,939	$2,372	18.8	$97	$119
2018	244	$1,322	$1,581	20.9	$113	$136
2019	178	$1,022	$1,202	14.6	$84	$99
2020	224	$1,274	$1,479	15.9	$91	$105
2021	479	$2,771	$3,074	16.6	$95	$106
2022	325	$1,907	$1,976	22.1	$129	$134
Average	359	$1,865	$2,287	16.6	$84	$103

[a] Current values (per fisherman and per trip) were converted to 2023 dollars using the BEA Implicit Price Deflator (GDP Deflator by Year).
Source: SERO and SEFSC 2024

A list of species and associated poundage (total pounds by species over the 11-year period ending in 2022) of those species landed in conjunction with queen triggerfish on those trips reporting queen triggerfish landings is presented in Table 3.3.4. This information is presented by the two primary gear types used to harvest queen triggerfish; spear/hand and traps. The information in Table 3.4.5 provides the average annual value (revenues) of these species expressed in 2023 dollars.[11]

As indicated, spear/hand represented the majority of the $52,774 average annual value of queen triggerfish landings (expressed in 2023 dollars) during the 2012-2022 period (about 83%). Furthermore, queen triggerfish ranked third in value behind only spiny lobsters and stoplight parrotfish. Despite ranking third in value, the value (revenues from) of queen triggerfish

[10] One could also argue that fishermen who report the harvest of queen triggerfish operate significantly different from the remaining population of St. Croix commercial fishermen. This, as later discussed, does not appear to be the case.
[11] To calculate the annual value for each species, the 2022 price was used in conjunction with average annual landings (pounds) during 2012-2022. This was then adjusted to 2023 dollars based on the BEA Price Deflator.

represented only 7.7% of the total value of landings among those trips where the species was landed. Finally, the proportion was approximately the same when the individual gear types are considered; 7.76% for spear/hand and 7.34% for traps.

The total annual value of landings associated with those trips where queen triggerfish was reported to be harvested averaged $686,305 (expressed in $2023) during 2012-2022. On average, about 24 fishermen reported the harvest of queen triggerfish annually during 2012-2022 (see Table 3.3.4), which equates to about 40% of the population of commercial fishermen as enumerated in Table 3.3.1.[12] This equates to almost $29,000 per fisherman and these fishermen likely make a certain number of trips where no queen triggerfish are caught. This suggests that the revenues by the subset of St. Croix commercial fishermen who annually harvest queen triggerfish are likely comparable to the overall population of St. Croix commercial fishermen where the average annual inflation-adjusted revenues equaled about $41,000 during 2012-2022 (Table 3.4.2).

Table 3.4.5. Value of species landed in conjunction with queen triggerfish among those trips where queen triggerfish was reported by St. Croix commercial fishermen, 2012-2022 annual averages.

Species	Value (Expressed in $2023)		
	Spear or Hand	Traps	Total
Lobsters, Spiny	$141,593	$25,177	$166,770
Parrotfish, Stoplight	$76,301	$1,008	$77,309
Triggerfish, Queen	$44,008	$8,766	$52,774
Parrotfish, Redfin	$26,642	$1,521	$28,163
Grouper, Red Hind	$24,456	$5,150	$29,606
Conch, Queen	$31,048	$74	$31,123
Parrotfish, Redtail	$23,254	$1,307	$24,562
Schoolmaster	$16,747	$9,578	$26,325
Parrotfish, Princess	$21,038	$460	$21,498
Parrotfish, Redband	$20,289	$803	$21,092
Parrotfish, Queen	$20,215	$742	$20,957
Grouper, Coney	$17,247	$2,983	$20,230
Grunt, Bluestriped	$18,562	$993	$19,555
Snapper, Blackfin	$16	$20,343	$20,359
Snapper, Silk	$28	$19,000	$19,028
Surgeonfish, Blue Tang	$11,481	$3,893	$15,379
Grunt, White	$8,502	$6,072	$14,574
Snapper, Gray	$13,916	$742	$14,658
Snapper, Mutton	$9,765	$3,914	$13,679

[12] Trips where queen triggerfish were landed averaged about 27% of the total number of trips by St. Croix commercial fishermen during the 2012-2022 period.

Species	Value (Expressed in $2023)		
	Spear or Hand	Traps	Total
Angelfish, French	$11,400	$325	$11,725
Surgeonfish, Ocean	$9,135	$1,624	$10,759
Angelfish, Gray	$9,835	$720	$10,555
Surgeonfish, Doctorfish	$4,451	$3,928	$8,379
Angelfish, Queen	$6,822	$428	$7,250
Total	$566,752	$119,554	$686,305
% Queen Triggerfish	7.76%	7.34%	7.69%

Source: SERO and SEFSC 2024

Commercial harvest of queen triggerfish, as indicated in Table 3.3.2, are taken from both territorial and federal waters. During the 2012-2022 period, a reported average of 4,884 lbs of queen triggerfish were taken from territorial waters on an annual basis with slightly less (4,338 lbs) being taken from federal waters (Table 3.4.6). The average annual deflated value of the commercial harvest from territorial waters equaled $34,135 during the 2012-2022 period compared to $29,844 for the product harvested from federal waters (based on the assumption that price of the harvested product from federal waters does not deviate from the price received from territorial waters).

Table 3.4.6. Annual pounds ww and values of queen triggerfish landings by commercial fishermen in St. Croix from territorial and federal waters, 2012-2022.

Year	Territorial Waters			Federal Waters		
	Pounds	Current Value	Inflation-Adjusted Value[a]	Pounds	Current Value	Inflation-Adjusted Value
2012	10,241	$51,203	$67,181	12,021	$60,107	$78,865
2013	8,491	$42,453	$54,771	5,155	$25,777	$33,257
2014	5,948	$29,742	$37,716	2,718	$13,588	$17,232
2015	4,574	$25,249	$31,723	4,332	$23,912	$30,043
2016	4,101	$22,554	$28,070	5,024	$27,633	$34,391
2017	6,099	$31,469	$38,478	3,298	$17,019	$20,810
2018	2,461	$13,331	$15,935	1,934	$10,477	$12,522
2019	1,862	$10,702	$12,580	1,162	$6,678	$7,851
2020	1,461	$8,318	$9,652	3,015	$17,166	$19,919
2021	5,637	$32,584	$36,157	4,429	$25,602	$28,409
2022	2,849	$16,716	$17,326	4,627	$27,149	$28,138
Average	4,884	$25,840	$31,771	4,338	$23,062	$28,305

[a] Current values (revenues) were converted to 2023 dollars using the BEA Implicit Price Deflator (GDP Deflator by Year). Note: For purposes of analysis, harvests from unknown waters were proportioned between territorial and federal waters based on respective percentages of landings from these locations for that year.
Source: SERO and SEFSC 2024

3.4.2 St. Thomas/St. John Commercial Queen Triggerfish Sector

Reported commercial landings of all species in St. Thomas/St John averaged 359,732 lbs annually during the 2012-2022 period with an associated value of $2,444,531 (Table 3.4.7). The inflation-adjusted value of all landings (i.e., the inflation-adjusted revenues received by the commercial fishing sector expressed in 2023 dollars) averaged $2,952,553 annually during the period based on an average annual inflation-adjusted price of $8.21.

Table 3.4.7. Reported commercial landings of all species (in pounds ww, values, and prices) by St. Thomas and St. John commercial fishermen, 2012-2022.

Year	Pounds	Current Value	Current Price	Inflation-Adjusted Value[a]	Inflation-Adjusted Price
2012	392,581	$2,324,080	$5.92	$3,049,349	$7.77
2013	348,772	$2,256,803	$6.48	$2,911,631	$8.36
2014	404,511	$2,609,096	$6.45	$3,308,625	$8.17
2015	394,075	$2,644,243	$6.71	$3,322,185	$8.43
2016	433,055	$2,914,460	$6.73	$3,627,803	$8.38
2017	346,010	$2,280,206	$6.59	$2,788,033	$8.06
2018	346,810	$2,361,715	$6.81	$2,822,906	$8.14
2019	342,224	$2,409,257	$7.04	$2,832,247	$8.28
2020	325,421	$2,375,573	$7.30	$2,756,603	$8.47
2021	313,564	$2,395,629	$7.64	$2,658,271	$8.48
2022	310,534	$2,316,584	$7.46	$2,401,027	$7.73
Average	359,732	$2,444,531	$6.79	$2,952,553	$8.21

[a] Current values (revenues) and prices were converted to 2023 dollars using the BEA Implicit Price Deflator (GDP Deflator by Year).
Source: SERO and SEFSC 2024

The number of fishermen and trips associated with commercial landings of all species in St. Thomas/St. John was given in Table 3.3.5. Based on these numbers, estimates of annual pounds harvested per fishermen and trip along with the associated values (i.e., revenues to the commercial fishing sector) are given in Table 3.4.8. Annual pounds harvested per fisherman, as indicated, ranged from less than five thousand (2019 through 2022) to more than six thousand (2015 and 2016) and averaged 5,340. The annual inflation-adjusted value of these landings (i.e., average inflation-adjusted revenues per fisherman expressed in 2023 dollars) ranged from less than $40,000 (2022) to more than $55,000 (2016) and averaged about $44,000. Annual catch per trip generally fell in the 160-pound to 200-pound range during 2012-2022 and averaged 181 lbs. The annual inflation-adjusted value per trip (i.e., average inflation-adjusted revenues per trip expressed in $2023) generally ranged from about $1,200 to $1,600 and averaged $1,483.

Table 3.4.8. Average pounds and value (per fisherman and trip) of all species landed by commercial fishermen in St. Thomas and St. John, 2012-2022.

Year	--------Per Fisherman-------			------Per Trip------		
	Pounds	Current Value	Inflation Adjusted Value[a]	Pounds	Current Value	Inflation Adjusted Value
2012	5,305	$31,406	$41,027	161	$952	$1,250
2013	5,198	$33,684	$43,457	172	$1,117	$1,441
2014	5,618	$36,237	$45,953	201	$1,296	$1,644
2015	6,063	$40,681	$51,111	184	$1,233	$1,550
2016	6,662	$44,838	$55,803	174	$1,174	$1,461
2017	5,406	$35,628	$43,563	180	$1,189	$1,454
2018	5,176	$35,249	$42,133	197	$1,345	$1,608
2019	4,820	$33,933	$39,891	203	$1,430	$1,681
2020	4,649	$33,937	$39,380	183	$1,338	$1,553
2021	4,977	$38,026	$42,195	175	$1,338	$1,434
2022	4,929	$36,771	$38,112	166	$1,235	$1,280
Average	5,340	$36,285	$43,830	181	$1,228	$1,483

[a] Current values (per fisherman and per trip) were converted to 2023 dollars using the BEA Implicit Price Deflator (GDP Deflator by Year).
Source: SERO and SEFSC 2024

A multitude of income-producing species are harvested by the St. Thomas/St. John commercial fishing sector with queen triggerfish being just one of them. The reported commercial harvest of queen triggerfish by the St. Thomas/St. John fishing sector averaged 40,055 lbs annually during the 2012-2022 (Table 3.4.9) or about 11% of the total average annual commercial landings during the period (359,732 lbs). The annual inflation-adjusted value (i.e., inflation-adjusted revenues received by the commercial sector expressed in $2023) associated with queen triggerfish harvests ranged from slightly less than $200,000 (2022) to more than $400,000 (2015) and averaged almost $300,000. This average annual inflation-adjusted value represents about 10% of the average annual total inflation-adjusted value (i.e., $2,952,553) of the St. Thomas/St. John commercial fishing sector during the 2012-2022 period. Finally, there appears to be no trend in the annual inflation-adjusted price of the harvested product, which averaged $7.35 per pound, and the queen triggerfish price consistently fell below the 'all species' price (Table 3.4.7); often by a dollar or more a pound.

Table 3.4.9. Reported commercial landings of queen triggerfish (pounds ww, value, and price) by St. Thomas and St. John, commercial fishermen, 2012-2022.

Year	Pounds	Current Value	Current Price	Inflation Adjusted Value[a]	Inflation Adjusted Price
2012	44,835	$224,175	$5.00	$294,133	$6.56
2013	43,771	$262,626	$6.00	$338,829	$7.74
2014	49,903	$299,418	$6.00	$379,696	$7.61
2015	49,551	$322,082	$6.50	$404,658	$8.17
2016	45,445	$295,393	$6.50	$367,632	$8.09
2017	31,790	$179,613	$5.65	$219,615	$6.90
2018	35,762	$208,492	$5.83	$249,206	$6.97
2019	31,183	$186,163	$5.97	$218,847	$7.02
2020	39,395	$248,582	$6.31	$268,454	$7.32
2021	39,312	$251,597	$6.40	$279,180	$7.10
2022	29,663	$192,513	$6.49	$199,530	$6.73
Average	40,055	$242,787	$6.06	$294,525	$7.35

[a] Current values (per fisherman and per trip) were converted to 2023 dollars using the BEA Implicit Price Deflator (GDP Deflator by Year).
Source: SERO and SEFSC 2024

The number of St. Thomas/St. John commercial fishermen reporting the harvest of queen triggerfish along with the number of trips where queen triggerfish was reported to be harvested was given in Table 3.3.6. Based on this information, annual landings of queen triggerfish per fisherman averaged 1,069 lbs with the annual inflation-adjusted value (inflation-adjusted revenues expressed in $2023) of these landings equaling $6,482 (Table 3.4.10). In general, there appears to be no discernable trend in either landings per fishermen or inflation-adjusted revenues per fisherman.

Among those trips where queen triggerfish was reported to be harvested, annual queen triggerfish landings averaged 44 lbs per trip annually (Table 3.4.10), while the inflation adjusted value of these landings (i.e., deflated revenues per trip from queen triggerfish) averaged $323. As with average pounds and deflated revenues per fisherman, average pounds and deflated revenues per trip showed no discernable trends.

Table 3.4.10. Average pounds ww and value of queen triggerfish landings per fisherman and trip) by commercial fishermen in St. Thomas and St. John for those trips where queen triggerfish was reported, 2012-2022.

Year	--------Per Fisherman-------			------Per Trip------		
	Pounds	Current Value	Inflation Adjusted Value[a]	Pounds	Current Value	Inflation Adjusted Value
2012	954	$4,770	$6,258	35.4	$177	$233
2013	1,122	$6,734	$8,688	40.4	$242	$313
2014	1,386	$8,317	$10,547	46.5	$279	$354
2015	1,101	$7,157	$8,992	50.9	$331	$416
2016	988	$6,422	$7,992	42.7	$278	$346
2017	859	$4,854	$5,936	38.1	$215	$263
2018	1,118	$6,515	$7,788	46.7	$273	$326
2019	891	$5,319	$6,253	45.1	$269	$317
2020	1,313	$8,286	$9,615	51.7	$326	$379
2021	1,156	$7,400	$8,211	50.5	$323	$359
2022	957	$6,310	$6,436	40.5	$263	$273
Average	1,069	$6,482	$7,864	44.0	$267	$323

[a] Current values (per fisherman and per trip) were converted to 2023 dollars using the BEA Implicit Price Deflator (GDP Deflator by Year).
Source: SERO and SEFSC 2024

A list of species and associated poundage (total pounds by species over the 11-year period ending in 2022) of those species landed in conjunction with queen triggerfish on those trips reporting queen triggerfish landings was presented in Table 3.3.8. Traps, as noted, accounts for virtually all of the reported commercial queen triggerfish landings in St. Thomas/St. John. The information in Table 3.4.11 provides the average annual value (revenues) of these species in expressed in 2023 dollars.[13]

Table 3.4.11. Value of species landed in conjunction with queen triggerfish among those trips where queen triggerfish was reported by St. Thomas and St. John commercial fishermen, 2012-2022 annual averages.

Species	Traps
Lobsters, Spiny	$397,956
Triggerfish, Queen	$265,598
Grouper, Red Hind	$158,477
Angelfish, Gray	$77,369

[13] To calculate the annual value for each species, the 2022 price was used in conjunction with average annual landings (pounds) during 2012-2022. This was then adjusted to 2023 dollars based on the BEA Implicit Price Deflator.

Species	Traps
Grunt, White	$58,322
Surgeonfish, Doctorfish	$53,249
Porgy, Saucereye	$42,567
Parrotfish, Stoplight	$37,786
Parrotfish, Redtail	$36,762
Snapper, Mutton	$31,070
Snapper, Yellowtail	$21,876
Snapper, Blackfin	$22,184
Squirrelfish, Longspine	$22,064
Grunt, Bluestriped	$21,793
Triggerfish, Unspecified	$23,572
Squirrelfish	$17,725
Grouper, Coney	$16,545
Surgeonfish, Blue Tang	$16,576
Hogfish	$16,226
Lionfish	$15,454
Angelfish, French	$16,204
Grunt, Margate	$10,406
Snapper, Silk	$10,002
Angelfish, Queen	$10,360
Grunt, Cottonwick	$9,253
Cowfish, Scrawled	$8,891
Grouper, Yellowfin	$8,432
Grouper, Red	$7,381
Snapper, Lane	$5,655
Total	$1,439,755
% Queen Triggerfish	18.45%

As indicated, queen triggerfish ranked second in value (among those trips reporting queen triggerfish) trailing only spiny lobsters. Ranking second in value, the value (revenues from) queen triggerfish represented just shy of 20% of the total value of landings among those trips where the species was landed. The total annual value of landings associated with trips where queen triggerfish was reported to be harvested by St. Thomas/St. John commercial fishermen averaged $1,439,755 (expressed in $2023) during 2012-2022. On average, about 37 fishermen reported the harvest of queen triggerfish annually during 2012-2022 (see Table 3.3.6).[14][15] This

[14] This equates to about 55% of the average annual population of St. Thomas/St. John commercial fishermen over the 2012-2022 period.
[15] Trips where queen triggerfish were landed averaged about 45% of the total number of trips by St. Thomas/St. John commercial fishermen during the 2012-2022 period.

equates to almost $39,000 per fisherman, which compares favorably to the average annual-adjusted value for the population of St. Thomas/St John fishermen over the 2012-2022 period ($43,820 as given in Table 3.4.8).

Commercial harvest of queen triggerfish by the St. Thomas/St. John commercial fishing sector, as indicated in Table 3.3.6, are taken from both territorial and federal waters. During the 2012-2022 period, an average of 10,988 lbs of queen triggerfish were taken from territorial waters on an annual basis with a considerably higher amount (29,068 lbs) taken from federal waters (Table 3.4.12). The average annual inflation-adjusted value of the commercial harvest from territorial waters equaled $80,340 during the 2012-2022 period compared to $214,185 for the product harvested from federal waters (based on the assumption that price of the harvested product from federal waters does not deviate from the price received from territorial waters).

Table 3.4.12. Annual pounds ww and values of queen triggerfish landings by commercial fishermen in St. Thomas and St. John from territorial and federal waters, 2012-2022.

Year	Territorial Waters			Federal Waters		
	Pounds	Current Value	Inflation Adjusted Value[a]	Pounds	Current Value	Inflation Adjusted Value
2012	11,209	$56,053	$73,553	33,626	$168,131	$220,600
2013	8,111	$48,665	$62,785	35,660	$213,961	$276,044
2014	7,126	$42,757	$54,220	42,777	$256,661	$325,475
2015	12,606	$81,937	$102,945	36,945	$240,144	$301,713
2016	16,860	$109,591	$136,391	28,585	$185,802	$231,241
2017	14,127	$79,820	$97,597	17,663	$99,793	$122,018
2018	15,020	$87,567	$104,667	20,742	$120,926	$144,540
2019	8,504	$50,766	$59,680	22,679	$135,396	$159,167
2020	8,667	$54,688	$63,460	30,728	$193,894	$224,994
2021	8,255	$52,835	$58,628	31,057	$198,761	$220,552
2022	10,382	$67,379	$69,836	19,281	$125,333	$129,695
Average	10,988	$66,550	$80,340	29,068	$176,239	$214,185

[a] Values (revenues) were converted to 2023 dollars using the BEA Implicit Price Deflator (GDP Deflator by Year). Note: For purposes of analysis, harvests from unknown waters were proportioned between territorial and federal waters based on respective percentages of landings from these locations for that year.
Source: SERO and SEFSC 2024.

3.5 Description of the Social Environment

As required by Section 301 of the Magnuson-Stevens Act and National Standard 8, the following describes the importance of the queen triggerfish fishery in the USVI by utilizing the best scientific social data available (MSA § 301(a)(8)). The section emphasizes identification and basic description of island areas where residents commonly pursue the species, as informed by landings data, informal discussion with island residents, social indicators data, and various secondary source materials. The section provides essential context for social effects analysis in Chapter 4.

3.5.1 Social-Environmental Overview

A variety of sources describe important human aspects of fishing and the broader social context associated with marine fisheries around the USVI. Key elements of this literature make clear that locally harvested seafood has long been of great social, economic, and dietary importance throughout the islands (Valdés-Pizzini et al. 2010). This was true both in the distant past and during recent years as well. For example, cultural anthropologist Olwig (1985) reports that small groups of resident slaves from West Africa deployed hook and line and woven trap gear from dugout canoes around the islands long before emancipation in 1848, and Shaw (1935) describes the use of traps and nets as essential means for supporting French settlers later in the 18th century. Small-scale fishing operations helped enable the growth of island populations during the subsequent centuries (e.g., Fiedler and Jarvis 1932; Swingle et al. 1969; Downs et al. 1997), and into the first decades of the present century—as described by Kojis (2004), Kojis and Quinn (2011), Valdés-Pizzini et al. (2010), Stoffle et al. (2009), Agar and Stoffle (2007), and Glazier et al. (2006), among others.

Island-based fishing fleets, perennially limited in capacity and extent, have continued to support island communities in more recent years as well (Kojis et al. 2017; CFMC 2019b, c). It is notable that while very few (<0.01%) of the 87,146 USVI residents enumerated by the 2020 Census (U.S. Census Bureau 2021) are directly involved in the commercial harvest of marine resources around the USVI, local fleets, recently comprised of some 260 commercial/artisanal license holders in total (Kojis et al. 2017), continue to generate an important source of sustenance, income, and cultural continuity in a contemporary island context of: (a) persistent regional poverty (U.S. Census Bureau 2022; Niles 2019); (b) recovery from the physical and socioeconomic impacts of the 2017 hurricane season (National Oceanic and Atmospheric Administration 2018); and (c) other economic shocks and global challenges such as the COVID-19 pandemic (U.S. Economic Development Administration 2022; Agar et al. 2022).

3.5.1.1 Key Social Aspects of the Queen Triggerfish Fishery in the USVI

Most boat-based fishing activity in the USVI can be considered artisanal in nature. Some small-scale operators fish mainly to generate profit by selling at local markets, while other participants harvest the inshore and offshore marine resources primarily for consumption and/or distribution in familial and community settings. Informal discussions with leading fishermen make clear that most participants are motivated to achieve both outcomes, and that recreational fishing is largely absent or not well understood given relatively limited research and monitoring of the sector. Such discussions also indicate that while many participants supplement fishing income with that from other types of employment, this tends to occur primarily when weather and sea conditions limit time at sea, and/or when money that can be generated by other types of work far exceeds that which can be earned from time on the water. The work of Kojis et al. (2017) supports this perspective in that, irrespective of periodic temporary employment in other lines of work, nearly 90% of surveyed commercial/artisanal participants report that they pursue marine resources on a year-round basis around the islands. The term "consumptive-oriented" fishing is useful for characterizing the activities of fleets around the USVI—perhaps especially for species such as queen triggerfish, which is commonly harvested and transacted in small local seafood markets for consumption by the communities around the island region and/or harvested and consumed by the immediate and/or extended family of the harvesters.

This framework action addresses the USVI queen triggerfish fishery in specific terms. However, it can be challenging to describe social aspects of fishing for this species in particular, and the manner and extent of its use in communities around the USVI. The challenge at hand relates to the way in which USVI-based captains and crew commonly harvested and marketed a relatively broad array of species during any given reef fish trip in years past (e.g., McKaskey et al. 2023; Liese and Stoffle 2012). This relates to the somewhat indiscriminate harvest efficacy of trap (aka pot) gear (Stevens 2022 a, b), which tends to capture multiple species during any given trip (Kadison et al. 2017). This, in turn, makes it challenging to document and examine the pursuit, landing, and use of any reef fish species in particular. This situation is indicated by Kojis et al. (2017), who have consistently combined all reef fish in their descriptions of commonly conducted USVI fisheries.[16]

> "Fisheries in USVI are multi-species in nature. A wide variety of fish categories are targeted . . . Most categories [such as reef fish] . . . comprise a myriad of species, thus, irrespective of whether a fisher targets one category or more, most [participants] harvest many species. [For example] reef fish were targeted by most (>80%) of fishers in the USVI [during the 2016 fisheries census]. This category includes a wide variety of species in a variety of families, including the

[16] This was the case for the previous census-based descriptive analyses of USVI fisheries as well (see Kojis et al. 2004 and Kojis and Quinn 2011).

grouper, snapper, triggerfish, grunt, parrotfish, wrasse, surgeonfish, squirrelfish, etc. families." (Kojis et al. 2017)

As such, while available sources can be used to assist in describing the social environment associated with pursuit and use of reef fish in general, additional information is needed to enable more specific and thorough social description and analysis of the USVI queen triggerfish fishery in particular. Of note here, multiple highly productive operators interviewed during recent oral history research conducted by NMFS social scientists around St. Thomas and St. John report that they have increasingly tailored their fishing activities to meet the needs of local marketers for specific reef fish products and volumes of such products during the course of the year. This departure from the historic practice of simultaneously selling multiple species at the marketplace is said to be a response to economic and food security challenges following the hurricanes of 2017 and the subsequent pandemic when certain harvesters, marketers, and restaurateurs began to provide and sell specific culturally desirable seafood to island residents at the most affordable prices possible. This speaks to the readiness of such persons to support their island communities in times of crisis. Fishermen take responsibility to provide food for their own families, friends, and neighbors and are among the most important individuals at the local level for providing food within their communities (Stoffle et al. 2020). This role of fishermen strengthens bonds in social circles and assists in recovery processes. In fact, their ability to provide food for residents was a primary reason why the USVI's Governor called them essential workers during the pandemic when the majority of the island was closed (Stoffle et al. 2020). From a social-environmental perspective, such arrangements clearly call for further research and monitoring.

Meanwhile, the works of Kojis et al. (2017), Kojis and Quinn (2011), and Kojis (2004), provide useful insight into the general nature of the USVI reef fish fisheries of which the queen triggerfish fishery is an integral component. Such insight remains important inasmuch as reef fish species have long comprised the categorical type of living marine resource most frequently targeted by commercial/artisanal harvesters within each of the St. Thomas/St. John and St. Croix island areas, and thus across the USVI as a whole. Moreover, as further discussed by Kojis et al. (2017), the reef fish grouping was determined to be the most important revenue-generating category of living marine resources in the USVI during the most recent census, and the most important targeted resource category in all respects during all three Territorial census efforts. The relative importance of reef fish to harvesters in the USVI, as determined by the most recent census work, is depicted in Table 3.5.1 below.

Table 3.5.1. Principal marine resources targeted by commercial/artisanal harvesters during the 2016 USVI Fisheries Census*.

Targeted Resources	St. Thomas/St. John		St. Croix		USVI in total	
	N	%	N	%	N	%
Reef fish	82	93.2	88	80.7	170	86.3
Spiny lobster	39	44.3	65	59.6	104	52.8
Dolphinfish & Wahoo	26	29.5	61	56.0	87	44.2
Coastal pelagic	39	44.3	34	31.2	73	37.1
Deepwater snapper	13	14.8	57	52.3	70	35.5
Queen conch	7	8.0	58	53.2	65	33.0
Deep pelagic	12	13.6	48	44.0	60	30.5
Whelk	13	14.8	2	1.8	15	7.6
Bait fish	3	3.4	6	5.5	9	4.6
Other	1	1.1	3	2.8	4	2.0
# Respondents	88	--	109	--	197	--

Source: Kojis et al. (2017); *Based on the question: "What species do you commercially fish for?"

The generalized fisheries census work of Kojis et al. (2017) is also useful for readers seeking to understand overarching social, cultural, and economic aspects of fleets active around the USVI. The material makes clear that such fleets, their captains and crew, and their fishing activities are patently small-scale in nature, with the majority of harvesters regularly working in Territorial waters less than three miles from shore. Labor is considerable, and many vessel operators rely on their own knowledge and skills to fish, fabricate and repair gear, maintain vessels and engines, and market their landings. Of note, Kojis et al. (2017) determined that commercial/artisanal participants spend an average of 34.2 hours/week undertaking fishing-related activities, with little variation across the islands. As summarized in Table 3.5.2 below, the authors provide useful insight into key social and operational aspects of commercial/artisanal fishing operations active around the USVI during recent years.

Table 3.5.2. Socioeconomic, Demographic, and Operational Aspects of USVI Fishing Operations: 2016*.

Fishing-Related Variable	St. Croix	St. Thomas/St. John
Mean Age of Participant in Years	56.9	55.0
Years of Fishing Experience	26.7	30.8
Average Size of Immediate Household	2.7	2.5
Most Commonly Reported Ethnic Ancestry	Hispanic	French
Overall Level of Education	↑ from Kojis (2004)	↑ from Kojis (2004)
% Achieving High School Diploma	46%	63%
% Engaging in other Employment	39.3%	44.7%
% of Participants Dependent Solely on Fishing	38.9%	27.5%
Overall Dependence on Fishing Compared	Higher	Lower

Fishing-Related Variable	St. Croix	St. Thomas/St. John
Mean Length of Fishing Vessel	21.9 feet	24.6 feet
Mean Size of Outboard Engines	90 hp	110 hp
% Using Twin-Engine Craft	~50%	Few
Present Value of Fishing Vessel and All Gear	$39,000	$102,000

*Source: Kojis et al. (2017); **The authors correspondingly report that younger participants reported relatively more years of formal education than older participants across the island groupings.

3.5.1.2 Community Involvement in the USVI Commercial/Artisanal Triggerfish Fishery

Given that queen triggerfish and related species are known to exhibit fidelity to specific reef areas during much of the year (Bryan et al. 2019), knowledge of nearshore and offshore reef ecosystems and the behaviors and preferred locations of triggerfish populations are key elements of success among harvesters. Such information is commonly guarded, and is often carefully communicated within social networks of fishery participants around the USVI (as are key elements of ocean fishing knowledge as a whole). Such knowledge includes but is not limited to: (a) experience-based understanding of targeted and other species, their habitats, and ecosystem cues indicative of their presence; (b) safe navigation in dangerous places and sea states; (c) ways and means of optimally effective harvest effort; (d) maintenance of vessels, engines, gear and electronics; (e) market prices and options; and (f) other core aspects of work and non-commercial pursuit of marine resources on the ocean.

While fishing-specific forms of ecological understanding or knowledge are often communicated not only within but also between and across communities of fishery participants in island areas of the U.S. (e.g., see Glazier et al. 2013), place-specific island communities (or sub-districts, as in the case of the USVI) are ideal starting points for examining more complex and spatially extensive social and economic linkages. This is true in part because social relationships associated with fishing, such as those associated with marketing fish, and with the labor and expertise needed for vessel or engine repair, as examples, are often simplified by close physical proximity.

In the case of the commercial/artisanal harvest of queen triggerfish around the USVI, residents of three island sub-districts (community proxies) are particularly well-engaged in the fishery, as indicated by the distribution of queen triggerfish landings during 2021 (Figure 3.1). These are the Southwest sub-district of St. Croix, where 43.1% of all such landings were documented for 2021; the Northside sub-district of St. Thomas, where 20.1% of the total was landed that year; and Anna's Hope Village, also on St. Croix, where 16.3% of the commercial/artisanal take was landed. Basic demographic attributes of these sub-districts or communities are depicted in Table 3.5.3 below. Of note in the table are the extensive out-migration rates occurring between the 2010 and 2020 U.S. Census counts. Factors likely associated with this decline in district-specific and overall populations include closure of the HOVENSA oil refinery on St. Croix, extensive

impacts resulting from Hurricanes Irma and Maria in 2017, and job losses in the tourism sector resulting from the recent pandemic, among others. Of note, extensive out-migration is thought to underlay ongoing regional labor shortages, with widespread impacts for regional growth potential (Grenadier et al. 2023).

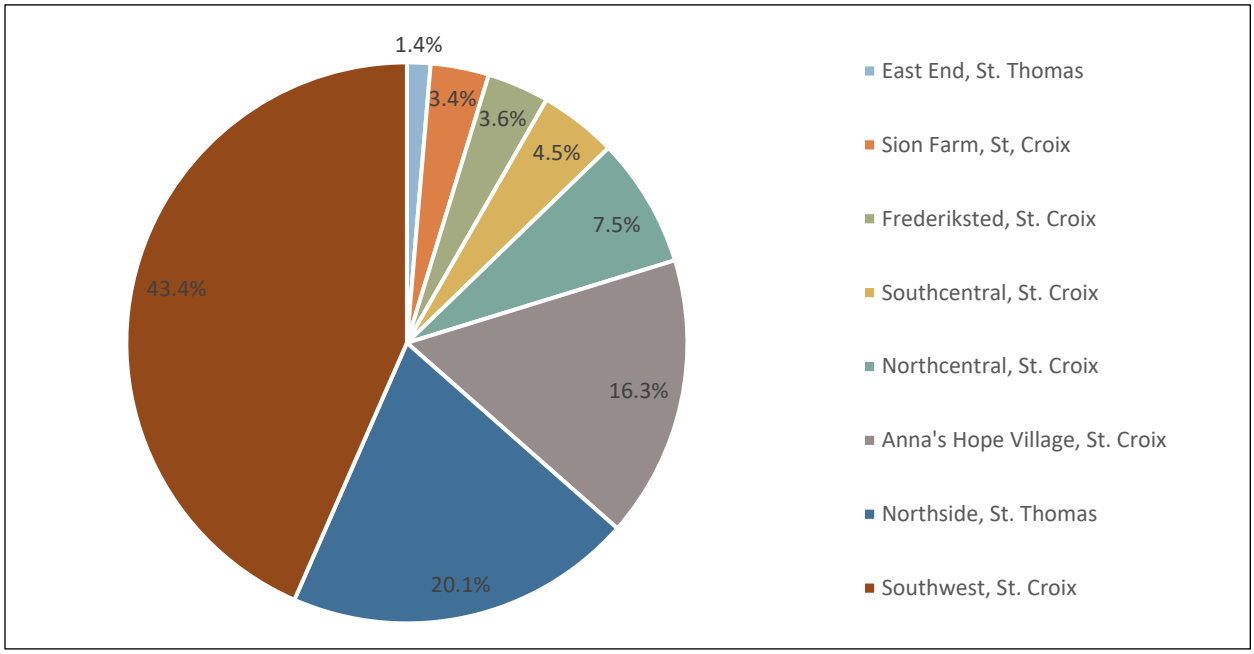

Figure 3.1. Percentage distribution of commercial/artisanal queen triggerfish landings during 2021.
Source: SEFSC, Community ALS File, July 2024

Table 3.5.3. Demographic Characteristics: Top USVI Queen Triggerfish Landings Communities – 2021.

Community	% of Landings	# Local Permitees Reporting Landings	Population 2020	Population Change 2010-2020
Southwest District, St. Croix	43.4	12	5,842	-1,556
Northside District, St. Thomas	20.1	13	8,889	-1,160
Anna's Hope Village, St. Croix	16.3	5	41,004	-9,597
U.S. Virgin Islands	100.0	66	87,146	-19,259

3.5.1.3 Recreational Pursuit of Queen Triggerfish around the USVI

Recent data regarding recreation-oriented fishing activities in the USVI are both limited in nature and difficult to parse from fishing that is undertaken on a commercial/artisanal basis. The most recent and pertinent information is available in Kojis and Tobias (2016) and in Freeman et al.

(2017). The latter source describes a creel survey conducted with non-commercial anglers, for-hire captains, and tournament participants around the USVI during 2016 and 2017. Among the key points discussed in the report is that "in the USVI, as in many small scale fisheries, it can be challenging to distinguish between commercial and recreational fishers" with "many charter operations also hold[ing] commercial fishing licenses which allow them to sell their catch" (Freeman et al. 2017).

Meanwhile, Kojis and Tobias (2016) assert that of the 378 boat owners responding to a 2014 survey that was designed to examine recreational fishing in the USVI, 75% of respondents reported that they fished primarily for food, with 43% describing themselves as subsistence specialists. These data sources, coupled with information provided through recent informal discussion with active fishermen in the USVI, indicate that "recreational" fishing, as undertaken in the islands: (a) very typically involves consumption of the captured resources; (b) very rarely involves the catch-and-release approach engaged by many recreational anglers elsewhere in the nation; and (c) can often contrarily involve sale of fish in local markets in a context of limited enforcement capacity. Minimal discussion of triggerfish and its pursuit by anglers is available in these sources. Kojis and Tobias (2016) do assert that "recreational fishers target a smaller range of species than commercial fishers and likely have a significant impact on at least some species of reef fish, particularly species in the snapper, grouper, triggerfish, grunt and barracuda families." The authors also report that 76 (20%) of the 378 anglers surveyed had targeted triggerfish during the year prior to the study (2013).

3.6 Description of the Administrative Environment

The administrative environments for the USVI are discussed in detail in the St. Croix FMP and St. Thomas/St. John FMP, which are incorporated herein by reference and summarized below.

3.6.1 Federal Fishery Management

The Magnuson-Stevens Act (16 U.S.C. 1801 et seq.) claims sovereign rights and exclusive fishery management authority over most fishery resources within the U.S. Caribbean EEZ, an area extending from the seaward boundary of each coastal state to 200 nautical miles from shore, as well as authority over U.S. anadromous species and continental shelf resources that occur beyond the EEZ.

The Council is responsible for the conservation and management of fishery stocks within federal waters surrounding St. Croix and St. Thomas/St. John. The Council consists of seven voting members: four members appointed by the Secretary of Commerce (Secretary), at least one of whom is appointed from each of the Commonwealth of Puerto Rico and the USVI; the principal officials with marine fishery management responsibility for Puerto Rico and the USVI designated by their Governors; and NMFS' Southeast Region Regional Administrator. Regional

councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act, and with other applicable laws summarized in Appendix B. In most cases, the Secretary has delegated this authority to NMFS.

The public is involved in the fishery management process through participation at public meetings, on advisory panels and through council meetings that, with few exceptions for discussing personnel matters, are open to the public. The regulatory process is in accordance with the Administrative Procedure Act, in the form of "notice and comment" rulemaking, which provides extensive opportunity for public scrutiny and comment, and requires consideration of and response to those comments.

3.6.2 U.S. Virgin Islands Fisheries Management

The purpose of state representation at the Council level is to ensure state participation in federal fishery management decision-making and to promote the development of compatible regulations in state and federal waters. State governments have the authority to manage their respective fisheries including enforcement of fishing regulations, and exercises legislative and regulatory authority over their states' natural resources through discrete administrative units. Although each state agency is the primary administrative body with respect to the state's natural resources, all states cooperate with numerous state and federal regulatory agencies when managing marine resources.

The USVI's Department of Planning and Natural Resources is responsible for the conservation and management of USVI fisheries and enforcement of boating and fishing regulations in state waters (0-3 nautical miles from shore) and the Division of Fish and Wildlife is responsible for data collection pertaining to the fisheries of the USVI. The DFW monitors commercial and recreational fisheries and provides recommendations to the DPNR Commissioner on matters relating to fisheries management. Rules and regulations for the USVI fisheries are codified in the Virgin Islands Code, primarily within Title 48 Chapter 12.

Chapter 4. Environmental Consequences

This framework action includes the same management alternatives for the St. Croix Fishery Management Plan (FMP) and the St. Thomas/St. John FMP. To reduce repetition within this chapter, the discussion of environmental effects apply to each FMP, unless otherwise stated.

4.1 Action: Update Reference Points for Queen Triggerfish

Summary of Management Alternatives

Alternative 1. No Action. Reference points* for queen triggerfish would remain as specified under the St. Croix and St. Thomas/St. John FMPs.

Alternative 2. Update reference points** for queen triggerfish based on SEDAR 80 and set the ACL (which equals optimum yield [OY]) equal to the ABC recommended by the Council's Scientific and Statistical Committee (SSC).

Sub-alternative 2a (Preferred). St. Croix

Sub-alternative 2b. St. Thomas/St. John

Alternative 3. Update reference points** for queen triggerfish based on SEDAR 80 and set the ACL (which equals OY) equal to 95% of the ABC recommended by the Council's SSC.

Sub-alternative 3a. St. Croix

Sub-alternative 3b (Preferred). St. Thomas/St. John

Alternative 4. Update reference points** for the queen triggerfish stocks based on SEDAR 80 and set the ACL (which equals OY) equal to 90% of the ABC recommended by the Council's SSC.

Sub-alternative 4a. St. Croix

Sub-alternative 4b. St. Thomas/St. John

* Reference points include: maximum sustainable yield (MSY) proxy, maximum fishing mortality threshold (MFMT), minimum stock size threshold (MSST), overfishing limit (OFL) proxy [sustainable yield level], acceptable biological catch (ABC), and annual catch limit (ACL).

** Reference points include the: MSY proxy, MFMT, MSST, OFL and ABC.

4.1.1 Effects on the Physical Environment

Effects on the physical environment generally occur from interactions between fishing gear (e.g., fish traps) or anchors and the bottom substrate. The analysis below assumes that the (1) amount of harvest correlates to interactions between fishing gear and anchors and the bottom, and (2) harvest would be constrained to the annual catch limits (ACL).

No effects on the physical environment would be expected from **Alternative 1** (No Action) as the catch levels would not change (no changes in fishing effort from the baseline), thus current interactions with the substrate from gear and anchors would not change. For both St. Croix and

St. Thomas/St. John, as the ACLs decrease from **Alternative 2 (Sub-alternatives 2a** and **2b)**, to **Alternative 3 (Sub-alternatives 3a** and **3b)**, to **Alternative 4 (Sub-alternatives 4a** and **4b)**, the benefits to the physical environment would be expected to increase. The ACLs under **Alternative 4 (Sub-alternatives 4a** and **4b)** would be expected to provide the greatest benefit to the physical environment under the specified assumptions discussed above.

For St. Croix, the ACLs under **Preferred Alternative 2 (Sub-alternative 2a)**, **Alternative 3 (Sub-alternative 3a)**, and **Alternative 4 (Sub-alternative 4a)** would be less than the ACL under **Alternative 1**. Therefore, **Alternatives 2-4 (Sub-alternatives 2a, 3a,** and **4a)** would be expected to provide greater benefits to the physical environment, assuming that the decrease in the ACL correlates to a decrease in gear and anchor interactions with the bottom.

For St. Thomas/St. John, the ACL under **Alternative 2 (Sub-alternative 2b)** is slightly more than the ACL under **Alternative 1** (difference of 139 pounds [lbs] whole weight [ww]). As such, **Alternative 2 (Sub-alternative 2b)** would be expected to provide the least benefits to the physical environment. The ACLs under **Preferred Alternative 3 (Sub-alternative 3b)** and **Alternative 4 (Sub-alternative 4b)** are less than the ACLs under **Alternative 2 (Sub-alternative 2b)** and **Alternative 1**, and would be expected to provide greater benefits to the physical environment.

In these multi-species fisheries, queen triggerfish and other species are often caught together in trap gear, and reducing harvest of one stock but allowing harvest of the co-occurring species may not reduce the number of trips taken or gear hauled, which may not generate associated positive effects to the physical environment. The magnitude of the potential effects to the physical environment also depend on the extent to which fishermen who fish for other species with the same gear increase effort to offset the lower ACLs proposed, which in turn depends on market conditions and other factors affecting the ability to alter fishing practices, including a shift to fishing in state waters where ACLs are not applicable. These factors are difficult to predict. However, as described in Section 3.3, the current commercial landings of queen triggerfish in St. Croix and St. Thomas/St. John are well below the current and proposed ACLs, and so little to no difference between the alternatives would be expected at this time.

4.1.2 Effects on the Biological/Ecological Environment

Management actions that affect the biological and ecological environment mostly relate to the impacts of fishing on a species' population size, life history, and the role of the species within its habitat. Removal of the species from the population through fishing reduces the overall population size if harvest is not maintained at sustainable levels. Indirect impacts of these alternatives on the biological environment would depend on the corresponding reduction or increase in the level of fishing as a result of each alternative. Fishing gear has different (1) selectivity patterns that are used to target and capture organisms by size and species, (2) number

of discards, which are often sublegal sized individuals or species caught during seasonal closures, and (3) mortality rates associated with the released species.

For both St. Croix and St. Thomas/St. John, **Alternative 2 (Preferred Sub-alternative 2a** for St. Croix and **Sub-alternative 2b** for St. Thomas/St. John**)**, **Alternative 3 (Sub-alternative 3a** for St. Croix and **Preferred Sub-alternative 3b** for St. Thomas/St. John**)**, and **Alternative 4 (Sub-alternatives 4a** and **4b)** would specify management reference points based on the best scientific information available. This would ensure that federally-managed stocks are harvested sustainably while protecting reproductive capacity and maintaining effective ecological contributions.

For St. Croix, annual harvest levels under **Preferred Alternative 2 (Sub-alternative 2a), Alternative 3 (Sub-alternative 3a),** and **Alternative 4 (Sub-alternative 4a)** would be less than the current level (**Alternative 1**), which would be expected to provide greater positive effects to the biological/ecological environment, with the greatest expected under **Alternative 4 (Sub-alternative 4a)**, which has the lowest harvest level of the alternatives.

For St. Thomas/St. John, **Alternative 2 (Sub-alternative 2b)** proposes a slight increase (139 lbs) in the harvest level from the status quo (**Alternative 1**), which could have short-term negative effects to the biological/ecological environment through increased removals, but long-term positive effects through the enhanced management to the maximum sustainable yield. **Alternative 2 (Sub-alternative 2b)** would likely provide the least biological benefit compared to the other alternatives, assuming landings increase due to the increase in the ACL. The ACLs under **Preferred Alternative 3 (Sub-alternative 3b)** and **Alternative 4 (Sub-alternative 4b)** would be less than the ACLs under **Alternative 1** or **Alternative 2 (Sub-alternative 2b)**, which would provide greater biological benefits. Since the greatest reduction in allowable harvest occurs under **Alternative 4 (Sub-alternative 4b),** it would have the greatest protection to the stock from fishing under the specified assumptions discussed above.

As mentioned in Section 3.3, the current commercial landings of queen triggerfish in St. Croix and St. Thomas/St. John are well below the current and proposed ACLs, and thus the acceptable biological catch (ABC) and overfishing limit (OFL) thresholds. As such, little to no difference between effects to the biological/ecological environment from the alternatives would be expected at this time. Additionally, this action is not expected to be significant because the overall prosecution of the St. Croix and St. Thomas/St. John fisheries that targets queen triggerfish (e.g., number of fishermen, amount of gear used, or number of trips taken) is not expected to change. For this same reason, no additional impacts to Endangered Species Act-listed species or designated critical habitat, or other non-targeted species are anticipated as a result of this action.

4.1.3 Effects on the Economic Environment

St. Croix

Alternative 1 (No Action) would maintain the current reference points, including the ACL for queen triggerfish in St. Croix. Therefore, **Alternative 1** would not change fishing practices or recreational and commercial harvest of queen triggerfish and would not result in economic effects. However, **Alternative 1** is not consistent with SEDAR 80, and is not a viable alternative because it is not based on the best scientific information available.

Preferred Alternative 2 (Sub-alternative 2a), Alternative 3 (Sub-alternative 3a) and **Alternative 4 (Sub-alternative 4a)**, would modify the reference points and ACLs for queen triggerfish based on SEDAR 80. For each alternative, Table 4.1 provides the reference points, ACLs, ratio of ABC to OFL (ABC/OFL) and ACL to ABC (ACL/ABC) by alternative in St. Croix.

Table 4.1. OFL, ABC, and ACL in pounds (lbs) whole weight (ww) and ratios of ABC to OFL and ACL to ABC by alternative for St. Croix (2024-2026).

Year	OFL	ABC	ACL	ABC/OFL	ACL/ABC
Alternative 1					
2024	45,158	22,579	21,450	50.0%	95.0%
2025	45,158	22,579	21,450	50.0%	95.0%
2026	45,158	22,579	21,450	50.0%	95.0%
2027	45,158	22,579	21,450	50.0%	95.0%
Preferred Alternative 2, Sub-alternative 2a					
2024	24,651	18,808	18,808	76.3%	100.0%
2025	22,773	18,808	18,808	82.6%	100.0%
2026	22,316	18,808	18,808	84.3%	100.0%
2027	22,025	18,808	18,808	85.4%	100.0%
Alternative 3, Sub-alternative 3a					
2024	24,651	18,808	17,868	76.3%	95.0%
2025	22,773	18,808	17,868	82.6%	95.0%
2026	22,316	18,808	17,868	84.3%	95.0%
2027	22,025	18,808	17,868	85.4%	95.0%
Alternative 4, Sub-alternative 4a					
2024	24,651	18,808	16,927	76.3%	90.0%
2025	22,773	18,808	16,927	82.6%	90.0%
2026	22,316	18,808	16,927	84.3%	90.0%
2027	22,025	18,808	16,927	85.4%	90.0%

Relative to **Alternative 1**, **Preferred Alternative 2 (Sub-alternative 2a), Alternative 3 (Sub-alternative 3a)** and **Alternative 4 (Sub-alternative 4a)** would set a smaller buffer between the OFL and the ABC for queen triggerfish in St. Croix. In other words, the ABC/OFL percentage for the three action alternatives for each year is a larger number than the ABC/OFL percentage for **Alternative 1** (Table 4.1). Although a smaller buffer between the OFL and ABC would generally increase the likelihood that the OFL could be exceeded, such an inference cannot be made because the OFL specified in **Alternative 1** is no longer consistent with the best scientific information available. Therefore, economic effects would not be expected to result from the smaller buffer set in **Preferred Alternative 2 (Sub-alternative 2a), Alternative 3 (Sub-alternative 3a)** and **Alternative 4 (Sub-alternative 4a)** relative to **Alternative 1**. It is noted that because the maximum sustainable yield (MSY) proxy, maximum fishing mortality threshold (MFMT), and minimum stock size threshold (MSST) were defined but not quantified, inferences about potential economic effects that could result from the quantification of these status determination criteria cannot be made.

Preferred Alternative 2 (Sub-alternative 2a) would not set a buffer between the ABC and stock ACL. **Alternative 3 (Sub-alternative 3a)** and **Alternative 4 (Sub-alternative 4a)** would set a 5% and a 10% buffer between the ABC and the stock ACL, respectively. **Alternative 4 (Sub-alternative 4a)**, which would set the widest buffer between the ABC and ACL, constitutes the alternative that accounts the most for management uncertainty. **Alternative 4 (Sub-alternative 4a)** would potentially result in the greatest benefit to queen triggerfish and would therefore be expected to result in the greatest potential economic effects associated with the expected increase in protection to the queen triggerfish stock in the long run.

As indicated in Table 4.1, **Preferred Alternative 2 (Sub-alternative 2a), Alternative 3 (Sub-alternative 3a)** and **Alternative 4 (Sub-alternative 4a)** would all decrease the stock ACL relative to **Alternative 1**. Although the defined ACL governs all queen triggerfish harvest, whether commercial or recreational, only commercial harvest data are collected for Caribbean Fishery Management Council (Council)-managed fish in the U.S. Virgin Islands (USVI). Therefore, economic effects expected to result from ACL changes considered in **Preferred Alternative 2 (Sub-alternative 2a), Alternative 3 (Sub-alternative 3a)** and **Alternative 4 (Sub-alternative 4a)** are evaluated based on potential changes in commercial queen triggerfish landings and in associated changes in commercial triggerfish revenues. For each alternative, Table 4.2 provides triggerfish ACLs, and the differences between the proposed ACLs and the status quo ACLs. The ACL changes are expressed in lbs ww and in nominal, inflation-adjusted, and in discounted commercial revenues. Changes in nominal and inflation-adjusted ($2023) commercial revenues from queen triggerfish in St. Croix are computed using 2012-2022 average nominal and real prices per pound provided in Table 3.4.3. Between 2012 and 2022, average nominal and real prices per pound of queen triggerfish are estimated at $5.32 and $6.51 ($2023), respectively. Discounted values are based on a 7% annual discount rate.

Table 4.2. Queen triggerfish ACLs and differences relative to Alternative 1 in pounds ww, nominal, real (inflation-adjusted) $2023 and discounted values for St. Croix.

Year	ACL	Difference Relative to Alternative 1			
		Pounds	Nominal Value	Real Value	Net Present Value
Alternative 1					
2024	21,450	**N/A**			
2025	21,450				
2026	21,450				
2027	21,450				
Preferred Alternative 2, Sub-alternative 2a					
2024	18,808	-2,642	-$14,055	-$17,199	-$17,199
2025	18,808	-2,642	-$14,055	-$17,199	-$16,074
2026	18,808	-2,642	-$14,055	-$17,199	-$15,023
2027	18,808	-2,642	-$14,055	-$17,199	-$14,040
Alternative 3, Sub-alternative 3a					
2024	17,868	-3,582	-$19,056	-$23,319	-$23,319
2025	17,868	-3,582	-$19,056	-$23,319	-$21,793
2026	17,868	-3,582	-$19,056	-$23,319	-$20,368
2027	17,868	-3,582	-$19,056	-$23,319	-$19,035
Alternative 4, Sub-alternative 4a					
2024	16,927	-4,523	-$24,062	-$29,445	-$29,445
2025	16,927	-4,523	-$24,062	-$29,445	-$27,518
2026	16,927	-4,523	-$24,062	-$29,445	-$25,718
2027	16,927	-4,523	-$24,062	-$29,445	-$24,036

These estimated changes in commercial revenue from queen triggerfish in St. Croix would only materialize if commercial fishermen harvest the totality of the ACL under each alternative. Changes in queen triggerfish ACL from the status quo range from -4,523 lbs ww (**Alternative 4, Sub-alternative 4a**) to -2,642 lbs ww (**Preferred Alternative 2, Sub-alternative 2a**). **Alternative 3 (Sub-alternative 3a)** would change the ACL by -3,582 lbs ww. In real (inflation adjusted $2023) values, corresponding changes in commercial revenues are estimated to range from -$29,445 (**Alternative 4, Sub-alternative 4a**) to -$17,199 (**Preferred Alternative 2, Sub-alternative 2a**). **Alternative 3 (Sub-alternative 3a)** would change commercial revenues from triggerfish by -$23,319. Based on Table 3.4.3, commercial queen triggerfish landings in St. Croix averaged 9,222 lbs ww between 2012 and 2022. Because commercial queen triggerfish landings are well below the proposed ACLs, it is unlikely that the ACL changes in **Preferred Alternative 2 (Sub-alternative 2a), Alternative 3 (Sub-alternative 3a)** and **Alternative 4**

(Sub-alternative 4a) would affect commercial landings in the short term. It follows that estimated associated changes in commercial revenues are not likely to materialize under present and foreseeable conditions.

Economic effects expected to result from ACL changes and corresponding commercial landings changes would typically include changes in producer surplus to commercial fishermen as well as changes in consumer surplus to consumers purchasing triggerfish; however, no changes in commercial landings are expected. If landings were to exceed the proposed ACLs, accountability measure (AM)-based closures could be required in subsequent fishing years to prevent repeated ACL overages. In addition, if landings exceed the OFL, the Council (or National Marine Fisheries Service [NMFS]) may take action to protect against future overfishing. However, current landings (see Tables 3.4.3) are well below the current and proposed ACLs, so AMs would not be required.

St. Thomas/St. John

Alternative 1 (No Action) would maintain the current reference points (OFL and ABC), status determination criteria and, the total ACL for queen triggerfish in St. Thomas/St. John. Therefore, **Alternative 1** would not change fishing practices or recreational and commercial harvest of queen triggerfish and would not result in economic effects. However, **Alternative 1** is not consistent with SEDAR 80, and is not a viable alternative because it is not based on the best scientific information available.

Alternative 2 (Sub-alternative 2b), Preferred Alternative 3 (Sub-alternative 3b), and **Alternative 4 (Sub-alternative 4b)**, would modify the reference points and ACLs for queen triggerfish based on SEDAR 80. For each alternative, Table 4.3 provides the reference points, ACLs, ratio of ABC to OFL (ABC/OFL) and ACL to ABC (ACL/ABC) by alternative for St. Thomas/St. John.

Table 4.3. OFL, ABC, and ACL in pounds (lbs) whole weight (ww) and ratios of ABC to OFL and ACL to ABC by alternative for St. Thomas/St. John (2024-2027).

Year	OFL	ABC	ACL	ABC/OFL	ACL/ABC
Alternative 1					
2024	205,621	102,810	97,670	50.0%	95.0%
2025	205,621	102,810	97,670	50.0%	95.0%
2026	205,621	102,810	97,670	50.0%	95.0%
2027	205,621	102,810	97,670	50.0%	95.0%
Alternative 2, Sub-alternative 2b					
2024	283,918	97,809	97,809	34.4%	100.0%
2025	193,378	97,809	97,809	50.6%	100.0%

Year	OFL	ABC	ACL	ABC/OFL	ACL/ABC
2026	166,220	97,809	97,809	58.8%	100.0%
2027	148,223	97,809	97,809	66.0%	100.0%
Preferred Alternative 3, Sub-alternative 3b					
2024	283,918	97,809	92,919	34.4%	95.0%
2025	193,378	97,809	92,919	50.6%	95.0%
2026	166,220	97,809	92,919	58.8%	95.0%
2027	148,223	97,809	92,919	66.0%	95.0%
Alternative 4, Sub-alternative 4b					
2024	283,918	97,809	88,028	34.4%	90.0%
2025	193,378	97,809	88,028	50.6%	90.0%
2026	166,220	97,809	88,028	58.8%	90.0%
2027	148,223	97,809	88,028	66.0%	90.0%

Relative to **Alternative 1**, all three action alternatives, with the exception of those in year 2024, would set a smaller buffer between the OFL and the ABC in St. Thomas/St. John. The ABC/OFL percentage for year 2024 in each of the three action alternatives is a smaller number than the ABC/OFL percentage for **Alternative 1** (Table 4.3), and thus would have a larger buffer between the ABC and the OFL. Although a smaller buffer between the OFL and ABC would generally increase the likelihood that the OFL could be exceeded, such an inference cannot be made because the OFL set in **Alternative 1** is not consistent with the best scientific information available. Therefore, economic effects would not be expected to result from the smaller buffer set in **Alternative 2 (Sub-alternative 2b), Preferred Alternative 3 (Sub-alternative 3b),** and **Alternative 4 (Sub-alternative 4b)** relative to **Alternative 1**. It is noted that because the MSY proxy, MFMT, and MSST were defined but not quantified, inferences about potential economic effects that could result from the quantification of these status determination criteria cannot be made.

Alternative 2 (Sub-alternative 2b) would not set a buffer between the ABC and stock ACL. **Preferred Alternative 3 (Sub-alternative 3b)** and **Alternative 4 (Sub-alternative 4b)** would set a 5% and a 10% buffer between the ABC and the stock ACL, respectively. **Alternative 4 (Sub-alternative 4b)**, which would set the widest buffer between the ABC and ACL, constitutes the alternative that accounts the most for management uncertainty. **Alternative 4 (Sub-alternative 4b)** would potentially result in the greatest benefit to queen triggerfish and would therefore be expected to result in the greatest potential economic effects associated with the expected increase in protection to the queen triggerfish stock in the long run.

As indicated in Table 4.3, **Alternative 2 (Sub-alternative 2b)** would slightly increase the ACL while **Preferred Alternative 3 (Sub-alternative 3b)** and **Alternative 4 (Sub-alternative 4b)**

would decrease the stock ACL relative to **Alternative 1**. Although the defined ACL governs all queen triggerfish harvest, whether commercial or recreational, only commercial harvest data are collected for Council-managed fish in the USVI. Therefore, economic effects expected to result from ACL changes considered in **Alternative 2 (Sub-alternative 2b), Preferred Alternative 3 (Sub-alternative 3b),** and **Alternative 4 (Sub-alternative 4b)** are evaluated based on potential changes in commercial queen triggerfish landings and in associated changes in commercial queen triggerfish revenues. For each alternative, Table 4.4 provides triggerfish ACLs, and differences between the proposed ACLs and the status quo ACLs. The ACL changes are expressed in lbs ww and in nominal, inflation-adjusted, and in discounted commercial revenues. Changes in nominal and inflation-adjusted ($2023) commercial revenues from queen triggerfish in St. Thomas/St. John are computed using 2012-2022 average nominal and real prices per pound provided in Table 3.4.9. Between 2012 and 2022, average nominal and real prices per pound of queen triggerfish are estimated at $6.06 and $7.35 ($2023), respectively. Discounted values are based on a 7% annual discount rate.

Table 4.4. Queen triggerfish ACLs and differences relative to Alternative 1 in pounds, nominal, real (inflation-adjusted) $2023 and discounted values for St. Thomas/St. John.

Year	ACL	Difference Relative to Alternative 1			
		Pounds	Nominal Value	Real Value	Net Present Value
Alternative 1					
2024	97,670	**N/A**			
2025	97,670				
2026	97,670				
2027	97,670				
Alternative 2, Sub-alternative 2b					
2024	97,809	139	$842	$1,022	$1,022
2025	97,809	139	$842	$1,022	$955
2026	97,809	139	$842	$1,022	$892
2027	97,809	139	$842	$1,022	$834
Preferred Alternative 3, Sub-alternative 3b					
2024	92,919	-4,751	-$28,791	-$34,920	-$34,920
2025	92,919	-4,751	-$28,791	-$34,920	-$32,635
2026	92,919	-4,751	-$28,791	-$34,920	-$30,500
2027	92,919	-4,751	-$28,791	-$34,920	-$28,505
Alternative 4, Sub-alternative 4b					
2024	88,028	-9,642	-$58,431	-$70,869	-$70,869
2025	88,028	-9,642	-$58,431	-$70,869	-$66,232
2026	88,028	-9,642	-$58,431	-$70,869	-$61,899

Year	ACL	Difference Relative to Alternative 1			
		Pounds	Nominal Value	Real Value	Net Present Value
2027	88,028	-9,642	-$58,431	-$70,869	-$57,850

These estimated changes in commercial revenue from queen triggerfish in St. Thomas/St. John would only materialize if commercial fishermen harvest the totality of the ACL under each alternative. Changes in queen triggerfish ACL from the status quo range from -9,642 lbs ww (**Alternative 4, Sub-alternative 4b**) to 139 lbs ww (**Alternative 2, Sub-alternative 2b**). **Preferred Alternative 3, Sub-alternative 3b** would change the ACL by -4,751 lbs ww. In real (inflation adjusted $2023) values, corresponding changes in commercial revenues are estimated to range from -$70,869 (**Alternative 4, Sub-alternative 4b**) to $1,022 (**Alternative 2, Sub-alternative 2b**). **Preferred Alternative 3 (Sub-alternative 3b)** would change commercial revenues from queen triggerfish by -$34,920. Based on Table 3.4.9, commercial queen triggerfish landings in St. Thomas/St. John averaged 40,055 lbs ww between 2012 and 2022. Because commercial queen triggerfish landings are well below the proposed ACLs, it is unlikely that the ACL changes in **Alternative 2 (Sub-alternative 2b), Preferred Alternative 3 (Sub-alternative 3b),** and **Alternative 4 (Sub-alternative 4b)** would affect commercial landings in the short term. It follows that estimated associated changes in commercial revenues are not likely to materialize under present and foreseeable conditions.

Economic effects expected to result from ACL changes and corresponding commercial landings changes would typically include changes in producer surplus to commercial fishermen as well as changes in consumer surplus to consumers purchasing triggerfish; however, no changes in commercial landings are expected. If landings were to exceed the proposed ACLs, AM-based closures could be required in subsequent fishing years to prevent repeated ACL overages. In addition, if landings exceed the OFL, the Council (or NMFS) may take action to protect against future overfishing. However, current landings (see Tables 3.4.9) are well below the current and proposed ACLs, so AMs would not be required.

4.1.4 Effects on the Social Environment

According to the information provided in Tables 3.3.2 and 3.3.6, landings of queen triggerfish remain well below the current and proposed ACLs, and we can expect that none of the proposed alternatives would have a significant social impact upon fishers and their communities. Also, because the threats from overfishing are low, we can similarly predict that any social impact, if any, would be minimal.

For each FMP, **Alternative 1** does not propose any changes and would keep the current management reference points for queen triggerfish exactly as they are. Since the catch levels would remain the same, we could predict that this alternative would be less likely to produce any substantial changes to fishers' livelihoods, their households, or local economies. Thus, in the short-term one can expect that **Alternative 1** would not have any major impact upon the social fabric, and culture of fishers and their communities. For St. Croix, **Preferred Alternative 2 (Sub-alternative 2a)** does not propose any reduction from the recommended ABC for the proposed ACLs (Table 2.1), and we do not foresee any major social impacts. For St. Thomas/St. John, **Preferred Alternative 3 (Sub-alternative 3b)** proposes a 5% reduction from the ABC to the proposed ACLs (Table 2.2), but this does not represent a significant change given that the current landings are well below these limits. So, we can safely assume that choosing **Preferred Alternative 3 (Sub-alternative 3b)** would not have a major social impact. **Alternative 4 (Sub-alternatives 4a** and **4b)**, which recommends a 10% reduction from the ABC, is the most conservative and would have the highest impact on the fishers. But given that current landings of queen triggerfish in both St. Croix and St. Thomas/St. John are below the ACLs proposed under **Alternative 4 (Sub-alternatives 4a** and **4b)**, we expect that **Alternative 4 (Sub-alternatives 4a** and **4b)** would not have any social impacts at this time.

If fish stocks decline over time because of overfishing, it would then become necessary to implement more strict management measures. From the four alternatives, **Alternative 4 (Sub-alternatives 4a** and **4b)** has the greatest potential for long-term management, and from an environmental point of view, sustainability of the fishery for queen triggerfish. On the other hand, reducing the ACL by a larger buffer would have the greatest adverse impact on fishers' livelihoods and the social structure and culture of households and communities.

It is important to note that fishing as a livelihood contributes to the household and local economies, as well as to the food security of coastal communities in the USVI. Fishing resources also comprise an important component of the sharing and reciprocity networks that are such a salient feature of the fishing communities in this region. The traditional and local ecological knowledge that fishers and other community members have about fishing resources (e.g. fish behavior, ethnoichthyology, migration patterns, habitats, and distribution), marine and coastal ecosystems, fishing techniques, biodiversity, conservation, and climate and weather, and how it is transmitted from one generation to the next, also needs to be taken into consideration when assessing the impact of any proposed fisheries management alternative. In the specific case of St. Croix, St. Thomas, and St. John, the vast traditional and local ecological knowledge of fishers include: navigation techniques, ways and means of optimally effective harvest effort, how to make and repair their own fishing gear, how to maintain their vessels and engines, and how to market their catches, understanding of reef ecosystems, behaviors and habitats of fish, and processing and marketing of fish.

In this context, the potential social impact of **Alternative 4 (Sub-alternatives 4a** and **4b)** upon fishers and their communities could include: (1) Less income from fishing; (2) Disruptions in the acquisition and transmission, and possible loss of the traditional and local ecological knowledge about the fishery; (3) Changes in social networks; (4) Changes to food security systems; (5) Changes in the community organizational dynamics; and (6) Transformation of the traditions and local maritime culture, including food systems.

However, the social impact of **Alternative 4 (Sub-alternatives 4a** and **4b)** would not be the same for the USVI islands partially due to their particular socio-demographic characteristics. Table 3.5.1 shows that reef fish, including the queen triggerfish, constitute the most important targeted fishing resources in the USVI, and we can easily predict that any changes in regulations would impact many of the social aspects of the artisanal fisheries. This is important because the data show that the mean age of fishers in St. Croix, St. Thomas, and St. John ranges from 55 to 57, which indicates that this is an older fishing population who have spent between 26.7 and 30.8 years pursuing a livelihood as fishers (Table 3.5.2). For 38.9% of fishers in St. Croix and for 27.5% of fishers in St. Thomas/St. John, fishing represents their only livelihood. So, these fishers would be the ones most likely to be negatively impacted by any changes in fishing regulations.

Another important socio-demographic characteristic to pay attention to is the variation in the degree of dependency on fishing across the USVI. As Table 3.5.2 indicates, the fishers of St. Croix have a higher dependence on fishing than the fishers from St. Thomas/St. John. So, we can predict that **Alternative 4 (Sub-alternatives 4a** and **4b)** would have a much larger social impact in St. Croix. On the other hand, if we take education into account, we can deduct that because fishers from St. Thomas/St. John have at least a high school degree (63%) that this would perhaps make it easier for them to engage in alternative livelihoods that would somehow mitigate the social impact of any changes in fishing regulations. Indeed, as Table 3.5.2 shows, 44.7% of the fishers these two islands are already engaged in other forms of employment. Additionally, fishers from St. Thomas/St. John could see a reduction on the value of their fishing vessels and gear since they have invested the most in fishing technology.

Overall, and as stated in Section 3.5.1.1, more sociocultural data are needed to better assess the impact of the proposed alternatives upon fishers, their households, and their communities. Any such future social science-based research must take into account the effects of other local and global social, economic, political, and environmental processes such as the decrease in available and viable livelihoods, migration, climate change, including the impact of hurricanes and tropical storms, the impact of global pandemics such as the COVID-19, socio-economic inequality, and the natural aging of the fishing population.

4.1.5 Effects on the Administrative Environment

Updating reference points including the OFLs, ABCs, and ACLs does not typically result in substantial effects on the administrative environment. **Alternative 1** is not expected to impact the administrative environment because it would not change the current reference points. **Alternative 2 (Sub-alternatives 2a** and **2b)**, **Alternative 3 (Sub-alternatives 3a** and **3b)**, and **Alternative 4 (Sub-alternatives 4a** and **4b)** would result in a short-term increased burden on the administrative environment to specify new OFLs, ABCs, and ACLs, and the required rulemaking to implement this management change. Some additional administrative burden is anticipated under **Alternative 2 (Sub-alternatives 2a** and **2b)**, **Alternative 3 (Sub-alternatives 3a** and **3b)**, and **Alternative 4 (Sub-alternatives 4a** and **4b)** as they would require additional outreach efforts to notify stakeholders of the changes in harvest levels. The effects under the preferred alternatives (**Preferred Alternative 2, Sub-alternative 2a** for St. Croix and **Preferred Alternative 3, Sub-alternative 3b** for St. Thomas/St. John) would be equal to each other and to the other action alternatives, as the rulemaking process and outreach and education activities would be equal no matter the alternative selected.

4.1.6 Cumulative Effects Analysis

Federal agencies preparing an environmental assessment (EA) must also consider cumulative effects of a proposed action and other actions. Cumulative effects are those effects that result from incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative effects can result from individually minor but collectively significant actions that take place over a period of time (40 C.F.R. 1508.7). Below is the five-step cumulative effects analysis that identifies criteria that must be considered in an EA.

1. The area in which the effects of the proposed action would occur – The affected area of this proposed action encompasses the state and federal waters of the USVI, and includes the communities of St. Croix and St. Thomas/St. John that fish for queen triggerfish. For more information about the area in which the effects of this proposed action would occur, please see Chapter 3, Affected Environment, which describes these resources as well as other relevant features of the human environment.

2. The impacts that are expected in that area from the proposed action – The proposed action would update reference points for queen triggerfish managed under the St. Croix and St. Thomas/St. John FMPs based on SEDAR 80. The environmental consequences of the proposed actions are analyzed in Sections 4.1.1 - 4.1.5. As described in the sections, the current commercial landings of queen triggerfish in St. Croix and St. Thomas/St. John are well below the current and proposed ACLs, and so little to no difference between the alternatives would be expected at this time.

However, assuming harvest levels increase to the ACLs, and those ACLs correlate to gear-bottom interactions, a decrease in ACLs (proposed in all alternatives except **Alternative 2, Sub-alternative 2b**, which results in an increase in the ACL) from the status quo should provide benefits to the physical environment (Section 4.1.1). Conversely, an increase in the ACL (proposed in **Alternative 2, Sub-alternative 2b** for St. Thomas/St. John) could generate additional gear-bottom interactions (Section 4.1.1).

Setting reference points based on best scientific information available (i.e., SEDAR 80) would be expected to provide increased benefits to the biological/ecological environment for the queen triggerfish stocks in St. Croix and St. Thomas/St. John through the increased conservation of the stocks (Section 4.1.2). Long-term economic and social benefits could also be expected (Sections 4.1.3 and 4.1.4), because managing based on best scientific information available better protects against the risk of overfishing and is more likely to provide for long-term use of the resource. If current harvest levels were near the levels of the current ACLs (**Alternative 1**), then the proposed reduced ACLs could result in an adverse impact on fishermen's livelihoods. Modifying management reference points is not expected to substantially affect the administrative environment, though implementing regulations to modify the management reference points would have short-term effects (Section 4.1.5).

3. Other past, present and reasonably foreseeable future actions that have or are expected to have impacts in the area

Other fishery related actions – The St. Croix and St. Thomas/St. John FMPs, implemented in 2022, reorganized management measures from the U.S. Caribbean-wide level to each island management area. Each FMP specified ACLs for queen triggerfish. The ACLs are monitored annually by comparing them to the most recent landings available, and specified accountability measures for when those ACLs are exceeded. The cumulative effects analysis (CEA) for the FMPs found that the overall impacts of the actions included in the FMPs, which included specifying management reference points for queen triggerfish, would be minimal.

Amendment 1 to the St. Croix and St. Thomas/St. John FMPs, implemented in 2023, prohibits the use of buoy gear for recreational fishermen and modifies the definition of buoy gear for commercial harvest in federal waters. The CEA stated that fishing with buoy gear is a specialized fishing method used by commercial fishermen who target deep-water reef fish (e.g., snapper and grouper species) and that it is unlikely to be used by recreational fishermen. No recreational fishing information is available for the U.S. Caribbean at this time and data from previous collection programs were not specified to gear type, so the impact of these combined actions is difficult to determine. Although the modification of the buoy gear definition applies to the commercial harvest of reef fish, including managed triggerfish, triggerfish species are not

typically harvested with buoy gear. Thus any cumulative effects from this action and Amendment 1 would be expected to be negligible.

Amendment 2 to each FMP (in rulemaking) would prohibit the use of trawl gear (bottom and mid-water trawls), trammel nets, and purse seines, restrict the use of gillnets in U.S. Caribbean federal waters, and require that descending devices are available and ready for use when fishing for Council-managed reef fish. Queen triggerfish are not targeted by commercial or recreational fishermen with these gear types, but the proposed prohibition on the use of these gear types in federal waters could minimize any bycatch of the species that may occur from their use. The requirement for the use of a descending device is expected to be beneficial to the species by reducing discard mortality. Cumulative effects from this action and Amendment 2 would be expected to be minimal, but positive.

Framework Action 3 to the Puerto Rico FMP (in rulemaking) would update reference points for the Triggerfish stock complex, which included queen triggerfish based on SEDAR 80. The CEA from the framework action indicates that setting reference points based on best scientific information available (i.e., SEDAR 80) would be expected to provide increased benefits to the biological/ecological environment for the Triggerfish stock complex through the increased conservation of the stock. Cumulative effects from this action and Framework Action 3 to the Puerto Rico FMP would be expected to provide increased benefits to the species in the U.S. Caribbean region, as management reference points for the species would be based on the same analysis (i.e., SEDAR 80).

The Council, in partnership with NMFS and other regional constituencies, is in the process of moving towards implementation of ecosystem-based fishery management (EBFM) in the U.S. Caribbean. EBFM enables a more holistic approach to decision-making by considering trade-offs among fisheries, aquaculture, protected species, biodiversity, habitats, and the human community, within the context of climate, habitat, ecological, and other environmental change.

Non-fishery related actions – Actions affecting the U.S. Caribbean fisheries (e.g. climate change, hurricanes, COVID-19 public health crisis) were included in the CEAs for the FMPs, Amendment 1, Amendment 2, and Framework Action 3 to the Puerto Rico FMP (CFMC 2024) and are incorporated by reference.

In the U.S. Caribbean region, climate change may impact reef fish stocks, including queen triggerfish (see Section 3.2.3), but the level of impacts cannot be quantified at this time, nor is the time frame known in which these impacts would occur. The proposed action is not expected to significantly contribute to climate change through the increase or decrease in the carbon footprint from fishing, as this action would not be expected to change how the fishery is prosecuted. However, the impacts of increasing water temperatures in the region combined with

stony coral disease have resulted in major coral die-offs (Brandt et al. 2021), which, in turn, could impact the habitat essential to fisheries, including those for queen triggerfish. Additionally, Bryan et al. (2019) noted that changes in water circulation could impact the pelagic larvae, which could influence the local retention of recruits.

Mass mortality events, such as the die-offs of the long-spined sea urchin (*Diadema antillarum*), which has been reported as a major food item of the queen triggerfish, could impact the species. However, studies show that queen triggerfish can shift its dietary regimen and use a variety of prey from a variety of habitats (Reinthal et al. 1984).

U.S. Caribbean fisheries experienced declines in both effort and harvest as a result of the 2017 hurricanes and the COVID-19 public health crisis. Global protective measures (e.g., restaurant closures, social distancing protocols) instituted in March 2020 contributed to an almost-immediate impact on commercial, recreational, and subsistence fishermen and were shown to persist into subsequent years (Agar et al. 2022).

4. The impacts or expected impacts from these other actions – Cumulative effects from managing fishery resources in the U.S. Caribbean, including queen triggerfish, have been analyzed in other actions, listed in part three of this section. They include analysis of the St. Croix and St. Thomas/St. John fisheries, effects on non-targeted and protected species, and habitats. The effects of this action would be expected to be positive in the long-term, as it ultimately acts to maintain the queen triggerfish stocks at levels that would allow for maximum benefits in yield and increased fishing opportunities to be achieved.

5. The overall impact that can be expected if the individual impacts are allowed to accumulate – Cumulative effects resulting from the revision of management reference points, in combination with other past, present, and reasonably foreseeable future actions, would be expected to be minimal. Long-term positive effects would be expected through the increased conservation and continued access to queen triggerfish.

No significant overall impacts to the biological/ecological environment, to protected species occurring within that environment, to the habitats constituting and supporting that environment, or to the dependent socio-economic environment would be expected from the cumulative past, present, or reasonably foreseeable future actions as they would not be expected to significantly affect current fishing practices (i.e., U.S. Caribbean fisheries would continue to target multiple species using multiple gear types). Similarly, no significant cumulative effects would be expected to result from reasonably foreseeable future actions that may be taken by other federal or non-federal agencies in combination with this action.

6. Summary – The proposed action is not expected to have significant effects to the physical, biological/ecological, economic, social, or administrative environments. Any effects of the proposed action, when combined with other past actions, present actions, and reasonably foreseeable future actions are not expected to be significant. The effects of the proposed action are, and will continue to be, monitored through collection of data by NMFS, individual state programs, stock assessments and stock assessment updates, life history studies, economic and social analyses, and other scientific observations.

Chapter 5. Regulatory Impact Review

5.1 Introduction

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: (1) it provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action; (2) it provides a review of the problems and policy objectives promoting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem; and (3) it ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. The RIR also serves as the basis for determining whether the regulations are a "significant regulatory action" under the criteria provided in Executive Order (E.O.) 12866. This RIR analyzes the impacts this action would be expected to have on the St. Croix and St. Thomas/St. John fisheries that target queen triggerfish.

5.2 Problems and Objectives

The problems and objectives addressed by this action are discussed in Chapter 1, Sections 1.1-1.3.

5.3. Description of the Fishery

Descriptions of the St. Croix and St. Thomas/St. John fisheries and specifically queen triggerfish within those fisheries are provided in Section 3.3.

5.4 Impacts of Management Measures

The no-action alternative (**Alternative 1**) would not update management reference points: maximum sustainable yield proxy, maximum fishing mortality threshold, minimum stock size threshold, overfishing limit, acceptable biological catch, or annual catch limit (ACL) for queen triggerfish under the St. Croix Fishery Management Plan (FMP) or the St. Thomas/St. John FMP following the accepted Southeast Data, Assessment, and Review stock assessment (SEDAR 80). As such it would not be consistent with the best available science.

Any effects of the action on the economic environment ultimately derive from changes in the ACLs. **Preferred Alternative 2, Sub-alternative 2a** would decrease the ACL for queen triggerfish in St. Croix from its current level of 21,450 pounds (lbs) to 18,808 lbs. **Preferred Alternative 3, Sub-alternative 3b** would decrease the ACL for queen triggerfish in St. Thomas/St. John from 97,670 lbs to 92,919 lbs. Neither of these proposed changes is expected to have an effect on landings of queen triggerfish and associated economic benefits

from those landings because neither a single year nor any average of multiple years of landings of queen triggerfish in St. Croix and St. Thomas/St. John have reached or exceeded their respective current ACL or proposed ACL. Consequently, landings of queen triggerfish and associated revenues are not expected to change in either St. Croix or St. Thomas/St. John as a result of this action. However, if landings were to reach the current ACLs in the long-term future, the proposed ACLs for queen triggerfish in St. Croix and St. Thomas/St. John would reduce revenues from those landings as shown in Tables 4.2 and 4.4, respectively.

5.5 Public and Private Costs of Regulations

The preparation, implementation, enforcement, and monitoring of this or any federal action involves the expenditure of public and private resources, which can be expressed as costs associated with the regulations. Estimated costs associated with this action (2022 dollars) include:

Council costs of document preparation, meetings, public hearings, and information dissemination	$39,600
NMFS administrative costs of document preparation, meetings, and review	$59,100
TOTAL	$98,700

The estimate provided here does not include any law enforcement costs.

5.6 Determination of Significant Regulatory Action

Pursuant to E.O. 12866, a regulation is considered a "significant regulatory action" if it is likely to result in: (1) an annual effect of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in E.O. 12866. Based on the information provided above, this action has been determined to not be economically significant for the purposes of E.O. 12866.

Chapter 6. Regulatory Flexibility Act Analysis

6.1 Introduction

The purpose of the Regulatory Flexibility Act (RFA) is to establish a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure such proposals are given serious consideration. The RFA does not contain any decision criteria; instead the purpose of the RFA is to inform the agency, as well as the public, of the expected economic effects of various alternatives contained in the regulatory action and to ensure the agency considers alternatives that minimize the expected economic effects on small entities while meeting the goals and objectives of the applicable statutes (e.g., the Magnuson Stevens Fishery Conservation and Management Act [Magnuson-Stevens Act]).

The RFA requires agencies to conduct at the least a threshold analysis to determine if there would be a significant economic impact on a substantial number of small entities. If the threshold analysis concludes there would not be a significant impact on a substantial number of small entities, the threshold analysis is sufficient. However, if the threshold analysis comes to a different conclusion, then an initial regulatory flexibility analysis is required. The following threshold analysis concludes there would not be a significant economic impact on a substantial number of small entities.

6.2 Statement of the need for, objectives of, and legal basis for the action

The purpose of this proposed action is to update management reference points for queen triggerfish stocks by incorporating information from the SEDAR 80 queen triggerfish (stock) assessment for St. Croix and St Thomas/St. John, which is considered to be the best scientific information for each stock.[17,18] More information about the need for and objectives of these actions can be found in Chapter 1 of this document. The Magnuson-Stevens Act provides the legal basis for this action.

[17] The assessment for St. Thomas/St. John was released in October 2022, while that for St. Croix was released April 3, 2024. See https://sedarweb.org/documents/sedar-80-us-caribbean-queen-triggerfish-saint-thomas-and-saint-john-final-stock-assessment-report/ for the St. Thomas-St. John assessment.

[18] In the St. Croix and St. Thomas/St. John FMPs, queen triggerfish is the only managed triggerfish.

6.3 Identification of any federal regulations that may overlap, duplicate or contradict with the proposed action

No federal regulations have been identified that may overlap, duplicate or contradict with the proposed action.

6.4 Description and estimate of the number of small entities to which the proposed action would apply

This proposed action directly impacts both recreational fishers (anglers) and commercial fishing businesses and indirectly impacts for-hire fishing businesses. For-hire fishing businesses sell services to anglers, and any change in demand for their fishing services and associated economic effects as a result of this action would be a consequence of a change in anglers' behavior, secondary to any direct effect on anglers.

Recreational Fishers (Anglers)

The proposed action would directly apply to anglers that fish for queen triggerfish in the exclusive economic zone (EEZ) around St. Croix and St. Thomas/St. John. Recreational fishers are not considered small entities as that term is defined in 5 U.S.C. 601(6), whether fishing from charter (for-hire) fishing, private or leased vessels. Therefore, estimates of the number of anglers directly affected by the proposed action and any impacts on them are neither required nor assessed here.

Commercial Fishing Businesses

The proposed action would directly apply to commercial fishing businesses that fish for queen triggerfish in the EEZ around St. Croix and St. Thomas/St. John. For RFA purposes, NMFS has established a small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing (50 CFR 200.2). A business primarily involved in the commercial fishing industry (North American Industrial Classification Code 11411) is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates) and its combined annual receipts are no more than $11 million for all of its affiliated operations worldwide. All of the following figures are expressed in 2022 dollars. The most recent 5-year U.S. Virgin Islands (USVI) commercial landings data for use as the best available science are from 2018 through 2022. However, that data does not include any price or revenue data. Consequently, the following estimates of the number of small commercial fishing businesses directly affected by the proposed action and any economic impacts on them are based on landings and revenues from 2015 through 2019. Any landings data from 2020 through 2022 presented as follows are strictly for preliminary comparative purposes.

From 2015 through 2019, an annual average of 126 USVI commercial fishermen collectively reported 3,750 trips with combined landings of marine resources of about 3.54 million pounds (lbs) from all waters with a value of about $4.71 million.[19,20] The average of these active fishermen reported annual landings of 28,128 lbs and annual revenue from sales of those landings of $37,449; however, average median annual revenue was $9,884. Because each of these commercial fishermen is assumed to represent a unique commercial fishing business, it is concluded that all commercial fishing businesses in the USVI are small.

Although all of the above are active small businesses, there are considerable differences in their annual landings and revenues.[21] Part-time fishermen make far fewer trips and have much lower annual landings and revenues than their full-time counterparts. Annual trips ranged from one to 192, and annual revenue ranged from $74 to $605,000 during the 5-year period (2015 through 2019). Moreover, not all of these small businesses harvested queen triggerfish from the EEZ.

From 2015 through 2019, an annual average of 39 (31%) of USVI's 126 small commercial fishing businesses harvested queen triggerfish from the EEZ and unknown waters (Table 6.1).[22] On average, each of the 39 small businesses landed 794 lbs of queen triggerfish with a value of $5,089 annually. However, average median landings was 244 lbs of queen triggerfish with a value of $957 per small business. Revenues from landings of queen triggerfish accounted for, on average, 7.2% of annual revenue from all landings by the 39 small businesses.

These 39 small businesses can be separated by island area. On average, 13 (one third) of the small businesses landed queen triggerfish in St. Croix and the other 26 (two thirds) landed queen triggerfish in St. Thomas/St. John. The 13 small businesses in St. Croix accounted for 12% of annual landings of queen triggerfish (from federal and unknown waters) by weight and 11% by value, while the 26 in St. Thomas/St. John accounted for 88% of the USVI's queen triggerfish landings (from federal and unknown waters) by weight and 89% by value.

[19] Annual revenues were missing for some fishermen in 2019. In those cases, a fisherman's annual revenue was estimated as the product of the average price per pound that year and the pounds landed by that fisherman.
[20] From 2018 through 2022, an annual average of 130 commercial fishermen reported making 3,181 trips and landing about 1.78 million pounds. Average annual landings for the three years up to 2019 (including 2019) is about 3.73 million pounds, whereas for the three years from 2020 to 2022, they are about 0.61 million pounds.
[21] Note that not all of USVI's commercial fishermen are active in any given year.
[22] Landings of queen triggerfish from unknown waters are included, although this may result in overestimations of the number of small businesses directly affected and the economic impacts on them.

Table 6.1. Annual number of small business with landings of queen triggerfish (QT) from EEZ and unknown waters, landings (lbs) of and revenue from QT from those waters, average annual landings (lbs) of and revenues from QT per business, 2015 – 2019, 2020 – 2022.

Year	Small Businesses	Landings QT (lbs)	Revenue from QT	Revenue from All Landings	Average Landings QT per Business (lbs)	Average Revenue from QT per Business
2015	45	42,504	$329,711	$4,320,491	945	$7,327
2016	53	34,952	$266,650	$4,415,005	848	$5,031
2017	39	21,643	$142,096	$2,982,488	555	$3,643
2018	26	22,622	$151,308	$1,511,995	870	$5,820
2019	33	23,956	$107,651	$1,384,353	726	$3,262
Ave.	**39**	**29,135**	**$199,483**	**$2,922,866**	**794**	**$5,089**
2020	29	33,633	N/A[1]	N/A	1,160	N/A
2021	33	35,324	N/A	N/A	1,070	N/A
2022	35	24,102	N/A	N/A	689	N/A

1. Not available
Source: NMFS SEFSC Online Southeast Fisheries Reporting System, Caribbean Commercial Landings (CCL) and Bureau of Economic Analysis (BEA), Gross Domestic Product Deflator (GDP Deflator), issued April 25, 2024.

The average of the 13 small businesses in St. Croix had annual revenue from all landings of $80,040, however, average median annual revenue was $31,693. Queen triggerfish harvested from the EEZ and unknown waters accounted for, on average, 2.8% of the 13 St. Croix small businesses' collective annual revenue.

The average of the 26 small businesses in St. Thomas/St. John had annual revenue from all landings of $71,863; however, average median annual revenue was $40,966. Queen triggerfish harvested from the EEZ and unknown waters accounted for, on average, 9.4% of the 26 St. Thomas/St. John small businesses collective annual revenue.

6.5 Description of the projected reporting, record-keeping and other compliance requirements of the proposed action and their impacts on small businesses

The proposed action would not impose any new reporting or record-keeping requirements on any of the small businesses that operate in the USVI. Because there are separate actions for St. Croix and St. Thomas/St. John, the following evaluates, first, the impacts on small businesses in St. Croix, and then the impacts on small businesses in St. Thomas/St. John.

St. Croix

The proposed action (**Preferred Alternative 2, Sub-alternative 2a**) would reduce the ACL for queen triggerfish in St. Croix from 21,450 lbs (9,729.5 kg) to 18,808 lbs (8,531.2 kg).[23] The ACL was derived from and is compared to commercial landings from all waters (i.e., territorial, federal, and unknown location), not just from the EEZ around St. Croix. From 2015 through 2019, annual commercial landings of queen triggerfish in St. Croix from all waters ranged from 3,024 to 9,397 lbs, and, on average, 47.8% of those landings derived from queen triggerfish taken from the EEZ and unknown waters (Table 6.2). No single year of landings from 2015 through 2019 reached the current ACL of 21,450 lbs or proposed ACL of 18,808 lbs. Moreover, from 2020 through 2022, queen triggerfish landings from all waters ranged from 4,476 lbs to 10,066 lbs, never exceeding the current ACL or proposed ACL.[24]

Table 6.2. Commercial queen triggerfish (QT) landings (lbs) in St. Croix from all waters, from combined EEZ and unknown waters, and the percentage from EEZ and unknown waters, 2015 – 2019, 2020 – 2022.

Season/Year	QT Landings (lbs) All Waters	QT Landings (lbs) EEZ and Unknown Waters	Percentage QT Landings from EEZ and Unknown Waters
2015	8,786	4,606	52.4%
2016	9,014	5,256	58.3%
2017	9,397	3,825	40.7%
2018	4,395	1,942	44.2%
2019	3,024	1,310	43.3%
Average	**6,923**	**3,388**	**47.8%**
2020	4,476	3,027	67.6%
2021	10,066	4,421	43.9%
2022	7,476	4,700	62.9%

Source: NMFS SEFSC Online Southeast Fisheries Reporting System, CCL.

From those landings, there is no expectation that any future single year or average of multiple years of commercial landings of queen triggerfish in St. Croix from all waters would reach or exceed either the current ACL (21,450 lbs) or proposed ACL (18,808 lbs). As such, there is no expectation that the proposed action would reduce the length of the queen triggerfish fishing

[23] **Preferred Alternative 2** would set the total ACL (which equals OY) equal to 100% of the ABC (18,808 lbs) recommended by the Council's SSC. Considered, but not selected, ACLs would set the ACL to either 95% of the ABC (17,868 lbs (Alternative 3)) or 90% of the ABC (16,927 lbs (Alternative 4)).

[24] No single year of landings (2015 through 2019 or 2020 through 2022) reached or exceeded the current or alternative ACLs.

season in the EEZ or reduce queen triggerfish landings in St. Croix.[25] Therefore, the proposed action would have no impact on small businesses in St. Croix.

St. Thomas/St. John

The proposed action (**Preferred Alternative 3, Sub-alternative 3b**) would decrease the ACL for queen triggerfish in St. Thomas/St. John from 97,670 lbs (44,302.3 kg) to 92,919 lbs (42,147.4 kg). The ACL was derived from and is compared to commercial landings from all waters (i.e., territorial, federal, and unknown location), not just from the EEZ around St. Thomas/St. John. From 2015 through 2019, annual commercial landings of queen triggerfish in St. Thomas/St. John from all waters ranged from 31,183 lbs to 49,551 lbs, and, on average, 65.0% of those landings were derived from queen triggerfish taken from the EEZ and unknown waters (Table 6.3). No single year of landings from 2015 through 2019 reached the current ACL of 97,670 lbs or proposed ACL of 92,919 lbs. Moreover, from 2020 through 2022, queen triggerfish landings from all waters ranged from 29,633 lbs to 39,395 lbs, never exceeding the current or proposed ACL.

From those landings, there is no expectation that any future single year or average of multiple years of commercial landings of queen triggerfish in St. Thomas/St. John from all waters would reach or exceed either the current ACL (97,670 lbs) or proposed ACL (92,919 lbs). As such, there is no expectation that the proposed action would reduce either the length of the queen triggerfish fishing season in the EEZ or landings of queen triggerfish in St. Thomas/St. John.[26] Therefore, the proposed action would have no impact on small businesses in St. Thomas/St. John.

[25] At or near the beginning of the fishing year, landings for queen triggerfish are evaluated relative to its ACL based on a moving multi-year average of landings, as described in the St Croix FMP. If NMFS estimates that queen triggerfish landings have exceeded its ACL, the Assistant Administrator for NMFS files a notification with the Office of the Federal Register to reduce the length of the fishing season for queen triggerfish within that fishing year by the amount necessary to prevent landings from exceeding the ACL, unless NMFS determines that a fishing season reduction is not necessary based on the best scientific information available. If NMFS determines that the ACL for queen triggerfish was exceeded because data collection or monitoring improved rather than because landings increased, NMFS will not reduce the length of the fishing season for queen triggerfish.

[26] At or near the beginning of the fishing year, landings for queen triggerfish are evaluated relative to its ACL based on a moving multi-year average of landings, as described in the St. Thomas/St. John FMP. If NMFS estimates that queen triggerfish landings have exceeded its ACL, the Assistant Administrator for NMFS files a notification with the Office of the Federal Register to reduce the length of the fishing season for queen triggerfish within that fishing year by the amount necessary to prevent landings from exceeding the ACL, unless NMFS determines that a fishing season reduction is not necessary based on the best scientific information available. If NMFS determines that the ACL for queen triggerfish was exceeded because data collection or monitoring improved rather than because landings increased, NMFS will not reduce the length of the fishing season for queen triggerfish.

Table 6.3. Commercial queen triggerfish (QT) landings (lbs) in St. Thomas/St. John from all waters, from combined EEZ and unknown waters, and the percentage from EEZ and unknown waters, 2015 – 2019, 2020 – 2022.

Season/Year	QT Landings (lbs) All Waters	QT Landings (lbs) EEZ and Unknown Waters	Percentage QT Landings from EEZ and Unknown Waters
2015	49,551	37,898	76.5%
2016	45,444	29,696	65.3%
2017	33,790	17,818	52.7%
2018	35,762	20,680	57.8%
2019	31,183	22,646	72.6%
Average	**39,146**	**25,748**	**65.0%**
2020	39,395	30,606	77.7%
2021	39,312	30,902	78.6%
2022	29,633	19,402	65.5%

Source: NMFS SEFSC Online Southeast Fisheries Reporting System, CCL.

6.6 Conclusion

As explained above, the proposed action would have no impact on small businesses in either St. Croix or St. Thomas/St. John, USVI. Therefore, the proposed action would not have a significant economic impact on a substantial number of small businesses.

Chapter 7. List of Preparers

Table 7.1. Interdisciplinary Planning Team members for Framework Action 3 to the St. Croix and St. Thomas/St. John Fishery Management Plans.

Name	Agency	Title
Sarah Stephenson	NMFS/SFD	IPT Co-Lead/Fishery Biologist/Author/ Technical Writer
María del Mar López-Mercer	NMFS/SFD	Fishery Biologist
Denise Johnson	NMFS/SFD	Economist/Author
Edward Glazier	NMFS/SFD	Social Scientist/Author
Mike Larkin	NMFS/SFD	Data Analyst
John McGovern	NMFS/SFD	Assistant Regional Administrator
Graciela García-Moliner	CFMC	IPT Co-Lead/Habitat Specialist
Walter Keithly	CFMC	Economist/Author
Maria Cruz-Torres	CFMC	Social Scientist/Author
Liajay Rivera	CFMC	Ecosystem-based Fishery Management Specialist
Anne Kersting	NOAA/GC	Attorney
Mike Barnette	NMFS/PRD	Fishery Biologist
Adyan Rios	NMFS/SEFSC	Research Fishery Biologist
Brent Stoffle	NMFS/SEFSC	Social Scientist
Natasha Mendez-Ferrer	NMFS/SERO	Assistant NEPA Coordinator

CFMC = Caribbean Fishery Management Council, GC = General Counsel,
HCD = Habitat Conservation Division, NEPA = National Environmental Policy Act,
NMFS = National Marine Fisheries Service, NOAA = National Oceanic and Atmospheric Administration,
OLE= Office of Law Enforcement, PRD = Protected Resources Division,
SERO = Southeast Regional Office, SER = Southeast Region, SFD = Sustainable Fisheries Division,
SEFSC = Southeast Fisheries Science Center

Chapter 8. List of Agencies, Organizations, and Persons Consulted

Department of Commerce Office of General Counsel

National Marine Fisheries Service Office of General Counsel

National Marine Fisheries Service Office of General Counsel Southeast Region

National Marine Fisheries Service Southeast Regional Office

National Marine Fisheries Service Southeast Fisheries Science Center

National Marine Fisheries Service Silver Spring Office

National Marine Fisheries Service Office of Law Enforcement Southeast Division

United States Coast Guard

United States Department of the Interior

U.S. Virgin Islands Department of Planning and Natural Resources

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Appendix A. Endangered Species Act-Listed Species

Table A.1. Species listed under the Endangered Species Act that could occur in the U.S. Caribbean region that could interact with the St. Croix and St. Thomas/St. John fisheries.

Common Name	Scientific Name	Status
Sei whale	*Balaenoptera borealis*	Endangered
Sperm whale	*Physeter macrocephalus*	Endangered
Fin whale	*Balaenoptera physalus*	Endangered
Green sea turtle North Atlantic DPS	*Chelonia mydas*	Threatened
Green sea turtle South Atlantic DPS	*Chelonia mydas*	Threatened
Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered
Leatherback sea turtle	*Dermochelys coriacea*	Endangered
Loggerhead sea turtle Northwest Atlantic DPS	*Caretta caretta*	Threatened
Elkhorn coral	*Acropora palmata*	Threatened
Staghorn coral	*Acropora cervicornis*	Threatened
Rough cactus coral	*Mycetophyllia ferox*	Threatened
Pillar coral	*Dendrogyra cylindrus*	Threatened
Lobed star coral	*Orbicella annularis*	Threatened
Mountainous star coral	*Orbicella faveolata*	Threatened
Boulder star coral	*Orbicella franksi*	Threatened
Scalloped hammerhead shark (Central and Southwest Atlantic DPS)	*Sphyrna lewini*	Threatened
Nassau grouper	*Epinephelus striatus*	Threatened
Oceanic whitetip shark	*Carcharhinus longimanus*	Threatened
Giant manta ray	*Manta birostris*	Threatened
Queen conch	*Aliger gigas*	Threatened

Appendix B. Other Applicable Law

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.) provides the authority for fishery management in federal waters of the exclusive economic zone. However, fishery management decision-making is also affected by a number of other federal statutes designed to protect the biological and human components of U.S. fisheries, as well as the ecosystems that support those fisheries. Major laws affecting federal fishery management decision-making are summarized below.

Administrative Procedure Act (APA)
All federal rulemaking is governed under the provisions of the APA (5 U.S.C. Subchapter II), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Under the APA, the National Marine Fisheries Service (NMFS) is required to publish notification of proposed rules in the Federal Register and to solicit, consider and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day wait period from the time a final rule is published until it takes effect, which can be waived in certain instances.

The proposed rule associated with this framework action will include a request for public comment, and if approved, upon publication of the final rule, there will most likely be a 30-day wait period before the regulations are effective in compliance with the APA.

Coastal Zone Management Act (CZMA)
The CZMA of 1972 (16 U.S.C. 1451 et seq.) encourages state and federal cooperation in the development of plans that manage the use of natural coastal habitats, as well as the fish and wildlife those habitats support. When proposing an action determined to directly affect coastal resources managed under an approved coastal zone management program, NMFS is required to provide the relevant state agency with a determination that the proposed action is consistent with the enforceable policies of the approved program to the maximum extent practicable at least 90 days before taking final action. NMFS may presume state agency concurrence if the state agency's response is not received within 60 days from receipt of the agency's consistency determination and supporting information as required by 15 CFR 930.41(a).

Upon submission to the Secretary of Commerce, NMFS will determine if this framework action is consistent with the Coastal Zone Management program of the U.S. Virgin Islands, to the maximum extent possible. Their determination will then be submitted to the responsible agencies under Section 307 of the CZMA administering approved Coastal Zone Management programs.

Information Quality Act (IQA)

The IQA (Public Law 106-443) effective October 1, 2002, requires the government to set standards for the quality of scientific information and statistics used and disseminated by federal agencies. Information includes any communication or representation of knowledge such as facts or data, in any medium or form, including textual, numerical, cartographic, narrative, or audiovisual forms (includes web dissemination, but not hyperlinks to information that others disseminate; does not include clearly stated opinions).

Specifically, the IQA directs the Office of Management and Budget (OMB) to issue government wide guidelines that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies." Such guidelines have been issued, directing all federal agencies to create and disseminate agency-specific standards to: (1) ensure information quality and develop a pre-dissemination review process; (2) establish administrative mechanisms allowing affected persons to seek and obtain correction of information; and (3) report periodically to OMB on the number and nature of complaints received.

Scientific information and data are key components of fishery management plans (FMP) and amendments and the use of best available information is the second national standard under the Magnuson-Stevens Act. To be consistent with the IQA, FMPs and amendments must be based on the best information available. They should also properly reference all supporting materials and data, and be reviewed by technically competent individuals. With respect to original data generated for FMPs and amendments, it is important to ensure that the data are collected according to documented procedures or in a manner that reflects standard practices accepted by the relevant scientific and technical communities. Data will also undergo quality control prior to being used by the agency and a pre-dissemination review.

Endangered Species Act (ESA)

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

NMFS completed a biological opinion on September 21, 2020, evaluating the impacts of the Puerto Rico, St. Croix, and St. Thomas/St. John fisheries on ESA-listed species. Refer to Section 3.2.3 for additional information.

Marine Mammal Protection Act (MMPA)

The MMPA established a moratorium, with certain exceptions, on the taking of marine mammals in U.S. waters and by U.S. citizens on the high seas. It also prohibits the importing of marine mammals and marine mammal products into the United States. Under the MMPA, the Secretary of Commerce (authority delegated to NMFS) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). The Secretary of the Interior is responsible for walruses, sea otters, polar bears, manatees, and dugongs.

In 1994, Congress amended the MMPA, to govern the taking of marine mammals incidental to commercial fishing operations. The MMPA requires a commercial fishery to be placed in one of three categories, based on the relative frequency of incidental serious injuries and mortalities of marine mammals. Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing; Category II designates fisheries with occasional serious injuries and mortalities; Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities. To legally fish in a Category I and/or II fishery, a fisherman must obtain a marine mammal authorization certificate by registering with the Marine Mammal Authorization Program (50 CFR 229.4) and accommodate an observer if requested (50 CFR 229.7(c)) and they must comply with any applicable take reduction plans.

NMFS has determined that fishing activities conducted under the St. Croix and St. Thomas/St. John FMPs would have no adverse impact on marine mammals. The primary gear types used in these fisheries are classified in the 2025 List of Fisheries as a Category III fishery (89 FR 87322). This classification indicates the annual mortality and serious injury of a marine mammal stock resulting from any fishery is less than or equal to one percent of the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock, while allowing that stock to reach or maintain its optimum sustainable population. The action is not expected to alter existing fishing practices in such a way as to alter the interactions with marine mammals.

Paperwork Reduction Act (PRA)

The PRA of 1995 (44 U.S.C. 3501 et seq.) regulates the collection of public information by federal agencies to ensure that the public is not overburdened with information requests, that the federal government's information collection procedures are efficient, and that federal agencies adhere to appropriate rules governing the confidentiality of such information. The PRA requires NMFS to obtain approval from the Office of Management and Budget before requesting most

types of fishery information from the public. This action does not contain a collection-of-information requirement for purposes of the PRA.

Small Business Act

The Small Business Act of 1953, as amended, Section 8(a), 15 U.S.C. 634(b)(6), 636(j), 637(a) and (d); Public Laws 95-507 and 99-661, Section 1207; and Public Laws 100-656 and 101-37 are administered by the Small Business Administration. The objectives of the act are to foster business ownership by individuals who are both socially and economically disadvantaged; and to promote the competitive viability of such firms by providing business development assistance including, but not limited to, management and technical assistance, access to capital and other forms of financial assistance, business training and counseling, and access to sole source and limited competition federal contract opportunities, to help the firms to achieve competitive viability. Because most businesses associated with fishing are considered small businesses, NMFS, in implementing regulations, must assess how those regulations will affect small businesses.

Essential Fish Habitat (EFH)

The Magnuson-Stevens Act includes EFH requirements, and as such, each existing and new FMPs must describe and identify EFH for the fishery, minimize to the extent practicable adverse effects on that EFH caused by fishing, and identify other actions to encourage the conservation and enhancement of that EFH.

The areas affected by the proposed action have been identified as EFH for managed species, as described under the St. Croix and St. Thomas/St. John FMPs. As specified in the Magnuson-Stevens Act, EFH consultation is required for federal actions, which may adversely affect EFH. Any required consultation requirements will be completed prior to implementation of any new management measures.

National Environmental Policy Act (NEPA)

The NEPA of 1969 (42 U.S.C. 4321 et seq.) requires federal agencies to consider the environmental and social consequences of proposed major actions, as well as alternatives to those actions, and to provide this information for public consideration and comment before selecting a final course of action. This document contains an environmental assessment to satisfy the NEPA requirements.

Executive Orders

E.O. 12866: Regulatory Planning and Review

Executive Order 12866 (October 4, 1993) requires federal agencies to assess the costs and benefits of their proposed regulations, including distributional impacts, and to select alternatives that maximize net benefits to society. To comply with E.O. 12866, NMFS prepares a Regulatory Impact Review (RIR) for all fishery regulatory actions that either implement a new fishery management plan or significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society associated with proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. The reviews also serve as the basis for the agency's determinations as to whether proposed regulations are a "significant regulatory action" under the criteria provided in E.O. 12866 and whether proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act.

E.O. 12962: Recreational Fisheries

Executive Order 12962 (June 9, 1995) requires federal agencies, in cooperation with states and tribes, to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities through a variety of methods including, but not limited to, developing joint partnerships; promoting the restoration of recreational fishing areas that are limited by water quality and habitat degradation; fostering sound aquatic conservation and restoration endeavors; and evaluating the effects of federally-funded, permitted, or authorized actions on aquatic systems and recreational fisheries, and documenting those effects. Additionally, the Order establishes a seven-member National Recreational Fisheries Coordination Council responsible for, among other things, ensuring that social and economic values of healthy aquatic systems that support recreational fisheries are considered by federal agencies in the course of their actions, sharing the latest resource information and management technologies, and reducing duplicative and cost-inefficient programs among federal agencies involved in conserving or managing recreational fisheries. The Council also is responsible for developing, in cooperation with federal agencies, states and tribes, a Recreational Fishery Resource Conservation Plan, to include a five-year agenda. Finally, the Order requires NMFS and the U.S. Fish and Wildlife Service to develop a joint agency policy for administering the ESA.

E.O. 13089: Coral Reef Protection

Executive Order 13089 (June 11, 1998) requires federal agencies whose actions may affect U.S. coral reef ecosystems to identify those actions, utilize their programs and authorities to protect and enhance the conditions of such ecosystems; and, to the extent permitted by law, ensure that actions they authorize, fund or carry out not degrade the condition of that ecosystem. By definition, a U.S. coral reef ecosystem means those species, habitats, and other national resources

associated with coral reefs in all maritime areas and zones subject to the jurisdiction or control of the United States (e.g., federal, state, territorial, or commonwealth waters).

The St. Croix and St. Thomas/St. John FMPs designated habitats of particular concern in each management area for managed corals and included management measures to minimize, to the extent practicable, adverse effects caused by fishing on those habitats. There are no implications to coral reefs by the actions proposed in this framework action.

E.O. 13112: Invasive Species

Executive Order 13112 (February 3, 1999) requires agencies to use their authority to prevent introduction of invasive species, respond to and control invasions in a cost effective and environmentally sound manner, and to provide for restoration of native species and habitat conditions in ecosystems that have been invaded. Further, agencies shall not authorize, fund, or carry out actions that are likely to cause or promote the introduction or spread of invasive species in the U.S. or elsewhere unless a determination is made that the benefits of such actions clearly outweigh the potential harm; and that all feasible and prudent measures to minimize the risk of harm will be taken in conjunction with the actions.

This action will not introduce, authorize, fund, or carry out actions that are likely to cause or promote the introduction or spread of invasive species in the U.S. or elsewhere.

E.O. 13132: Federalism

Executive Order 13132 (August 10, 1999) requires agencies, when formulating and implementing policies, to be guided by the fundamental Federalism principles. The Order serves to guarantee the division of governmental responsibilities between the national government and the states that was intended by the framers of the Constitution. Federalism is rooted in the belief that issues not national in scope or significance are most appropriately addressed by the level of government closest to the people. This Order is relevant to FMPs and amendments given the overlapping authorities of NMFS, the states, and local authorities in managing coastal resources, including fisheries, and the need for a clear definition of responsibilities. It is important to recognize those components of the ecosystem over which fishery managers have no direct control and to develop strategies to address them in conjunction with appropriate international, state, tribal, and local entities.

No federalism issues have been identified relative to the action proposed in this framework action.

E.O. 13158: Marine Protected Areas (MPA)

Executive Order 13158 (May 26, 2000) requires federal agencies to consider whether their proposed action(s) will affect any area of the marine environment that has been reserved by

federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural or cultural resource within the protected area.

This action will not affect any MPAs in federal waters off St. Croix or St. Thomas/St./John.

E.O. 13175: Consultation and Coordination with Indian Tribal Governments
Executive Order 13175 (November 6, 2000) requires each Federal agency establish procedures for meaningful consultation and coordination with tribal officials in the development of Federal policies that have tribal implications.

This action would not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes. A tribal summary impact statement is not required and has not been prepared.

E.O. 13186: Responsibilities of Federal Agencies to Protect Migratory Birds
Executive Order 13186 (January 10, 2001) requires federal agencies implement conservation and management efforts to benefit and minimize impacts on migratory birds with an emphasis on migratory bird species of concern.

This action does not conflict with the provisions implemented to protect migratory birds. Vessels participating in the St. Croix and St. Thomas/St. John fisheries that target reef fish rarely interact with migratory birds or their habitat.