11 Appendices

Appendix A - Tables and Figures

11.1 Appendix B - Scoping information

The Caribbean Council held seven public hearings to solicit input on the scope of this amendment prior to the distribution of this Public Hearing Draft/DSEIS. The following three hearings were held during the development of the original draft amendment, titled the Comprehensive Sustainable Fisheries Act Amendment to the Spiny Lobster, Queen Conch, Reef Fish, and Coral Fishery Management Plans (Comprehensive SFA Amendment):

Best Western Pierre Hotel
San Juan, PR
6 November 1998, 7:00 PM
Notice published 4 November 1998 (63 FR 59545)

Divi Carina Bay Resort and Casino
St. Croix, USVI
14 August 2001, 1:30 PM
Notice published 27 July 2001 (66 FR 39146)

Caravelle Hotel
St. Croix, USVI
10 November 1998, 7:00 PM
Notice published 4 November 1998 (63 FR 59545)

The notice of availability of the Comprehensive SFA Amendment, which included an Environmental Assessment, was published in the *Federal Register* on 25 January 2002 (67 FR 3679). A federal review determined that the amendment did not fully meet the requirements of the MSFCMA and of NEPA. The lack of an adequate range of alternatives for defining biological reference points, rebuilding schedules, and bycatch reporting standards was the primary deficiency cited in the notice of agency action to disapprove the document. That notice was published in the *Federal Register* on 1 May 2002 (67 FR 21598), along with a summary of comments provided by the public in response to the *Federal Register* notice of 25 January 2002.

On May 31, 2002, the Caribbean Council published in the *Federal Register* a notice of intent to prepare a DSEIS that would provide the framework for fully evaluating a broader range of alternatives to achieve MSFCMA requirements in U.S. Caribbean fisheries in a revised, integrated FMP amendment (67 FR 38060). That *Federal Register* notice also notified the public of the following four public hearings on the scope of the DSEIS:

Torres de la Parguera Hotel
La Parguera, Lajas, PR
4 June 2002, 2 PM

Caravelle Hotel
St. Christiansted, St. Croix, USVI
10 June 2002, 7 PM

Best Western Pierre Hotel
Santurce, PR
6 June 2002, 2 PM

Windward Passage Holiday Inn
Charlotte Amalie, St. Thomas, USVI
12 June 2002, 1 PM

In addition to comments provided by the public through these public hearings and through written comment letters, the Council received advice and guidance from the SFA Working Group, which was appointed by the Caribbean Council for this purpose. The SFA Working Group included representatives from NOAA Fisheries, the Caribbean Council, state agencies, and interested stakeholder groups, all of which are identified by name in Section 11.3.2. The group met twice during the development of this amendment. The first meeting took place at NOAA Fisheries' Southeast Regional Science Center in Miami, FL, on 6-7 August 2002. Notice of that meeting was published in the *Federal Register* on 30 July 2002 (67 FR 49284). The second meeting took place at The Embassy Suites Hotel in Carolina, PR, on 23-24 October 2002. Notice of that meeting was published in the *Federal Register* on 15 October 2002 (67 FR 63622).

Comments and suggestions provided to the Caribbean Council during the development of this amendment by the public and by the SFA Working Group were used to develop the suite of management alternatives presented in Section 4.0 of this amendment. Alternatives considered by the Council, but eliminated from more detailed study in this amendment, are described in Section 11.2.

Interested readers may request copies of comment letters submitted to the Caribbean Council, as well as the summaries of public hearings, and the minutes of SFA Working Group meetings, by contacting Miguel Rolon, Executive Director, Caribbean Fishery Management Council, at the address below.

The availability of the DSEIS for this integrated FMP amendment was announced in the *Federal Register* on March 18, 2005, (70 FR 13189. The 45-day comment period on the DSEIS ended May 2, 2005.

Written comments on the FSEIS should be mailed to Mr. Miguel Rolón or Dr. Roy Crabtree at the following addresses:

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Caribbean Fishery Management Council
268 Muñoz Rivera Avenue, Suite 1108
San Juan, PR 00918-2577

Dr. Roy Crabtree, Regional Administrator
National Marine Fisheries Service
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33702

11.2 Alternatives considered during the scoping process, but eliminated from more detailed study in the amendment

This section describes alternatives that were considered by the Council in developing this document, but that are no longer being pursued. Many of these alternatives were proposed by stakeholders through the scoping process described above. The description of each alternative is followed by a summary statement of why it was eliminated from more detailed study.

11.2.1 Fishery management units and sub-units

11.2.1.1 Defining fishery management units and sub-units

11.2.1.1.1 Rejected Alternative 1. Redefine the fishery management units and sub-units in Caribbean Council fishery management plans to be consistent with those specified in Table 4 of the Draft Options Paper (CFMC 2002d).

Rationale for elimination: Table 4 of the Draft Options Paper (CFMC 2002d) reflected a revision of the FMUs and sub-units presented in the Caribbean Council's previous draft Comprehensive SFA Amendment. These revised FMUs and sub-units were delineated by staff of the Caribbean Council, the NOAA Fisheries SERO and SEFSC, the USVI and Puerto Rico fisheries management agencies, and several environmental non-governmental organizations represented on the Council's SFA Working Group. The Council rejected Table 4 at the 110th Council meeting in favor of a new table that reflects minor adjustments to eliminate the problem of identifying some species as food fish and also as aquarium trade species. Permitting the use of food fish in the aquarium trade could result in the take of juveniles that have not yet had the chance to reproduce. The Council's revised table described in the preferred FMU Alternative 2 (Section 4.1.1.2) categorizes species either as food fish or as aquarium trade species, depending on their primary use.

11.2.2 Biological reference points and stock status determination criteria

11.2.2.1 Maximum sustainable yield (MSY)

11.2.2.1.1 Rejected Alternative 2. Use the average current catch as a proxy for MSY, based on commercial landings data for the years 1997-2001, and recreational landings for the years 2000-2001.

Rationale for Elimination: This alternative would assume that both the biomass and the fishing mortality rate associated with the specified catch period were consistent with that able to produce MSY. We eliminated this alternative in response to public comments indicating that assumption did not allow for the possibility that recent catches were affected by a declining trend in stock biomass. MSY Alternative 2 (Section 4.2.1.2) modifies this alternative to address this concern by incorporating into the proxy estimates of B_{MSY}/B_{CURR} and F_{MSY}/F_{CURR} to enable us to consider alternative definitions of MSY that reflect situations where biomass and/or fishing mortality rates were above, equal to, or below the level needed to produce MSY during the defined catch period.

11.2.2.1.2 Rejected Alternative 3. Use the average current catch as a proxy for MSY, based on commercial landings data for the years 1997-2001, and recreational landings for 2000-2001, as modified by a reporting/correction factor.

Rationale for Elimination: This alternative differs from Rejected Alternative 2 only in that it

would modify the catch data derived from trip ticket reports using reporting/correction factors. It has the same deficiencies as Rejected Alternative 2. Additionally, no scientific methodology has been documented for estimating reporting/correction factors for U.S. Caribbean fisheries. Those factors applied by state agencies have varied from year to year.

11.2.2.1.3 Rejected Alternative 4. Set MSY equal to 75% of current catch.

Rationale for Elimination: This alternative would assume that current catches reflect biomass levels that are below those which would produce MSY and/or fishing mortality rates that are above those which would produce MSY. Incorporating information on stock status into the definition of MSY proxies that are based on catch data allows fishery managers to consider that stocks may not have been at equilibrium during the defined catch period. Such considerations are appropriate. But estimates of stock status should be defined on a stock-specific basis using the best available scientific information. This is accomplished in MSY Alternative 2 (Section 4.2.1.2).

11.2.2.1.4 Rejected Alternative 5. Determine MSY by considering mortality factors: (a) set F = 0.75M; or (b) substitute $F_{0.1}$ for F.

Rationale for Elimination: The formulas in Rejected Alternatives 8(a) and 8(b) would define the fishing mortality rates, rather than the yields associated with MSY. Consequently, they would be more appropriately applied to the definition of MFMT proxies, or limit control rules. The range of MFMT proxies, or limit control rules, considered in Section 4.2.5 incorporates similar alternatives that would reduce the MFMT proxy of stocks believed to be at risk. Thus, Rejected Alternatives 8(a) and 8(b) were not studied in more detail. Additionally, alternative 8(b) would require data on growth and age-specific fishing mortality. These data are not available.

11.2.2.1.5 Rejected Alternative 6. Determine MSY by considering current catch levels: (a) use C_{CURR}/C_{XYEARS} as a proxy for F_{MSY}/F_{CURR}; (b) set MSY = 0.75C; (c) set C = 1.1MSST; or (d) set current catch by factoring landing declines over time. Assume F and B ratios equal to 1, but derive MSY based on C calculated as the average of yearly catches for the most recent eight years and four years, to factor in the obvious decline in landings that should be indicative of a decline in B.

Rationale for Elimination: The goal of each of the sub-alternatives listed in Rejected Alternative 6 is to incorporate into the calculation of MSY proxies information that would reduce those proxies below values that would be equal to average catches over a defined time period. Incorporating information on stock status into the definition of MSY proxies that are based on catch data allows fishery managers to consider that stocks may not have been at equilibrium during the defined catch period. Such considerations are appropriate. But estimates of stock status should be defined on a stock-specific basis using the best available scientific information. This is accomplished in MSY Alternative 2 (Section 4.2.1.2). The Council is examining in MSY

Alternative 4 (Section 4.2.1.4) the appropriateness of calculating MSY based on a longer time series of catch data.

11.2.2.1.6 Rejected Alternative 7. As a proxy, set MSY to the equilibrium yield corresponding to a 30% SPR for all managed stocks with the exception of Nassau grouper, Goliath grouper, red hind, and other hermaphroditic groupers, all of which have MSY set to the equilibrium yield corresponding to a 45% SPR.

Rationale for Elimination: This alternative would require age-specific information on growth, fishing mortality, and reproductive potential. These data are not available.

11.2.2.1.7 Rejected Alternative 8. Determine MSY by considering CPUE: (a) use CPUE trend ratios as proxies for F_{MSY}/B_{CURR}; or (b) use CPUE trend line to estimate B_{MSY}.

Rationale for Elimination: Catch-per-unit-effort data on U.S. Caribbean fisheries are not sufficiently reliable to be used in this capacity. The Council could consider CPUE trends in making future determinations about the biomass ratio of select stocks.

11.2.2.1.8 Rejected Alternative 9. Determine MSY by considering life history characteristics: (a) adjust F and B ratios for any stock with a steady declining catch history; or (b) adjust F and B ratios for species with "high risk" spawning strategies.

Rationale for Elimination: MSY Alternative 2 (Section 4.2.1.2), and B and F Ratio Alternatives 2-4 (Sections 4.2.2.2-4.2.2.4), incorporate this suggestion that MSY proxies should be adjusted to be more precautionary for stocks that are believed to be at risk or to be particularly vulnerable to overfishing.

11.2.2.1.9 Rejected Alternative 10. Incorporate precaution into MSY estimates for select species at risk based on extrapolated information. Species at risk could be defined as (a) the ten species that have been designated by the American Fisheries Society to be at risk of extinction. These species include black grouper, gag grouper, Goliath grouper, marbled grouper, Nassau grouper, snowy grouper, speckled hind, Warsaw grouper, yellowedge grouper, and yellowmouth grouper; or (b) species that are presently designated to be overfished or undergoing overfishing under the Gulf of Mexico Reef Fish FMP or the South Atlantic Snapper-Grouper FMP.

Rationale for Elimination: This alternative also would adjust MSY proxies to be more precautionary for stocks that are believed to be at risk. This approach is used in MSY Alternative 2 (Section 4.2.1.2). The SFA Working Group defined species at risk based on

anecdotal information, trends in catch, and other available information, including the AFS publication referenced in Rejected Alternative 10. Most of the species referenced in this alternative are not represented in the Caribbean reef fish FMU. Those that are represented in the FMU have been classified as at risk.

11.2.2.1.10 Rejected Alternative 11. Specifically for spiny lobster and queen conch, MSY is defined as the equilibrium yield that corresponds to a 20% SPR.

Rationale for Elimination: This alternative would require age-specific information on growth, fishing mortality, and reproductive potential. These data, where available, are not sufficiently reliable to use in this capacity.

11.2.2.2 Optimum yield (OY)

11.2.2.2.1 Rejected Alternative 12. Set OY equal to MSY.

Rationale for Elimination: This alternative would result in OY definitions that are less precautionary than the default definition proposed in NOAA Fisheries' technical guidance. That definition would define OY as a yield that approximates about 94% of the MSY (Restrepo et al. 1998). Additionally, the OY definitions that would result from the implementation of this alternative would be problematic if the overfishing threshold (MFMT) proxies the Council is evaluating in Section 4.2.5 are adopted. Those proxies could result in the definition of an overfishing threshold that is equal to or less than the fishing mortality rate that would be associated with this definition of OY.

11.2.2.2.2 Rejected Alternative 13. Specifically for spiny lobster, OY will be derived from recent catch as: $OY = (MSY)(F_{OY}/F_{CURR})$, where F_{OY} is equal to 75% of F_{MSY}.

Rationale for Elimination: This alternative would incorporate information on stock status into the definition of OY. The Council has accomplished this by using in its preferred definition of OY an MSY proxy (MSY Alternative 2 (Section 4.2.1.2)) that incorporates information on stock status.

11.2.2.2.3 Rejected Alternative 14. As a proxy, set OY to the equilibrium yield corresponding to a 40% SPR for reef fish species, with the exception of Nassau grouper, Goliath grouper, red hind, and other hermaphroditic groupers, all of which have OY set to the equilibrium yield corresponding to a 55% SPR.

Rationale for Elimination: This alternative would require age-specific information on growth, fishing mortality, and reproductive potential. These data are not available.

11.2.2.2.4 Rejected Alternative 15. As a proxy, set OY to the equilibrium yield corresponding to a 30% SPR for queen conch and spiny lobster.

Rationale for Elimination: This alternative would require age-specific information on growth, fishing mortality, and reproductive potential. These data, where available, are not sufficiently reliable to use in this capacity.

11.2.2.2.5 Rejected Alternative 16. Based on the best available science, OY will be evaluated such that: a) For stocks that are not believed to be at risk based on the best available information, OY is set at 75% of MSY; b) For stocks for which no positive or negative determination can be made on the status of their condition, the default OY is set between 50% - 75% of MSY, based on life history and other relevant OY factors; c) For stocks that are believed to be at risk based on the best available information, OY will be set between 25% - 50% of MSY, based on life history and other relevant OY factors; and d) For each stock that is formally classified as overfished, OY will be determined in an appropriate rebuilding plan.

Rationale for Elimination: This approach to defining OY is being evaluated in OY Alternative 4 (Section 4.2.3.4), which would define OY as 75% of MSY, 50% of MSY, or 25% of MSY, based on determinations about the status, or risk level, of stocks.

11.2.2.2.6 Rejected Alternative 17. OY will be adjusted downward from 75% of MSY based on relevant factors considered by the SFA workgroup (e.g., vulnerable life history, especially high uncertainty, a need for stable economic return, ecological importance).

Rationale for Elimination: This approach to defining OY is being evaluated in OY Alternative 4 (Section 4.2.3.4), which would define OY as 75% of MSY, 50% of MSY, or 25% of MSY, based on determinations about the status, or risk level, of stocks.

11.2.2.2.7 Rejected Alternative 18. OY = C x (F_{OY}/F_{CURR}), where $F_{OY} = 0.75(F_{MSY})$.

Rationale for Elimination: This alternative would define OY to equal some percentage of average catch. The specific percentage would be defined based on the status of the stock. The Council has accomplished this by using in its preferred definition of OY (Section 4.2.3.2) an MSY proxy (MSY Alternative 2 (Section 4.2.1.2)) that incorporates information on stock status.

11.2.2.3 Minimum stock size threshold (MSST)

11.2.2.3.1 Rejected Alternative 19. Since there is no biomass estimate at this time for groupers, no MSST can be set. When biomass data are available, MSST will be set equal to the lesser of 0.5 or (1-M) times the equilibrium biomass

resulting from a fishing mortality rate that generates a 45% SPR. Furthermore, since there is no biomass estimate at this time for other reef fish or spiny lobster, no MSST can be set. When biomass data are available, MSST will be set equal to the lesser of 0.5 or (1-M) times the equilibrium biomass resulting from a fishing mortality rate that generates a 30% SPR for reef fish or 20% SPR.

Rationale for elimination: MSST proxies must be biomass-based to be consistent with the MSFCMA and the National Standard Guidelines. A range of biomass-based MSST proxies are evaluated in Section 4.2.4. Additionally, we do not have data to estimate the yield associated with a specific SPR level.

11.2.2.3.2 Rejected Alternative 20. MSST is set at a transitional SPR of 15% (that is 50% of the SPR set for the MSY) for reef fish, with the exception of red hind, Nassau grouper, Goliath grouper, and other hermaphroditic groupers, which are set at a transitional SPR of 22.5% (that is 50% of the SPR set for the MSY).

Rationale for elimination: MSST proxies must be biomass-based to be consistent with the MSFCMA and the National Standard Guidelines. A range of biomass-based MSST proxies are evaluated in Section 4.2.4. Additionally, we do not have data to estimate the yield associated with a specific SPR level.

11.2.2.3.3 Rejected Alternative 21. Specifically for spiny lobster, a spiny lobster stock is overfished when any one of the following are observed: (a) the SPR is less than 20%; (b) when total landings have declined to a level below 75% of the five-year running mean; or (c) when total landings have declined for three consecutive years.

Rationale for elimination: With respect to Rejected Alternatives 21(a) and 21(c), MSST proxies must be biomass-based to be consistent with the MSFCMA and the National Standard Guidelines. And, again, we do not have data to estimate the yield associated with a specific SPR level. With respect to Rejected Alternatives 21(b) and 21(c), periodic declines in spiny lobster landings are not an unusual event and would not necessarily reflect an overfished condition.

11.2.2.4 Maximum fishing mortality threshold (MFMT) and limit and target control rules

11.2.2.4.1 Rejected Alternative 22. Overfishing for queen conch occurs when the fishing rate results in the static SPR being reduced below 30% SPR.

Rationale for elimination: This alternative would require age-specific information on growth, fishing mortality, and reproductive potential. These data, where available, are not sufficiently

reliable to use in this capacity.

11.2.2.4.2 Rejected Alternative 23. Overfishing for spiny lobster occurs when the fishing rate results in the static SPR being reduced below 20% SPR.

Rationale for elimination: This alternative would require age-specific information on growth, fishing mortality, and reproductive potential. These data, where available, are not sufficiently reliable to use in this capacity.

11.2.2.4.3 Rejected Alternative 24. Specifically for spiny lobster, queen conch, and corals, MFMT is the fishing mortality rate corresponding to a 30% transitional SPR.

Rationale for elimination: This alternative would require age-specific information on growth, fishing mortality, and reproductive potential. These data, where available, are not sufficiently reliable to use in this capacity.

11.2.2.4.4 Rejected Alternative 25. Specifically for spiny lobster, queen conch, and corals, MFMT is the fishing mortality rate corresponding to a 40% transitional SPR.

Rationale for elimination: This alternative would require age-specific information on growth, fishing mortality, and reproductive potential. These data, where available, are not sufficiently reliable to use in this capacity.

11.2.2.4.5 Rejected Alternative 26. Set MFMT equal to F_{MSY}. If F_{MSY} cannot be estimated directly, set MFMT equal to 80% of the natural mortality rate (M).

Rationale for elimination: The approach suggested in this alternative is similar to that utilized in MFMT Alternative 7 (Section 4.2.5.7). MFMT Alternative 7 also would set MFMT equal to F_{MSY}. When F_{MSY} cannot be estimated directly, that alternative would define MFMT for stocks of unknown status or that are determined to be at risk to equal 0.75(M) and 0.50(M), respectively.

11.2.2.4.6 Rejected Alternative 27. When a stock is above B_{MSY} or no positive or negative determination can be made, then limit catch to 100% of MSY. When a stock is below B_{MSY} or believed to be at risk based on the best available information, limit catch to 75% of MSY.

Rationale for elimination: This alternative was originally proposed as a limit control rule. It would allow catches to equal the MSY from a fishery for stocks that are not determined to be at risk. While this characteristic is desirable, it also is included in MFMT/Limit Control Rule Alternatives 2 and 5 (Sections 4.2.5.2; 4.2.5.5). Unlike those rules, this rule would allow catches to equal up to 75% of MSY for stocks that are determined to be at risk. This policy would allow

the fraction of a population captured to increase as the population declines. In contrast, MFMT/Limit Control Rule Alternative 2 would scale back fishing effort in proportion to any decline below the abundance associated with MSY. MFMT/Limit Control Rule Alternative 5 also would allow catches to increase as populations decline. However, that alternative would reduce fishing mortality rates once stock biomass decreased below the MSST.

11.2.2.4.7 Rejected Alternative 28. When a stock is above B_{MSY} or no positive or negative determination can be made, then limit catch to 75% of MSY. When a stock is below B_{MSY} or believed to be at risk based on the best available information, limit catch to 50% of MSY.

Rationale for elimination: This alternative was originally proposed as a target control rule. At high abundance, this rule would define target catch levels to equal 75% of the MSY from a fishery. While this characteristic is desirable, it also is included in Target Control Rule Alternatives 2 and 5 (Sections 4.2.5.2; 4.2.5.5). Unlike those rules, this rule would define target catch levels for stocks at risk to equal 50% of MSY. That policy would allow the fraction of a population captured to increase as the population declines. In contrast, Target Control Rule Alternative 2 would scale back fishing effort in proportion to any decline below the abundance associated with MSY. Target Control Rule Alternative 5 also would allow catches to increase as populations decline. However, that alternative would reduce fishing mortality rates once stock biomass decreased below the MSST.

11.2.2.4.8 Rejected Alternative 29. Set catch levels equal to fishing mortality (F_{MSY})(B)(OY/MSY) or, when the data needed to determine F_{MSY} are not available, use a proxy for F_{MSY} calculated as a fraction of the natural mortality rate (M) as follows: a) Use 1.00(M) as a proxy for F_{MSY} for species that are not believed to be at risk based on the best available information; b) Use 0.75(M) as a proxy for F_{MSY} for species for which no positive or negative determination can be made on the status of their condition; and c) Use 0.50(M) as a proxy for F_{MSY} for species that are believed to be at risk based on the best available information.

Rationale for elimination: This alternative was originally proposed as a target control rule. It has been retained as an alternative target control rule, but has been modified to be consistent with MFMT/Limit Control Rule Alternative 7 (Section 4.2.5.7). It is considered in that section.

11.2.2.4.9 Rejected Alternative 30. Set catch levels based on when a particular stock is: a) Above B_{MSY}, then limit catch equal to MSY; b) Above MSST but below B_{MSY} (i.e., approaching an overfished condition), then limit catch equal to 67% of MSY; and c) Below MSST (i.e., overfished), limit catch equal to 33% of MSY. Define MSY as the current 5-year average catch.

Rationale for elimination: This alternative was originally proposed as a target control rule. It has

been retained as an alternative target control rule, but has been modified to be consistent with MFMT/Limit Control Rule Alternative 5 (Section 4.2.5.5). It is considered in that section.

11.2.3 Regulating Fishing Mortality

11.2.3.1 Rejected Alternative 31. Reduce the total number of gear units fishing in the U.S. EEZ through a buyback program, or through an ITQ or TURF program.

Rationale for elimination: Existing data on participation in the fisheries are not adequate to successfully implement these types of programs at this time. This alternative could be revisited in a later amendment if the Council adopts Bycatch Reporting Alternative 2 or 4 in Section 4.6.1. The Council is considering two gear prohibitions in Section 4.3 as alternatives to a capacity reduction program.

11.2.3.2 Rejected Alternative 32. Establish recreational possession limits.

Rationale for elimination: Existing data are inadequate to support the development of bag limits that could be trusted to reduce catches below current levels. Thus, this alternative is not a viable option at this time.

11.2.3.3 Rejected Alternative 33. Establish trip limits.

Rationale for elimination: Existing data are inadequate to support the development of trip limits that could be trusted to reduce catches below current levels. Thus, this alternative is not a viable option at this time.

11.2.3.4 Rejected Alternative 34. Establish or increase minimum size limits.

Rationale for elimination: This alternative would be particularly resource intensive to implement and enforce. It would require educating fishermen about species and size limits and, unless the states implemented consistent size limits, it would not be enforceable unless law enforcement officials boarded boats in federal waters. Thus, this alternative was rejected as not viable at this time.

11.2.3.5 Rejected Alternative 35. Prohibit the harvest of vulnerable or rare species.

Rationale for elimination: The Caribbean Council has prohibited the catch of Nassau grouper and goliath grouper, and is considering in this amendment an alternative that would prohibit the catch of queen conch (Section 4.4.3.2.2). The alternative management measures the Council is considering in Section 4.3 to reduce fishing mortality on the remaining species managed in Council FMPs are believed to be sufficiently restrictive to reduce fishing pressure in federal waters. Additionally, those measures do not have the same potential as species-specific

prohibitions to increase bycatch.

11.2.3.6 Rejected Alternative 36. Develop management measures for aquarium trade species that are consistent with those of Puerto Rico.

Rationale for elimination: The Council's preferred Alternative 2 (Section 4.1.2.2) would move aquarium trade species from a management to a monitoring-only category within their respective FMUs. Rejected Alternative 36 could be re-examined if aquarium trade species require management in the future.

11.2.3.7 Rejected Alternative 37. Implement a total allowable catch management regime. Stop the harvest of stocks/complexes when catch projections indicate that incidental and directed catches will exceed these defined targets.

Rationale for elimination: This alternative would establish an enforced quota for stocks/complexes based on the control rules adopted in Section 4.2.5. Data deficiencies and administrative realities in the U.S. Caribbean would make the effective implementation of this alternative extremely difficult. The seasonal and areal closure alternatives evaluated in Sections 4.3.2 and 4.3.3, respectively, are designed to achieve the same objective. Those regulations would be easier to monitor and enforce, and also would allow fishermen to better plan for closures. For these reasons, this alternative was determined to be impractical and is no longer being considered.

11.2.3.8 Rejected Alternative 38. Preempt state management authority.

Rationale for elimination: Preemption would require a factual finding that "The fishing in a fishery that is covered by an FMP implemented under the Magnuson-Stevens Act is engaged in predominately within the EEZ and beyond such zone" (50 CFR §600.610). Existing data do not support such a finding.

11.2.3.9 Rejected Alternative 39. Delegate management of fisheries to the state governments, with the requirement that the states implement laws and regulations that are consistent with those in the federal fishery management plans.

Rationale for elimination: This alternative is not believed to be feasible at this time. Some regulations in state waters are not consistent with those in Council FMPs despite previous recommendations from the Council to state agencies. Delegating management of federal fisheries to the states could be reconsidered at a future date if the memorandum of understanding proposed in Alternative 6 (Section 4.3.6) is successfully implemented.

11.2.3.10 Rejected Alternative 40. Define the process for developing a limited entry/capacity reduction program that would be implemented in 2006, and

would be capable of achieving the harvest controls established through this amendment.

11.2.3.11 Rejected Alternative 41. Establish a marine protected area (MPA) network.

Rationale for elimination: The two alternatives above can't be implemented without further development, which is not practical at this time. A limited entry/capacity reduction program would require specific details as to how it would be implemented, including criteria for participation and/or capacity reduction, which would be extremely complicated in the absence of a federal permit. Further, the establishment of a MPA network would require additional information. Beyond the establishment of stand-alone closed areas, as in Section 4.3.3, a network implies that numerous closed areas would have some type of relationship or rationale for creation (e.g., spawning aggregations). Therefore, it is not possible to adopt an alternative that can't be implemented due to lack of development.

11.2.4 Rebuilding Overfished Fisheries

11.2.4.1 Nassau grouper

11.2.4.1.1 Rebuilding schedule

11.2.4.1.1.1 Rejected Alternative 42. Rebuild Nassau grouper to B_{MSY} in 20 years, using the formula (T_{MIN} (10 years) + one generation (10 years)).

11.2.4.1.1.2 Rejected Alternative 43. Rebuild Nassau grouper to B_{MSY} in 40 years, using the formula (T_{MIN} (10 years) + one generation (30 years)).

11.2.4.1.1.3 Rejected Alternative 44. Rebuild Nassau grouper to 45% SPR in 20 years, using the formula (T_{MIN} (10 years) + one generation (10 years)).

11.2.4.1.1.4 Rejected Alternative 45. Rebuild Nassau grouper to B_{MSY} within T_{MIN} (10 years).

Rationale for elimination: Rejected Alternatives 42-45 were considered in the first draft of the Comprehensive SFA Amendment based on an estimated generation time published by Legault and Eklund (1998) that ranged from 10 to 30 years for Nassau grouper (CFMC 2001a). The current best available scientific information indicates that the generation time for Nassau grouper ranges from 15 to 70 years (Porch and Scott 2001). The new Rebuilding Schedule Alternatives 2-4 (Sections 4.4.1.1.2-4.4.1.1.4) are based on the low, intermediate, and high values of this new range of estimated generation times. Additionally, Rejected Altemative 44 would not be consistent with the National Standard Guidelines, which advise that rebuilding goal be defined as B_{MSY}.

11.2.4.1.2 Rebuilding strategy

11.2.4.1.2.1 Rejected Alternative 46. Gear restrictions/prohibitions.

11.2.4.1.2.1.1 Alternative 46a. Prohibit deployment of traps on top of reefs.

11.2.4.1.2.1.2 Alternative 46b. Prohibit deployment of traps on top of reefs and in 100-ft buffer zones around reefs.

11.2.4.1.2.1.3 Alternative 46c. Limit trap strings to two traps.

11.2.4.1.2.1.4 Alternative 46d. Prohibit the use of other allowable gear(s) in and around coral reefs or other specified habitats.

Rationale for elimination: A preliminary evaluation of Rejected Alternatives 46a-d indicated that none would likely benefit the recovery of Nassau grouper as much as the rebuilding strategy alternatives considered in the document (Section 4.4.1.2). The usefulness of gear restrictions and prohibitions in the context of regulating fishing mortality on all Council-managed species is considered in Section 4.3.

11.2.4.1.2.2 Rejected Alternative 47. Increase the minimum allowable mesh size for fish traps.

Rationale for elimination: A preliminary evaluation of Rejected Alternative 47 indicated that the adverse socioeconomic impacts of this alternative would more likely be justifiable in the context of reducing bycatch and bycatch mortality. This alternative is considered in that context in Section 4.6.2 (Alternative 2).

11.2.4.1.2.3 Rejected Alternative 48. Establish a marine protected area to protect habitat and/or reduce incidental catches.

Rationale for elimination: A preliminary evaluation of Rejected Alternative 48 indicated that the adverse socioeconomic impacts of this alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document.

11.2.4.1.2.4 Rejected Alternative 49. Reduce the total number of traps fishing in the federal waters of the Caribbean.

Rationale for elimination: A preliminary evaluation of Rejected Alternative 49 indicated that the adverse socioeconomic impacts of this alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document. This alternative could be considered in that context should the Council elect to

adopt a capacity reduction alternative. The Council is considering a total prohibition on the use of fish traps in Section 4.3 as an alternative to a capacity reduction program.

11.2.4.1.2.5 Rejected Alternative 50. Define the process for a limited entry program, which may or may not be coupled with a required reduction in fishing capacity by a set percentage, that will be developed for implementation in 2004. Establish through this amendment the control date that will be used to determine participation in the program.

Rationale for elimination: A preliminary evaluation of Rejected Alternative 50 indicated that the adverse socioeconomic impacts and administrative burdens associated with this alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document.

11.2.4.1.2.6 Rejected Alternative 51. Reduce the total number of gear units fishing in the U.S. EEZ through a buyback program, or through an ITQ or TURF program.

Rationale for elimination: A preliminary evaluation of Rejected Alternative 51 indicated that the adverse socioeconomic impacts of this alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document.

11.2.4.1.2.7 Rejected Alternative 52. Develop a program to phase out the use of fish traps in the U.S. Caribbean.

Rationale for elimination: A preliminary evaluation of Rejected Alternative 52 indicated that the adverse socioeconomic impacts associated with this management alternative would likely greatly outweigh any benefit to the rebuilding of Nassau grouper. Bottom line gear was responsible for the majority of Nassau grouper landings in 1997 and 1998 (71% and 75%, respectively), followed by fish traps (16% and 19%, respectively), and gillnets (1.3% and 1.1%, respectively) (CFMC 2001b). This alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document. It is considered in that context in Section 4.3.

11.2.4.1.2.8 Rejected Alternative 53. Establish a trap certificate program.

Rationale for elimination: A federal permit program is evaluated in Section 4.6.1 of this document as an alternative bycatch reporting program. That program would accomplish the same objective as this alternative.

11.2.4.1.2.9 Rejected Alternative 54. Improve outreach and education (e.g., recreational fishing guides).

Rationale for elimination: It is unclear to what extent Nassau grouper would benefit from this alternative. The Council and NOAA Fisheries believe it is important to focus scarce fiscal resources on more direct rebuilding measures.

11.2.4.1.2.10 Rejected Alternative 55. Institute incidental catch quotas to reduce commercial bycatch and recreational release mortality.

Rationale for elimination: The administrative environment is not adequately structured to effectively implement such an intensive monitoring program.

11.2.4.1.2.11 Rejected Alternative 56. Delegate management of Nassau grouper to state governments, with the requirement that the states implement laws and regulations that are consistent with those in the federal FMP.

Rationale for elimination: Some regulations in state waters are not consistent with those in Council FMPs despite previous recommendations from the Council to state agencies. Delegating management of species taken in federal waters to the states could be reconsidered at a future date if the memorandum of understanding proposed in Alternative 4a (Section 4.4.1.2.4.1) is successfully implemented.

11.2.4.2 Goliath grouper

11.2.4.2.1 Rebuilding schedule

11.2.4.2.1.1 Rejected Alternative 57. Rebuild Goliath grouper to B_{MSY} in 25 years, using the formula (T_{MIN} (10 years) + one generation (15 years)).

11.2.4.2.1.2 Rejected Alternative 58. Rebuild Goliath grouper to B_{MSY} in 40 years, using the formula (T_{MIN} (10 years) + one generation (30 years)).

11.2.4.2.1.3 Rejected Alternative 59. Rebuild Goliath grouper to 45% SPR in 20 years, using the formula (T_{MIN} (10 years) + one generation (10 years)).

11.2.4.2.1.4 Rejected Alternative 60. Rebuild Goliath grouper to B_{MSY} within T_{MIN} (10 years).

Rationale for elimination: Rejected Alternatives 57-59 were considered in the first draft of the Comprehensive SFA Amendment based on an estimated generation time published by Legault and Eklund (1998) that ranged from 15 to 40 years for goliath grouper (CFMC 2001a). The current best available scientific information indicates that the generation time for goliath grouper ranges from 20 to 95 years (Porch and Scott 2001). The new Rebuilding Schedule Alternatives 2-4 (Sections 4.4.2.1.2-4.4.2.1.4) are based on the low, intermediate, and high values of this new

range of estimated generation times. Additionally, Rejected Alternative 59 would not be consistent with the National Standard Guidelines, which advise that rebuilding goal be defined as B_{MSY}.

11.2.4.2.2 Rebuilding strategy

11.2.4.2.2.1 Rejected Alternative 61. Gear restrictions/prohibitions.

11.2.4.2.2.1.1 Rejected Alternative 61a. Prohibit deployment of traps on top of reefs.

11.2.4.2.2.1.2 Rejected Alternative 61b. Prohibit deployment of traps on top of reefs and in 100-ft buffer zones around reefs.

11.2.4.2.2.1.3 Rejected Alternative 61c. Limit trap strings to two traps.

11.2.4.2.2.1.4 Rejected Alternative 61d. Prohibit the use of other allowable gear(s) in and around coral reefs or other specified habitats.

Rationale for elimination: None of Rejected Alternatives 61a-d would likely benefit the recovery of goliath grouper as much as the rebuilding strategy alternatives considered in the document (Section 4.4.2.2). The usefulness of gear restrictions and prohibitions in the context of regulating fishing mortality on all Council-managed species is considered in Section 4.3.

11.2.4.2.2.2 Rejected Alternative 62. Increase the minimum allowable mesh size for fish traps.

Rationale for elimination: The adverse socioeconomic impacts of this alternative would more likely be justifiable in the context of reducing bycatch and bycatch mortality. This alternative is considered in that context in Section 4.6.2.

11.2.4.2.2.3 Rejected Alternative 63. Establish a marine protected area to protect habitat and/or reduce incidental catches.

Rationale for elimination: The adverse socioeconomic impacts of this alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document.

11.2.4.2.2.4 Rejected Alternative 64. Reduce the total number of traps fishing in the federal waters of the Caribbean.

Rationale for elimination: The adverse socioeconomic impacts of this alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document. The Council is considering a total

prohibition on the use of fish traps in Section 4.3 as an alternative to a capacity reduction program.

11.2.4.2.2.5 Rejected Alternative 65. Define the process for a limited entry program, which may or may not be coupled with a required reduction in fishing capacity by a set percentage, that will be developed for implementation in 2004. Establish through this amendment the control date that will be used to determine participation in the program.

Rationale for elimination: The adverse socioeconomic impacts and administrative burdens associated with this alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document.

11.2.4.2.2.6 Rejected Alternative 66. Reduce the total number of gear units fishing in the U.S. EEZ through a buyback program, or through an ITQ or TURF program.

Rationale for elimination: The adverse socioeconomic impacts of this alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document.

11.2.4.2.2.7 Rejected Alternative 67. Develop a program to phase out the use of fish traps in the U.S. Caribbean.

Rationale for elimination: The adverse socioeconomic impacts associated with this management alternative would likely greatly outweigh any benefit to the rebuilding of goliath grouper. This alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document. It is considered in that context in Section 4.3.

11.2.4.2.2.8 Rejected Alternative 68. Establish a trap certificate program.

Rationale for elimination: A federal permit program is evaluated in Section 4.6.1 of this document as an alternative bycatch reporting program. That program would accomplish the same objective as this alternative.

11.2.4.2.2.9 Rejected Alternative 69. Improve outreach and education (e.g., recreational fishing guides).

Rationale for elimination: It is unclear to what extent Goliath grouper would benefit from this alternative. The Council and NOAA Fisheries believe it is important to focus scarce fiscal resources on more direct rebuilding measures.

11.2.4.2.2.10 Rejected Alternative 70. Institute incidental catch quotas to reduce commercial bycatch and recreational release mortality.

Rationale for elimination: The administrative environment is not adequately structured to effectively implement such an intensive monitoring program.

11.2.4.2.2.11 Rejected Alternative 71. Delegate management of Goliath grouper to state governments, with the requirement that the states implement laws and regulations that are consistent with those in the federal FMP.

Rationale for elimination: Some regulations in state waters are not consistent with those in Council FMPs despite previous recommendations from the Council to state agencies. Delegating management of species taken in federal waters to the states could be reconsidered at a future date if the memorandum of understanding proposed in Alternative 4a (Section 4.4.2.2.4.1) is successfully implemented.

11.2.4.2.2.12 Alternative 72 (Preferred). Develop a memorandum of understanding (MOU) between NOAA Fisheries and the state governments to develop compatible regulations to achieve the objectives for Goliath grouper set forth in the Caribbean Fishery Management Council's Reef Fish Fishery Management Plan in state and federal waters of the U.S. Caribbean.

Rationale for elimination: Puerto Rico established regulations to prohibit the harvest, possession, and/or sale of Goliath grouper in state waters, establishing consistent regulations with those in the EEZ. Furthermore, the harvest, possession, or sale of this species is already prohibited in USVI waters. Thus, this alternative is no longer pertinent.

11.2.4.3 Queen conch

11.2.4.3.1 Rebuilding schedule

11.2.4.3.1.1 Rejected Alternative 73. Rebuild queen conch to B_{MSY} in 10 years.

11.2.4.3.1.2 Rejected Alternative 74. Rebuild queen conch to 30% SPR in 10 years.

11.2.4.3.1.3 Rejected Alternative 75. Rebuild queen conch to 20% SPR in 10 years.

Rationale for elimination: Rejected Alternatives 73-75 were considered in the first draft of the Comprehensive SFA Amendment based on an estimated natural mortality rate of 0.85 derived from Appeldoorn (1992). This rate represents the high mortality experienced by the juvenile life stage of this species, rather than the mortality rate of the entire population of queen conch. The current best available scientific information based on all size/age classes indicates that the natural mortality rate is closer to 0.30 (Appeldoorn, personal communication). Thus, it probably is not

possible to rebuild queen conch within ten years. Additionally, Rejected Alternatives 74 and 75 would not be consistent with the National Standard Guidelines, which advise that the rebuilding goal be defined as B_{MSY}.

11.2.4.3.2 Rebuilding strategy

11.2.4.3.2.1 Rejected Alternative 76. Prohibit the use of SCUBA gear in commercial and recreational queen conch fisheries operating in federal waters of the U.S. Caribbean.

Rationale for elimination: This alternative is similar to Rebuilding Strategy Alternative 2 (Section 4.4.3.2.2) because the deep depths of federal waters generally require the use of SCUBA to harvest queen conch. This alternative would result in a greater enforcement burden because law enforcement officials would have to determine whether queen conch observed on boats in federal waters were harvested with or without SCUBA gear.

11.2.4.3.2.2 Rejected Alternative 77. Extend the seasonal closure to protect queen conch spawning stock.

Rationale for elimination: The current closed season extends from July 1 through September 30. Peak spawning reportedly occurs from April through August (Rhine 2000). Modifying the seasonal closure to encompass the entire peak spawning season would provide some additional protection to the spawning stock. However, this action, in itself, would not likely be sufficient to reduce overfishing and rebuild queen conch within the alternative time frames considered in Section 4.4.3.1. Additionally, if fishermen were to increase fishing pressure in the open season, most of the benefits of a longer spawning season closures would be negated.

11.2.4.3.2.3 Rejected Alternative 78. Prohibit the use of allowable gear(s) in and around coral reefs or other specified habitats.

Rationale for elimination: Prohibiting the use of certain fishing gear(s) in habitats that the queen conch depends upon for its growth and survival could benefit the recovery of this species. But these habitats, such as seagrass beds, generally occur in territorial waters.

11.2.4.3.2.4 Rejected Alternative 79. Define the process for a limited entry program, which may or may not be coupled with a required reduction in fishing capacity by a set percentage, that will be developed for implementation in 2004. Establish through this Amendment the control date that will be used to determine participation in the program.

Rationale for elimination: The adverse socioeconomic impacts and administrative burdens associated with this alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this

document.

11.2.4.3.2.5 Rejected Alternative 80. Establish an MPA to protect spawning aggregations of queen conch.

Rationale for elimination: An MPA may be effective in protecting spawning stock and would also provide a controlled area for assessing fishing impacts. But the protections afforded by this type of rebuilding strategy appear to be insufficient to reduce overfishing and to rebuild queen conch within the alternative time frames considered in Section 4.4.3.1.

11.2.4.3.2.6 Rejected Alternative 81. Preempt state management authority.

Rationale for elimination: The queen conch fishery is conducted primarily in state waters, with only a minimal amount of activity occurring in the U.S. EEZ off southwest Puerto Rico (Valle-Esquivel 2002). The authority to preempt requires a factual finding that "The fishing in a fishery that is covered by an FMP implemented under the Magnuson-Stevens Act is engaged in predominately within the EEZ and beyond such zone" (50 CFR §600.610).

11.2.4.3.2.7 Rejected Alternative 82. Prohibit recreational catch and possession of queen conch in the U.S. EEZ.

Rationale for elimination: Total recreational landings of queen conch are estimated to equal about 50% of commercial landings of this species (Valle-Esquivel, personal communication). And most recreational catches of this species are believed to come from state waters, which are easier to access. Consequently, a harvest prohibition that does not apply to commercial fisheries cannot be expected to be sufficient to rebuild queen conch within the alternative time frames considered in Section 4.4.3.1.

11.2.4.3.2.8 Rejected Alternative 83. Prohibit deployment of traps on top of reefs, and/or in a 100-ft buffer zones around reefs, and/or limit trap strings to two traps.

Rationale for elimination: Neither of these alternatives could be expected to contribute substantially to rebuilding queen conch. Queen conch generally are found on seagrass beds and sandy bottom habitat, and they are captured predominantly by hand.

11.2.4.3.2.9 Rejected Alternative 84. Reduce the total number of gear units fishing in the U.S. EEZ through a buyback program, or through an ITQ or TURF program.

Rationale for elimination: The adverse socioeconomic impacts of this alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document.

11.2.4.3.2.10 Rejected Alternative 85. Establish a queen conch permit for commercial fishers and dealers.

Rationale for elimination: A federal permit program is considered in Section 4.6.1 as a means to meet the MSFCMA bycatch reporting mandate.

11.2.4.3.2.11 Rejected Alternative 86. Establish commercial catch limits equal to 100 pounds of queen conch meat per vessel per trip and a total of 300 pounds per week per vessel. Eliminate the requirement to land queen conch in the shell.

Rationale for elimination: The Regulatory Impact Review associated with the 1996 Queen Conch FMP indicates that 80% and 88% of queen conch trips off Puerto Rico and the USVI, respectively, yielded catches of less than 100 pounds (CFMC 2002a). Thus this alternative would do little to reduce fishing pressure on this stock. In addition, it would do nothing to address the illegal take of undersized conch.

11.2.4.3.2.12 Rejected Alternative 87. Establish a commercial trip limit of 150 queen conch per person per trip. Eliminate the requirement to land queen conch in the shell.

Rationale for elimination: This alternative would maintain the present level of fishing mortality, but eliminate the requirement to land queen conch in the shell. Thus, it would be less restrictive than current management measures. The Council believes that additional restrictions must be implemented to rebuild this overfished stock.

11.2.4.3.2.13 Rejected Alternative 88. Improve outreach and education.

Rationale for elimination: It is unclear to what extent queen conch would benefit from this alternative. The Council and NOAA Fisheries believe it is important to focus scarce fiscal resources on more direct rebuilding measures.

11.2.4.3.2.14 Rejected Alternative 89. Develop a mariculture and restocking program.

Rationale for elimination: There are several successful queen conch mariculture operations in existence. The Caicos Conch Farm, Ltd., estimates production will surpass 1.5 million conch per year. While these conchs are raised for the market, conch mariculture holds promise for stock rebuilding as well. Cultured conch can be reared to a size that greatly reduces natural juvenile mortality. Despite the promising potential of mariculture, it is not yet considered to be a cost-effective way to rebuild overfished stocks. The Florida Marine Research Laboratory conducted a series of field and laboratory experiments in Marathon, Florida, to evaluate the effectiveness of using hatchery-raised young conchs to supplement the wild spawning stock. They discovered that a 4-inch conch released in the fall surviving to 6 inches costs about $9 per individual (Deluca 2002).

11.2.4.3.2.15 Rejected Alternative 90. Delegate management of queen conch to state governments, with the requirement that the states implement laws and regulations that are consistent with those in the federal FMP.

Rationale for elimination: Some regulations in state waters are not consistent with those in Council FMPs despite previous recommendations from the Council to state agencies. Delegating management of species taken in federal waters to the states could be reconsidered at a future date if the memorandum of understanding proposed in Alternative 4 (Section 4.4.3.2.4) is successfully implemented.

11.2.5 Conserving and Protecting Yellowfin Grouper

11.2.5.1 Rejected Alternative 91. Close the Grammanik Bank to all fishing from February 1 to May 31 of each year. The proposed boundaries for the Grammanik Bank closed area are: 18º 12.40' N, 64º 59.00' W; 18º 10.00' N, 64º 59.00' W; 18º 10.00' N, 64º 56.10' W; and 18º 12.40' N, 64º 56.10' W.

Rationale for elimination: The best available information indicates that the spawning period for yellowfin grouper only extends through April 30. Therefore, this alternative, while being more conservative than an alternative consisting of a shorter duration, would not reflect the best available information.

11.2.6 Achieving the MSFCMA Bycatch Mandates

11.2.6.1 Bycatch reporting

11.2.6.1.1 Rejected Alternative 92. Require commercial and charter boat participants in federal fisheries to record catch and discard data in a logbook.

Rationale for elimination: This alternative is similar to the preferred Bycatch Reporting Alternative 2 (Section 4.6.1.2). In comparison, this alternative would present less direct costs to fishermen because they would not be required to purchase permits. However, it would not tie the mandatory catch reporting requirement to permit renewals. Consequently, bycatch and other data derived from this reporting system would probably be fewer and less reliable.

11.2.6.1.2 Rejected Alternative 93. Request that NOAA Fisheries establish a program to achieve standardized bycatch reporting in the commercial fisheries included in the Council's FMPs.

Rationale for elimination: Requesting that NOAA Fisheries establish a bycatch reporting program falls short of meeting the MSFCMA requirement to "establish a standardized bycatch reporting methodology to assess the amount and type of bycatch occurring in the fishery." Thus, Rejected Alternative 93 is not a viable option.

11.2.6.1.3 Rejected Alternative 94. Request that the governments of Puerto Rico and the USVI implement a program to establish standardized bycatch reporting in Caribbean fisheries.

Rationale for elimination: Requesting that the state governments establish a bycatch reporting program falls short of meeting the MSFCMA requirement to "establish a standardized bycatch reporting methodology to assess the amount and type of bycatch occurring in the fishery." Thus, Rejected Alternative 94 is not a viable option.

11.2.6.1.4 Rejected Alternative 95. Include in the fishery-dependent biological sampling program the collection of bycatch data from commercial fishers.

Rationale for elimination: Collecting bycatch data through the sampling program would probably present less of a burden to fishermen than would requiring them to submit a separate data report for catches taken in federal waters. But several deficiencies make this program insufficient to meet the MSFCMA mandate. First, the program samples landed catch, so port agents would need to rely on the memory of the fisherman being interviewed. Second, the program covers only a small percentage of total fishery participants. And, third, participation is voluntary.

11.2.6.1.5 Rejected Alternative 96. Establish gear permits for all fisheries, including recreational angling, with attached mandatory reporting requirements (focus on fish traps, reef nets).

Rationale for elimination: A federal permit program that would apply to all gear types is considered in Section 4.6.1.2. That program would not apply to recreational anglers. Permitting that sector is not feasible at this time. Preferred bycatch reporting Alternative 3 (Section 4.6.1.3) would utilize data from the Marine Recreational Fisheries Statistical Survey to provide bycatch information on the recreational and subsistence sectors. The Council and NOAA Fisheries could reconsider the feasibility of instituting a permit requirement in federal recreational fisheries at a future date if the commercial permitting program is successfully implemented.

11.2.6.1.6 Rejected Alternative 97. Require vessel monitoring systems for vessels fishing in the U.S. EEZ and obligatory reporting of bycatch.

Rationale for elimination: Requiring that participants in federal fisheries utilize vessel monitoring systems (VMS) would improve the timeliness of data collection. Such a requirement would also assist with enforcement and improve safety at sea. But a preliminary analysis of this alternative indicated that the costs of VMS would not likely be warranted at this time, particularly when considered relative to the value of catches in this region, the economic profitability of commercial fishing operations, and the large number of fishermen that fish on a part-time basis (Fred Kyle, NMFS, presentation to the Council, 107th Council Meeting, March 26-27, 2002).

11.2.6.1.7 Rejected Alternative 98. Provide incentives to report bycatch.

Rationale for elimination: This action would fall short of meeting the MSFCMA mandate, which requires that participants report bycatch in U.S. EEZ fisheries. Should the Council elect to adopt a bycatch program that relies on fishery-dependent data, various incentive programs could be considered in combination with the Council's preferred Alternatives 2 and 3 (Sections 4.6.1.2; 4.6.1.3) to reward fishers for the added reporting burden. For example, the Council/NOAA Fisheries could provide incentives to participate in a tag and release program to provide data on bycatch mortality.

11.2.6.1.8 Rejected Alternative 99. Develop and establish an observer program to include bycatch data collection requirements.

Rationale for elimination: An observer program would most likely provide the best, most reliable information on bycatch and bycatch mortality. Such a program could also improve the social interaction between fishery participants and managers. But the small-scale nature of fisheries in the U.S. Caribbean makes an observer program an impractical alternative. The majority of boats participating in commercial and recreational fisheries in this region are small in size. Matos-Caraballo (1997) reported that 86% of vessels reported in Puerto Rico's commercial fishery during 1995-96 were under 21 feet in length. Boats in USVI fisheries commonly range from 17-19 feet in length (Impact Assessment, Inc. 1997). Most of these boats generally accommodate one to three people, in addition to fishing gear, coolers, gasoline tanks, and other equipment. They are not generally equipped to accommodate observer safety mandates. As an alternative, observers could trail fishermen in separate boats or conduct random at-sea interventions. But funding is not sufficient to develop these types of programs to the extent that would be needed to provide reliable bycatch data on the fishery. Even were funding available, such a program would not likely be cost-effective considering the current and potential value of landings in the U.S. Caribbean region.

11.2.6.1.9 Rejected Alternative 100. Establish a bycatch reporting logbook in federal waters that would require a subset of commercial fishermen to report bycatch.

Rationale for elimination: This alternative is similar to the preferred Bycatch Reporting Alternative 2 (Section 4.6.1.2). In comparison, this alternative would present less direct costs to fishermen because they would not be required to purchase permits. However, it would not tie the mandatory catch reporting requirement to permit renewals. Consequently, bycatch and other data derived from this reporting system would probably be fewer and less reliable. Additionally, this alternative probably would not provide coverage that is sufficient to meet the MSFCMA mandate. More comprehensive commercial reporting programs are considered in Bycatch Reporting Alternatives 2 and 4 (Sections 4.6.1.2; 4.6.1.4).

11.2.6.2 Minimizing bycatch and bycatch mortality to the extent practicable

11.2.6.2.1 Rejected Alternative 101. Establish seasonal or permanent marine protected areas.

Rationale for elimination: In the absence of a more detailed description of the proposed area or seasonal closure, it is difficult to ascertain at this time whether this alternative would likely pass a practicability analysis for the purposes of minimizing bycatch and bycatch mortality. Restricting fishing activity in identified nursery grounds could effectively reduce the regulatory bycatch of yellowtail snapper, which is managed with a minimum size limit. But, because juveniles are generally more prevalent in nearshore environments, closing areas of high juvenile abundance would likely require the cooperation of the governments of Puerto Rico and the USVI. MPAs also could be used to reduce the bycatch of prohibited species, such as Nassau grouper, that have been observed to aggregate in the same place year after year. This alternative is considered in that context in Section 4.4. The utility of areal and seasonal closures in reducing fishing mortality on multiple species is considered in Sections 4.3.

11.2.6.2.2 Rejected Alternative 102. Establish incidental catch quotas to curb incidental catches of prohibited species.

Rationale for elimination: The administrative environment is not adequately structured to effectively implement such an intensive monitoring program.

11.2.6.2.3 Rejected Alternative 103. Prohibit the use of fish traps.

Rationale for elimination: This alternative would not likely be practicable in the context of reducing bycatch, as economic and regulatory discards are believed to be minimal in this region (see Section 4.6.2). A prohibition on the use of fish traps is considered in Section 4.3 as a means to reduce overall fishing mortality in U.S. Caribbean fisheries.

11.2.6.2.4 Rejected Alternative 104. Prohibit the use of allowable gear(s) in particular habitats.

Rationale for elimination: Gear prohibitions would not likely be practicable in the context of reducing bycatch, as economic and regulatory discards are believed to be minimal in this region (see Section 4.6.2). The Council could reconsider this alternative in a future amendment if bycatch data collected under one of the new reporting programs evaluated in Section 4.6.1 identify a problem with the use of one or more specific gear types in specific areas. Prohibitions on the use of fish traps and nets are considered in Section 4.3 as a means to reduce overall fishing mortality in U.S. Caribbean fisheries.

11.2.6.2.5 Rejected Alternative 105. Prohibit the use of fish traps and nets on coral reefs.

Rationale for elimination: Most fishermen, scientists, and managers acknowledge that fishermen do not knowingly set traps on coral reef habitat. Thus, the impact of this alternative on bycatch would most likely be minimal. Additionally, such a prohibition would be difficult to enforce and to interpret, as coral reef and live bottom habitats are still being delineated.

11.2.6.2.6 Rejected Alternative 106. Restrict the size of the hooks used by vertical line/longline fishermen.

Rationale for elimination: The enforcement burden presented by this alternative makes it impractical. NOAA Fisheries ultimately abandoned a similar alternative in the highly migratory species fishery due to this and other problems associated with implementation.

11.2.6.2.7 Rejected Alternative 107. Implement a trap reduction program.

Rationale for elimination: The adverse socioeconomic impacts of this alternative would more likely be justifiable in the context of constraining total catches to levels consistent with the control rules considered in Section 4.2.5 of this document. The Council is considering a total prohibition on the use of fish traps in Section 4.3 as an alternative to a capacity reduction program.

11.2.7 Establishing/modifying framework procedures

11.2.7.1 Rejected Alternative 108. No action. Do not modify current framework procedures.

11.2.7.2 Rejected Alternative 109. Expand the existing framework procedures for the Coral and Reef Fish FMPs to the other Caribbean FMPs (Spiny Lobster and Queen Conch), but do not broaden the scope of the framework procedures.

11.2.7.3 Rejected Alternative 110. Expand the framework procedures for the Coral and Reef Fish FMPs (50 CFR § 622.48 (a, b)), or establish similar framework procedures for all Caribbean FMPs. Broaden the scope of the framework procedures to include the revision of MSY, MFMT, MSST, and OY definitions when improved information becomes available. Additionally, establish criteria to determine when a species or species complex should be elevated from monitored (e.g., aquarium trade species) to managed status.

Rationale for elimination: The intent of framework procedures is to enable the Secretary of Commerce to respond quickly to changing conditions by implementing one or more pre-defined management measures without developing a comprehensive FMP amendment. Framework measures are still subject to the multiple analytical requirements of the of the MSFCMA, NEPA, and other laws. But these requirements are fulfilled at the time measures are added to the Council's list of framework actions, rather than at the time the measures are applied to a fishery.

The large number of actions that must be considered in this amendment has precluded the Council from analyzing an additional suite of proposed framework actions at this time. The Council will revisit Rejected Alternatives 108-110 in a future amendment.

11.3 List of preparers

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Graciela Garcia-Moliner, Habitat and FMP Specialist
Caribbean Fishery Management Council

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Louisiana State University

Many other individuals and organizations were instrumental in developing the scope and content of this amendment through their participation in the public scoping process and on the SFA Working Group. Composed of representatives from NOAA Fisheries, the Caribbean Council, state agencies, and environmental non-governmental organizations, the SFA Working Group met twice during the development of this amendment. Participants in the two Working Group meetings are listed below.

SFA Working Group Meeting, Miami, FL
6-7 August 2002

Juan Agar, NOAA Fisheries, Southeast Fisheries Science Center
Michael Barnette, NOAA Fisheries, Southeast Regional Office
Heather Blough, NOAA Fisheries, Southeast Regional Office
Virdin Brown, chair, Caribbean Fishery Management Council
Roy Crabtree, U.S. Fish and Wildlife Service
Marianne Cufone, The Ocean Conservancy
David Die, NOAA Fisheries, Southeast Fisheries Science Center

Graciela Garcia-Moliner, Caribbean Fishery Management Council
Joseph Kimmel, NOAA Fisheries, Southeast Regional Office
Barbara Kojis, USVI Department of Planning and Natural Resources
Ken Lindeman, Environmental Defense
Michael McLemore, NOAA General Counsel
Joshua Nowlis, The Ocean Conservancy
Douglas Rader, Environmental Defense
Miguel Rolon, Caribbean Fishery Management Council
Aida Rosario, Puerto Rico Department of Natural and Environmental Resources
Nadeira Sukhraj, ReefKeeper International
Roger Uwate, USVI Department of Planning and Natural Resources
James Weaver, NOAA Fisheries, Southeast Regional Office

SFA Working Group Meeting. San Juan, PR
23-24 October 2002

Michael Barnette, NOAA Fisheries, Southeast Regional Office
Heather Blough, NOAA Fisheries, Southeast Regional Office
David Die, NOAA Fisheries, Southeast Fisheries Science Center
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Nadeira Sukhraj, ReefKeeper International
James Weaver, NOAA Fisheries, Southeast Regional Office

11.4 List of agencies, organizations, and persons to whom copies of this document were sent

The availability of the DSEIS was published in the *Federal Register* for public review and comment on March 18, 2005 (70 FR 13189). Additionally, copies of this document were distributed to:

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Washington, D.C. 20240

Appendix C

CARIBBEAN FISHING VESSEL PERMIT APPLICATION FOR FISHING IN THE EXCLUSIVE ECONOMIC ZONE (EEZ)

VESSEL INFORMATION (please print legibly or type)

NAME OF VESSEL	CG DOC. OR STATE REG. NO. (OFFICIAL NUMBER)

OWNER(S) NAME

MAILING ADDRESS	CITY
STATE	ZIP CODE

NAME (PRINT OR TYPE)

SIGNATURE