

2.0 RANGE OF POTENTIAL ALTERNATIVES

2.1 Permitting

2.1.1 Vessel Permitting

2.1.1.1 Description of the Issue

The 1999 FMP established a LAP program for the commercial Atlantic SWO and shark fisheries to rationalize harvesting capacity with the available quota and reduce latent effort while preventing further overcapitalization. To assist with enforcement and management of the program, permit restrictions were also placed on vessels fishing for Atlantic tunas with PLL gear. Implementation of the HMS LAP program has been ongoing since the implementation of the 1999 FMP and is executed via issuance of permits to eligible recipients in the commercial shark, SWO, and tuna longline fisheries. Currently, many eligible vessels may be required to obtain up to three separate LAPs to fish for, or retain, HMS. Since implementation, HMS LAPs have increased in value. Limited availability and high LAP values may present a significant barrier to entry into some segments of the HMS fisheries. As such, there are few HMS LAPs currently held by fishermen in the Caribbean region.

Based on discussions with the CFMC and the territorial governments, NOAA Fisheries believes that the depletion of continental shelf fishery resources may be increasing local interest in HMS resources as an alternate catch. As local fishermen become more dependent on offshore fishery resources and increase effort on HMS, there is increased need for NOAA Fisheries to consider ways to include Caribbean vessels in the HMS permitting regime to collect better catch and effort data.

During scoping, NOAA Fisheries received comments indicating that constituents in the U.S. Caribbean are interested in an open access commercial handgear permit that would allow the retention of tunas, SWO, and sharks. NOAA Fisheries has also received comments from constituents fishing outside of the U.S. Caribbean who have expressed interest in a similar commercial handgear permit as well as other potential adjustments to the regulations governing the U.S. BFT, SWO, and shark fisheries to enable more thorough utilization of the available BFT and SWO quotas. To address these comments, NOAA Fisheries issued an advance notice of proposed rulemaking (ANPR) on June 1, 2009 (74 FR 26174). Through this ANPR, NOAA Fisheries intends to collect additional public comment on the potential expansion of the Atlantic Tunas General permit. Such an expansion could allow for the retention of SWO and sharks, thus converting the open access Atlantic Tunas General permit to the HMS General Commercial Handgear permit. A Caribbean version of this permit, referred to in this document as the Caribbean HMS General Commercial Handgear permit (Caribbean HMS GCHP), could be implemented as either an open or limited access permit and may potentially address some of the unique characteristics of the U.S. Caribbean fisheries.

One unique aspect of the Caribbean HMS fishery that may be addressed through a Caribbean HMS GCHP includes potential authorization of buoy gear in the U.S. Caribbean. The small vessels participating in HMS fisheries in the U.S. Caribbean currently use handgear exclusively; including a type of buoy gear know locally as “yo-yo gear,” to target BAYS tunas. Buoy gear is

currently authorized for SWO fishing only, and may only be used aboard vessels issued a SWO Handgear or SWO Directed LAP. In the Amendment 4 rulemaking, the Agency could consider authorizing buoy gear for use by Caribbean HMS GCHP holders. Additionally, to limit potential HMS fishing effort increases in the region, a maximum vessel length restriction could be established.

Currently, the Atlantic Tunas General permit authorizes the commercial harvest of Atlantic tunas with handgear. Expanding the permit to allow for the retention of SWO and sharks in the U.S. Caribbean region could add flexibility for fishermen and fishery managers by allowing for the harvest of these species according to size and retention limits that are commensurate with the health of fish stocks.

North Atlantic SWO are almost fully rebuilt, overfishing is not occurring, and the U.S. SWO quota is underharvested. Therefore, an open access Caribbean HMS GCHP could provide additional opportunities to harvest SWO in the Caribbean region and help achieve the domestic North Atlantic SWO quota while using gears with generally low bycatch. The LAP system for SWO was established when SWO were overfished with overfishing occurring. If proposed and adopted, a Caribbean HMS GCHP permit would offer a unique opportunity for Caribbean fishermen to enter the domestic commercial SWO fishery.

Allowing the retention of sharks with an open access Caribbean HMS GCHP may be problematic. Several shark populations are overfished with overfishing occurring. If the harvest of sharks were allowed with the Caribbean HMS GCHP, strict retention limits, careful monitoring, and other harvest restrictions would likely be necessary to facilitate continued rebuilding of overfished shark populations. Additionally, Agency outreach and training to improve the species identification skills of fishery participants would likely be needed.

Currently, Atlantic Tunas General permit holders may participate in Atlantic HMS registered tournaments and, when fishing in an HMS tournament, may land BLF. Under a potential shift to a Caribbean HMS GCHP, participation in HMS tournaments and landing of BLF in those tournaments could continue to be allowed, or it could be eliminated or modified. If it were eliminated, existing holders of the Atlantic Tunas General permit who can currently participate in registered HMS tournaments would potentially lose that ability.

Fishery management plans and regulations promulgated under the Magnuson-Stevens Act must be consistent with National Standard 9, which states that conservation and management measures shall, to the extent practicable, minimize bycatch and to the extent bycatch cannot be avoided, minimize the mortality of such bycatch. NOAA Fisheries has implemented numerous management measures to reduce the bycatch and bycatch mortality in HMS fisheries. The 2001 BiOp on HMS fisheries concluded that the continued operation of HMS handgear fisheries may adversely affect, but are not likely to jeopardize, the continued existence of protected species. Any potential expansion of fishing effort in HMS fisheries, including handgear fisheries, must consider the continuing need to minimize bycatch and bycatch mortality.

A list of alternatives considered for vessel permitting and their associated impacts can be seen in Table 2.1.

2.1.1.2 Potential Alternatives for Management

Table 2.1 List of alternatives considered for vessel permitting.

Alternative	Ecological Impacts	Social/Economic Impacts
1. Maintain current LAP program (Status quo)	<ul style="list-style-type: none"> - Would not address existing commercial fishing activity for HMS by unpermitted small vessels in the U.S. Caribbean - Could facilitate depletion of HMS resources in the U.S. Caribbean due to the limits of the existing permitting system to account for the universe of commercial fishermen targeting HMS - Minimal negative impacts on protected resources - Minimal impacts on EFH and sensitive resources such as corals 	<ul style="list-style-type: none"> - No alternative to the existing LAP program would be provided, thus maintaining economic barriers for local commercial fishermen in the form of high LAP costs - Limited ability to identify universe of commercial fishermen targeting HMS could result in these fishermen being unrecognized in future HMS management actions
2. In the Caribbean, expand the species allowed to be harvested under the Atlantic Tunas General permit to include SWO and sharks, thus converting the permit to an open access Caribbean HMS General Commercial Handgear permit (GCHP)	<ul style="list-style-type: none"> - Could allow the universe of commercial fishermen targeting HMS (<i>i.e.</i>, in addition to tunas) to be identified, thus improving the information on which HMS management measures are based - Could allow harvest of Atlantic tunas according to retention limits that already exist for Atlantic Tunas General Permit - Could allow additional harvest of SWO – a species that is almost fully rebuilt and the U.S. quota has been underharvested in recent years - Could allow additional harvest of sharks, of which several species are overfished with overfishing occurring - Retention limits for SWO and sharks could be established that are commensurate with the status of their populations - Minimal negative impacts on protected resources are anticipated - Minimal impacts on EFH and sensitive resources such as corals 	<ul style="list-style-type: none"> - Could provide an alternative to the existing LAP program, thus removing economic barriers for local commercial fishermen to obtain HMS permits - Could facilitate identification of the universe of commercial fishermen targeting HMS, thus allowing them to be better recognized in future HMS management actions - May economically benefit commercial fishermen by providing additional opportunities to harvest SWO and sharks - May negatively impact the values of existing SWO and shark LAPs; however, no LAPs are currently issued in the U.S. Caribbean - Negative impacts for LAP holders could be mitigated by establishing lower retention limits for the Caribbean HMS GCHP than exist for SWO and shark LAPs

Alternative	Ecological Impacts	Social/Economic Impacts
2.a.1. As a sub-alternative to Alternative 2 above, authorize rod and reel (including downriggers), handline, harpoon, bandit gear, and green stick gear for use on vessels issued a Caribbean HMS GCHP	<ul style="list-style-type: none"> - Would authorize gears for the Caribbean HMS GCHP that are the same as the existing Atlantic Tunas General permit - Ecological impacts of these gears are expected to be minimal because they are considered to be low in bycatch and bycatch mortality - Minimal negative impacts on protected resources are anticipated - Minimal impacts on EFH and sensitive resources such as corals 	<ul style="list-style-type: none"> - Would authorize several gears that are currently used to target HMS in the U.S. Caribbean - Would not authorize buoy gear, a popular gear traditionally used to harvest Atlantic tunas in the U.S. Caribbean
2.a.2. As a sub-alternative to Alternative 2 above, authorize rod and reel (including downriggers), handline, harpoon, bandit gear, green stick gear, and <u>buoy gear</u> for use on vessels issued a Caribbean HMS GCHP	<ul style="list-style-type: none"> - Same as 2.a.1., above, with the addition of buoy gear, a gear that has been used for several years to harvest Atlantic tunas in the U.S. Caribbean - Buoy gear used in the U.S. Caribbean is similar in concept to buoy gear authorized for use with the SWO directed or handgear LAP and the gear has been shown to be low in bycatch 	<ul style="list-style-type: none"> - Authorizing the use of buoy gear in the U.S. Caribbean would maintain the ability of commercial fishermen that have been using this gear for years to target tunas - Authorizing the use of buoy gear in the U.S. Caribbean with an open access permit could affect the value of SWO LAPs; however, no SWO LAPs are currently issued in the U.S. Caribbean
2.b.1. As a sub-alternative to Alternative 2 above, limit the length of vessels eligible for a Caribbean HMS GCHP	<ul style="list-style-type: none"> - Could temper ecological impacts by limiting vessel capacity and fishing effort as a function of overall length 	<ul style="list-style-type: none"> - Potential vessel length limit could be established to be as consistent as possible with USVI moratorium on commercial fishing vessels - Could prevent some commercial fishermen with larger vessels from obtaining an open access Caribbean HMS GCHP - May prevent commercial fishermen currently operating in other regions from relocating effort to the U.S. Caribbean - May result in vessel owners increasing hold capacity and/or horsepower to compensate for length restriction

Alternative	Ecological Impacts	Social/Economic Impacts
2.b.2. As a sub-alternative to Alternative 2 above, do not limit the length of vessels eligible for a Caribbean HMS GCHP	<ul style="list-style-type: none"> - Could allow large vessels to obtain potentially open access Caribbean HMS GCHP permits, which may result in increased fishing effort on HMS resources in the U.S Caribbean 	<ul style="list-style-type: none"> - Would not be consistent with USVI moratorium on commercial fishing vessels - Would allow any sized vessel to obtain an open access Caribbean HMS GCHP - May allow fishermen currently operating in other regions to relocate to the U.S Caribbean - Combined with open access, this alternative may result in overcapacity in the fleet and the associated social and economic impacts
2.c.1. As a sub-alternative to Alternative 2 above, establish Caribbean HMS GCHP retention limits for allowable species based on stock status, available quota, <i>etc.</i> ; retention limits could be set in a range and may be altered through a framework process	<ul style="list-style-type: none"> - Could establish retention limits that are reflective of the status of HMS populations and that are ecologically sustainable - Could allow flexibility to change retention limits if the status of stocks change 	<ul style="list-style-type: none"> - Would allow fishermen to retain and sell HMS - Trip limits may be lower/higher than what is currently allowed under SWO and/or shark LAPs - Trip limits may increase harvest costs for Caribbean HMS GCHP permit holders
2.c.2. As a sub-alternative to Alternative 2 above, establish Caribbean HMS GCHP retention limits based on current incidental SWO and shark trip limits	<ul style="list-style-type: none"> - Impacts would likely be minimal for the North Atlantic SWO stock since the U.S. quota has been underharvested in recent years - Could negatively impact some shark populations due to increased fishing effort - May not be ecologically sustainable for some species of sharks 	<ul style="list-style-type: none"> - Could allow fishermen to retain and sell HMS - Could negatively impact the values of SWO and shark LAPs; however, no LAPs are currently issued in the U.S Caribbean
2.d.1. As a sub-alternative to Alternative 2 above, allow Caribbean HMS GCHP holders to participate in recreational HMS fishing tournaments and to retain BLF if captured on rod and reel while participating in a registered HMS tournament	<ul style="list-style-type: none"> - Minimal negative impacts anticipated as this exemption currently exists for Atlantic Tunas General permit holders - Could result in additional BLF, SWO, and shark mortalities if the number of Caribbean HMS GCHP holders that participate in HMS tournaments exceeds the number of Atlantic Tunas General permit holders that currently participate in HMS tournaments 	<ul style="list-style-type: none"> - Could have a positive social and economic impact on Caribbean HMS GCHP holders who did not previously hold an Atlantic Tunas General permit and who might participate in HMS tournaments - Could have a positive social and economic impact on local businesses where HMS tournaments are held due to increased tournament participation
2.d.2. As a sub-alternative to Alternative 2 above, do not allow Caribbean HMS GCHP holders to participate in recreational HMS fishing tournaments or retain BLF if captured on rod and reel while participating in a registered HMS tournament	<ul style="list-style-type: none"> - Could reduce BLF mortalities by reducing the number of permit holders that may participate in HMS tournaments 	<ul style="list-style-type: none"> - Could have negative social and economic impacts on Atlantic Tuna General permit holders that currently participate in HMS tournaments in the Caribbean - Could have negative social and economic impact on local businesses where HMS tournaments are held due to decreased tournament participation

Alternative	Ecological Impacts	Social/Economic Impacts
2.e.1. As a sub-alternative to Alternative 2 above, allow Caribbean HMS GCHP holders to possess HMS when unauthorized gears are onboard	- Could result in the illegal harvest of HMS with unauthorized gears, which could increase fishing pressure on HMS	- Could benefit commercial fishermen economically by allowing them more flexibility to participate in multiple fisheries and possess gears necessary for participation in those fisheries
2.e.2. As a sub-alternative to Alternative 2 above, do not allow Caribbean HMS GCHP holders to possess HMS when unauthorized gears are onboard	- Would allow authorized gear regulations to be better enforced and assurance that HMS are not harvested with illegal gear types	- Would continue to restrict the flexibility of commercial fishermen who currently participate in multiple fisheries with different authorized gear restrictions on the same trip

2.1.2 Dealer Permitting

2.1.2.1 Description of the Issue

As of May 2009, there was one federally permitted dealer authorized to purchase SWO, no dealers authorized to purchase shark, and nine dealers authorized to purchase tunas in Puerto Rico. Additionally, there were no dealers authorized to purchase SWO or shark, and four dealers authorized to purchase tunas in the USVI. The limited number of federal HMS dealers in the Caribbean likely limits the ability of commercial fishermen to sell their catches legally and/or does not match the current practices in the region. Current federal regulations require that all HMS harvested from the management unit be sold to a federally permitted dealer. During discussions with the CFMC and the territorial governments, NOAA Fisheries learned that some fishermen may not be selling HMS to federally permitted dealers. Fishermen may be selling their catches directly to restaurants and/or individuals. Not selling catches to federally permitted dealers not only results in potential violation of federal regulations, but also limits the amount of landings information provided to NOAA Fisheries from dealers through dealer reports. NOAA Fisheries relies on dealer reported data for domestic quota monitoring, international reporting, and stock assessments. A list of alternatives considered for dealer permitting and their associated impacts can be seen in Table 2.2.

2.1.2.2 Potential Alternatives for Management

Table 2.2 List of alternatives considered for dealer permitting.

Alternative	Ecological Impacts	Social/Economic Impacts
<p>1. Maintain current dealer permitting regime – Require separate SWO, shark, and tunas dealer permits (Status quo)</p>	<ul style="list-style-type: none"> - Would likely not improve commercial HMS reporting in the region resulting in a continued lack of data and understanding of the ecological impacts of current harvest practices - Would likely not improve accuracy of data used for quota monitoring and stock assessments, which could have a negative ecological impact if landings are not fully accounted for in stock assessments 	<ul style="list-style-type: none"> - Would likely not match the current practices of commercial fishermen and “dealers” in the U.S. Caribbean - Limited ability to identify and obtain information from HMS “dealers” could result in these businesses being unrecognized in future HMS management actions
<p>2. Create a single Caribbean HMS dealer permit allowing the purchase and sale of SWO, shark, and tunas (requirement to take shark identification workshop)</p>	<ul style="list-style-type: none"> - Could improve commercial HMS reporting in the region, which could have a positive ecological impact on HMS stocks if landings are accounted for in stock assessment - Could improve accuracy of data used for quota monitoring and stock assessments, which could have a positive ecological impact if management measures are implemented to rebuild overfished stocks - Requirement of the shark identification workshop could help with shark species identification and improve shark quota monitoring and data for future stock assessments 	<ul style="list-style-type: none"> - Would likely not match the current practices of commercial fishermen and “dealers” in the U.S. Caribbean - Requiring one dealer permit to purchase HMS would likely result in positive social and economic impacts, relative to the status quo - Would likely improve the Agency’s ability to identify and obtain information from dealers who purchase HMS - May result in more businesses who purchase HMS being identified and included in future HMS rulemaking analyses - Would likely increase the number of dealer locations where fishermen may legally sell their HMS - The requirement to complete the shark identification workshop could result in negative social and economic impacts due to time commitment and potential travel costs - Additions to the workshop program and certification process may result in increased administrative and cost burden to the Agency

Alternative	Ecological Impacts	Social/Economic Impacts
<p>3. Allow Caribbean HMS GCHP holders to wholesale/retail catches (requirement to take shark identification workshop; consider having dealer endorsement)</p>	<ul style="list-style-type: none"> - Could improve commercial HMS reporting in the region, which could have a positive ecological impact if harvests are accounted for in stock assessments - Could improve accuracy of data used for quota monitoring and stock assessments, which could have a positive ecological impact if harvests are accounted for in stock assessments - Could have negative ecological impact if large numbers of fishermen enter the fishery to catch and sell HMS - Requirement of the shark identification workshop could help with shark species identification and improve shark quota monitoring and data for future stock assessments 	<ul style="list-style-type: none"> - Would likely better match the current practices of commercial fishermen and “dealers” in the U.S. Caribbean - Would allow the commercial sale of HMS to individuals and restaurants to be identified and documented, resulting in better recognition in future HMS management actions - The requirement for fishermen to complete the shark identification workshop could result in negative social and economic impacts due to lost fishing time and potential travel costs - Additions to the workshop program and certification process may result in increased administrative and cost burden to the Agency

2.2 Reporting

2.2.1 Commercial Reporting

2.2.1.1 Description of the Issue

Dealers and fishermen provide fishery dependent information that is essential to the management of HMS fisheries. Data on landings and sales provided by dealers and information on catch, landings, location, and effort provided by fishermen are used for biological, social, and economic analyses necessary for fisheries management as well as for documenting catch histories, which can be important for quota allocations domestically and internationally. Data collection requirements and needs frequently vary from fishery to fishery. As a result, dealers and fishermen may be required to report data about different species on different NOAA Fisheries forms to more than one NOAA Fisheries office. Different types of information may be collected using different methodologies such as vessel logbooks or dealer reports.

Currently, in HMS fisheries, all commercial fishing vessels and CHB vessels are required to submit logbooks for all HMS trips if they are selected for reporting. Permit holders selected for reporting include all shark and SWO LAP permit holders as well as Atlantic Tunas Longline permit holders. These permit holders are required to submit logbooks to the Southeast Region of NOAA Fisheries. Currently, HMS CHB and Atlantic Tunas General permit holders are not selected for submitting logbooks. During scoping, NOAA Fisheries heard that there is interest in a new Caribbean handgear permit; thus, NOAA Fisheries is considering the Caribbean HMS GCHP in this amendment (see Section 2.1.1). If NOAA Fisheries implements a new Caribbean permit, NOAA Fisheries may require fishermen to report their catch associated with the new permit via logbooks, if selected.

All federally permitted HMS dealers are required to submit reports detailing the nature of their business. Swordfish, shark, and tuna dealer permit holders must submit bi-weekly dealer reports on all HMS they purchase. In addition, tuna dealers must submit, within 24 hours of the receipt of a BFT, a landing report for each BFT purchased from a U.S. fisherman. To facilitate quota monitoring, “negative reports” for shark and SWO are required from dealers when no purchases are made during a reporting period.

Currently, the Puerto Rico Department of Natural and Environmental Resources (DNER) and the USVI Department of Planning Natural Resources (DPNR) collect some information on certain species. NOAA Fisheries is working with the DNER in Puerto Rico and DPNR in the USVI to improve species-specific data collection and standardization in data collection between Puerto Rico, the USVI, and NOAA Fisheries. The absence of HMS LAPs and the scarcity of HMS dealers in the U.S. Caribbean have hindered the collection of data necessary for the proper management of HMS. Thus, NOAA Fisheries is investigating ways to collect fishery data from Caribbean fishermen and dealers that would provide reliable fisheries data and that would work with Caribbean fishing practices. During scoping, NOAA Fisheries heard that any new reporting requirements should be in coordination with the DNER in Puerto Rico and DPNR in the USVI, and any new forms would need to be simple and available in both English and Spanish. As such, NOAA Fisheries is considering ways to improve commercial reporting in Caribbean fisheries

through this upcoming amendment. A list of alternatives considered for commercial reporting and their associated impacts are shown in Table 2.3.

2.2.1.2 Potential Alternatives for Management

Table 2.3 List of alternatives considered for commercial reporting.

Alternative	Ecological Impacts	Social/Economic Impacts
1. Maintain current reporting regulations (Status quo)	<ul style="list-style-type: none"> - Lack of data from commercial landings, including species-specific information on HMS from Caribbean fisheries, limits NOAA Fisheries’ ability to collect the necessary information needed to improve quota monitoring and stock assessments, which could negatively impact HMS stocks 	<ul style="list-style-type: none"> - No new reporting requirements would have neutral impacts on commercial fishermen and dealers; in long term if HMS stocks decrease as a result of non-reporting, commercial fishermen and dealers could be negatively affected - Lack of species-specific information on HMS from Caribbean fisheries may result in under-reporting of catch and could affect future quota allocation of HMS stocks domestically and internationally, which could result in reduced fishing opportunities in the Caribbean - Lack of species-specific and fishing effort information on HMS from Caribbean fisheries may negatively affect future HMS stock assessments; could result in poor stock status and reduced fishing opportunities in the future
2. Collect catch and effort data from the DNER in Puerto Rico and the DPNR in the USVI	<ul style="list-style-type: none"> - Territorial government forms are not species-specific for many HMS. Lack of species-specific information on HMS from Caribbean fisheries limits NOAA Fisheries’ ability to collect the necessary information needed to improve quota monitoring and stock assessments, which could negatively impact HMS stocks - Territorial government forms do not contain the necessary fishing effort information needed for stock assessments, which could negatively impact HMS stocks 	<ul style="list-style-type: none"> - Would not create any additional burden on commercial fishermen as they already report catch through territorial data collections - Lack of species-specific information on HMS from Caribbean fisheries may result in under-reporting of catch and could affect future quota allocation of HMS stocks domestically and internationally, which could result in reduced fishing opportunities in the Caribbean - Lack of species-specific and fishing effort information on HMS from Caribbean fisheries may negatively affect future HMS stock assessments; could result in poor stock status and future reductions in Caribbean fisheries - Lessens the burden on the Agency and fishermen in that no new forms would be needed and current territorial reporting forms are already distributed to the commercial fishermen via the DNER in Puerto Rico and the DPNR in the USVI

Alternative	Ecological Impacts	Social/Economic Impacts
3. Require vessel logbooks for Caribbean HMS GCHP holders, if selected	<ul style="list-style-type: none"> - Would allow the collection of fishing effort and species-specific catch and discard information; such information could be beneficial to future HMS stock assessments - Quota monitoring is conducted with HMS dealer reports; lack of improved dealer reporting could result in underestimates of total catch of HMS stocks, which could have negative impacts on HMS stocks 	<ul style="list-style-type: none"> - Would be an additional reporting burden on commercial fishermen; however, currently Atlantic Tunas General permit holders are not selected to report - Would not create any additional burden on commercial dealers - Would allow more accurate estimates of fishing effort, catch, and discards, which could be beneficial to future HMS stock assessments and result in increased fishing opportunities - Increased burden to the Agency in that any new reporting forms would need to be created in English and Spanish - Increased burden to the Agency in that the Agency would need to effectively distribute, collect, and analyze any new forms
4. Require vessel logbooks (if selected) and dealer reports from Caribbean HMS GCHP holders – if allowed to wholesale/retail catch	<ul style="list-style-type: none"> - Would allow the collection of fishing effort and species-specific catch and discard information; such information could be beneficial to future HMS stock assessments and could have positive impacts on HMS stocks - Would improve dealer reporting and, therefore, quota monitoring; improved dealer reporting could improve estimates of total catch of HMS stocks, which could have positive impacts on HMS stocks 	<ul style="list-style-type: none"> - Would be an additional reporting burden on commercial fishermen and dealers; however, currently Atlantic Tunas General permit holders are not selected to report - Would allow more accurate estimates of fishing effort, catch, and discards, which could be beneficial to future HMS stock assessments and result in increased fishing opportunities - Would allow more accurate quota monitoring, which could be beneficial to HMS stocks and could result in increased fishing opportunities - Increased burden to the Agency in that any new reporting forms would need to be created in English and Spanish - Increased burden to the Agency in that the Agency would need to effectively distribute, collect and analyze any new forms
5. Improve awareness of importance of data reporting through increased outreach efforts	<ul style="list-style-type: none"> - Increased awareness could result in more fishermen and dealers reporting catches of HMS; however, without improvements to how data on HMS catch and fishing effort are collected (<i>e.g.</i> species-specific reporting and information on fishing effort by gear type), NOAA Fisheries may not collect the necessary information needed to improve quota monitoring and stock assessments, which could negatively impact HMS stocks 	<ul style="list-style-type: none"> - Increased outreach may result in commercial fishermen and dealers being more willing to report HMS catches - Without improvements to how data on HMS catch and fishing effort are collected (<i>i.e.</i>, such as species-specific reporting and information on fishing effort by gear type), NOAA Fisheries may not collect the necessary information needed to improve quota monitoring and stock assessments, which could negatively impact HMS stocks and result in decreased fishing opportunities in the future - Increased burden to the Agency to produce outreach materials in both Spanish and English

2.2.2 Recreational Reporting

2.2.2.1 Description of the Issue

As is the case in the continental United States, recreational harvest (including subsistence fishing) of HMS in the U.S. Caribbean region likely constitutes a significant portion of the overall catch. However, there are currently few self-reported recreational landing reports for Atlantic BUM, WHM, SAI, or SWO received from anglers in Puerto Rico or the USVI. Federal regulations require owners of HMS Angling and HMS CHB permitted vessels to report landings of recreationally harvested BLF, SWO, or BFT to NOAA Fisheries within 24 hours of landing at the dock, but due to a variety of factors including language barriers, infrastructure challenges, and a lack of awareness of federal regulations, landings reports are not always submitted by U.S. Caribbean anglers.

Based on recommendations made by a National Research Council review of federal recreational landings data collection, NOAA Fisheries designed a nationwide system to standardize recreational data collection. Termed the Marine Recreational Information Program (MRIP), the program focuses on integrating state- and federal-level recreational permit information to create a resource for targeted surveys of anglers' catch and effort. A pilot MRIP program has begun in Puerto Rico and is currently in the first phase. This phase aims to collect information from recreational fishermen regarding where and how often they fish, where they land their catch, and what species they are targeting. Information from this data collection phase will be used to design a recreational reporting system for the U.S. Caribbean in Phase II of MRIP.

Currently, catch data from HMS tournaments in Puerto Rico is considered to be adequate since the Puerto Rico DNER sends biologists to each HMS tournament to collect fisheries data. The adequacy of HMS tournament data collection from the USVI is unknown.

NOAA Fisheries is considering a range of alternatives that could increase the amount and accuracy of data collected from HMS recreational anglers. A list of alternatives for recreational reporting and their associated impacts are shown in Table 2.4.

2.2.2.2 Potential Alternatives for Management

Table 2.4 List of alternatives considered for recreational reporting.

Alternative	Ecological Impacts	Social/Economic Impacts
1. Maintain current recreational reporting requirements (Status quo)	<ul style="list-style-type: none"> - Would allow purported undocumented HMS landings to continue, resulting in negative impacts to quota monitoring and stock assessments 	<ul style="list-style-type: none"> - No increase in costs or burden to fishermen - Unsustainable harvests could result in stock declines, low catch rates, and/or fishery closures
2. Increase outreach and education regarding recreational reporting requirements	<ul style="list-style-type: none"> - May result in better compliance with existing recreational fishery reporting requirements - May improve accuracy of data used for quota monitoring and stock assessments 	<ul style="list-style-type: none"> - May improve communication and understanding between constituents and the Agency - Would likely reduce confusion over regulatory requirements; outreach documents would need to be available in both English and Spanish - Agency cost burden greater than for the status quo
3. Establish mandatory HMS reporting stations in the U.S. Caribbean (dockside reporting/catch card programs)	<ul style="list-style-type: none"> - Would likely increase the number of landings reports significantly - Would improve accuracy of data used for quota monitoring and stock assessments 	<ul style="list-style-type: none"> - Potential for increased vessel operating costs if vessels must travel longer distances to land fish at mandatory reporting stations - Potential for negative social impacts if reporting station requirements increase trip duration - Would likely result in substantial costs to the Agency
4. Implement MRIP recommendations regarding recreational reporting	<ul style="list-style-type: none"> - Would likely improve accuracy of data used for quota monitoring and stock assessments - Lack of finalized MRIP recommendations complicates impact assessment at this time 	<ul style="list-style-type: none"> - Lack of finalized MRIP recommendations complicates impact assessment at this time

2.3 Offshore Fishery Resources

2.3.1 Fish Aggregating Devices

2.3.1.1 Description of the Issue

Fish aggregating devices are free-floating or anchored objects deployed to concentrate target species or bait fishes, and to improve the catch for artisanal, recreational, or commercial fisheries. Fish aggregating devices have been widely used because of the tendency for fishes to aggregate around floating objects, including both man-made and natural objects, thus increasing catch rates for targeted species. There are many hypotheses about why fish aggregate around floating objects, including: improved feeding opportunities due to the invertebrate communities that attach to floating objects and the presence of bait fish; as a resting place; as protection from predators; and, to safeguard the dispersion of eggs and larvae and juvenile stages during dispersion to other areas (Castro *et al.*, 2002). For tunas, FADs may also serve as a meeting point for schools that are normally dispersed in the pelagic environment (Dagorn and Fréon, 1998).

Fish aggregating devices may range in size from large, free-floating structures that purse seiners use to aggregate tunas and other pelagic species (as in the Gulf of Guinea), to much smaller floats or anchored buoys where rod and reel and handline are the primary gears used to catch fish (as in the USVI). The most popular fishing methods used around FADs in the USVI include trolling or drifting with rod and reel or handline gear around anchored FADs (pers. comm., William Tobias). However, trolling seems to be the preferred method of fishing and generally accounts for a majority of the catch around FADs, particularly in the Pacific.

Fish aggregating devices have been used to a limited degree in the USVI, to enhance offshore fishing opportunities, particularly as catch rates of other traditionally fished stocks such as snappers, groupers, and other reef fishes have declined. Species that are typically caught around FADs include dolphin, tunas, and BLF, but may also include wahoo, mackerel, jacks and other marketable species. Current knowledge regarding the pelagic species aggregated and caught around anchored FADs in the Caribbean is based on limited commercial fishing data, and currently does not include information from the USVI or Puerto Rico fisheries (Doray, 2002).

The USVI DPNR has deployed several FADs offshore in an attempt to move fishing pressure away from reefs. Unlike large scale floating FADs used in the Pacific and other parts of the world to target tunas with purse seines, the FADs deployed in the U.S. Caribbean are small and similar in size and appearance to navigational buoys. Currently there are nine documented anchored FADs in territorial waters or the U.S. EEZ off St. Thomas and St. Croix, all of which are located within 20 nmi of shore and are placed in depths ranging from 235-5,400 ft (Figure 2.1 and Figure 2.2). Both surface and sub-surface FADs have been deployed by the USVI DPNR. The surface FADs consist of a 58" diameter steel sphere surface buoy with a radar reflector and strobe light. Submerged FADs consist of one or two metal canisters at least 50 ft below the surface. Puerto Rico DNER deployed some FADs off Puerto Rico in the past, but they no longer exist. A list of alternatives considered for FADs and their associated impacts are

described in Table 2.5. The geographic coordinates of the FADs currently deployed off the USVI can be seen in Table 2.6.

2.3.1.2 Potential Alternatives for Management

Table 2.5 List of alternatives considered for fish aggregating devices.

Alternative	Ecological Impacts	Social/Economic Impacts
1. Allow retention of HMS in the vicinity of FADs (Status quo)	<ul style="list-style-type: none"> - Unlikely to have negative impacts because of the low number of FADs currently in existence - Could have negative ecological impacts if large numbers of HMS are caught - Could have negative ecological impacts if large numbers of FADs are deployed and utilized in the future - May have positive effects on other species by reducing fishing pressure on reefs - Minimal negative impacts on protected resources - Minimal impacts on EFH and sensitive resources such as corals 	<ul style="list-style-type: none"> - Could provide additional fishing opportunities and result in positive economic impacts - May result in increased revenue if fish are sold
2. Allow retention of HMS in the vicinity of FADs and monitor fishing effort and catches near FADs (via a checkbox on reporting forms or other methods as specified by NOAA Fisheries)	<ul style="list-style-type: none"> - Unlikely to have negative impacts because of the low number of FADs currently in existence - Could have negative ecological impacts if large numbers of HMS are caught - Could have negative ecological impacts if large numbers of FADs are deployed and utilized in the future - May have positive effects on other species by reducing fishing pressure on reefs - Minimal negative impacts on protected resources - Minimal impacts on EFH and sensitive resources such as corals - Would improve information on HMS caught in the vicinity of FADs which would assist future management decisions 	<ul style="list-style-type: none"> - Could provide additional fishing opportunities and result in positive economic impacts - May result in increased revenue if fish are sold - May result in negative social impacts due to additional reporting requirements

Alternative	Ecological Impacts	Social/Economic Impacts
3. Allow retention of HMS in the vicinity of a limited number of FADs	<ul style="list-style-type: none"> - Precautionary approach would allow retention of HMS in the vicinity of some, but not all, of the existing FADs - Would reduce the current impact on HMS by lowering the number of FADs where HMS could be retained - Could have a negative impact if fishing effort is concentrated on only a few FADs - Could increase dead discards if HMS catches in the vicinity of FADs have low survivability - Minimal negative impacts on protected resources are anticipated - Minimal impacts on EFH and sensitive resources such as corals 	<ul style="list-style-type: none"> - Could provide additional fishing opportunities and result in positive economic impacts - May result in increased revenue if fish are sold - Could increase operating costs if the limited number of FADs requires some vessels to travel further offshore - May create safety at sea concerns if small vessels are required to travel further offshore to reach FADs where HMS are allowed to be retained - My raise enforcement concerns
4. Prohibit the possession of HMS in the vicinity of FADs	<ul style="list-style-type: none"> - Limited impacts because of the low number of FADs currently in existence - Could have a positive impact by reducing the number of HMS harvested - May increase fishing effort on other species and/or bycatch of HMS near FADs - Could increase dead discards if HMS catches in the vicinity of FADs have low survivability 	<ul style="list-style-type: none"> - Would reduce fishing opportunities and result in negative economic impacts - May result in loss of income if fish are not caught and sold - My raise enforcement concerns

Table 2.6 FAD locations in the U.S. Caribbean region.

Island	FAD	Geographic Coordinates	Depth (ft)	Location from Land
St. Croix	S	17° 49.96' N; 65° 01.20' W	1,980	Surface buoy, 6.5 nm NW of Butler Bay
St. Croix	C	17° 58.87' N; 64° 30.26' W	5,400	Surface buoy, 17 nm NE of C'sted harbor
St. Croix	B	17° 51.72' N; 64° 30.87' W	3,400	Surface buoy, 7 nm NE of East Point
St. Croix	U	17° 44.00' N; 64° 54.60' W	2,000	Submerged buoy, 2 nm W of Sprat Hole* U.S. Navy underwater
St. Thomas	E	18° 11.05' N; 64° 55.87' W	1,465	Submerged buoys; 10 nm S of Charlotte Amalie Harbour
St. Thomas	F	18° 35.40' N; 65° 03.4' W	1,360	Surface buoy; 9.8 nm N of Cricket Rock
St. Thomas	K	18° 36.40' N; 64° 58.40' W	235	Submerged buoy; 13 nm N of Little Hans Lollick
St. Thomas	L	18° 09.26' N; 64° 50.17' W	2,501	Surface buoy; 12nm SE of Charlotte Amalie
St. Thomas	H	18° 38.30' N; 65° 58.80' W	1,610	Surface buoy; 14.5 nm N of Outer Brass Island

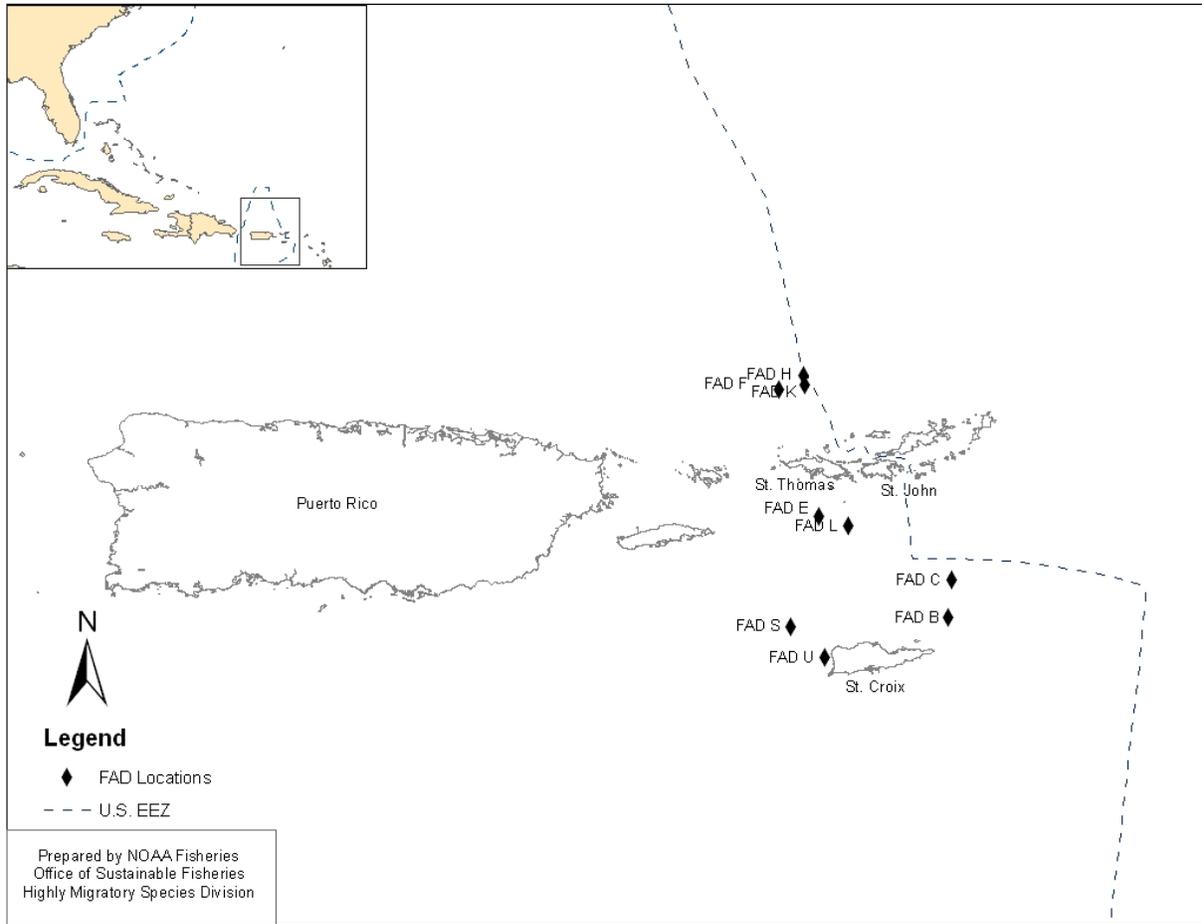


Figure 2.1 Chart showing FAD locations in the U.S. Caribbean region.

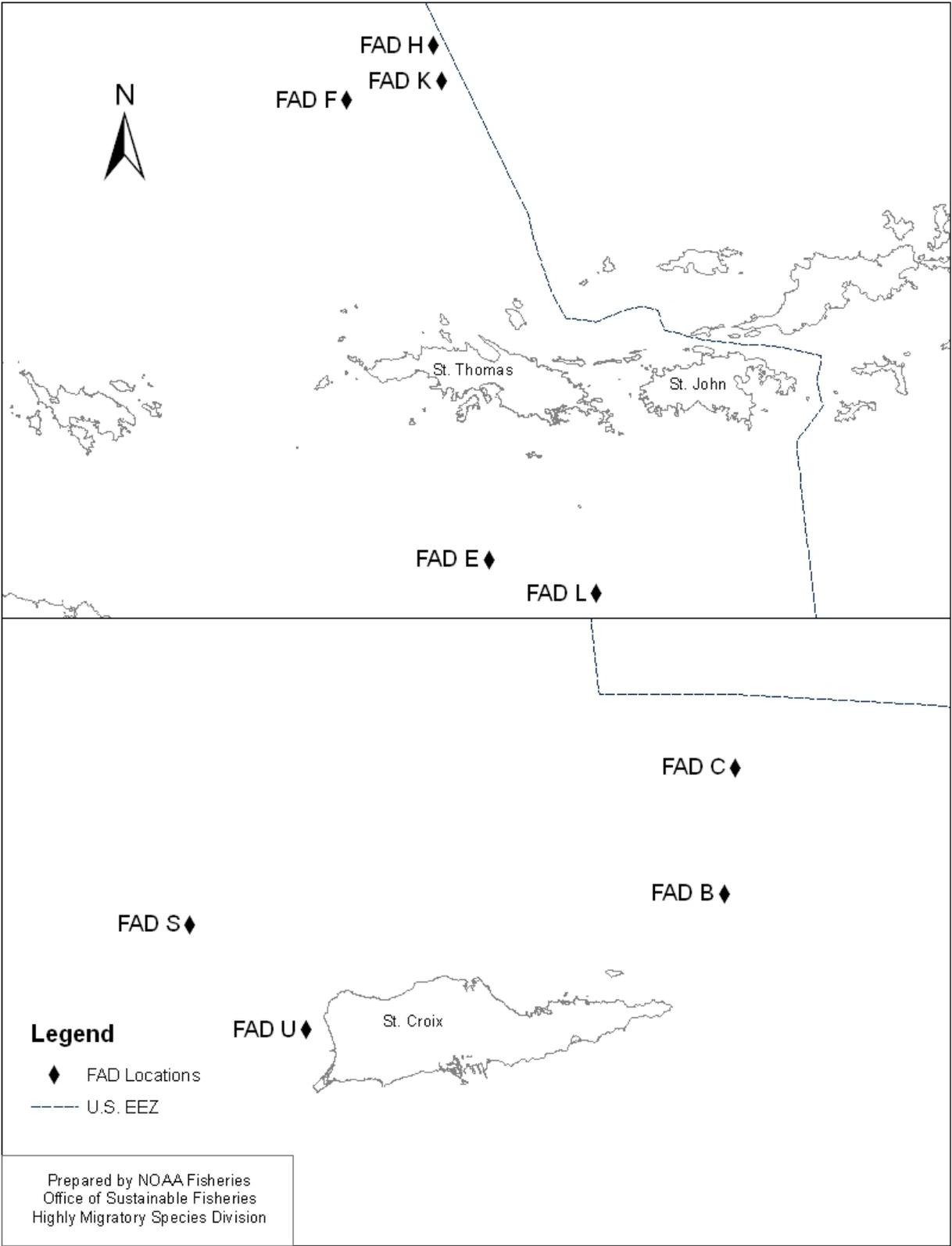


Figure 2.2 Chart showing FAD locations off St. Thomas and St Croix, USVI.

2.4 Agency Outreach

2.4.1 Training Workshops and Education

2.4.1.1 Description of the Issue

Constituents have expressed concern over the complexity of HMS regulations. The creation of additional outreach documents, available in both Spanish and English, which provide an explanation of HMS management, would likely be beneficial to U.S. Caribbean fishermen. The availability of outreach documents may result in improved public relations on behalf of the Agency, improved compliance with regulations, and a better understanding of the HMS regulatory process. Additionally, the creation of user-friendly HMS identification guides, available in both Spanish and English, may aide fishermen in catch identification and would likely improve species-specific reporting in the Caribbean region.

Proper identification of both targeted and non-targeted HMS and threatened and endangered species that fishermen may interact with while pursuing HMS is paramount to the effective implementation of HMS regulations and management. Permitted fish dealers and fishermen are responsible for accurately identifying HMS on dealer reports and logbooks submitted to NOAA Fisheries. These reports form the basis of quota monitoring activities and data used in stock assessments. Misidentification of certain HMS can negatively impact quota monitoring, stock assessments, calculation of season lengths, and the criteria used to designate certain species as prohibited, among others. Additional outreach documents, identification guides, and species identification and regulatory compliance workshops may provide a means for those involved with HMS (fishermen, dealers, and law enforcement personnel) to improve identification skills and gain a better understanding of HMS regulatory requirements.

Training workshops could be held in a “town hall” format at regional fishing ports where as many constituents as possible would be able to participate and interact with NOAA Fisheries staff. Topics for discussion could be interactive and include, among other things: permitting, reporting, species identification, the role of ICCAT in managing HMS, domestic legislation, consultations with NOAA Fisheries Office of Protected Resources, and introduction to the Magnuson-Stevens Act, ESA, ATCA, and other applicable laws. It should be noted that these workshops may not need to be presented as stand alone workshops, but could be incorporated into, or held in concert with, workshops that are currently mandatory for certain HMS permit holders. A list of alternatives for training workshops and education and their associated impacts are shown in Table 2.7.

2.4.1.2 Potential Alternatives for Management

Table 2.7 List of alternatives considered for training workshops and education.

Alternative	Ecological Impacts	Social/Economic Impacts
1. Maintain status quo (compliance guides, existing placards, list serve notices, HMS website, workshops for some LAP holders)	<ul style="list-style-type: none"> - Would likely not improve species-specific reporting - Would likely not improve accuracy of data used for quota monitoring and stock assessments - Limits the Agency's ability to disseminate information important to improving the health of vulnerable or protected species 	<ul style="list-style-type: none"> - No travel costs for fishermen - Could lead to negative impacts if lack of reporting leads to reductions of quotas and fishing opportunities - Confusion over regulatory requirements and species identification would likely continue - No additional administrative burden or cost to the Agency
2. Create HMS outreach documents explaining how the United States is allocated quota by ICCAT, why permitting and reporting are important, how and when to participate in the rulemaking process, and include ID guides for Caribbean HMS; have documents available in English and Spanish	<ul style="list-style-type: none"> - May improve species-specific reporting - May improve accuracy of data used for quota monitoring and stock assessments - Potential for increased rate of survival for prohibited or protected species - Increases Agency's ability to disseminate information on HMS and protected resources 	<ul style="list-style-type: none"> - Would likely reduce confusion over regulatory requirements and species identification - May improve communication between CFMC staff, territorial government staff, constituents, and the Agency - Agency administrative and cost burden greater than for the status quo
3. Hold HMS identification and regulatory compliance workshops throughout the Caribbean region for commercial and recreational fisheries; participation would be voluntary	<ul style="list-style-type: none"> - Would likely improve species-specific reporting - Would likely improve accuracy of quota monitoring and stock assessments - May increase post-release survival of prohibited and protected species - Increases Agency's ability to disseminate information on HMS and protected resources - Voluntary workshops have not been well attended, so potential ecological benefits may not be realized 	<ul style="list-style-type: none"> - Negative economic impacts to fishermen choosing to participate due to travel costs and lost fishing time - May improve communication and understanding between constituents and the Agency - Would reduce confusion over regulatory requirements and species identification - Could improve coordination between the CFMC, territorial governments, and the Agency - Workshops would likely result in increased administrative and cost burden to the Agency

Alternative	Ecological Impacts	Social/Economic Impacts
<p>4. Hold HMS identification and regulatory compliance workshops throughout the Caribbean region; participation would be mandatory for Caribbean HMS GCHP holders</p>	<ul style="list-style-type: none"> - Would likely improve species-specific reporting - Would likely improve accuracy of quota monitoring and stock assessments - May increase post-release survival of prohibited and protected species - Maximizes the Agency's ability to disseminate information on HMS and protected resources to commercial fishermen 	<ul style="list-style-type: none"> - Negative economic impacts to fishermen due to travel costs and lost fishing time - Would likely improve communication and understanding between commercial fishermen and the Agency - Would reduce confusion over regulatory requirements and species identification for commercial fishermen - Could improve coordination between the CFMC, territorial governments, and the Agency - Workshops/certification process would result in increased administrative and cost burden to the Agency
<p>5. Hold HMS identification and regulatory compliance workshops throughout the Caribbean region; participation would be mandatory for HMS Angling and HMS CHB permit holders operating in the Caribbean Region</p>	<ul style="list-style-type: none"> - Would likely improve species-specific reporting - Would likely improve accuracy of quota monitoring and stock assessments - May increase post-release survival of prohibited and protected species - Maximizes the Agency's ability to disseminate information on HMS and protected resources to recreational anglers 	<ul style="list-style-type: none"> - Negative economic impacts to fishermen due to travel costs and lost fishing time - Would likely improve communication and understanding between recreational fishermen and the Agency - Would reduce confusion over regulatory requirements and species identification for recreational fishermen - Could improve coordination among the CFMC, territorial governments, and the Agency - Would result in greater workshop/certification process administrative and cost burden to Agency compared to other alternatives due to increased universe required to take training

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