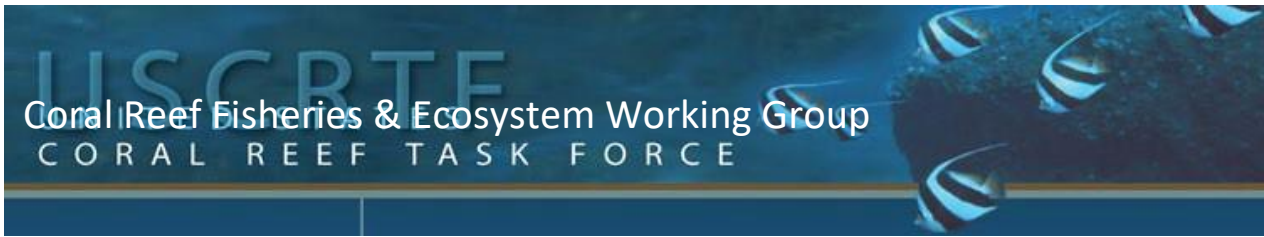


JURISDICTIONAL FISHERIES ACTION PLANS

A REPORT BY THE USCRTF CORAL REEF
FISHERIES & ECOSYSTEM WORKING GROUP
APRIL 2023

USCRTF
UNITED STATES
CORAL REEF TASK FORCE





April 12, 2023

US Coral Reef Task Force Members:

On behalf Coral Reef Fisheries and Ecosystem Working Group, we are very excited to share this accomplishment report.

The working group was established to support jurisdictional coral reef fisheries management through strengthened partnership across the CRTF family. We are happy to report that this working group has successfully developed an approach that focuses on defining how federal members can assist local jurisdiction in supporting coral reef fisheries management through a process that is locally led.

The product of this effort has resulted in strong cross jurisdictional learning exchanges, improved coral reef fishery management partnerships, leveraged technical and financial support, provided clear guidance on how federal agencies can support coral reef fisheries management and developed a model that CRTF members have found productive.

We again wish to acknowledge and thank all the working group members for their great work and emphasize our appreciation for the added investment that jurisdictional representatives provided.

If you have any questions, please feel free to contact either of us. Respectfully,

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Executive Summary

The Coral Reef Fisheries and Ecosystem Working Group was established in October 2020 recognizing the United States Coral Reef Task Force (USCRTF) U.S. Coral Reef National Action Strategy had a gap with regard to strengthening coral reef fisheries management efforts. The main goal of the multi-agency Coral Reef Fisheries and Ecosystem Working Group was to develop jurisdictionally led Action Plans that define how federal members can support coral reef fisheries efforts. Each jurisdiction created and shared its “Action Plan” with the working group to identify potential areas of federal support and share effective strategies across the jurisdictions. Each jurisdiction identified its top three needs with support for management planning, monitoring, habitat mapping, and law enforcement being prioritized by multiple jurisdictions. Cross-cutting priorities across jurisdictions were also identified. More details on each of the top three needs as well as the complete Action Plans are included in this report. The Action Plans offer a concise reporting of jurisdictional needs to improve coordination, easily communicate the highest priorities, and guide the development of projects. The Action Plan outcomes will be shared with the USCRTF Steering Committee. The working group plans to repeat the same process to update the Action Plans, as needed, as well as document successfully completed projects.

This document highlights the top 3 jurisdictional priorities in order to identify cross-cutting issues and to focus effort and increase the probability of successful outcomes.

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About the United States Coral Reef Task Force

The USCRTF¹ was established in June 1998 by Presidential Executive Order 13089² to lead the U.S. efforts to preserve and protect coral reef ecosystems. The USCRTF has been instrumental in building partnerships and strategies for on-the-ground action to conserve coral reefs. The USCRTF membership, as established in 1998, includes members of 11 Federal agencies, which has since grown to include 14 Federal agencies, 7 U.S. States, Territories, Commonwealths, and 3 Freely Associated States. The U.S. States, Territories, Commonwealths, and Freely Associated States participate on the U.S. All Islands Committee³ to provide a unified voice for the effective management of coral reef ecosystems of the U.S. and Freely Associated States. The USCRTF works in cooperation with State, territorial, commonwealth, and local government agencies, nongovernmental organizations, the scientific community, and commercial interests to further the understanding and conservation of coral reef ecosystems.

The USCRTF is responsible for overseeing implementation of the Executive Order and developing and implementing coordinated efforts to map and monitor U.S. coral reefs; research the causes of and solutions to coral reef decline; reduce and mitigate coral reef degradation from pollution, over fishing, and other causes; and implement strategies to promote conservation and sustainable use of coral reefs internationally.

In March 2000, the USCRTF adopted the National Action Plan to Conserve Coral Reefs⁴ (National Action Plan), the first national blueprint for U.S. domestic and international action to address the growing coral reef crisis. The plan outlines 13 integrated conservation strategies⁵ within two fundamental themes to address the most pressing challenges facing reefs today. To help implement the National Action Plan, the USCRTF launched a variety of initiatives and provides a forum to support collaborative action of its members and partner organizations.

In September 2002, the USCRTF developed the U.S. Coral Reef National Action Strategy⁶ (National Action Strategy) to further implement the National Action Plan as called for in the Coral Reef Conservation Act of 2000. These documents provide guiding framework for the priorities, strategies, and actions of the USCRTF and its members. For more information about the work of the USCRTF, please see <https://www.coralreef.gov/>.

About the USCRTF Coral Reef Fisheries & Ecosystem Working Group

The Coral Reef Fisheries and Ecosystem Working Group was established in October 2020 to strengthen coral reef fisheries management efforts in the National Action Strategy. While coral reef fisheries management has always been a key priority for the USCRTF, it has been challenging to make progress given the traditional and community dependence on the resource. To promote collaboration and discussion among jurisdictional partners and federal agencies, a National Oceanic and Atmospheric

¹ <https://www.coralreef.gov/assets/about/charter%20document.pdf>

² https://www.coralreef.gov/assets/meeting4/executive_order13089.pdf

³ <https://allislandscommittee.org/>

⁴ <https://www.coralreef.gov/assets/about/CRTFAxnPlan9.pdf>

⁵ <https://www.coralreef.gov/goals.html>

⁶ https://www.coris.noaa.gov/activities/actionstrategy/action_reef_final.pdf

Administration (NOAA) National Marine Fisheries Service (NMFS) and a jurisdictional representative co-chair the working group. As Fisheries Jurisdictional Action Plans were developed, two co-leads led each of the sub-groups in the Atlantic and Pacific Basins.

About this Document

This document was developed by the Coral Reef Fisheries and Ecosystem Working Group of the USCRTF. This document serves to guide and coordinate actions of the USCRTF by identifying Coral Reef Fisheries priorities for each Jurisdiction and highlighting the Top 3. It also serves as a template and guide for other USCRTF working groups to develop their own Jurisdictional Action Plans.

Acknowledgements

The first-ever USCRTF Jurisdictional Fisheries Action Plans focus on the management needs of some of the most diverse and productive fishery ecosystems in the Nation. Given the complexities, challenges, and socioeconomic and cultural significance of U.S. coral reef fisheries, it took a wide-reaching effort to complete and socialize these Action Plans. The Coral Reef Fisheries and Ecosystem Working Group Co-Chairs are deeply grateful to the jurisdictional agency representatives and their colleagues - the knowledge shared during the development process was crucial to shaping these Action Plans. Scientific and non-profit organizations, academic institutions, and industry partners shared valuable input with the jurisdictions over the years, which helped defined priorities identified therein. Many of these entities are already actively collaborating to support effective coral reef fisheries management. The Co-Chairs also extend their sincere appreciation to the federal scientists, managers, subject matter experts, and outreach and engagement specialists for their contributions to these Action Plans and for their commitment to supporting their implementation.

USCRTF Coral Reef Fisheries & Ecosystem Working Group

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List of Abbreviations Used in this Document

CFMC	Caribbean Fishery Management Council
CNMI	Commonwealth of the Northern Mariana Islands
CRCP	Coral Reef Conservation Program
CRMP	Coral Reef Monitoring Program
CZM	Coastal Zone Management
DA	Department of Agriculture
DAR	Division of Aquatic Resources
DEP	Department of Environmental Protection
DFW	Division of Fish & Wildlife
DMWR	Department of Marine and Wildlife Resources
DOBOR	Division of Boating and Ocean Recreation
DOD	Department of Defense
DOJ	Department of Justice
DON	Department of the Navy
DPNR	Department of Planning and Natural Resources
DRNA	Departamento de Recursos Naturales y Ambientales
EBFM	Ecosystem Based Fisheries Management
ENCOS	Environmental and Coastal Services
EPA	Environmental Protection Agency
ERMA	Environmental Response Management Application
ESA	Endangered Species Act
FAC	Fishery Advisory Committee
FAO	Food and Agriculture Organization of the United Nations
FEMA	Federal Emergency Management Agency
FKNMS	Florida Keys National Marine Sanctuary
FL	Florida
FMP	Fisheries Management Plan
FWC	Florida Fish and Wildlife Conservation Commission
GC	General Counsel
GMFMC	Gulf of Mexico Fishery Management Council
IBFMP	Island Based Fishery Management Plan
JCR-FMP	Jurisdictional Coral Reef Fisheries Management Plan
JEA	Joint Enforcement Agreement
LCC	Landscape Conservation Cooperative
NASA	National Aeronautics and Space Administration
NCCOS	National Centers for Coastal Ocean Science
NCRMP	National Coral Reef Monitoring Program
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
OLE	Office of Law Enforcement
PCRMP	Puerto Rico Coral Reef Long-term Monitoring Program
PIFSC	Pacific Islands Fisheries Science Center
PIRO	Pacific Islands Regional Office

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PR	Puerto Rico
SAFMC	South Atlantic Fishery Management Council
SEAMAP	Southeast Area Monitoring and Assessment Program
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
SFR	Sport Fish Restoration
SPC	Secretariat of the Pacific Community
SSC	Scientific and Statistical Committee
TNC	The Nature Conservancy
U.S.	United States
USACOE	United States Army Corps of Engineers
USAID	United States Agency for International Development
USCRTF	United States Coral Reef Task Force
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USVI	United States Virgin Islands
WPRFMC	West Pacific Regional Fishery Management Council
WQS	water quality standards

Introduction

When the Coral Reef Fisheries and Ecosystem Working Group was initially formed, the working group co-chairs requested that each jurisdiction (Hawai'i, American Samoa, Guam, Commonwealth of the Northern Mariana Islands [CNMI], Florida, Puerto Rico, and U.S. Virgin Islands [USVI]) identify a suitable representative. The first working group meeting included six representatives from most jurisdictions (i.e., CNMI was absent) and the co-chairs. This group established a working group framework. The group agreed the jurisdictional representatives should lead the development of action items, including focused requests for federal agency support, to help achieve sustainable coral reef fisheries. The NMFS co-chair created and shared a template survey with each jurisdiction to gather fishery management status and jurisdictional capacity information, and to begin scoping needs that can be supported by federal agencies in the form of an Action Plan. This approach emphasized putting the jurisdiction in a lead role while focusing on defining how federal partners can support coral reef fisheries management efforts. The jurisdictional representatives provided input to refine the survey. Then each representative met with the NMFS co-chair separately to populate the survey answers. This gave the NMFS co-chair exposure to the jurisdictional positions and improved the co-chair's capacity to facilitate discussion with the larger working group toward federal support.

Collectively, the jurisdictions identified nine management target topics to focus the Action Plans and working group activities on:

- Fisheries management plan with ecosystems framework
- Literature on linkages between healthy fishery and healthy coral reef habitat
- Coordinate improved jurisdiction monitoring and Coral Reef Conservation Program (CRCP) monitoring of coral reef fisheries
- Develop minimal monitoring protocol for coral reef fisheries to track status of management, including training
- Identify any fishing practices that cause damage to coral reef and develop management practices to avoid habitat damage (This is an Atlantic/Caribbean target that is largely associated with the practice of trap fishing)
- Define threshold for natural algal cover and the role that herbivory plays
- Define habitat mapping needs
- Identify learning exchange opportunities and how best to organize cross-jurisdictional participation
- Coral reef fisheries law enforcement

Additional members from various federal agencies with expertise in the target topics joined the working group and were supportive of the jurisdictionally led Action Plans. The larger working group met regularly on the second Thursday of each month and engaged in fruitful discussions to identify existing and new resources such as datasets and funding opportunities to best support jurisdictional management of coral reef fisheries. Active USCRF member participation included fisheries management points of contact from American Samoa, Florida, Guam, Hawai'i, Puerto Rico, and USVI, as well as the All Islands Committee Executive Director. Federal Agency participation included NOAA (CRCP and NMFS regional offices and science centers), the Department of Interior (U.S. Fish and Wildlife Service, U.S. Geological Survey, and National Park Service), the U.S. Environmental Protection Agency, the Department of Defense, and the U.S. Department of Agriculture. The Working Group is presently chaired by Chelsa

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Muna-Brecht (Guam Coral Reef Initiative Point of Contact and Director of Guam's Department of Agriculture) and Gerry Davis (NMFS Pacific Islands Regional Office Assistant Regional Administrator for Habitat Conservation).

Action Plan Development Process

The jurisdictional representatives each led the development of an Action Plan for their jurisdiction. Each Action Plan articulates management targets in need of assistance, details the specific need, and identifies which federal management partners are most relevant to provide support. Each month at a full working group meeting, a different jurisdiction presented its Action Plan. During these meetings, discussions included all members, with federal members sharing possible areas of support and other jurisdictional representatives sharing successful approaches, where relevant. These were noted in the final Action Plans (see Appendices).

Furthermore, working group discussions led to the expansion of the first management target, fisheries management plan with ecosystems framework, into five components:

- Design fisheries conditional assessment
- Develop fisheries management plan
- Hold fisheries management plan development workshop
- Define fisheries monitoring protocol for success
- Define water quality standards for fisheries management on coral reefs

Coral reef fisheries regulation review was identified as an additional management target for some jurisdictions and was added to the list. This resulted in a total of 14 management targets that jurisdictions could choose to further define needs for. Six jurisdictional Action Plans were completed in May 2022. CNMI has engaged but has not completed an Action Plan as of yet. The Action Plans include a broad range of specific needs under each management target. Examples of such considerations include training local staff on how to use data-limited fisheries management tools to support sustainable coral reef fisheries management planning, the development of business plans to ensure officer capacity and adequate funding for enforcement, and training opportunities for local staff to learn how to evaluate the condition of their coral reef fisheries to determine the success of management actions (Table 1).

The working group recognized that refining and packaging the complete Action Plans was too extensive to tackle as a group, so six sub-working groups were formed. The sub-groups consisted of a NMFS regional office co-lead for the Pacific basin (Hawai'i, American Samoa, Guam, CNMI), a separate NMFS regional office co-lead for the Atlantic basin (Florida, Puerto Rico, USVI), and the designated jurisdictional fisheries representative. Additionally, two or more working group members served on each sub-working group. The sub-working groups focused on ranking all of the management targets and highlighting the top three priorities for each jurisdiction to move forward with seeking federal support. The sub-working group co-leads for the Pacific and Atlantic Basins are Gerry Davis and Kelli O'Donnell (NMFS Southeast Regional Office Sustainable Fisheries Biologist), respectively.

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Summary of the Top Three Priorities

Six jurisdictions developed Action Plans and identified their top three management target topics to focus their requests for federal assistance. While specific needs varied across jurisdictions, some management target priorities overlapped in multiple jurisdictions including support for management planning, monitoring, habitat mapping, and law enforcement (Table 1).

Table 1. Abbreviated jurisdictional management needs for the top three management targets by each jurisdiction in ranked order. Number one is shown in green, number two is shown in blue, and number three is shown in purple. Not all management targets were identified as a top three priority. For more details on the ranked jurisdictional needs related to each management target, see the appendices.

Jurisdictional Management Target	American Samoa Specific Need	Guam Specific Need	Hawai'i Specific Need	Florida Specific Need	Puerto Rico Specific Need	US Virgin Islands Specific Need
Fisheries Management Plan with Ecosystems Framework: Design fisheries conditional assessment	3 - Assistance with stock assessments.	1 - Complete life history for remaining top 20 coral reef species (4) to support FishPath process.				
Fisheries Management Plan with Ecosystems Framework: Develop fisheries management plan	1 - Support in developing sustainable fisheries plan.	2 - Complete cluster analysis and management strategy evaluations for additional 7 priority coral reef species.	1 - Review DAR's herbivore management plan, help develop management plan for data-limited species of concern.			
Fisheries Management Plan with Ecosystems Framework: Hold fisheries management plan development workshop	2 - Assistance with workshop to develop fish component of sustainable plan and workshop for non-fishery component.	3 - Complete 2nd JCR-FMP workshop and draft fishery component sustainable fishery management plan.			3 - Develop within island plans in combination with improved data to support management.	
Fisheries Management Plan with Ecosystems Framework: Define fisheries monitoring protocol for success			2 - Evaluate species specific and place-based success in response to management actions. Develop audit tool for assessing effectiveness and informing adaptive management measures.			

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Jurisdictional Management Target	American Samoa Specific Need	Guam Specific Need	Hawai'i Specific Need	Florida Specific Need	Puerto Rico Specific Need	US Virgin Islands Specific Need
Fisheries Management Plan with Ecosystems Framework: Define water quality standards for coral reef fisheries management					2 - Develop fully protective water quality standards for water quality parameters of concern.	
Coordinate improved jurisdiction monitoring and CRCP monitoring of coral reef fisheries				3 - Routine monitoring of the effects of declining coral cover on fish abundance and diversity in a timely manner (seasonally or annually).		1 - Improve understanding of district-specific fisheries resources & patterns of fishing effort, & compile & assess USVI commercial fisheries trend data and fishery data analysis.
Develop minimal monitoring protocol for coral reef fisheries to track status of management, including training			3 - Identify best methods, based on spatial scale & gear impact considerations, support for in-water surveys, power analysis on methods & replication number			
Identify any fishing practices that cause damage to coral reef and develop management to avoid habitat damage (e.g., trap fishing in Atlantic/Caribbean)				1 - Understand if the 60 lobster trap exclusion areas designated to protect ESA-listed corals from lobster trap damage are working as intended.		
Define habitat mapping needs				2 - Mapping of the significant portion of Florida's reef that remains unmapped to support coral monitoring surveys design.		3 - Update the USVI benthic habitat maps and develop a centralized clearinghouse to access all information.

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Jurisdictional Management Target	American Samoa Specific Need	Guam Specific Need	Hawai'i Specific Need	Florida Specific Need	Puerto Rico Specific Need	US Virgin Islands Specific Need
Coral reef fisheries law enforcement					1 – A legal fellow to look at existing regulations; Law enforcement capacity building, specialized maritime law enforcement training. More consistent trainings.	2 - Resources to comply with JEA capacity requirements. Federal funding for USVI law enforcement & cross-borders with Puerto Rico. USVI-centric 411 operator.

Applications to Date

The Action Plans have been implemented in a number of ways by jurisdictions and federal partners, including, but not limited to:

- American Samoa and Guam used their action plans to gain support from NOAA Pacific Islands Fisheries Science Center and Pacific Islands Regional Office for management planning, identifying target coral reef species, life history evaluation, management strategy evaluation, and cluster analysis, training on FishPath tool, coral reef fisheries management workshops and fisher engagement toward the development of a sustainable coral reef fisheries management plans.
- Florida used its Action Plan to initiate communication amongst NOAA Southeast Regional Office, Gulf of Mexico Fishery Management Council, and South Atlantic Fishery Management Council regarding the review of the spiny lobster trap closed areas
- Hawai'i used its Action Plan to garner a commitment from NOAA to support future work to develop island-specific management plans, the creation of tools to support the community engagement process, and support for review and revision of a statewide Sustainable Herbivore Management Plan
- Puerto Rico and USVI used their Action Plans to affirm support for moving forward with implementing the island-based fishery management plans, which became effective October 13, 2022. Compatible state regulations will be explored
- USVI used its Action Plan to promulgate regulations for a new recreational fishing license program
- The Environmental Protection Agency used the Action Plans to compile resources and prioritize support to the jurisdictions in developing water quality standards protective of coral reefs
- NOAA's Coral Reef Conservation Program used the top three priority needs of each jurisdiction to guide projects in its three-year implementation planning process
- Multiple federal agencies are using the needs to inform federal notice of funding opportunities
- The working group enlisted the help of a NOAA Holling's Scholar⁷⁸ to compile a library⁹ of the latest science regarding the linkages between fisheries and coral reef conservation and authored two infographics^{10,11} that illustrate four of the key relationships for public science communication

Benefits of the Action Plan Process

In addition to the benefits of the Action Plans themselves, the process created value for addressing fishery management challenges in the following ways:

- For the first time under the USCRTF umbrella, there is a focused collaboration that is locally led on coral reef fisheries management
- The format used ensures jurisdictional participation by individuals with the specific fishery background to define needs
- The creation of jurisdictional Action Plans allowed the effort to be specific to the jurisdiction while highlighting common needs and the opportunity to learn from each other

⁷ [Ernest F. Hollings Undergraduate Scholarship | National Oceanic and Atmospheric Administration \(noaa.gov\)](https://www.noaa.gov/news/ernest-f-hollings-undergraduate-scholarship)

⁸ <https://coralreef.noaa.gov/aboutcrp/news/featuredstories/oct22/hollings-welcome.html>

⁹ <https://docs.google.com/spreadsheets/d/1FjUMcOjxaSjok9LlkHUxxXMYjCiiqgPXu5TMLpeHWnw/edit?usp=sharing>

¹⁰ <https://coralreef.noaa.gov/gallery/infographic/coral-housekeepers-atlantic.html>

¹¹ <https://coralreef.noaa.gov/gallery/infographic/coral-housekeepers-pacific.html>

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- Working Group members were able to see the alignment of priorities across jurisdictions and share tools and cost-saving ideas that could be modeled in other jurisdictions
- Coordination improved both within jurisdictions by creating joint priorities to work together on and across federal agencies by learning about and sharing related efforts happening in a jurisdiction
- Focusing on defining succinct, actionable ways for federal agencies to support local management provided a mechanism, that has been absent in the past, that clearly defines how federal partners can help. This also provided the opportunity to leverage across federal programs.
- Action Plans provided specific priorities to guide federal funding programs, which was needed by a number of federal funding programs
- The Action Plan format prioritized support and was well received, productive and useful. This built capacity to serve as a mechanism to approach fisheries management issues on an international, collaborative level. This first effort will be very useful as a tool in annually evaluating this need, measuring successes, and engaging the federal family.

Each jurisdiction has highlighted its support of the creation of an Action Plan followed by a facilitated discussion with federal partners. To all working group members, this approach represented the right balance of locally led and federally supported efforts. The Action Plans recognize that capacity is one of the biggest limitations and seek to extend capacity. The working group saw great participation across the members as a result of this practice. The Federal members emphasized the importance of capturing synergies between jurisdictions where action may also benefit multiple entities. The jurisdictions recommended that other working groups follow this format.

Next Steps

A lot of work has been invested in building Action Plans and priorities for the Coral Reef Fisheries and Ecosystem Working Group. This report will be shared with the USCRTF to reach additional federal programs that can provide assistance as well as to share a successful approach that could be modeled by other USCRTF working groups. These Action Plans will also be used as a starting point to revisit the status of work, update plans and priorities, and socialize with partners. The Action Plans create a tracking mechanism for efforts that are underway, identification of additional needs, and opportunities moving forward. Revisiting jurisdictional Action Plans in the future will follow the same format of putting the existing plans out to the jurisdictions to update, meeting with them separately, and then coming back to the larger working group to review opportunities and prioritize the next efforts. The working group will track metrics on research completed/funded and capture best practices for approaching meeting management needs as part of the updates.

Appendices: Ranked Jurisdictional Fisheries Management Targets

Appendix 1. American Samoa Coral Reef Fisheries Action Plan

Note: Green highlighted text identifies specific needs that have garnered support, work has been started on, or work has been completed for.

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	American Samoa Specific Need
Fisheries Management Plan with Ecosystems Framework: Design fisheries conditional assessment	3	PIFSC, WPRFMC, PIRO	Assistance with stock assessments. Determine coral reef indicator species. This will require defining management targets and then develop criteria for determining what life history and management considerations are essential for being an indicator species. Assistance with the assessment of creel, commercial, and in-water survey data (PIFSC assistance). Determine how to integrate spatial management benefits and concerns into stock assessment and condition. Identify data gaps and use locally led fishery working group to partner with federal agencies to identify opportunities and strategies for filling gaps. Looking for assistance on food sustainability and understanding what coastal fishery and culture could provide (coral reef take & pelagic take). Opportunity with FAO contractor to partner on coastal fisheries management and available tools.
Fisheries Management Plan with Ecosystems Framework: Develop fisheries management plan	1	PIRO, WPRFMC	PIRO support in developing a sustainable plan, FishPath application, develop criteria for indicator species and audit protocol for monitoring sustainable plan, assistance in building and maintaining local assessment and analytical capacity. Develop non-fishery attributes to include in a coral reef sustainable fisheries management plan such as water quality and watershed management. These should be in the form of enforceable best management practices. PIFSC assistance in the evaluation of gear impacts and management potential for species for use in developing a coral reef sustainable fisheries management plan. Support for outreach and education tools to effectively implement the plan and aid community awareness and compliance.
Fisheries Management Plan with Ecosystems Framework: Hold fisheries management plan development workshop	2	PIRO, WPRFMC	PIRO assistance in facilitating and establishing contracts for a workshop to develop fish component of sustainable plan, support for writing fishery component, support for the non-fishery component workshop and support for writing draft final plan. Seek technical assistance, from SPC, FAO, and USAID. Support to develop business plan to reestablish country member benefits with SPC.
Fisheries Management Plan with Ecosystems Framework: Define fisheries monitoring protocol for success	4	PIFSC, WPRFMC	This will be part of the product from Management Plan Development. Define the least amount of effort and training needed to monitor for effectiveness. This request is intended to develop an approach and maintain monitoring over time (funding, capacity, and implementation) to make the plan a living process that uses the audit process to determine if the plan is working and if not to make adjustments.
Fisheries Management Plan with Ecosystems Framework: Define water quality standards for coral reef fisheries management	8	Led by USEPA, support from NMFS, USFWS, USGS, USDA, should be coordinated in two basins.	Need assistance from USEPA in developing a coral reef-specific threshold-based concept that uses baseline or ambient condition that can be plugged into a sustainable coral reef fisheries management plan. This concept needs to include capacity building to support the local collection and analysis of information. Thresholds needs to consider high and low values as well as duration factors. USDA and USGS need to develop watershed management best management practices that can be plugged into sustainable fisheries management plan. Needs to include capacity-building requirements to implement and maintain plan locally.
Literature search on linkage between healthy fishery and healthy coral reef habitat	7	NMFS, USFWS, EPA, USGS, USDA	Coordination across federal family to complete systematic review.

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Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	American Samoa Specific Need
Coordinate improved jurisdiction monitoring and CRCP monitoring of coral reef fisheries	6	CRCP, PIFSC, WPRFMC	Define a local led working group to align local agency needs and then federal agency Points of Contact to participate in a coordinated program and budgetary process annually. This process is intended to align local and federal agency efforts while leveraging and improving use of limited financial and staff resources. Focus needs to use EBFM theme to incorporate attributes other than just fish species.
Develop minimal monitoring protocol for coral reef fisheries to track status of management, including training	5	PIFSC, WPRFMC	Part of Management Plan development
Identify any fishing practices that cause damage to coral reef and develop management to avoid habitat damage (e.g., trap fishing in Atlantic/Caribbean)	No	N/A	N/A
Define threshold for natural algal cover and the role herbivory plays	9	PIFSC, PIRO, USFWS	Partner with NMFS Science Centers and Regional Offices to establish baselines for local coral reef strata and define tools for maintaining and improving condition. This should be considered in developing management targets for herbivores and alignment with restoration activities.
Define habitat mapping needs	10	PIFSC, USGS, NRCS, USFWS, USEPA, NCCOS	Use local fisheries working group to define and coordinate mapping needs and develop a program and budgetary strategy annually.
Identify learning exchange opportunities and how best to organize cross-jurisdictional participation	11	1. PIRO, American Samoa DMWR 2. PIRO Pacific Jurisdictions 3. PIRO, PIFSC, WPRFMC, Pacific Jurisdictions 4. PIRO, PIFSC, Pacific Jurisdictions 5. PIRO, PIFSC, Pacific Jurisdictional CZM & fisheries agencies, FEMA 6. N/A 7. PIRO, Pacific Jurisdictions 8. PIRO, OLE, USFWS Federal Aid, DOJ, USCG, DON 9. PIRO, PIFSC, Pacific Jurisdictions 10. PIRO, PIFSC, Pacific Jurisdictions	1. Technical assistance on the restoration of fish/clam. 2. Assistance with culture and replenishment strategies to support coral reef fisheries management through fish culture enhancement and habitat restoration. 3. Share approaches in defining indicator species for coral reef fisheries management. 4. Share Life History studies and recipe of attributes needed. 5. Look at hazard mitigation approaches for fisheries in addressing disaster response. 6. Trap fishery management. 7. Coral reef fisheries regulation comparison between jurisdictions. 8. Law enforcement business plans. 9. Sustainable fisheries audit programs 10. Coastal fisheries business plans comparisons. 11. Gear management jurisdictional comparisons. 12. Watershed and water quality standards to incorporate into fisheries management plan.

JURISDICTIONAL FISHERIES ACTION PLANS

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	American Samoa Specific Need
		11. PIRO, PIFSC, Pacific Jurisdictions 12. PIRO, PIFSC, Pacific Jurisdictions, USEPA, CZM, USFWS, USGS, USDA	
Coral reef fisheries law enforcement	13	Jurisdictional GC, Fisheries Agency, Local EPA, USEPA, PIRO, NOAA Pacific OLE, USFWS Pacific OLE, DOJ	Use locally led working group in partnership with federal partners to define sustainable coral reef fishery management law enforcement implementation and capacity needs. Develop a plan to build and maintain capacity in a five-year living adaptive plan. Plan should identify areas where federal partners can assist and prioritize needs. This should include review of the prosecution process and capacity.
Coral reef fisheries regulation review	12	PIRO, PIFSC, WPRFMC, USFWS federal Aid, USEPA, USDA, USGS, DOJ	Use local fishery working group to define system of review and timeline with federal partner support and identify areas where federal support can be provided. First review intended as part of drafting sustainable plan.

JURISDICTIONAL FISHERIES ACTION PLANS

Appendix 2. Guam Coral Reef Fisheries Action Plan

Note: Green highlighted text identifies specific needs that have garnered support, work has been started on, or work has been completed for.

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	Guam Specific Need
Fisheries Management Plan with Ecosystems Framework: Design fisheries conditional assessment	1	WPFMC, NOAA Science Center, NMFS Fisheries liaison, NOAA CZM	Assistance with stock assessments. Determine coral reef indicator species. This will require defining management target and then develop criteria for determining what life history and management consideration are essential for being an indicator species. Assistance with the assessment of creel, commercial and in-water survey data (PIFSC assistance). Determine how to integrate spatial management benefits and concerns into stock assessment and condition. Identify data gaps and use locally led fishery working group to partner with federal agencies to identify opportunities and strategies for filling gaps.
Fisheries Management Plan with Ecosystems Framework: Develop fisheries management plan	1	WPFMC, NOAA Science Center, NMFS fisheries liaison, USFWS SFR	PIRO support in developing sustainable coral reef fisheries management plan, FishPath application, develop criteria for indicator species and audit protocol for monitoring sustainable plan, assistance in building and maintaining local assessment and analytical capacity. Develop non-fishery attributes to include in a coral reef sustainable fisheries management plan such as water quality and watershed management. These should be the form of enforceable best management practices. PIFSC assist in evaluation of gear impacts and management potential for species for use in developing a coral reef sustainable fisheries management plan. Support for outreach and education tools to effectively implement plan and aid community awareness and compliance.
Fisheries Management Plan with Ecosystems Framework: Hold fisheries management plan development workshop	1	NMFS science center, NMFS fisheries liaison, (what is management liaison), DOD (in general), USGS, CZM, USEPA, USAID	PIRO assistance in facilitating and establishing contracts for workshop to develop fish component of sustainable plan, support for writing fishery component, support for non-fishery component workshop and support for writing draft final plan. Seek technical assistance, from SPC, FAO, USAID. Support to develop business plan to reestablish country member benefits with SPC.
Fisheries Management Plan with Ecosystems Framework: Define fisheries monitoring protocol for success	1	NMFS science center, NMFS fisheries liaison, USFWS SFR	This will be part of product from Management Plan Development. Define the least amount of effort and training needed to monitor for effectiveness. This request is intended to develop an approach and maintain monitoring over time (funding, capacity and implementation) to make the plan a living process that uses the audit findings to determine if the plan is working and if not to make adjustments.
Fisheries Management Plan with Ecosystems Framework: Define water quality standards for coral reef fisheries management	1	Led by USEPA, support from NMFS, USFWS, USGS, USDA-should be coordinated in two basins.	Need assistance from USEPA in developing a coral reef-specific threshold-based concept that uses baseline or ambient condition that can be plugged into a sustainable coral reef fisheries management plan. This concept needs to include capacity building to support the local collection and analysis of information. Thresholds needs to consider high and low values as well as duration factors. USDA and USGS need to develop watershed management best management practices that can be plugged into sustainable fisheries management plan. Needs to include capacity building requirements to implement and maintain plan locally.
Literature search on linkage between healthy fishery and healthy coral reef habitat	Yes	NMFS, USFWS, EPA, USGS, USDA	Coordination across federal family to complete systematic review.
Coordinate improved jurisdiction monitoring and CRCP monitoring of coral reef	2	CRCP, USFWS SFR	Define a local led working group to align local agency needs and then federal agency Points of Contact to participate in a coordinated program and budgetary process annually. This process is intended to align local and federal agency efforts while leveraging and improving use of limited financial and staff resources. Focus needs to use EBFM theme to incorporate attributes other than just fish species.

JURISDICTIONAL FISHERIES ACTION PLANS

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	Guam Specific Need
fisheries			
Develop minimal monitoring protocol for coral reef fisheries to track status of management, including training	2	CRCP, USFWS SFR	We have a specified coral reef long-term monitoring protocol, it does need to be amended to increase the number of sites. We need this to measure success of FMP and fisheries management
Identify any fishing practices that cause damage to coral reef and develop management to avoid habitat damage (e.g., trap fishing in Atlantic/Caribbean)	No	N/A	N/A
Define threshold for natural algal cover and the role herbivory plays	3	USFWS SFR, CRCP, NMFS Science Center, USEPA	Partner with NMFS Science Centers and Regional Offices to establish baselines for local coral reef strata and define tools for maintaining and improving condition. This should be considered in developing management targets for herbivores.
Define habitat mapping needs	1	NASA, NMFS Science center, ENCOS, NMFS fisheries liaison	Use local fisheries working group to coordinate mapping needs and develop a program and budgetary strategy annually. Funding to analyze NASA data, and also remote sensing data. Remote sensing data will need to be ground-truthed for accuracy.
Identify learning exchange opportunities and how best to organize cross-jurisdictional participation	2	1. PIRO, American Samoa DMWR 2. PIRO Pacific Jurisdictions 3. PIRO, PIFSC, WPFMC, Pacific Jurisdictions 4. PIRO, PIFSC, Pacific Jurisdictions 5. PIRO, PIFSC, Pacific Jurisdictional CZM & fisheries agencies, FEMA 6. N/A 7. PIRO, Pacific Jurisdictions 8. PIRO, OLE, USFWS Federal Aid, DOJ, USCG, DON 9. PIRO, PIFSC,	1. Technical assistance on the restoration of fish/clam. 2. Assistance with culture and replenishment strategies to support coral reef fisheries management through fish culture enhancement and habitat restoration. 3. Share approaches in defining indicator species for coral reef fisheries management. 4. Share Life History studies and recipe of attributes needed. 5. Look at hazard mitigation approaches for fisheries in addressing disaster response. 6. Trap fishery management. 7. Coral reef fisheries regulation comparison between jurisdictions. 8. Law enforcement business plans. 9. Sustainable fisheries audit programs 10. Coastal fisheries business plans comparisons. 11. Gear management jurisdictional comparisons. 12. Watershed and water quality standards to incorporate into fisheries management plan.

JURISDICTIONAL FISHERIES ACTION PLANS

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	Guam Specific Need
		Pacific Jurisdictions 10. PIRO, PIFSC, Pacific Jurisdictions 11. PIRO, PIFSC, Pacific Jurisdictions 12. PIRO, PIFSC, Pacific Jurisdictions, USEPA, CZM, USFWS, USGS, USDA	
Coral reef fisheries law enforcement	2	PIRO, PIFSC, WPRFMC, USFWS federal Aid, USEPA, USDA, USGS, DOJ	Use locally led working group in partnership with federal partners to define sustainable coral reef fishery management law enforcement implementation and capacity needs. Develop a plan to build and maintain capacity in a five-year living adaptive plan. Plan should identify areas where federal partners can assist and prioritize needs. This should include review of the prosecution process and capacity.
Coral reef fisheries regulation review	2	PIRO, PIFSC, WPRFMC, USFWS federal Aid, USEPA, USDA, USGS, DOJ	Use local fishery working group to define system of review and timeline with federal partner support and identify areas where federal support can be provided. First review intended as part of drafting sustainable plan.

JURISDICTIONAL FISHERIES ACTION PLANS

Appendix 3. Hawai'i Coral Reef Fisheries Action Plan

Note: Green highlighted text identifies specific needs that have garnered support, work has been started on, or work has been completed for.

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	Hawai'i Specific Need
Fisheries Management Plan with Ecosystems Framework: Design fisheries conditional assessment	No	N/A	Not needed
Fisheries Management Plan with Ecosystems Framework: Develop fisheries management plan	1	NOAA	Review DAR's herbivore management plan, help us develop management plan for data-limited species of concern (kumu, lobster, pakuikui, chevron tang). Stage development of Coral Reef Sustainable Fisheries Management Plan.
Fisheries Management Plan with Ecosystems Framework: Hold fisheries management plan development workshop	7	NOAA	We have been working on this internally for herbivores, but interested in learning other management approaches as we plan to develop management plans for other species. Interested in FishPath tool.
Fisheries Management Plan with Ecosystems Framework: Define fisheries monitoring protocol for success	2	NOAA	Evaluate species-specific and place-based success in response to management actions. Develop audit tool for assessing effectiveness and informing adaptive management measures.
Fisheries Management Plan with Ecosystems Framework: Define water quality standards for coral reef fisheries management	5	Led by USEPA, support from NMFS, USFWS, USGS, USDA-should be coordinated in two basins.	Need assistance from USEPA in developing a coral reef-specific threshold-based concept-based baseline or ambient condition that can be plugged into a sustainable coral reef fisheries management plan. This concept needs to include capacity building to collect and analyze information. Needs to consider high and low values as well as duration factors. Support establishment and enforcement of water quality standards that promote thriving coral reef ecosystems. Need assistance from USDA and USGS in developing watershed management best management practices that can be plugged into sustainable fisheries management plan. Needs to include capacity building requirements to implement and maintain plan locally.
Literature search on linkage between healthy fishery and healthy coral reef habitat	No	NMFS, USFWS, EPA, USGS, USDA	This is captured in our herbivore management plan.
Coordinate improved jurisdiction monitoring and CRCP monitoring of coral reef fisheries	4	CRCP	Define a local led working group to align local agency needs and then federal agency Points of Contact to participate in a coordinated program and budgetary process annually. This process is intended to align local and federal agency efforts while leveraging and improving use of limited financial and staff resources. Focus needs to use EBFM theme to incorporate other attributes than just fish species. Would want to see more data with place based and species specific applications.
Develop minimal monitoring protocol for coral reef	3		What methods are best, spatial scale considerations, gear impact consideration, stratified random vs permanent transect, support for in water surveys, power analysis on methods and replication number.

JURISDICTIONAL FISHERIES ACTION PLANS

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	Hawai'i Specific Need
fisheries to track status of management, including training			
Identify any fishing practices that cause damage to coral reef and develop management to avoid habitat damage (e.g., trap fishing in Atlantic/Caribbean)	No	N/A	N/A
Define threshold for natural algal cover and the role herbivory plays	No		Partnering with scientist on a proposal to fulfill this need.
Define habitat mapping needs	6		Use local fisheries working group to coordinate mapping needs and develop a program and budgetary strategy annually. NOAA's updated benthic data layer, we are currently working with the 2007 version.
Identify learning exchange opportunities and how best to organize cross-jurisdictional participation	No	1. PIRO, DAR, PIFSC 2. PIRO Pacific Jurisdictions 3. PIRO, PIFSC, WPFMC, Pacific Jurisdictions 4. PIRO, PIFSC, Pacific Jurisdictions 5. PIRO, PIFSC, Pacific Jurisdictiona I CZM & fisheries agencies, FEMA 6. N/A 7. PIRO, Pacific Jurisdictions 8. PIRO, OLE, USFWS Federal Aid, DOJ, USCG, DON 9. PIRO, PIFSC, Pacific Jurisdictions 10. PIRO,	1. Technical assistance on the restoration of fish 2. Assistance with culture and replenishment strategies to support coral reef fisheries management through fish culture enhancement and habitat restoration. 3. Share approaches in defining indicator species for coral reef fisheries management. 4. Share Life History studies and recipe of attributes needed. 5. Look at hazard mitigation approaches for fisheries in addressing disaster response. 6. Trap fishery management. 7. Coral reef fisheries regulation comparison between jurisdictions. 8. Law enforcement business plans. 9. Sustainable fisheries audit programs 10. Coastal fisheries business plans comparisons. 11. Gear management jurisdictional comparisons. 12. Watershed and water quality standards to incorporate into fisheries management plan.

JURISDICTIONAL FISHERIES ACTION PLANS

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	Hawai'i Specific Need
		PIFSC, Pacific Jurisdictions 11. PIRO, PIFSC, Pacific Jurisdictions 12. PIRO, PIFSC, Pacific Jurisdictions , USEPA, CZM, USFWS, USGS, USDA	
Coral reef fisheries law enforcement	No	PIRO, DOBOR, DAR, PIFSC	Use locally led working group in partnership with federal partners to define sustainable coral reef fishery management law enforcement implementation and capacity needs. Develop a plan to build and maintain capacity in a five year living adaptive plan. Plan should identify areas where federal partners can assist and prioritize needs. This should include review of the prosecution process and capacity.
Coral reef fisheries regulation review	No		Use local fishery working group to define system of review and timeline with federal partner support and identify areas where federal support can be provided.

JURISDICTIONAL FISHERIES ACTION PLANS

Appendix 4. Florida Coral Reef Fisheries Action Plan

Note: Green highlighted text identifies specific needs that have garnered support, work has been started on, or work has been completed for.

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	Florida Specific Need
Fisheries Management Plan with Ecosystems Framework: Design fisheries conditional assessment	8	NMFS	Florida understands that the federal/state stock assessment process is already operating at maximum capacity, however, understanding population dynamics and abundance trends of species linked to coral reef health is important given the ongoing threats and efforts to restore Florida's coral reef. As part of the effort to better understand the linkages between coral reef health and reef fish populations, more resources could be devoted to encourage independent stock assessments (not part of the state/federal assessment process) for key coral reef fishes such as parrotfishes. As such, Florida requests discussions with federal partners to understand the feasibility/value of such independent assessments, potential limitations, and steps that can be performed at the state/federal level to move forward.
Fisheries Management Plan with Ecosystems Framework: Develop fisheries management plan	No	N/A	N/A
Fisheries Management Plan with Ecosystems Framework: Hold fisheries management plan development workshop	No	N/A	N/A
Fisheries Management Plan with Ecosystems Framework: Define fisheries monitoring protocol for success	5	NMFS, SAFMC, GMFMC, USEPA (freshwater)	Data limitation for ecosystem covariates is generally lacking across time-series, which are typically utilized in stock assessments. Some stock assessments have incorporated ecosystem components (e.g., Gulf red snapper and ocean conditions on recruitment) into stock assessments, but generally are lacking. More resources are needed to evaluate if fisheries production is being influenced by environmental/habitat conditions, and if so, which conditions are driving the observed changes. Florida is soliciting guidance for key components to be considered in ecosystem approaches to fisheries management and how these key components can be used to manage coral reef fisheries. Assistance is requested for gathering background science, technical assistance (where applicable), and enhanced capacity (training, staffing, and funding) to conduct such assessments. Linkages of watersheds and freshwater to fisheries production (or fish abundance) should be considered in this context. At a basic level, we hope that discussions could elucidate areas of research that are needed to further ecosystem-approaches to fisheries management and to brainstorm potential collaborations between federal and state governments that could help accomplish these goals.
Fisheries Management Plan with Ecosystems Framework: Define water quality standards for coral reef fisheries management	6	USEPA, NMFS	Assistance is requested for the development of regional water quality standards for coral reefs and their respective fisheries. At the state level, the Florida Department of Environmental Protection monitors and manages water quality and should be involved in these discussions along with federal partners. Areas of focus could be how regional water quality standards are set/defined, ongoing efforts in Florida to determine regional water quality standards and where gaps remain, and how these standards could be incorporated into fisheries management of reef fishes.
Literature search on linkage between healthy fishery and healthy coral reef habitat	9	NMFS, USFWS, USEPA	Coordination with federal partners is requested to assist in writing a white paper that summarizes research on the linkages between healthy coral and fish populations. Ideally, insight into the current regional status of these linkages and recommendations for improving them would be beneficial for coral reef fisheries managers.

JURISDICTIONAL FISHERIES ACTION PLANS

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	Florida Specific Need
Coordinate improved jurisdiction monitoring and CRCP monitoring of coral reef fisheries	3	NOAA CRMP, NOAA CRCP, FKNMS	Currently, nearshore hard bottom is not sampled and data is obtained every other year. Additionally, given the specific pressures that Florida's coral reef faces (e.g., bleaching, stony coral tissue loss disease, etc.), routine monitoring of the effects of declining coral cover on fish abundance and diversity in a timely manner (seasonally or annually) is important.
Develop minimal monitoring protocol for coral reef fisheries to track status of management, including training	10	NOAA CRCP, NMFS	In reference to the above request regarding NOAA's NCRMP fish monitoring, Florida requests that a minimal monitoring protocol is developed to evaluate the condition of coral reef fisheries through time. This protocol should consider what data is needed to effectively assess a fishery, the timeframe needed to infer population trends, spatio-temporal dynamics, and effort needed to effectively monitor coral reef fisheries. Florida currently conducts the Reef Visual Census program to monitor juvenile and adult reef fish populations through time and space for selected economically and ecologically important species. These long-term database has proven valuable for interpreting fisheries dependent data and developing regulations for protecting reef fish resources. These surveys were run annually until 2014 when it changed to biennial sampling on even years. A minimal monitoring protocol could provide insight to improve upon the spatial/temporal capacity for Florida's monitoring programs and subsequent use in stock assessments.
Identify any fishing practices that cause damage to coral reef and develop management to avoid habitat damage (e.g., trap fishing in Atlantic/Caribbean)	1	NMFS, SAFMC, GMFMC, CRCP (NCRMP), FKNMS	Damage to coral reefs has been documented in some fisheries in Florida (e.g., trap fisheries, hook-and-line, etc.). These fisheries are managed at both these state and federal levels. To protect ESA-listed corals from lobster trap damage, the SAFMC and GMFMC designated 60 lobster trap exclusion areas in federal waters. It should be noted that these areas are not marked and recent FWC studies have shown that trap damage continues in these areas and they may no longer be appropriate for protection due to a lack of corals.
Define threshold for natural algal cover and the role herbivory plays	4	NOAA CRMP, NOAA CRCP, USEPA, NMFS	The state of Florida requests assistance to better understand the role of herbivory on coral reef health and to facilitate restoration efforts. Successful restoration of Florida's coral reef will require directed efforts to aid in the recovery of coral reef-associated species that are essential to coral reef ecosystem function. Many of these species regulate ecosystems through their trophic activities directly on reefs. For example, recovering robust populations of certain herbivores that dwell on reefs will reduce the presence of species that impede coral recruitment and will assist the re-establishment of substrate conditions that increase the probability of successful coral larval settlement from strategically located coral outplant sites. Addressing these types of relationships could aid coral restoration efforts. A collaborative literature review would be informative and could aid in the ultimate outcome to define a management target that balances water quality, coral and algae cover, and herbivore abundance/diversity.
Define habitat mapping needs	2	NCCOS, NMFS, SAFMC, GMFMC, FKNMS	A significant portion of Florida's reef remains unmapped for a variety of reasons (e.g., turbidity, logistical challenges, etc.). Many coral monitoring surveys design their survey structure based off of mapped areas and unmapped areas are often ignored without local knowledge.
Identify learning exchange opportunities and how best to organize cross-jurisdictional participation	11	Led by jurisdictions	Coordination with other states and government agencies on research and subsequent approaches to coral reef fisheries management and define what federal entities can be invited to assist.
Coral reef fisheries law enforcement	7	NMFS OLE, USFWS OLE, DOJ	FWC LE has approximately 750 officers overseeing fishing regulations throughout the state of Florida (including freshwater and terrestrial systems). Federal, regional, and municipal LE also enforce FWC regulations throughout the state. However, there are many challenges with enforcement of fisheries resources due to the size of Florida's coast and high-use of the reef system. As such, Florida requests discussions with federal partners regarding funding, training, staffing, and partnership for coral reef fisheries management. These discussions should not be limited to enforcement, but also other elements of the judicial system including legal prosecution.

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Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	Florida Specific Need
Coral reef fisheries regulation review	No	N/A	N/A

JURISDICTIONAL FISHERIES ACTION PLANS

Appendix 5. Puerto Rico Coral Reef Fisheries Action Plan

Note: Green highlighted text identifies specific needs that have garnered support, work has been started on, or work has been completed for.

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	Puerto Rico Specific Need
Fisheries Management Plan with Ecosystems Framework: Design fisheries conditional assessment	6	NMFS SEFSC	Using NMFS assessments, this is still a data-limited situation and would welcome any support that would increase fishery, fish and area management data, analysis and management.
Fisheries Management Plan with Ecosystems Framework: Develop fisheries management plan			(moved and combined with #3)
Fisheries Management Plan with Ecosystems Framework: Hold fisheries management plan development workshop	3	NMFS SEFSC, CRCP, NPS, USFWS, CFMC	Within Island plans: Support focus on this issue in combination with improved data to support management. Also recognize the need and interest in incorporating mariculture for food security but also for replenishment for urchins, fish and corals. 1. Focus on setting a baseline for fish populations, 2. Understand declines in harvest (is this an effort or stock issue or a combination of both), 3. Better understanding of Nassau grouper population numbers (where is management working and not), 4. Work with Fisheries Council on Ecosystem approach. 5. Also recognize that there needs to be stronger attention given to education and outreach. 6. Seek assistance is setting up in-water and land based nurseries for this purpose. 7. Better understand port sampling (need and usefulness) - increase the number of port agents. 8. Take into account regional components in the development of management plans, keeping in mind connectivity between islands - regional Caribbean management plan. This plan should be ecosystems focused and incorporate efforts for watersheds and water quality. Support to plan and run a workshop that is locally led with federal partner support to discuss all of these items and have cross coverage into state waters as well. This will require federal support to both train, build and maintain local capacity.
Fisheries Management Plan with Ecosystems Framework: Define fisheries monitoring protocol for success	8	NMFS, fisheries Council	Like the idea of building local capacity to conduct, analyze and manage monitoring for adaptive management. This will require federal support to both train, build and maintain local capacity.
Fisheries Management Plan with Ecosystems Framework: Define water quality standards for coral reef fisheries management	2	Led by USEPA, support from NMFS, USFWS, USGS, USDA- should be coordinated in two basins.	Fully protective water quality standards (WQS) for water quality parameters of concern need to be derived. This is a long-term, complex process requiring sufficient funding and personal resources. In order to derive scientifically defensible WQS, the following "interim" needs will need to be met. As the first step, the desired (as well as presently existing, baseline) condition of fish and coral ecosystems will need to be identified. In order to do so, the numeric biological criteria (biocriteria) will need to be defined. As the second step, the water quality parameters of concern (e.g.: turbidity and sediment load, non-point source pollution, point source pollution, sewage discharge, etc.) will need to be identified. In order to collect sufficient amount of data for WQS derivation, a multi-year monitoring program, targeting ambient concentrations of water quality parameters of concern along with the biological assessment done (implementing biocriteria) at the same time/location, will need to be designed and implemented. Data obtained through such monitoring would inform derivation of fully protective WQS including the magnitude, duration and frequency components. A threshold based concept based baseline or ambient condition. Needs to consider duration factors. UPR has a funded project that is looking at water quality baseline. DRNA is starting a water quality assessment project in various monitoring sites around the island. Monitoring is needed not only for water quality, but for fisheries and coral condition. This could be solid leverage for additional work. Identify solutions for water quality issues.

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Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	Puerto Rico Specific Need
Literature search on linkage between healthy fishery and healthy coral reef habitat	12	NMFS, USFWS, EPA, USGS, USDA	Coordination across federal family to complete systematic review.
Coordinate improved jurisdiction monitoring and CRCP monitoring of coral reef fisheries	10	CRCP	This an ongoing effort and hopefully this working group will identify areas to focus such efforts. Build off of baseline for reef fishes <30m (NCRMP, PCRMP) and expansion (30-50m).
Develop minimal monitoring protocol for coral reef fisheries to track status of management, including training	9	NMFS	Like the idea of building local capacity to conduct, analyze and manage monitoring for adaptive management. This will require federal support to both train, build and maintain local capacity.
Identify any fishing practices that cause damage to coral reef and develop management to avoid habitat damage (e.g., trap fishing in Atlantic/Caribbean)	4	NMFS	Interested in effort in Florida while building a local understanding and management approach. Interested in analysis of trap and net fishery to better under effort, take, habitat impact and management approaches.
Define threshold for natural algal cover and the role herbivory plays	11	NMFS, NCCOS	Interested in new technology that can provide assessment and response information to support fishery response as well as disaster response. Would like protected areas and no-anchor areas added to electronic maps so those features appear in phone apps and satellite links. Fill in gaps to existing habitat maps.
Define habitat mapping needs	13	NMFS, USEPA, USFWS, USGS, NPS	Again, any additional understanding that improves management of habitat for fisheries is welcome.
Identify learning exchange opportunities and how best to organize cross-jurisdictional participation	7	Federal Partners, NMFS, CFMC, CFMC-SSC	Share approaches in defining indicator species, share Life History studies and recipe, Look at hazard mitigation approaches for fisheries in addressing disaster response, aquaculture as a fisheries enhancement tool and restoration tool for habitat to support fisheries, trap fishery management, coral reef fisheries regulation comparison between jurisdictions, Law enforcement business plans, sustainable fisheries audit programs comparison, coastal fisheries business plans comparisons, gear management jurisdictional comparisons. Always helpful to know if something is working or not working in other areas.
Coral reef fisheries law enforcement	1	NMFS, USFWS, NMFS, CRCP	Develop a plan to build and maintain capacity in a five-year living adaptive plan. Plan should identify areas where federal partners can assist and prioritize needs. This should include review of the prosecution process and capacity. Refer to strategic plan previously developed: "DNER Rangers Corp Strategic Plan – 2017. Explore the idea of a legal fellow to look at existing regulations, Law enforcement capacity building, specialized maritime law enforcement training. Trainings need to be done on a consistent, annual or bi-annual basis.
Coral reef fisheries regulation review			(moved and combined with #1)

JURISDICTIONAL FISHERIES ACTION PLANS

Appendix 6. U.S. Virgin Islands Coral Reef Fisheries Action Plan

Note: Green highlighted text identifies specific needs that have garnered support, work has been started on, or work has been completed for.

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	U.S. Virgin Islands Specific Need
Fisheries Management Plan with Ecosystems Framework: Design fisheries conditional assessment	No	NOAA Sustainable Fisheries Caribbean branch coordination. Create a USGS Caribbean Coastal and Marine Science Center.	Integrate SEAMAP, Cooperative Statistics data, and socio-economic data into stock assessments. Request is to maintain local capacity with sustained federal assistance through full-time, NOAA-trained staff. Sustained federal assistance is requested.
Fisheries Management Plan with Ecosystems Framework: Develop fisheries management plan	No	NMFS (Science Centers) and NMFS fisheries liaison, NOAA Management Liaison, Fish & Wildlife. Create a USGS Caribbean Coastal and Marine Science Center.	Island based FMP underway, strategic plans underway. Looking for technical assistance and enhanced capacity (training, staffing and funding). Expect that this will include analysis of management plans developed by the CFMC and put forward by the FAC.
Fisheries Management Plan with Ecosystems Framework: Hold fisheries management plan development workshop	No	N/A	N/A
Fisheries Management Plan with Ecosystems Framework: Define fisheries monitoring protocol for success	5	Create a USGS Caribbean Coastal and Marine Science Center. Joint federal NOAA-USFWS efforts to benefit sportfish (currently several unmanaged stocks) and commercial and managed recreational fish.	Define the least amount of effort and training needed to monitor for effectiveness. This request is intended to develop an approach and maintain monitoring over time (funding, capacity and implementation)
Fisheries Management Plan with Ecosystems Framework: Define water quality standards for coral reef fisheries management	No	Led by USEPA, support from NMFS, USFWS, USGS, USDA-should be coordinated in two basins. Create a USGS Caribbean Coastal and Marine Science Center.	Need assistance from USEPA in developing a coral reef-specific threshold based concept based baseline or ambient condition that can be plugged into a sustainable coral reef fisheries management plan. This concept needs to include capacity building to collect and analyze information. Needs to consider high and low values as well as duration factors. Need assistance from USDA and USGS in developing watershed management best management practices that can be plugged into sustainable fisheries management plan. Needs to include capacity-building requirements to implement and maintain plan locally.
Literature search on linkage between healthy fishery and healthy coral reef habitat	No	NMFS, USFWS, EPA, USGS, USDA. Create a USGS Caribbean Coastal and Marine Science Center.	Coordination across federal family to complete systematic review. Coordination within SESFC's Caribbean Branch and summarize available data for use in EBFM

JURISDICTIONAL FISHERIES ACTION PLANS

Jurisdiction Management Target	Sustainable Fisheries Management Plan Priority Ranking	Requested Federal Partners	U.S. Virgin Islands Specific Need
Coordinate improved jurisdiction monitoring and CRCP monitoring of coral reef fisheries	1	CRCP, CFMC	<p>Fisheries Obj. 1:</p> <p>a. Improve understanding of district-specific (St. Thomas/St. John, St. Croix) fisheries resources and patterns of fishing effort through collaboration with local and federal researchers pursuing management – driven fisheries science.</p> <p>b. Compile and assess USVI commercial fisheries trend data and fishery data analysis (e.g. landings, size frequency, size, age, first reproduction, etc.), both species- specific and site specific data, identify data gaps and use this to create a baseline.</p> <p>c. Combine outputs from a) and b) into a report that shows the current state of the fisheries for each district in the USVI and includes recommendations for management.</p>
Develop minimal monitoring protocol for coral reef fisheries to track status of management, including training	No	NOAA Office of Habitat Conservation supporting NOAA CFMC. Create a USGS Caribbean Coastal and Marine Science Center to coordinate the multitudes of datasets available and underutilized. Currently CFMC tries to coordinate but is understaffed.	SEAMAP and Cooperative Statistics Programs already address region-wide assessments for stocks. Also have territorial and federal fish assessments. Coordination across agencies for standardized surveys needed. This aligns with current USVI Coral Reef priorities for fisheries.
Identify any fishing practices that cause damage to coral reef and develop management to avoid habitat damage (e.g., trap fishing in Atlantic/Caribbean)	No	NOAA CFMC, USGS, USFWS, USACOE	For the Trap reduction plan 2016 approved by CFMC and USVI, integration with a wider region would be useful. This aligns with current USVI Coral Reef priorities for fisheries.
Define threshold for natural algal cover and the role herbivory plays	6	NOAA CRCP, USGS, EPA	
Define habitat mapping needs	3	NOAA Brad Benggio ERMA contact. Creation of a USGS Caribbean Coastal and Marine Science Center is needed. Currently done by NOAA, EPA, USFWS, TNC, USACOE, USVI territory all separately. The Caribbean LCC was a step in the right direction and when it was defunded, the centralized repository was no longer updated.	<p>National Wetlands Inventory should be updated more frequently at national standard. Updated benthic maps from Office of Habitat Conservation NOAA. Biology-based maps needed - species interactions, habitat ranges, passive monitoring systems. Centralized clearinghouse needed to access all information (ERMA.noaa.gov as example, but have for non-emergency info as well). Need an area to download, not always have to contact someone. Increased use of this data for Caribbean management to save time and money from creating layers separately.</p> <p>Fisheries Obj. 12: Update the USVI benthic habitat maps.</p>
Identify learning exchange opportunities and how best to organize cross-jurisdictional	4	Creation of a USGS Caribbean Coastal and Marine Science Center is needed. Other partners for exchanges could be USACOE, USFWS, USDA,	The Science Centers and Cooperative Research Units address various topics of need on emergent events. The USGS Nexus listed many projects that already benefit the US Caribbean but are based out of Florida.

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participation		EPA	
Coral reef fisheries law enforcement	2	USCG, NOAA OLE	<p>Provide resources to comply with capacity (manpower) requirements for JEA. Sustain federal funding for law enforcement at USVI and cross-borders with Puerto Rico. A USVI-centric 411 operator. This aligns with the current USVI Coral Reef priorities for enforcement.</p> <p>Enforcement Obj. 1: Increase existing enforcement capacity within the Division of Environmental Enforcement (DEE).</p> <p>Enforcement Obj. 2: Improve communication within and between local and federal natural resource management agencies and the superior court in order to raise awareness of impacts to coral reefs and associated ecosystems within the judiciary, to increase the number of cases successfully prosecuted and to increase positive outcomes from both voluntary public compliance as well as enforcement actions.</p>
Coral reef fisheries regulation review	No	NOAA NMFS	<p>Provide legal counsel to the territories to better review commercial fishery federal compatibility, updating existing rules and regulations, and write laws for planning for adaptation and mitigation. This aligns with current USVI Coral Reef priorities for fisheries.</p>
		<p>NOAA Sustainable Fisheries Caribbean branch coordination.</p> <p>Create a USGS Caribbean Coastal and Marine Science Center.</p>	<p>USVI recreational fishing license (program creation, data collection). This aligns with current USVI Coral Reef priorities for fisheries.</p> <p>*USVI identified this as a need. However, it did not fit under any of the identified management targets.</p>