FY 2020-2021 CRCP Coral Reef NGO Partnership Cooperative Agreement Priority List by Jurisdiction

American Samoa

Please address one or more of the following priorities identified by the American Samoa Coral Reef Advisory Group (CRAG), with Dept. of Marine and Wildlife Resources (DMWR) :

1. In order to help inform resilient management actions, homogenize, analyze, and identify data gaps in historical and current fisheries and coral reef monitoring datasets (from DMWR and CRAG datasets).
2. Complete a village-based vulnerability assessment of the Territory's coral reef ecosystems that incorporates sea level rise projections and other climate change impacts and resiliency factors.
3. Identify locally relevant water quality indicators that can be used to rapidly assess coral reef ecosystem condition.
4. Create post-construction, low impact development (LID)-based stormwater control standards for the Territory to inform statutes and enforcement activities.
5. Conduct a fish and invertebrate sustainable management workshop with all relevant local agencies. Examples include:
    a. Training on the PIMPAC facilitation tool to be used in the villages
    b. Create a suite of management tools for villages and DMWR
    c. Create community outreach materials
    d. MPA managers training to help local staff manage MPAs, develop strategic plans, facilitate meetings etc.
    e. Potentially use the Fish Path tool to inform this workshop: https://fishpath.org/
6. Provide facilitation support to increase management capacity such as strategic planning of the Coral Reef Advisory Group.

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Commonwealth of the Northern Mariana Islands

Please address one or more of the following priorities identified by the Commonwealth of the Northern Mariana Islands (CNMI) Coral Reef Initiative (CRI):

1. Build public-private partnerships within the Commonwealth to ensure new and existing development in its watersheds integrates best management practices. To achieve this, CRI aims to provide opportunities for certification and training on best management practices for contractors and consultants involved in new and ongoing developments (built environment, tourism infrastructure, etc...).

2. Increase compliance with fishing laws and regulations that affect key coral reef fishery species. To accomplish this CNMI CRI intends to work with a social marketing expert to plan targeted outreach and awareness campaigns to increase compliance with fishing laws and regulations. The aim is to educate fishers, consumers, and particularly commercial entities (businesses) about coral reef fish life histories, the need for fisheries management, and the impacts of specific fishing practices.

3. Facilitate the creation of a working group to address impacts of climate change and coral reef ecosystem resilience in the CNMI. A key outcome and priority of this working group will be to develop a communications strategy for distributing CNMI coral reef resiliency data, research products, and management initiatives at a regional and national level. The communications strategy should involve engagement with leadership of federal agencies such as NOAA and DOD to ensure effective, targeted sharing CNMI data and products on the existing CNMI Open Data Site, or another locally administered portal or tool.

4. Assist CNMI CRI to take a lead role in creating a coral reef ecosystems restoration program in the CNMI. One of the long-term goals of the program will be to develop local capacity to implement coral sexual propagation methods to improve coral diversity and recruitment. In order to achieve this, CNMI will prioritize the need for a detailed feasibility study to examine the resources, infrastructure, personnel, and institutional arrangements (i.e. capacities) necessary to successfully implement these propagation methods and ensure a sustainable propagation program can be maintained.

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State of Florida

Please address one or more of the following priorities identified by the Florida Department of Environmental Protection (DEP) - Coral Reef Conservation Program:

1) **Coordination of Florida Reef Resilience Program Steering Committee -** The Florida Reef Resilience Program (FRRP) brings scientists, reef managers, and the people whose livelihoods and recreational pursuits depend upon healthy coral reefs together and seeks to develop strategies to improve the health of Florida's reefs and to enhance the sustainability of reef-dependent commercial and recreational enterprises (frrp.org). The efforts of the FRRP are guided by a steering committee comprised of coral reef managers and scientists which requires coordination and facilitation support to stay on task and further agreed upon priorities.

2) **Support for the development of a management plan for the SE Florida Coral Reef Ecosystem Conservation Area-** In March of 2018 the Florida Legislature established the SE Florida Ecosystem Conservation Area. In its effort to develop an integrated management plan for the area, the Florida DEP requires assistance with the development of outreach, communications and synthesized data products to assist in the development of a management planning process and inform the development of a plan that addresses various threats and disturbances through appropriate best management practices (BMPs), including, but not limited to, water quality, planned coastal construction, unplanned reef injuries, fishing and extractive use, etc. These BMPs would be designed to protect the plethora of ecosystem services Southeast Florida's coral reef ecosystem provides including shoreline protection, fisheries habitat, and recreational and cultural aesthetics.

3) **Support for the implementation of the watershed management plan for the Boynton Beach Inlet Contributing Area and development of a watershed management plan for the Government Cut Inlet Contributing Area -**The biggest human induced threats to the southeast Florida reefs are: pollution, which promotes algal blooms and benthic cyanobacteria; coastal construction, which causes sedimentation on the reefs; and dredging projects, which also cause sedimentation and direct destruction to the reefs and supporting estuarine habitat (Riegl and Dodge, 2008). In addition, long-term discharges of large volumes of fresh water into the estuarine receiving waters via water management canals has also been shown to reduce the salinity in the estuarine receiving waters and cause episodes of significant damage and die-off in the estuarine ecosystems that support these coral reefs. There are nine inlets that connect the Intracoastal Waterway with the Atlantic Ocean in the vicinity of the Southeast Florida coral tract. Associated

with each of these nine inlets is an inlet contributing area (ICA), or the area of land draining to an inlet under normal (average) hydrologic conditions. In 2015 key water quality partners and experts working in partnership with the SE Florida Coral Reef Initiative, worked to develop and apply criteria in an effort to prioritize the nine ICAs from a coral reef conservation perspective. The Boynton and Government Cut ICAs were selected as the top priority sites. In 2018 a watershed management plan was developed for Boynton (https://data.nodc.noaa.gov/coris/library/NOAA/CRCP/NOS/OCM/Projects/31158/HorsleyWittenGroup2018_Boynton_Watershed_Management_Plan.pdf). Assistance from NGO partners is needed in supporting the implementation of specific strategies from this plan to reduce the impacts of land-based sources of pollution. A watershed management plan needs to be developed for Government Cut.

4) **Participation in and support for Florida's response to Stony Coral Tissue Loss Disease** - The Florida Reef Tract has been experiencing an outbreak of a coral disease termed Stony Coral Tissue Loss Disease (SCTLD). First reported off the coast of Miami-Dade County in 2014, this outbreak has spread along Florida and to reefs in the Caribbean, including Jamaica, Mexico, St. Maarten, the US Virgin Islands, and the Dominican Republic. The Florida DEP is working with dozens of partners from federal, state, and local agencies, non-governmental organizations, universities, and members of the community to investigate and solve this problem. Assistance is needed in supporting priority coral disease response activities, which include:

- Coral disease surveys and fixed site monitoring to document the spatial extent, mortality rates and species-specific impacts.
- Strategic sampling and laboratory analysis to identify the presence of pathogens potentially responsible for the disease outbreak.
- Data management and epidemiological analysis to analyze relevant datasets and determine what factors may influence disease progression.
- Intervention experiments and field trials to assess the effectiveness of treatment techniques and prevent the further spread of disease.
- Coral rescue efforts to preserve some of the remaining genetic diversity in land-based facilities for future restoration efforts.
- Restoration trials to determine where we can outplant new corals.
- Caribbean-wide cooperation including means to limit further spread.
- Improving overall coral reef environmental conditions to ensure that disease intervention and restoration actions are successful.

5) **Inform and support the development of a coral reef restoration plan for the SE Florida Ecosystem Conservation Area** - due to major losses in coral reef habitat as a result of recent disease and longer term stressors that have continually impacted Southeast Florida's coral reef ecosystems over the past 70 plus years, a concerted effort to restore corals and the ecosystem services that they provide to the region is needed. Investment in coral restoration efforts should be informed by a strategic plan that identifies priority areas and ecosystem service targets for restoration action. Technical assistance is needed in the development of this plan and also in developing detailed engineering plans to guide restoration projects in meeting ecosystem service targets (e.g., shoreline protection, fisheries habitat, tourism, etc.).

6) **Participate in ongoing communications efforts to support appropriate on-reef behaviors and increase public and stakeholder engagement in coral reef management efforts**.

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Guam

Please address one or more of the following priorities identified by Guam's Bureau of Statistics and Plans, and the Department of Agriculture:

1. Internship programs for middle to high school students interested in marine biology, environmental science, and conservation.
2. Development and support of community based organizations or strategies that develop alternative livelihood programs and reduce unsustainable practices.
3. Communication/visualization tools to convey climate and coral reef information targeting high level decision makers.
4. An assessment of effectiveness and support for a fishing license/permit system for recreational and/or commercial fishing activities on coral reefs, including socioeconomic evaluation of potential license structures.
5. A fisheries market survey with an analysis of economic impacts of different management actions.
6. An economic study on the value of Guam's reefs.
7. Development of response plans that address impacts such as vessel groundings, oil and chemical spills, and/or coral disease outbreaks of nuisance and invasive species. Alternatively, development and testing of approaches for mitigation, rehab, and reef restoration after acute impacts.
8. Development of Fire Mitigation Plans that 1) Include converting *fire-prone grassland areas* with trees and/or preferred vegetation and increase the number of acres managed for firebreaks and/or 2) Target *residential* areas, in order to decrease erosion and sedimentation.
9. Community focused programs and other outreach initiatives that promote engagement in conservation monitoring, citizen science, climate change adaptation, fisheries, and/or coral reef restoration.

NOAA CORAL REEF CONSERVATION PROGRAM

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State of Hawaii

Please address one or more of the following priorities identified by the State of Hawaii's Division of Aquatic Resources (DAR):

1. **Conduct research on life history for near-shore fishery species and establish population baselines at appropriate spatial scales to inform management and updated fishing regulations on the most current data that is collected at the finest spatial scales possible.** Stock assessments have been conducted on nearshore fish species, however there are still gaps in data and information that is needed for effective management. Additionally, more current, regional and finer scale spatial information is needed to inform management. NOAA's Dr. Marc Nadon used data from various sources collected between 2003 and 2016 to produce stock assessments of 27 reef-associated fish species present in the main Hawaiian Islands. The stock assessments for some of these species were not derived from Hawaii-specific data and information. The list of species for which data was used to produce stock assessments was not collected from Hawaii can serve as a priority list of species for further study and most urgent need for stock assessment. Stock assessments for other species can be updated with more recent data.

2. **Conduct creel surveys at sites, such as West Hawaii, before and after a change in management action.** Rules have recently changed for the fisheries management area in Kaupulehu, which is near the West Hawaii priority management site Kiholo. This activity would strengthen DAR's knowledge of changes in fishing pressure, in particular, as to whether fishing pressure has moved from Kaupulehu to Kiholo, or other neighboring areas. Therefore, support is needed to conduct creel surveys in West Hawaii as well as at other marine managed areas, including Kahekili, Kahului Harbor, Haena Community-Based Subsistence Fishing Area, Waikiki-Diamond Head Shoreline, Manele and Hulopoe Bays, Pupukea, and surrounding areas. Surveys would need to include data collected from sampling on the weekends and at night.

3. **Conduct a high-resolution aerial mapping (e.g., bathymetry, 3-D habitat, live coral coverage) of the changes in coral cover across the Main Hawaiian Islands to monitor coral bleaching**. NOAA collaborated with DAR to support a similar study in 2018, which is now serving as the pre-2019 bleaching event baseline. It is essential to conduct this aerial mapping activity as soon as possible to help assess the impacts of the 2019 bleaching event in Hawaii and inform management activities to strengthen coral reef resilience and effectively respond to bleaching events.

4. **Develop a feasibility study for a commercial ocean user fee, administered by DAR, which would contribute to sustainable finance and support for coral reef and nearshore fisheries management in Hawaii**. During the first Partners Planning Meeting for the development of the HCRS 2030 (held on August 30, 2019), the critical issue of sustainable finance to support effective coral reef conservation and management was discussed. During discussions, DAR leadership shared the agency's intention of pursuing the development and implementation of an ocean user fee, which would help to internalize the costs of negative impacts on coral reefs and nearshore fisheries caused by commercial ocean users, and contribute to sustainable finance and support for effective coral reef and nearshore fisheries management. Partners agreed that this concept could be a viable and valuable option to ensure support for Hawaii's coral reef and nearshore fisheries management activities. It was agreed that further development of the concept and business planning is needed to inform managers and decision-makers towards the preparation and implementation of appropriate policies and measures to effectively implement such a fee. It is essential that DAR pursue the development of a business plan for a Hawaii ocean user fee, to inform policy makers in 2020, establish the fee along with appropriate mechanisms for collection and disbursement, and effectively utilize the fee for management.

5. **Conduct baseline monitoring around the north-east side of Lanai**. Pulama Lanai will be conducting fencing activities in the upper watershed to mitigate impacts on nearshore areas from erosion and sedimentation caused by the presence of ungulates. It is essential that DAR obtain baseline measurements and conduct monitoring activities after fencing activities are completed in order to observe changes to runoff and sedimentation and impacts at nearshore areas. A preliminary study was conducted in 2013, which DAR will use to compare data and inform management.

6. **Coordinate learning exchanges, etc. to explore the effectiveness of different management tools.** Strengthening management tools and actions to achieve fisheries sustainability is a high priority for DAR. It is essential that DAR learn lessons from other US affiliated Pacific island communities such as American Samoa, Guam, CNMI and the freely associated states (RMI, FSM and Palau) regarding fisheries management policy, rules, regulations and other actions including restrictions on SCUBA-based spearfishing, lay nets, marine aquarium fish take, night diving; bag and size limits; and enhancing fish habitat.

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Puerto Rico

Please address one or more of the following priorities identified by the Puerto Rico Department of Environmental Resources:

1. Strengthen local capacity to better address land-based sources of pollution by
    a. designing and installing best management practices prioritized in existing watershed management plans
    b. supporting education and outreach to inform decision making e.g., establish a learning exchange network to share effective management approaches and lessons learned across watersheds
    c. synthesizing monitoring data to inform management decisions.
2. Increase local capacity to respond to emergencies in coral reefs:
    a. Identify high risk areas for vessel impacts and their economic value
    b. Increase Emergency Response and Restoration capacity (monitoring of restoration efforts, mooring buoys, policy evaluation, jurisdictional interactions, technical support)
    c. Implement field work to monitor for disease and set up pilot sites for disease research and development
    d. Address events of high wave energy
3. Develop pilot projects to reduce impacts to reefs from invasive and nuisance species (i.e. sargassum, Halophila stipulacea etc.) that compete for coral recruitment habitat.
4. Education and outreach for the general public but also to the nautical community, tour operators and dive schools as well as to decision makers (i.e. education to recreational divers and boaters on impacts and damages - including aids to navigation).

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US Virgin Islands

Please address one or more of the following priorities identified by the USVI Department of Planning and Natural Resources:

1. **Complete a Watershed Management Plan for Salt River in St. Croix through an inclusive stakeholder-driven development process.** The Salt River Watershed was recently voted the top priority area for management intervention by the Virgin Islands Coral Reef Advisory Group. This area is jointly managed by the National Park Service and the VI Department of Planning and Natural Resources. A strategic management plan is needed to move forward effectively with management interventions to improve both watershed and marine resource conditions.

2. I**ncrease existing capacity within the Division of Environmental Enforcement (DEE) through natural resource training and/or development of tools and training materials for DEE officers.** This priority has been highlighted multiple times as a critical need for more effective enforcement of local environmental regulations. Tools (ex: officers field guide) and training (learning exchanges, fish-id, conflict management, communication skills) would help DEE officers be better prepared to identify, respond to and process environmental infractions.

3. **Research and development of innovative habitat restoration techniques for coral reefs and/or mangroves.** Scaling up and diversifying coral and mangrove restoration is a need both globally and locally. The USVI is interested in being a testing ground for new restoration techniques that can increase the abundance, resilience and diversity of these habitats. For coral reefs this could include assisted evolution techniques such as stress-hardening, disease resistance/resilience and selective breeding as well as scaling-up methods such as micro-fragmenting and enhanced sexual reproduction techniques. For mangroves this could include more basic aspects such as development of best management practices for collecting, rearing and outplanting mangrove propagules.

4. **Respond to and prevent coral disease impacts to coral reefs.** Stony Coral Tissue Loss Disease (SCTLD) is present in St Thomas and rapidly spreading throughout the territory. In-water Strike Teams have been set up in order to actively respond to the outbreak with the latest treatment methods. Currently this involves both culling and in-water antibiotic application to individual corals but may be expanded to include new treatment options when those are available.

However, current Strike Team capacity is lacking and any projects or initiatives that would complement or support these efforts are desperately needed.

5. **Develop materials that effectively and simply communicate the monetary value of coral reefs to the US Virgin Islands.** Many Virgin Islands residents and decision-makers are unaware of the benefits that coral reefs provide to the USVI. Simple, targeted outreach materials using local data that convey this kind of information in an easily digestible manner are relatively rare. There is a strong need for a marketing campaign to showcase why coral reefs are important to local communities and the VI economy.

6. **Research methods and assess the feasibility of herbivore restoration.** Many USVI coral reefs have reached alternate stable states of macroalgal dominance or are actively fighting the invasive Ramicrusta red algae. Coral restoration alone may not be enough to reverse these trends. Combining coral restoration with herbivore (ex: diadema or parrotfish) restoration could increase the chance of outplant sites successfully reverting to a coral dominated reef state. The USVI is interested in being a test-location for implementation of these combined restoration techniques.

7. **Coordinate with the local USVI restaurant and seafood industry to promote consumption of sustainable seafood options.** The USVI does not export any fisheries product. However, local consumption by both residents and tourists is significant. Many consumers, fishermen and businesses are unaware which species are considered ecologically more sustainable for harvest. By providing easy access to this information and the rewards it can bring, negative impacts to more sensitive species (ex: grouper) or more ecologically valuable species (ex: parrotfish) can be lessened.