

**COMMONWEALTH OF THE  
NORTHERN MARIANA ISLANDS'  
CORAL REEF MANAGEMENT  
PRIORITIES**

## INTRODUCTION

The purpose of this Priority Setting document is to articulate a set of strategic coral reef management priorities developed in consensus by the coral reef managers in CNMI. NOAA will use this document in conjunction with its 2010–2015 Coral Reef Conservation Program National Goals and Objectives (available at [www.coralreef.noaa.gov](http://www.coralreef.noaa.gov)) to direct its investment in activities in each jurisdiction through grants, cooperative agreements and internal funding. NOAA will also make the document available to other potential funders (NGOs, federal partners, etc.) and encourage leveraging and new or expanded partnerships to build common coral reef conservation goals.

The work presented here is being facilitated by the NOAA Coral Reef Conservation Program (NOAA CRCP) as part of an ongoing effort to develop place-based, local coral reef management priorities in each of the seven U.S. state and territorial coral reef jurisdictions (American Samoa, Commonwealth of the Northern Mariana Islands, Florida, Hawaii, Guam, Puerto Rico and the U.S. Virgin Islands) and conduct capacity assessments to identify the support needed to accomplish those priorities. The first step in this effort has been to work with the core group of coral reef managers (local, place-based) in each jurisdiction to articulate a set of strategic coral reef management priorities. The second, and next, step will be to complete a capacity needs assessment that helps each state and territory realize these priorities.

This priority setting process stems from an external review of NOAA CRCP conducted in 2007 to independently assess how effectively the program has met its goals. The review included recommendations for future improvements. In response to the review, NOAA CRCP developed a “Roadmap for the Future,” laying out new principles and priorities. A key part of this new Roadmap includes developing management priorities for each and all of the coral reef jurisdictions and conducting capacity assessments to achieve these priorities. NOAA CRCP is providing support to the jurisdictions to coordinate with the broader management community in each place to determine these strategic goals and objectives for each state and territory. Priority setting initiatives began in 2009 with implementation phased in two to three jurisdictions per year. The capacity assessments will follow, beginning in late 2010.

This Priority Setting document is divided into the following sections:

1. Scope, Development and Prioritization Process: This section details the process by which the priority goals and objectives were reached, including the preparation for the workshop, work done at the workshop, and the post-workshop refining process.
2. Strategic Coral Reef Management Priorities: This section presents the entire framework of goals and objectives developed and agreed upon by the core group during this process. In this section, the Priority Goals and Objectives are

highlighted. These are the top priorities for management action as agreed upon by the core managers group.

3. Linkages to NOAA's National Goals and Objectives: This section describes how the local jurisdiction management priorities align with NOAA CRCP's priorities and future direction.

**SECTION ONE:  
SCOPE, DEVELOPMENT AND  
PRIORITIZATION PROCESS**

This document captures the final set of priorities agreed upon by the core managers group at the priority setting workshop. The core managers group is defined as the “place-based” coral reef managers who have the direct responsibility for managing the coral reef ecosystem in a particular geographic location. The managers as well as those who were asked to participate in the initial analysis and review of this document are listed in Appendix 1.

In preparation for the workshop, previously identified goals and objectives were taken from current management documents and presented in the Situation Analysis. The Situation Analysis is a preparatory document that summarizes: coral reef threats, condition and trends; key management issues; and key agencies’ management goals ahead of meetings and interviews. Its primary purpose is to compile and consolidate available management documents from various management bodies and geographic localities. Appendix 2 presents a summary of the Situation Analysis’ findings.

This Situation Analysis was augmented by a series of interviews that captured managers’ working perceptions of management goals as they are stated in management documents. Taken together, along with the current version of the Local Action Strategy (LAS) document, this information formed the basis for the workshop discussions by offering an initial set of goal areas to consider.

During the interviews with the core coral reef managers and management advisors in CNMI, facilitators identified challenges to and current deficiencies in achieving stated goals and objectives, noting specific capacity gaps that likely will need attention. This information will serve as the starting point for the capacity assessment, to be completed in the following year. It is summarized in Appendix 3.

Workshop participants worked from the Situation Analysis, interviews and a current version of CNMI’s LAS document to create a comprehensive set of goals and objectives for four priority areas. These were agreed upon by the core group as needed areas that were most important to the successful management and conservation of the CNMI’s coral reefs. They are:

- o Impacts of land-based sources of pollution.
- o Fisheries and impacts of fishing.
- o Impacts of military build-up.
- o Impacts of climate change and ocean acidification.

These four priority areas are encompassed by two larger overarching goals that guide coral reef management efforts in the CNMI. The first is the Micronesia Challenge ([www.micronesiachallenge.org](http://www.micronesiachallenge.org)). This regional commitment to effectively conserve at least 30% of the near-shore marine resources and 20% of the terrestrial resources across Micronesia by 2020 provides a framework to guide resource management and conservation in the CNMI. The government of CNMI and its coral reef managers are committed to achieving the goals of the challenge in CNMI. Closely related to the Micronesia Challenge is the need to increase the resiliency of CNMI’s reefs and coastal communities in the face of climate change and ocean acidification. The theme of reef

resiliency is an important component of reef management on CNMI and serves as a connection between all four priority areas.

For the purpose of this exercise, the following definitions were used:

**Goals** are defined as the highest-level result the jurisdiction seeks to achieve (e.g., stable, sustainable coral reef ecosystems) in the next five to seven years.

**Objectives** are defined as the environmental, social and institutional outcomes the jurisdiction must achieve to reach the end goal. Objectives are generally actionable within a three- to five-year time frame.

**Actions** are projects, procedures or techniques intended to implement an objective.

On the first day of the workshop, small groups presented their recommendations to all participants for discussion and evaluation. Each participant then identified his or her top eight priority objectives. Actions were developed after the workshop in consultation with the core group.

This document presents both the comprehensive set of goals and objectives as developed by the core group as well as the Priority Goals and Objectives. **The Priority Goals and Objectives are those the core group identified through the above process as requiring immediate attention over the short term.** These Priority Goals and Objectives will guide NOAA CRCP funding allocations for management activities. The CRCP understands and respects the flexibility required by coral reef managers in implementing complex conservation and management programs. Should the partners seek funding for projects related to off-priority issues (either in the comprehensive framework of goals and objectives in this document or a new emerging issue not reflected in this document) it will need to be fully explained why the requested funding is most appropriate for the off-priority work versus efforts to address the priority Goals and Objectives identified through this process.

The priority goals and objectives are identified by blue/italic. The attendees selected the Priority Goals and Objectives during the workshop and a follow-up a meeting.

The top four Priority Goals as identified and ranked by the workshop participants are:

1. Improve the condition of CNMI's coral reef ecosystems by reducing the amount of sediment, nutrients and other land-based sources of pollution in CNMI's watersheds.
2. Increase the abundance and average size of CNMI's key coral reef fishery species to protect trophic structure and biodiversity and improve coral reef ecosystem condition (within and outside of existing marine protected areas [MPA]).
3. Develop the legal and administrative authority and capacity to monitor and assess impacts of military build-up activities on coral reefs by 2012.

4. Monitor the short- and long-term impacts of global climate change as part of a longer-term adaptation strategy.

These management actions primarily focus on the commonwealth's populated Southern Mariana Islands, although some activities extend to the Northern Islands and offshore banks and reefs.

**SECTION TWO:  
STRATEGIC CORAL REEF  
MANAGEMENT PRIORITIES**

This section presents the entire framework of goals and objectives developed and agreed upon by the core group during this process. In this section, the **Priority Goals and Objectives are highlighted in blue/italic font**. These are the top priorities for management action as agreed upon by the core managers group. These Priority Goals and Objectives will guide funding allocations for management activities.

## **A. IMPACTS OF LAND-BASED SOURCES OF POLLUTION**

***GOAL: Improve the condition of CNMI's coral reef ecosystems by reducing the amount of sediment, nutrients and other land-based sources of pollution in CNMI's watersheds.***

***OBJECTIVE A1: Implement LaoLao Conservation Action Plan (CAP) as a model approach to site-based planning and management by 2013 (coinciding with the end of the American Recovery and Relief Act [ARRA] road improvement project in LaoLao Bay).***

### Key Actions To Achieve this Objective

- Coordinate with ARRA road improvement project to implement remaining BMP and revegetation projects by 2011.
- Provide effective enforcement against illegal activities (i.e., burning, poaching, dumping, land-clearing, etc.).
- Engage social marketing expert to plan targeted outreach campaign by 2010 to increase stakeholder participation. Implementation to begin by 2011.
- Ensure that ongoing coral reef monitoring is designed to measure the effectiveness of implemented CAP projects by 2010.
- Evaluate data to assess the effectiveness of management measures. Begin baseline in 2010.
- Revisit CAP annually to assess progress and revise if necessary. Draw lessons that can be applied to future CAPs.

***OBJECTIVE A2: Develop and begin implementing a CAP or comprehensive watershed management plan in Garapan (defined as AMP to Garapan Fishing Base) by 2015 to improve water quality and condition of adjacent coral reefs.***

### Key Actions To Achieve this Objective

- Understand status of current planning efforts, identify what actions are being considered or implemented and update watershed plan by 2010.
- Develop public participation strategy to garner support for a watershed stormwater management plan and other initiatives by 2012.
- By 2011 begin implementing stormwater improvement strategies developed during the Municipal Stormwater Training conducted by the Center for Watershed Protection and Horsley Witten in September 2009.
- Select and implement key strategic actions from existing plans and designs (Garapan Watershed Plan) by 2011.

- Revise or create new architecture and engineering plan for stormwater infrastructure (if needed) by 2012.
- Find funding and implement architecture and engineering plan by 2015.

***OBJECTIVE A3: Develop and begin to implement a CAP or comprehensive watershed management plan for a key watershed in Rota to improve water quality and condition of adjacent coral reefs.***

Key Actions To Achieve this Objective

- Conduct Rota CAP in 2010 and begin implementing in 2011–12.

OBJECTIVE A4: Increase public awareness of how changes in household and commercial land-use activities can contribute to improved reef condition.

Key Actions To Achieve this Objective

- Engage social marketing expert to develop targeted outreach campaigns by 2011. (Social marketing is the application of marketing tools to change attitudes and behaviors. It has been successfully applied to such issues as seatbelt use, smoking, pollution, teen drug abuse, and reproductive health.)
- Integrate social marketing plan with CAPs and other ongoing watershed management initiatives rather than implement separate awareness activities by 2010. Build off messaging from LaoLao CAP.
- Partner with NGOs to implement targeted outreach campaigns by 2010.

OBJECTIVE A5: Strengthen watershed management in San Jose, Tinian, by conducting a watershed inventory, in preparation for CAP by 2013.

Key Actions To Achieve this Objective

- Gather flow direction and rate data.
- Gather water quality data.
- Examine conductivity between watershed discharge and near-shore marine environment.

OBJECTIVE A6: Reduce sediments and other land-based sources of pollution in Talakhaya, Rota, by continuing revegetation and public outreach.

## **B. FISHERIES AND IMPACTS OF FISHING**

***GOAL: Increase the abundance and average size of CNMI's key coral reef fishery species to protect trophic structure and biodiversity and improve coral reef ecosystem condition (within and outside of existing marine protected areas [MPA]).***

***OBJECTIVE B1: Increase compliance with fishing laws and regulations that affect key coral reef fishery species by 2015. Focus these efforts in priority watersheds (those with completed CAPs).***

### Key Actions To Achieve this Objective

- Work with a social marketing expert to plan targeted outreach and awareness campaigns to increase compliance with fishing laws and regulations by 2011. The aim is to educate fishers, consumers and commercial entities (businesses) about coral reef fish life histories, the need for fisheries management and the impacts of specific fishing practices.
- Improve enforcement of fishery laws and regulations by 2012 through providing additional capacity, equipment and resources to local enforcement offices. Create opportunities, through social marketing campaign, for enforcement officers to engage with local communities to raise awareness about existing rules and regulations.
- Monitor effectiveness of existing enforcement program and review and revise enforcement plan annually starting in 2012. Vet results of the monitoring with affected community and seek input from resources users about how compliance could be improved.
- Provide regular training for enforcement staff in enforcement, investigation and community engagement techniques. (Need for frequent training opportunities on multiple subjects—fish ID, new laws, technologies, techniques and underwater investigation.)
- Improve interagency collaboration and cross-training opportunities through a joint enforcement agreement.
- Support the development of community management programs to increase public knowledge of, support for and participation in fishery management activities (e.g., Tasi watch in LaoLao Bay) by 2013.

***OBJECTIVE B2: Strengthen the information base for fisheries management by 2012. Collect, analyze and manage fishery-dependent and independent data about the status of stocks, including relevant life-history information for targeted coral reef fishes. (Refer to Summary Recommendations [Urgent/Critical] in “Coral Reef Stock Assessment Workshop” [WPRFMC, Feb 2008]).***

### Key Actions To Achieve this Objective

- Expand creel survey on Saipan, and perhaps to Tinian and Rota. Prior to expansion, ensure that current surveys follow a reportable, defensible, complete design.
- Conduct a Northern Islands shallow-water bottom fish stock assessment.

- Collect additional catch data from market surveys to determine:
  - a) What types of fish make up the majority of market sales.
  - b) Are fish being caught before they can reproduce.
  - c) How markets compare between all other islands.

***OBJECTIVE B3: Enact the Fishery Management Act and accompanying regulations by 2010.***

Key Actions To Achieve this Objective

- Educate the legislature on how a fisheries act will benefit/affect them.
- Ensure appropriate legal support to make any changes to act necessary for passage.

OBJECTIVE B4: Take necessary action to ensure that CNMI is a decision-making partner in Mariana Trench Marine National Monument management. Ensure that the Monument incorporates local initiatives and laws.

Key Actions to Achieve this Objective

- Ensure locally designated point of contacts communicate with appropriate federal managers to start dialogue on management issues.

OBJECTIVE B5. Implement major objectives in the National Marine Fisheries Service (NMFS) Habitat Assessment Improvement Plan, which are relevant to CNMI coral reefs.

Key Actions To Achieve this Objective

- Conduct improved habitat assessments to refine/narrow definitions of Essential Fish Habitat (EFH) and Habitat of Particular Concern (HAPC).
- Prioritize habitat protection, restoration and mitigation.
- Improve accuracy of EFH consultations regarding proposed (fishing or non-fishing) impacts.
- Improve quantification of habitat value/loss and mitigation recommendations.
- Improve integrated ecosystem assessments (Ecosystem Based Fishery Management).

## **C. IMPACTS OF MILITARY BUILD-UP**

***GOAL: Develop the legal and administrative authority and capacity to monitor and assess impacts of military build-up activities on coral reefs by 2012.***

***OBJECTIVE C1: Establish protocols for joint CNMI-federal agency involvement in the environmental assessment and monitoring of military activities (e.g., landing boats, sonar exercises) in proximity to reefs by 2012.***

#### Key Actions To Achieve this Objective

- Establish a working group to coordinate development and implementation of protocols. Include CNMI representative for Navy Joint Guam Program Office (JGPO) meetings to ensure coordination. Review examples from Farallon De Medinilla (FDM), Guam and Hawaii as a guide. (The aim is for CNMI agencies to be involved in the design and implementation of military monitoring activities in proximity to coral reefs. If monitoring is not adequate to assess impacts, CNMI agencies should partner with other federal agencies to supplement monitoring activities.)

***OBJECTIVE C2: Rapidly assess and collect baseline information on reef conditions in existing or proposed military training areas. Work with military to establish these baselines and long-term monitoring of these sites.***

#### Key Actions To Achieve this Objective

- Establish an interagency monitoring team to develop monitoring protocols and begin monitoring coral reefs in existing or proposed military training areas by 2013.
- Develop biosecurity baselines and monitoring protocols to reduce the risk of aquatic and terrestrial invasive plants and animals in the major harbors and military landing zones within CNMI by summer 2011.

***OBJECTIVE C3: Establish protocols to avoid and minimize impacts of military vessel anchors on CNMI's reef systems by 2011.***

#### Key Actions To Achieve this Objective

- Establish a working group to coordinate development and implementation of protocols by 2010.
- Review established protocols and management strategies for minimizing anchor damage from other areas and adapt for CNMI (e.g., see Great Barrier Reef Marine Park Authority, CORAL guidelines, Florida) by 2010.
- Work with local enforcement agencies to enforce and monitor compliance with protocols by 2011.
- Monitor coral reefs area for anchor damage (add to existing monitoring programs) by 2011.

OBJECTIVE C4: Develop strategies for managing increased recreational uses related to increased military presence.

#### Key Actions To Achieve this Objective

- Conduct socioeconomic monitoring of increased marine recreational activity (by military, dependents and contractors) in CNMI waters, and related impacts to reefs.

## D. IMPACTS OF CLIMATE CHANGE AND OCEAN ACIDIFICATION

*GOAL: Monitor the short- and long-term impacts of global climate change as part of a longer-term adaptation strategy.*

*OBJECTIVE D1: Create and build capacity to implement a response plan by 2012 to quantify and characterize bleaching events, building on recommendations from NOAA climate-change workshop held in Guam, September 2009.*

### Key Actions To Achieve this Objective

- Establish an interagency working group to oversee development.

OBJECTIVE D2: Work with NOAA and CRMO to increase capacity to monitor and mitigate impacts to CNMI's coastlines from sea-level rise.

### Key Actions To Achieve this Objective

- Continue beach profiling to prioritize locations most susceptible to inundation.
- Create GIS-based situation models based on sea-level rise scenarios by 2013.
- Create/develop adaptation plans focusing on vulnerable areas and infrastructures relocation strategies by 2015.

OBJECTIVE D3: Develop a climate-change awareness program for the community.

### Key Actions To Achieve this Objective

- Develop a communications plan (including outreach to media, key leaders, stakeholders, etc.) as part of the CNMI Coral Bleaching Response Plan by 2010.
- Coordinate with community dive groups, businesses and individuals to build participation in BioSearch program as a tool to assist in early warning for bleaching, Crown of Thorns Starfish, and other climate driven events by 2011.
- Coordinate with local media (print, broadcast and radio) to provide a coral bleaching watch update to run at regular intervals during summer months by 2010.

OBJECTIVE D4: Increase capacity (e.g., ICON expansion) for monitoring ocean temperature change, bleaching, acidification and other potential impacts of global climate change.

**SECTION THREE:  
LINKAGES TO  
NOAA'S NATIONAL  
GOALS AND OBJECTIVES**

Table 1 shows how CNMI’s Priority Goals and Objectives correlate to the NOAA CRCP National Goals and Objectives for coral reef conservation. Table 1 was developed after the CNMI Coral Reef Management Priority Setting Process was complete to explicitly identify potential partnerships between the managers in CNMI and NOAA CRCP. Addressing both local jurisdictional priorities and national goals and objectives will increase efficiency and leveraging of the resources available for coral reef conservation. NOAA CRCP will use this table to inform future investments in coral reef conservation in CNMI.

**Table 1: Correlation of CNMI’s Priority Goals and Objectives with NOAA CRCP National Goals and Objectives**

CNMI’s Priority Goals and Objectives	NOAA’s National Goals and Objectives for Coral Reef Conservation	Explanation of Correlation (as needed)
<b>GOAL A: IMPROVE THE CONDITION OF CNMI’S CORAL REEF ECOSYSTEMS BY REDUCING THE AMOUNT OF SEDIMENT, NUTRIENTS AND OTHER LAND-BASED SOURCES OF POLLUTION IN CNMI’S WATERSHEDS.</b>		
OBJECTIVE A1: Implement LaoLao CAP as a model approach to site-based planning and management by 2013 (end of American Recovery and Relief Act [ARRA] road improvement project in LaoLao Bay).	Objective L1.3: Implement watershed management plans and relevant Local Action Strategies (LAS) within priority coral reef ecosystems and associated watersheds to improve water quality and enhance coral reef ecosystem resilience. Where needed, develop (or update) watershed management plans that incorporate coral reef protection measures.	Conservation Action Plans (CAPs) are site-based plans that address watershed management and other issues and identify specific actions at the local level to reduce threats to resources.
OBJECTIVE A2: Develop and begin implementing a CAP or comprehensive watershed management plan in Garapan (defined as AMP to Garapan Fishing Base) by 2015 to improve water quality and condition of adjacent coral reefs.	Objective L1.3: Implement watershed management plans and relevant Local Action Strategies (LAS) within priority coral reef ecosystems and associated watersheds to improve water quality and enhance coral reef ecosystem resilience. Where needed, develop (or update) watershed management plans that incorporate coral reef protection measures.	See Objective A1.
OBJECTIVE A3: Develop and begin to implement a CAP or comprehensive watershed management plan for a key watershed in Rota to improve water quality and condition of adjacent coral reefs.	Objective L1.3: Implement watershed management plans and relevant Local Action Strategies (LAS) within priority coral reef ecosystems and associated watersheds to improve water quality and enhance coral reef ecosystem resilience. Where needed, develop (or update) watershed management plans that incorporate coral reef protection measures.	See Objective A1.
<b>GOAL B: INCREASE THE ABUNDANCE AND AVERAGE SIZE OF KEY CORAL REEF FISHERY SPECIES TO PROTECT TROPHIC STRUCTURE AND BIODIVERSITY AND IMPROVE CORAL REEF ECOSYSTEM CONDITION (WITHIN AND OUTSIDE OF EXISTING MARINE PROTECTED AREAS [MPA]).</b>		
OBJECTIVE B1: Increase compliance with fishing laws and regulations that affect key coral reef fishery species by 2015. Focus these efforts in priority	Fishing Impacts Goal 3: Increase stakeholder engagement and capacity to improve local compliance with and enforcement of fisheries management regulations that further coral reef ecosystem conservation.	No explanation needed.

<p>watersheds (those with completed CAPs).</p>	<p>Fishing Impacts Objective 3.1: Increase participation of stakeholder or citizen groups in fisheries management planning, decision-making and monitoring activities that improve conservation of coral reef ecosystems.</p> <p>Fishing Impacts Objective 3.2: Strengthen local agency and community capacity for effective and consistent enforcement of regulations or behaviors that reduce impacts of fishing on coral reef ecosystems.</p> <p>Fishing Impacts Objective 3.3: Work with partners to identify economic alternatives that reduce effects of non-traditional extractive livelihoods on coral reef ecosystems and provide options for communities impacted by coral reef fisheries management actions.</p> <p>Fishing Impacts Objective 3.4: Conduct biological and socioeconomic research and monitoring necessary to assess the effectiveness of compliance and enforcement activities, understand community concerns, flag roadblocks to implementation and incorporate into management efforts.</p>	
<p>OBJECTIVE B2: Strengthen the information base for fisheries management by 2012. Collect, analyze and manage fishery-dependent and independent data about the status stocks, including relevant life-history information for targeted coral reef fishes. (Refer to Summary Recommendations [Urgent/Critical] in “Coral Reef Stock Assessment Workshop” [WPRFMC, Feb 2008]).</p>	<p>Fishing Impacts Objective 1.3: Obtain essential life history and ecological information on key species or functional groups to support management actions.</p> <p>Fishing Impacts Objective 1.4: Obtain necessary information on fishing effort in U.S. coral reef ecosystems by measuring fishing intensity, fishing mortality, frequency, area coverage, community dependence, etc., to inform management activities.</p> <p>Fishing Impacts Objective 1.5: Predict appropriate levels of extraction for key species or groups by developing and utilizing valid, precise, place-based and realistic ecosystem dynamics models.</p> <p>Fishing Impacts Objective 1.6: Conduct applied biological,</p>	<p>No explanation needed.</p>

	social, and economic research and monitoring to evaluate effectiveness of coral reef ecosystem management actions on key species or groups.	
OBJECTIVE B3: Enact the Fishery Management Act and accompanying regulations by 2010.	<p>Fishing Impacts Objective <u>3.2</u>: Strengthen local agency and community capacity for effective and consistent enforcement of regulations or behaviors that reduce impacts of fishing on coral reef ecosystems.</p> <p>Fishing Impacts Objective <u>3.4</u>: Conduct biological and socioeconomic research and monitoring necessary to assess the effectiveness of compliance and enforcement activities, understand community concerns, flag roadblocks to implementation, and incorporate into management efforts.</p> <p>Fishing Impacts Objective <u>4.3</u>: Develop targeted, locally-relevant outreach and communication strategies to increase community understanding and support for regulations to protect key coral reef ecosystem species/functional groups and expanded use of marine protected areas.</p>	The CNMI Fishery Management Act articulates CNMI's fisheries management policy and the rules and regulations established to enforce the policy. The national fishing impacts objectives each relate to aspects of enforcing fisheries rules and regulations that the CRCP can support in partnership with CNMI.
<b>GOAL C: DEVELOP THE LEGAL AND ADMINISTRATIVE AUTHORITY AND CAPACITY TO MONITOR AND ASSESS IMPACTS OF MILITARY BUILD-UP ACTIVITIES ON CORAL REEFS BY 2012.</b>		
OBJECTIVE C1: Establish protocols for joint CNMI-federal agency involvement in the environmental assessment and monitoring of military activities (e.g., landing boats, sonar exercises) in proximity to reefs by 2012.	None	
OBJECTIVE C2: Rapidly assess and collect baseline information on reef conditions in existing or proposed military training areas. Work with military to establish these baselines and long-term monitoring of these sites.	None	
OBJECTIVE C3: Establish protocols to minimize impacts of military vessel anchors on CNMI's reef systems by 2011.	None	

<b>GOAL D: MONITOR THE SHORT- AND LONG-TERM IMPACTS OF GLOBAL CLIMATE CHANGE AS PART OF A LONGER-TERM ADAPTATION STRATEGY.</b>		
OBJECTIVE D1: Create and build capacity to implement a response plan by 2012 to quantify and characterize bleaching events, building on recommendations from NOAA climate-change workshop held in Guam, September 2009.	Climate Impacts Objective 1.3: Develop and implement climate-related crisis response plans in all U.S. coral reef jurisdictions to provide a framework for early warning, communication, monitoring, research and management response to protect coral reef ecosystems from acute events such as coral bleaching, infectious disease outbreaks, tropical storm impacts and major rainfall events.	No explanation needed.

## **APPENDIX 1: PRIORITY SETTING PROCESS PARTICIPANTS**

### **Core Group: place-based managers of specific area of coral reef.**

Each member of this group was invited to attend the workshop, to partake in an interview prior to the workshop and to participate in document revisions.

Frank Rabauliman, Division of Environmental Quality (DEQ)  
Fran Castro, DEQ  
Kathleen Herrmann, DEQ/NOAA  
Janice E. Castro, DEQ  
Lisa Huyhn Eller, DEQ  
Dr John Joyner, Coastal Resources Management (CRM)  
John Starmer, CRM  
Brooke Nevitt, CRM  
Sylvan Igisomar, Division of Fish and Wildlife (DFW)  
Michael Trianni, DFW  
Ray Roberto, DFW  
Tony Mareham, DFW  
Mike Tenorio, DFW  
Dr. Peter Houk, Pacific Marine Resources Institute (\* Included due to previous position with DEQ)  
Steve McKagan, NOAA, National Marine Fisheries Service (NMFS), Pacific Islands Regional Office  
Jack Ogumoro, Western Pacific Regional Fishery Management Council

### **Advisors: managers of jurisdictions and populations impacting CNMI coral reefs.**

Each member of this group was invited to interview prior to the workshop and to participate in document revisions.

Nate Hawley, DFW  
Ana Agulto, CRM  
Doris Chong, CRM  
Kathy Yuknavage, Mariana Islands Nature Alliance (\*Included due to previous position with CRM)  
Kate B. Fuller, DEQ

### **Science Advisors: members of the scientific community with expertise in various aspects of coral reef ecosystems.**

Each member of this group was invited to review documents and to offer revisions.

Jacob Asher, NMFS, Pacific Islands Fisheries Science Center (PIFSC), Coral Reef Ecosystem Division (CRED)  
Rusty Brainard, NOAA PIFSC CRED  
Joyce Miller, NOAA PIFSC CRED  
Benjamin Richards, NOAA PIFSC CRED  
Bernardo Vargas-Angel, NOAA PIFSC CRED  
Arielle Levine, NOAA PIFSC  
Robert Van Woesik, Florida Institute of Technology  
Bob Schroeder, NOAA PIRO

## APPENDIX 2: CONTEXT

The Situation Analysis is a preparatory document that summarizes coral reef threats, condition and trends; key management issues; and key agencies' management goals. As an initial step in the priority setting process, it was used ahead of meetings and interviews to provide a reference point and boundary for priority setting discussions with place-based coral reef managers in CNMI. The documents that make up the basis of this analysis were identified during interviews with place-based coral reef managers in CNMI and via a desk review of existing management plans from those agencies that are responsible for or affect CNMI's coral management. The coral reef managers interviewed for this study were identified by the NOAA CRCP team with input from the NOAA CRCP point of contact in CNMI and included NOAA CRCP, NOAA National Marine Fisheries Service (NMFS)/Pacific Islands Regional Office, NOAA–NMFS/Western Pacific Regional Fishery Management Council, Department of Planning and Natural Resources (DPNR)—Division of Environmental Quality, DPNR—Coastal Resources Management, DPNR—Division of Fish and Wildlife, Mariana Islands Nature Alliance (MINA) and Pacific Marine Resources Institute (PMRI).

The Situation Analysis identified the following issue areas—which reflect both specific threats as well as tools to mitigate threats—as those that were most commonly referred to in the documents reviewed. These results are listed in no particular order.

**Water Quality** includes monitoring and data collection from a number of sites for bacteria and nutrient levels as well as turbidity reduction from runoff. Many of the efforts to improve water quality overlap with issues of construction and development: road stabilization and stormwater control reduce runoff and turbidity. Other efforts include soil stabilization and establishing treatment wetlands. This topic is closely connected to the issue of land-based sources of pollution as well as construction and development, both noted point and non-point sources of pollution.

**Education, Outreach and Community Involvement** is the most prolific goal set. These goals cut across all areas of management and conservation. Because the economy of the islands relies heavily on coral reefs, both as a tourism draw and a fishery, the status of the ecosystem depends upon sustainable users. Education and outreach programs are vital to public and visitor understanding of human impact and sustainable use. The vast majority of actions and objectives include using volunteers to implement plans.

In addition, the following issues were particularly noteworthy: Regulation and Enforcement, Construction and Development, Land-Based Sources of Pollution and Research, Maintaining Natural Habitats, Fishing and Zoning and Moorings.

**Regulation and Enforcement** refers to enforcing regulations already in place and updating regulations to reflect current needs and stresses. Regulations must evolve to meet the needs of an ecosystem changing due to new and increased anthropogenic stresses as well as the effects of global climate change. As such, research and monitoring

are often linked to updating regulations. In addition, this issue often coincides with significant education and outreach goals, as dispersing information on regulations is the first step toward user group compliance.

**Construction and Development** refers both to development meant to improve environmental quality and efforts to mitigate human impacts due to construction and commercial development. Major construction efforts in CNMI revolve around stormwater management, such as road stabilization. Revegetation of unstable areas to prevent soil erosion and nutrient runoff are often mentioned as well. Construction and development supports recreational activities and includes expanding and maintaining trail networks and park facilities. It is also closely linked with water quality and land-based sources of pollution discussed below.

**Land-Based Sources of Pollution** pertains to actions that degrade water quality or have a direct impact on reef health. As is noted above, water quality and construction and development are linked and pertain to land-based sources of pollution. As such, both of these topics could fall under the broader topic of land-based sources of pollution.

**Research and Maintaining Natural Habitats** includes research and monitoring in high-impact areas, such as popular snorkel/dive sites and highly developed coastlines. Research and habitat maintenance goals also include designating and enforcing no-motor and no-take areas. This issue frequently links to various other conservation management areas, as the goals are often to maintain habitats with as little impact as possible.

**Fishing** is an economic keystone for CNMI. Fishing is both a commercial and personal livelihood for residents as well as a recreational activity for visitors and locals alike. Because fishery regulation has significant community impact, outreach programs and interagency management with private stakeholders is often necessary to determine the most effective management practice.

**Zoning and Mooring** refers to the need to designate specific areas for specific activities and includes recommendations for general calls for area-wide zoning schemes, such as a mix of marine protected areas, anchoring/no-anchoring areas, multi-use areas, no-take marine reserves, etc.

## **APPENDIX 3: PRELIMINARY IDENTIFICATION OF CAPACITY GAPS**

During the interviews with coral reef managers in CNMI, facilitators worked to understand the working relationship between managers and management documents. Facilitators noted and identified challenges to and current deficiencies in achieving stated goals and objectives, noting specific capacity gaps that likely will need attention.

The Coastal Resources Center at the University of Rhode Island developed and applied common tools for comparative assessments of coastal ecosystem governance. This approach involves three categories, phrased as key statements, for enabling conditions that allow an initiative to successfully execute a sustained plan of action designed to influence the course of events in an ecosystem.

The three categories are: constituencies, commitment and capacity. This baseline will also identify the immediate capacity gaps that are directly related to implementing this strategic approach. These gaps will be explored further, and a capacity assessment will be developed in phase II of this effort, beginning in fiscal year 2010.

### **Constituencies**

*Premise: To achieve success, a core of well-informed and supportive **constituencies** comprised of stakeholders in both the private sector and government agencies must actively support the program.*

Measures:

1. The user groups who are affected by your program understand and support the goals, strategies and targets.
2. There is public support for your program.
3. The institutions that assist in implementing your program, or the institutions that are affected by the plan, understand and support it.

### **Results:**

A core group of resource managers in the Department of Environmental Quality (DEQ), Coastal Resource Management (CRM), Department of Fish and Wildlife (DWF) and among nongovernmental organizations understands and supports reef management objectives. Other management personnel are not opposed to DEQ's reef management initiatives, but have other management priorities. Support among resource user groups seems to be uneven. Fishers, in particular, show mixed support. CNMI coral reef initiative is seeking to build support for greater self-management among fishers through a social marketing plan that applies marketing tools to the promotion of fishing practices that reduce negative impacts on reef systems. Recreational operators generally understand and support resource management objectives, according to management resource people with whom we spoke.

## **COMMITMENT**

Premise: *To achieve success, it is necessary that the delegated authorities have expressed **commitment** to the policies of a program and to the allocation of financial resources required for long-term program implementation.*

Measures:

1. The appropriate level of government has formally approved the plan of action.
2. The government provided the program with the authorities it needs to successfully implement its plan of action.
3. Sufficient financial resources have been committed to fully implement the program over the long-term.

## **Results:**

Commitment is strong in DEQ from the director down, among experienced staff in CRM and DFW and among nongovernmental experts including some of whom are former government staff. There appears to be strong agreement among resource management professionals about the need for greater management of land-based sources of pollution, more rigorous management of fishing activities and increased attention focused on climate change and the military build-up. Place-based funding for managing land-based sources of pollution will require support from multiple agencies. Regarding funding, CNMI relies heavily on federal funds. Local funding for management, particularly for managing land-based sources of pollution, will be essential. Commitment to increased enforcement of fishing activities is problematic.

## **CAPACITY**

Premise: *To achieve success, it is necessary for sufficient **capacity** be present within the institutions responsible for the program to implement its policies and plan of action.*

Measures:

1. Your program possesses the human resources to implement its plan of action.
2. Your program possesses the institutional resources (equipment, materials, etc.) to implement its plan of action.
3. There are internal or external barriers to successfully implement plan of action. What are these?

## **Results:**

There is a core of skilled and knowledgeable resource management specialists among DEQ, CRM, DFW and nongovernment organizations who care passionately about reef management issues. There appear to be a few specialist gaps in the CRM program, some of which may be remedied with increased experience and mentoring. The more serious capacity issues relate to institutional infrastructure and higher-level leadership. A number of respondents mentioned difficulties in applying for and managing project funding. Some addressed the difficulties in navigating the grants Web site and forms and the relatively small grants they received. This required them to be constantly applying for

additional funding. Several suggested having an intermediary financial management agency such as the Research Corporation of the University of Hawaii with which to work. There were also concerns about the perceived Honolulu-centric scientific research agenda and the lack of equipment and other resources to do scientific research, including climate-change research, more directly related to CNMI's management priorities. Regarding the impacts of fishing activities on reefs, enforcement and prosecution of existing regulations is problematic at best. CNMI's Coral Reef Initiative hopes to initiate a more intensive social marketing effort to educate fishers and other users. Regarding managing land-based sources of pollution, several significant place-based efforts are underway and many projects have been completed or are underway at LaoLao Bay. Management leadership now wants to focus on Garapan where near-shore waters are frequently polluted. Several plans have already been completed, but the needed sewer lines, treatment facilities and stormwater facilities would be expensive.

This initial assessment will be followed by a more detailed assessment and analysis that will focus on capacity gaps in relation to the specific management goals and objectives that are finalized by the priority setting process.

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