Awane Marine Park Conservation Action Plan

Lelu, Kosrae
Federated States of Micronesia

The Nature Conservancy
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NOAA CORAL REEF CONSERVATION PROGRAM

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Vision

We the people of Lelu want to create a Marine Park that serves as a model for environmental awareness and conservation for the protection of our resources to promote wise use and to provide income generating activity to support our lives today and for future generations.

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1. Introduction

1.1. A Context for Conservation

Kosrae is one of four states in the Federated States of Micronesia with a population of 6,616. It is a heavily forested volcanic island located at the Eastern end of the Caroline Islands group in the central Pacific Ocean. It lies about 500 km north of the equator and about 4,501 km southwest of Honolulu.

Kosrae is a high island that is largely unspoiled, as off the regular tourist routes. Kosrae is becoming a destination for scuba divers. The coral reefs that surround the island are kept in pristine condition through an extensive mooring buoy system, installed and maintained by concerned expat dive operators with the help of the Governments Marine Resources office. The reefs are seldom visited, and contain miles of hard corals, some said to be thousands of years old (http://en.wikipedia.org/wiki/Kosrae).

There is one significant nearshore island within the fringing reef around Kosrae, which is Lelu Island, and it is only 2 square kilometres (0.77 sq mi) in area, but with a population of around 1,500. It belongs to Lelu Municipality, which includes the area around Tofol, the state capital. Other very small, uninhabited islands within the fringing reef are, Yen Yen and Yenasr, also in Lelu municipality.

The Community of Lelu through its Resource Management Committee (RMC) has proposed to establish and manage the Awane Marine Park, an area that includes ecosystems such as mangrove forest, reef flats, seagrass beds, brackish mangrove channels, Lelu Bay, and Yen Yen Island, a home to a fruit bat colony. The community is proposing to include development projects within the Marine park to enhance the livelihood of the people, through development of children's playing area, recreational walking path, local thatch sitting huts, a fish pond and a pavillion that would would house office spaces, a meeting hall, and cultural and environmental education center. In addition to the development activities, the community is hoping to set aside areas within the marine park as conservation areas for the protection of fruit bat, the endemic Kosrae flying fox, the mangrove crabs, fish, and medicinal plant species.

Within the proposed boundary of Awane Marine Park are ecosystems such as mangrove forest, reef flats, seagrass beds, brackish mangrove channels, Lelu Bay, and Yen Yen Island (home to a colony of fruit bat). There are some vital species that live and breed within the area, including the endemic Kosrae Flying Fox, sea turtles, rabbit fish and mangrove crabs.

1.2. Overview of this Report

This report was created to document the results and products of the conservation planning workshops. It is intended to be used by the State as reference for the development of the management plan for the sanctuary. The report is organized around the steps of the Conservation Action Planning (CAP) Adaptive Management Cycle (Figure 1), which was also used to organize the workshops. Each step will be described briefly and the main products of that step will be discussed. Please refer to the excel workbook for details of the workshops input.

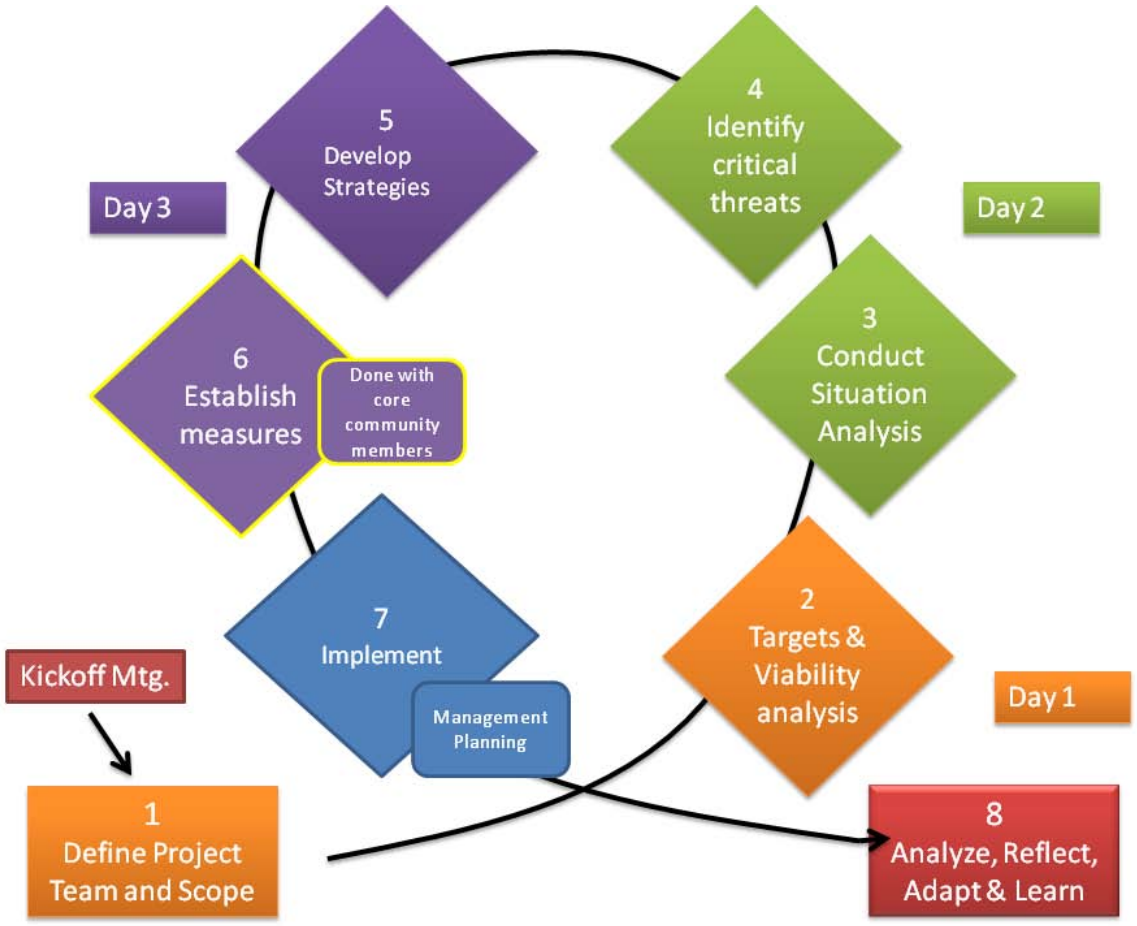

Figure 1. Conservation Action Planning (CAP) Adaptive Management Cycle, the project planning method used to organize the planning workshops and this report.

2. Conservation Planning and Adaptive Management

The CAP Adaptive Management Cycle is an iterative process which helps conservation projects develop and implement strategies, and then evaluate and learn from their experiences. The general steps of the process are to 1) define the project team and scope, 2) identify the conservation targets and assess their viability, 3) identify and assess the critical threats, 4) conduct a situation analysis, 5) develop conservation strategies, 6) establish measures, 7) implement the strategies and measures, and 8) analyze, reflect and learn from the results. The use of adaptive management means that the planning is never fully completed, but is continually refined, improved, and adapted over time. Future work will include a re-evaluation and refinement of the products to better reflect our growing knowledge and experience.

2.1. Define the Project Team and Scope

The first iteration of the Conservation Action Planning was conducted with core members of the Lelu Resource Management Committee (RMC) members and a concerned stakeholder.

The participants of the CAP all agreed that the scope of the discussion of conservation in Awane Marine Park will include all of Lelu land and coastal marine areas. The participants believed that in order to ensure effective conservation of marine resources, land issues particularly the threat from sedimentation needs to be addressed. The participants decided to focus their discussion on ensuring that critical ecosystems and habitats that support the species for which the communities depend on are maintained ecologically to support long term viability of these resources.

2.2 Identify Conservation Targets and Assess Viability

Conservation targets are species, communities, or ecological systems that represent the biological diversity of the project area and or what communities care about to conserve and protect. A good set of conservation targets should be designed to include those elements of the system that, if properly conserved, will result in the conservation of the full diversity of the landscape. Coarse-filter targets are intended to capture a large amount of smaller-scale biodiversity, both common and rare, within them, while fine-filter targets should include those small-scale elements that “fall through” the coarse filter and require individual attention.

For project management purposes, the CAP process has tended to restrict the number of targets for a project to eight or less in order to facilitate tracking of each target. This restriction has been successful for the vast majority of CAP projects worldwide. For Awane Marine Park ,

the team selected eight targets through a group process of nomination and consolidation. The eight targets for Awane Marine Park are described below.

1. **Fruit Bat**. The Kosrae Flying Fox (*Pteropus ualanus*) is a species of bat in the Pteropodidae family found in Kosrae. Like all other species of flying foxes, the Kosrae Flying fox only feed on nectar, blossom, pollen, and fruit, which explains their limited tropical distribution. The Kosrae Flying Fox colony on Yen Yen Island is believed to be the only other colony, the other on Yela Forest, that is still in good condition.

2. **Swamp Forest.** Swamp forest is one of the ecological systems that is identified in the Blue print for conserving the biodiversity of the Federated States of Micronesia is an important conservation target. Swamp forest are also used for cultivating taro (George 1986). Swamp forest also provides habitats for birds and other wildlife.

3. **Coastal Vegetation.** Coastal vegetation that lines the shores to help maintain a defense against storm surges that would otherwise damage coastal homes, roads and services. Coastal vegetation also provides valuable medicinal plants.

4. **Mangrove Ecosystem**. Mangroves are a diverse group of unrelated trees, palms, shrubs, vines and ferns that share a common ability to live in waterlogged saline soils subjected to regular flooding. They are highly specialised plants that have developed unusual adaptations to the unique environmental conditions in which they are found. The high rainfall and flat topography of Kosrae's coastal plain allow for the development of extensive mangrove forests, which cover approximately 14% of the land area and two thirds of the coastline (Whitesell et al. 1986).
   Mangrove productivity is important because it has direct impact on the health and function of the marine food chain. Mangroves also provide important permanent and temporary habitats for a large number and range of marine and terrestrial fauna.

5. **Seagrass Ecosystem**. Three species of seagrasses (*Enhalus acoroides*, *Cymodocea rotundata*, and *Thalassia hemprichii*) are found in Kosrae (http://www.seagrasswatch.org/fsm.html). Seagrass ecosystems are important coastal habitats for juvenile fish and invertebrates that have subsistence and commercial values to many island communities. In addition to being an important habitats, segrass ecosystems also serve as filters, trapping some of the fine sediments from reaching coral reef communities. Kosrae had very low densities of most commercially valuable holothuroids; only two marketable species, *Actinopyga mauritiana* and H. (Metriatyla) scabra were found there in relative abundance. Twenty-eight species of holothuroids are now reported from Kosrae (Kerr 1994).

6. **Coral Reef Ecosystem**. There are 200 species representing 54 genera of scleractinian corals that can be found in Kosrae. Following are the most encountered coral species: *Anacropora. Astreopora, Herpolitha, Heteractis, Lithophyllon, Podabacia, Rhodactis, Sterionephthya,*

Stichodactyla and *Stylophora*. (2006 Kosrae REA report). The coral reefs of Kosrae are generally in good to excellent condition with some reported potential source of stressors to the reef ecosystem (George et al 2008).

7. **Important Food Fish**. The most recent survey (2006 REA) accounts for 518 species of reef fish in Kosrae. Of these species the following are the most common species encountered on Kosrae coral reefs:were *Ctenochaetus striatus (Acanthuridae), Labroides dimidiatus (Labridae), Acanthurus nigrofuscus (Acanthuridae), Chaetodon lunulatus (Chaetodontidae), Chaetodon vagabundus (Chaetodontidae), Chlorurus sordidus (Scaridae), Epibulus insidiator (Labridae), Chromis margaritifer (Pomacentridae*), *and Parupeneus multifasciatus* (Mullidae). Inshore fish species, harvested mainly using monofilament gillnets, include snappers (Lutjanidae, srihnac, niahluh), emperors (Lethrinidae, srinkap), groupers (Serranidae, kalsrik), parrotfish (Scaridae, mwesrik), rudderfish (Kyphosidae, won, ikensahk, eloh), rabbitfish (Siganidae, mulap, mweosra, luhluhk), surgeonfish (Acanthuridae, kaput), trevallies (Carangidae, lalot, srapsrap), mullet (Mugilidae, ac, kuhraf), squirrelfish (Holocentridae, ollol), and goatfish (Mullidae, futfut) (http://wwwx.spc.int/coastfish/News/Fish_News/96/Kosrae.htm).

8. **Mangrove Crab**. Only one species of mangrove crab (Scylla serrata, the most widespread) is found on the island of Kosrae, Federated States of Micronesia. Mangrove crabs are highly valued species and one of the most harvested species from the mangroves in Kosrae (Naylor and Drew, 1998). On Kosrae, mangrove crabs are prized for family feasts, sold to local tourist hotels, and exported primarily as gifts to family members in Guam, Hawaii, and elsewhere in the Pacific islands. The crabs may be either trapped in small estuaries and tidal creeks or collected by hand in mangrove forests. Household surveys suggest that catch per unit effort (CPUE) declined from 1990 to 2000, the number of households participating in crab harvesting also decreased, and fewer harvesting trips were made each month (Naylor et al., 2002).

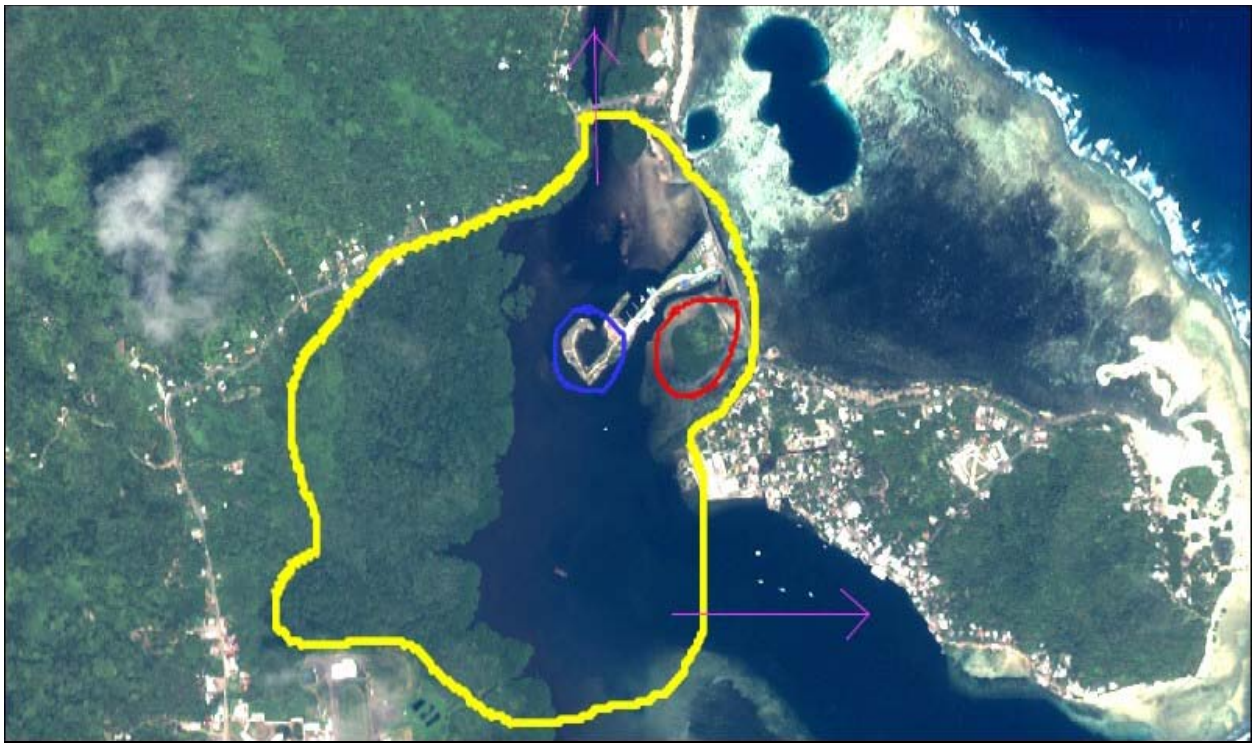

Figure 2. Aerial photo of Lelu Municipality showing proposed boundary for conservation area.

In order to assess the targets' viability, or ability to persist over the long term, the CAP process has developed a system to help teams define what they consider a "healthy" state for each target. The benefit of this exercise is in understanding the current status of the targets, as well as having a clearly defined desired status as a measurable objective toward which to work. The process for doing this involves identifying key ecological attributes (KEAs), indicators, ranges of variation, and rating schemes for each target. KEAs are characteristics of the target that are critical to its biology and that if altered would lead to the loss of the target. KEAs tend to fall into the broad categories of size, condition, and landscape context. Since KEAs are often not directly measurable, associated indicators (key characteristic of a target that can be measured) are selected in order to develop a rating scheme by which to evaluate the target status (Table 1).

Conservation Targets	Size	Condition	Viability Rank
Awane Marine Park –Overall rank			Fair
Coastal Vegetation	Good		Good
Coral Reef Ecosystem		Fair	Fair
Fish		Fair	Fair
Fruit Bat		Very Good	Very Good
Mangrove crab	Fair		Fair
Mangrove Ecosystem	Fair		Fair
Seagrass Ecosystem		Fair	Fair
Swamp Forest	Good		Good

Table 1. Summary of viability ranks for Awane's Conservation targets.

Based on information provided by the Awane Marine Park CAP participants, the overall ranking of the conservations targets is at Fair. Targets such as those heavily harvested by community members that have decreased in numbers are ranked as Fair, with fruit bat colony at the Yen Yen Island still in very good condition and vegetation cover in swamp forest and coastal vegetation as good (Refer to Table on threats affecting targets and Table 6 on what indicators were used to determine health of targets.

2.3 Identify and Assess Critical Threats

The threats were ranked according to two factors, contribution and irreversibility in order to gauge the degree of the threat. Contribution is the level at which the threat acting contribute to the source of stress on a given target. Irreversibility is the likelihood for the target to recover given certain threat to that target (Refer to Table 3 & 4 for more clarification).

The overall ranking of the threat is affected by the severity and scope of a given stress on the target. Stress is the impairment of key ecological attribute for a given target. Scope is the extent of an area within the conservation target that could potentially be impacted within 10 given current situations. Severity is the level of damage to the conservation target that can be reasonably expected within 10 years under current circumstances.

Description	Ranking			
	Low	Medium	High	Very High
Contribution -- expected contribution of the source, acting alone, to the full expression of a stress (as determined in the stress assessment) under current circumstances (i.e., given the continuation of the existing management/ conservation situation).	The source is a low contributor of the particular stress.	The source is a moderate contributor of the particular stress.	The source is a large contributor of the particular stress.	The source is a very large contributor of the particular stress.
Irreversibility -- reversibility of the stress caused by the Source of Stress (or reversibility of the threat itself if using the alternative threat ranking methodology).	Easily reversible at relatively low cost (e.g., off-road vehicles trespassing in wetland).	Reversible with a reasonable commitment of resources (e.g., ditching and draining of wetland).	Reversible, but not practically affordable (e.g., wetland converted to agriculture).	Not reversible (e.g., wetlands converted to a shopping center).

Table 2. Description of criteria used to rank contribution of threat to stress on the target.

Criterion (Description)	**Ranking**			
	Low	**Medium**	**High**	**Very High**
Scope - Most commonly defined spatially as the proportion of the overall area of a project site or target occurrence likely to be affected by a threat under current circumstances.	Very localized in scope, affect the conservation target at a limited portion of the target's locations.	Localized in scope, affect the conservation target at some of the target's locations.	Widespread in scope, affect the conservation target at many of its locations.	Very widespread or pervasive in scope, affect the conservation target throughout the target's occurrences.
Severity - The level of damage to the conservation target that can reasonably be expected under current circumstances.	Slightly impair the conservation target over some portion of the target's occurrences.	Moderately degrade the conservation target over some portion of the target's occurrences.	Seriously degrade the conservation target over some portion of the target's occurrences.	Destroy or eliminate the conservation target over some portion of the target's occurrences.

Table 3. Descriptions of the criteria used to rank stress of key ecological attribute on the target.

After the threats were ranked for each target, the CAP excel workbook consolidated threats that occurred for multiple targets and use an algorithm to roll the individual rankings up to an

overall rank for that threat. Table 4 summarizes the target ranks and overall rank for each of the 15 threats identified. The "critical" threats, those with overall ranks of medium or higher, and which ranked high for at least one target, are described in more detail in the following pages. In addition, the targets that had at least a threat ranking of medium are also discussed.

Threats \ Targets	Coastal Vegetation	Coral Reef Ecosystem	Fish	Fruit Bat	Mangrove crab	Mangrove Ecosystem	Seagrass Ecosystem	Swamp forest	Summary Threat Rating
Climate change	High	High	Low		Low	Low	Low	Medium	High
Overharvesting	Medium		High	Low	High	Medium		Medium	High
Habitat destruction	Low	High	Medium	Low	Low	Low	Low	Medium	Medium
Alteration of waterflow		High				Low	Low	Low	Medium
Marine polution	Medium	Medium	Medium		Low	Low	Low		Medium
Sedimentation		High				Medium	Low	Low	Medium
Invasive species	Medium	Low	Low			Low			Low
Summary Target Ratings:									High

Table 4. Summary of rankings for threats that affects Awane's conservation targets.

Critical Threats:

1. **Sedimentation.** Sedimentation resulting from poor land use practices pose a big threat to coastal and marine ecosystem in Kosrae and within the Awane Marine Park. Sedimentation affects mangrove ecosystem to reduce habitat for mangrove crabs and smothers sea grass and corals that provides essential habitat for fish.

2. **Overharvesting.** It is believed that a breakdown of traditional management systems in Microneisa in general have contributed to overharvesting of natural resources. Kosrae

is no exception to this. Overharvesting affects all the Awane Marine Park conservation targets. It is generally agreed that poaching of regulated species, destructive harvesting practices, and the need for income (either primary or secondary) has led to overharvesting of natural resources.

3. **Habitat destruction.** Habitat destruction through reclamation of wetland & mangroves, dredging of coral reefs, cutting of mangroves for firewood , cutting of forest for agricultural and housing developments threatens Awane Marine park conservation targets.

4. **Climate change.** Climate change resulting from increase green house gasses through burning of fossil fuel is believed to have and will pose major threats to Awane Marine park conservation targets. A particular impact of climate change that pose the biggest threat to Kosrae State is the rise in sea level and increased sea surface temperature.

5. **Alteration of water flow.** The island coastal road also skirts the beach and in many places has required land fill to protect it from erosion. A road causeway between Lelu Island and Kosrae has changed water flows in the harbor and in my exploratory dives over the coral and sea grass there was clear signs of epiphyte loads and negative effects on bottom vegetation (Coles, 1996).

6. **Marine Pollution.** Marine pollution resulting from debris and oil leaks from boat and potential oil spill is considered a threat to Awane Marine Park conservation targets and overall ecosystem health. It is believed that there are minor oil spill leaks from boats and in the long term this may have compounded effect on the marine envrionments surrounding Awane Marine park.

7. **Invasive species.** Merremia vines is beleived to have interrupted secondary succession of vegetation to forest which will affect agroforest and primary forest. Ballast water from ships is believed to have the potential for introduction of new invasive species in the marine environemnt. Invasive corallimorph has also been identified from Kosrae.

2.4 Situational Analysis

In order to document our understanding of the social and ecological context surrounding threats and targets, the team developed a conceptual model for the targets showing the connections between the threats and the factors assumed to be driving them (Figure 3). The model is by necessity incomplete, and represents the working assumptions of the project team, as opposed to actual ecological relationships. It is intended to be a flexible tool that can be altered over time as our conception of the system develops.

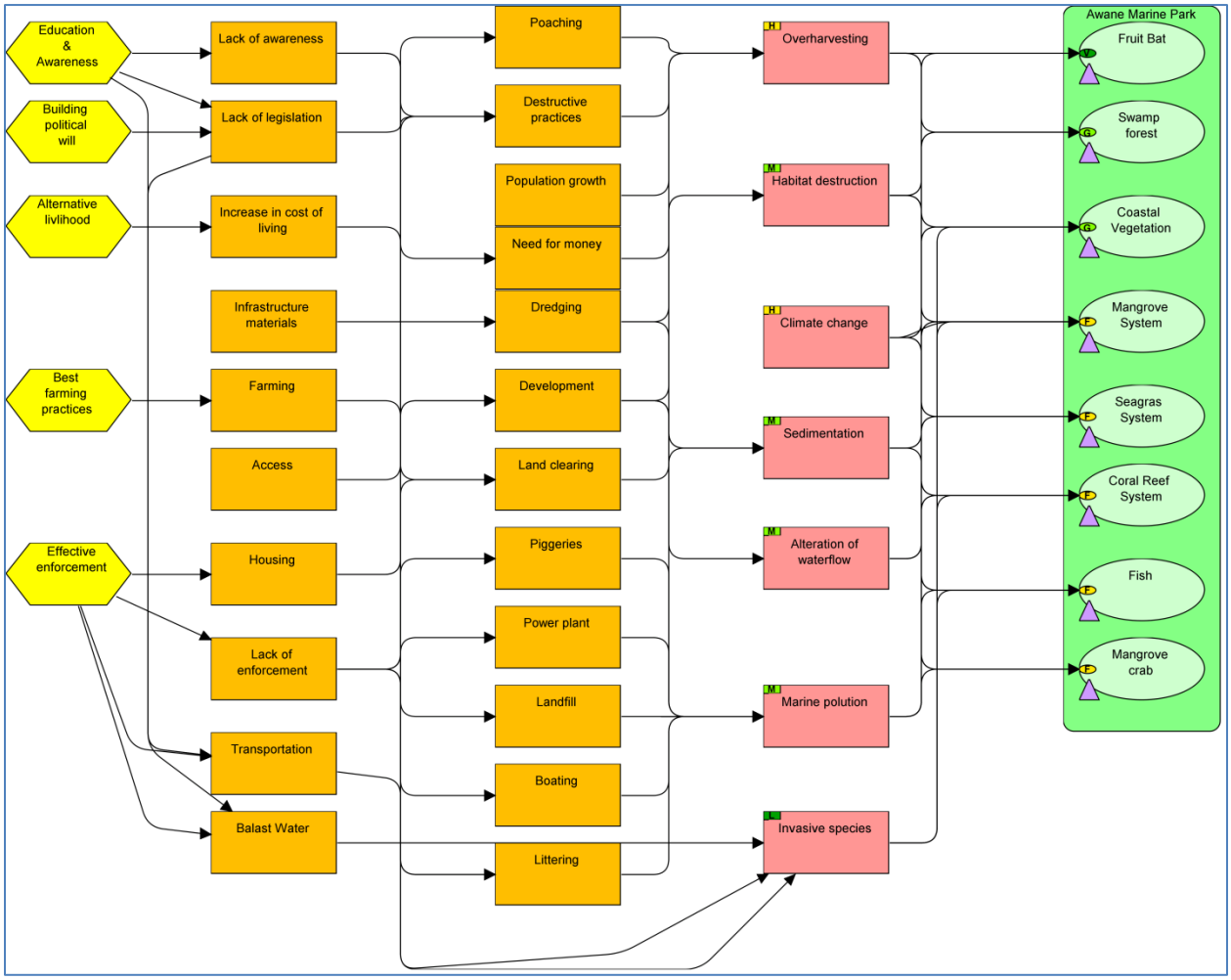

Figure 3. Situation diagram targets (green), direct threats (pink), contributing factor (dark yellow), and strategy (yellow hexagon).

2.5 Conservation Strategies

Strategies consist of one or more measurable objectives, the associated strategic actions, and their action steps. Measurable objectives are detailed statements that describe the desired outcome of the strategy. Strategic actions are the general activities undertaken by the project team to achieve these objectives. Action steps are the specific tasks required to carry out each strategic action. See Table 5 for list of strategies developed by the project team during the workshops.

By end of 2011, management plan for Awane Marine Park is completed. • Establish management planning steering committee • Identify and secure commitment from agency/individual to facilitate management planning • Agree on timetable and process for completion of management plan • Members actively engage in planning process
By 2011, assessment of gaps in regulations in both the State and the municipal level has been determined. • Identify process for conducting gaps in regulations • Identify individual/agency/group to complete assessment • Report of assessment with key recommendations for improvement of regulations
By end of 2011, Awane Marine park boundaries are officially recognized by Kosrae State Government. • Lelu RMC to work with municipality and community to delineate Awane Marine Park • Lelu RMC consult and work with Kosrae State regarding delineation of Awane Marine Park • Provide official map with delineated Awane Marine Park
By end of 2012, vulnerability assessment for Awane Marine Park is completed with recommendations for implementation of EBA at specific site within the park. • Identify and secure funding for vulnerability assessment • Seek and secure commitment for individual/agency/organization to conduct assessment • Agree on timetable for completion of assessment • Report of assessment with recommendations available for public
By 2012, establish and implement regulations on timber and fruit bat harvesting. • RMC to consult Kosrae State on the need for timber and fruit bat regulations • Assist Kosrae State to draft regulations • Regulations approved
By end of December 2013, enforcement capacity in Lelu Municipality has been build to support enforcement of Awane Marine Park. • Establish appropriate mechanisms to support enforcement. • Seek and secure funding to support enforcement • Identify and train appropriate number of people to carry out enforcement of Awane Marine park • Establish enforcement procedures and protocols • Implement enforcement and carry out measure of enforcement success- this can be tied to the above perception survey
By 2014, education and awareness program is implemented in Lelu community that is supported by key government agencies & NGO's to increase awareness of Awane Marine Park. • Establish good working relationship with relevant government agencies and NGO's to carry out awareness campaign. • Agree on key messages to deliver. • Agree on primary message delivery mechanism • Seek and secure funding for awareness campaign • Implement awareness campaign • Measure success of campaign through perception survey

Table 5. List of objectives and strategic actions for implementation.

2.6 Measures and Monitoring

The fundamental question facing conservation project team is: "Are the conservation strategies we are using having their intended impact?" To answer this question, the team will be collecting data on a number of indicators that gauge how well it is keeping the critical threats in check and, in turn, whether the viability of their conservation targets is improving. In addition to biological monitoring the team will need to conduct strategy effectiveness measures (SEM) to determine if strategy being implemented is achieving intended results to support improvement of conservation targets See Table 6 a & b.

Biological Monitoring		
Target ▲ = Indicator	**Methods**	**Details**
Coastal Vegetation ▲% vegetation/acre	Line-point intercepts	see Godinez-Alvarez, H. Herrick, J.E., Mattock, M., Toledo, D., Van Zee, J. 2009. Comparison of three vegetation monitoring methods: Their relative utility for ecological assessment and monitoring. Ecological indicators 9: 1001 – 1008
Coral Reef Ecosystem ▲% coral cover/m^2	Photo Quadrats	1 m^2 photo quadrat at 1 m interval along a 50 m belt transect. Coral data will be extracted using Coral Point Count with excel extension (CPCe) (http://www.nova.edu/ocean/cpce/)
Fish ▲ number of fish/m^2	Underwater Visual Census	Underwater visual census along a 50 m belt transect x 3 transects
Fruit Bat ▲ number of fruit bats/roost	Count at known roost	Refer to Kunz, T.H. (ed.), 1988. Ecological and behavioral methods for the study of bats. Smithsonian Institution Press, Washington DC.
Mangrove crab ▲ number of crabs/acre	Trapping	See methods by K.C. Ewel / Journal of Sea Research 59 (2008) 114–120
Mangrove Ecosystem ▲ % mangrove forest cover/acre	*Line-point intercepts*	see Godinez-Alvarez, H. Herrick, J.E., Mattock, M., Toledo, D., Van Zee, J. 2009. Comparison of three vegetation monitoring methods: Their relative utility for ecological assessment and monitoring. Ecological indicators 9 (2 0 0 9) 1001 – 1008
Seagrass Ecosystem ▲% seagrass cover/m^2	Quadrat	Refer to SeagrassNet methods (www.seagrassNet.org) being used for seagrass monitoring in Kosrae Department of Fisheries
Swamp forest ▲% vegetation cover/acre	Line point intercept	see Godinez-Alvarez, H. Herrick, J.E., Mattock, M., Toledo, D., Van Zee, J. 2009. Comparison of three vegetation monitoring methods: Their relative utility for ecological assessment and monitoring. Ecological indicators 9 (2 0 0 9) 1001 – 1008

Table 6a. List of indicators for measuring each target with suggested methods for monitoring.

Strategy Effectiveness Measures		
△ = Indicator	Methods	Details
By 2011, education and awareness program is implemented in Lelu community that is supported by key government agencies & NGO's to increase awareness of Awane Marine Park.		
△ Change on perception regarding Awane Marine Park	Perception survey	Socio-economic survey to determine community/stakeholder perception of the marine park and associated natural resources
By end of December 2011, enforcement capacity in Lelu municipality has been build to support enforcement of Awane Marine Park.		
△ Number of trained conservation officers with required equipment and supplies to support their enforcement duties	Audit	Assessment of enforcement program to determine level of proficiency of conservation officers + necessary financial, political, and community support for enforcement
By 2012, establish and implement regulations on timber and fruit bat harvesting.		
△ Regulations in place	Audit	Check if appropriate regulations on timber and fruit bat are in place and implemented
By end of 2011, management plan for Awane Marine Park is completed.		
△ Management plan approved	Review of management plan	Review management plan to ensure plan incorporates necessary actions and measures
By 2011, assessment of gaps in regulations in both State and municipal level has been determined.		
△ Number of regulations needed	Audit	Review assessment report to check recommendations
By end of 2011, Awane Marine park boundaries are officially recognized by Kosrae State Government.		
△ Official boundary of Awane Marine Park recognized by Kosrae State	Audit	Check site map to verify official boundary as well as relevant Kosrae State documentation that recognize Awane Marine park boundary
By end of 2011, vulnerability assessment for Awane marine park is completed with recommendations for implementation of EBA at specific site within the park.		
△ Report with recommendations	Audit	Review of report to determine vulnerability of Lelu to climate change impacts and recommendations for adaptation

Table 6b. List of objectives with indicators and suggested methods for monitoring indicators.

3 Strength, Weakness, Opportunities, and Threats (SWOT) analysis

An analysis of the local capacity of Lelu community was conducted during the workshop and facilitated by the facilitators. The following definitions and tables describe the results of this analysis.

- Strength: attributes of the community that are helpful for achieving objectives.
- Weakness: attributes of the community that are harmful for achieving objectives.
- Opportunities: external (outside of community) conditions that are helpful to achieving objectives.
- Threats: external (outside of community) conditions which would do damage to the objectives.

Awane Marine Park	
Strength • Scenic site • Increased awareness due to existing projects • Support from municipal govt • Technical experts • Existing user fee • RMC	Opportunities • PACC • Donors • TNC • PAN • MCT
Weaknesses • No official boundaries • Not enough financial support from municipal government • Not enough enforcement staff • Technical and financial assistance from state government	Threats • Commercial marina • Government interest for dredging material • Open access • Population growth • Invasive

Table 7: SWOT table for Awane Marine Park.

4 Conclusion

This report documents the results and products of the conservation planning workshops. It is intended to be used by Lelu Municipality and Resource Management Council (RMC) as reference for the development of the management plan for the Awane Marine Park natural & cultural resources. It is important to keep in mind as Lelu Municipality moves forward that the development of the management plan is an important initial step in an on-going cycle of design, implementation and review of management planning, and should view the plan itself as a "working plan," rather than a final, static document.

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Conservation Action Planning Excel Toolkit

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