

The people of Kayangel and the

Kayangel Protected Areas Network

Five Year Management Plan (2013 to 2018)



Photograph by Kevin Davidson

Prepared by the Ngedebuul Conservation and Resource Planning Team with assistance from Palau Conservation Society

July 2012



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Forward

Kayangel and its people have long been a community of strong traditional values intimate in our ways, accepting our limitations, but grateful for our peace founded upon *omelengmes* and *omengull* for one another. We are truly blessed with the beautiful island to which our forefathers have safeguarded for generations and bequeath to us today. The abundant resources from our forests to our reefs have generously supplied us with healthy staple and economic means to face modern demands. We boast of our island as the root of Palau's rich heritage and pride ourselves in our reverence for nature.

We recognize that like many places in Palau and around the world, natural resources in our island face inevitable threat both of human causes and natural causes. We accept each challenge but look for opportunities to help us cope through the associated evolution of change.



This course of action in which the people of Kayangel and its leaders have taken to address protection of our island and its resources, is an example of adjusting to opportunities of modern regimes that must serve to aid traditional management of our valuable natural resources. As such, I am proud of the hard work of the Ngedebuul Conservation and Resource Planning Team and their representation throughout the management planning process. This Plan not only exemplifies the desires and vision of the people of Kayangel to protect their resources into the future it also seeks ways to ensure goals are achieved. The commitment and assistance of Palau Conservation Society should not be missed in this message. We are forever grateful for their dedication and support.

In recognizing that much work still lies ahead of us, I urge all of us in the community and those who have provided assistance and encouragement from a distant to continue the support. This management planning process does not end here, rather it is the beginning of rigorous effort to ensure our resources are protected and sustained. I urge every one of us to participate in this engaging process and to share your thoughts and sentiments every step of the way. For what remains common in all of us is our inheritance of Kayangel and our desire to sustain its beauty and generous resources into the future for many more generations to come.

A handwritten signature in blue ink, appearing to read 'Edwin T. Chiokai', on a light blue background.

Governor Edwin T. Chiokai

Endorsement of the Traditional Chiefs

We the traditional chiefs of Kayangel join the State Government and other civic leaders from the community in support of this management plan for the Kayangel Protected Areas Network. We urge all of our people to give their full support in the implementation of the Plan over the next five years and to see that our goals set forth in this document are achieved for the benefit of our livelihoods and the biodiversity of our unique but fragile island home, we call Kayangel.



RDECHOR Isimang Bandarii



SPIS Ngiralbong Beches



ADELBAI RECHEBAI Eos Ruluked

ADELBAI RA RIKEL



OBAKRUSONG Sngebard Lluul



OBAK RA KELAU Ngiraked Bandarii

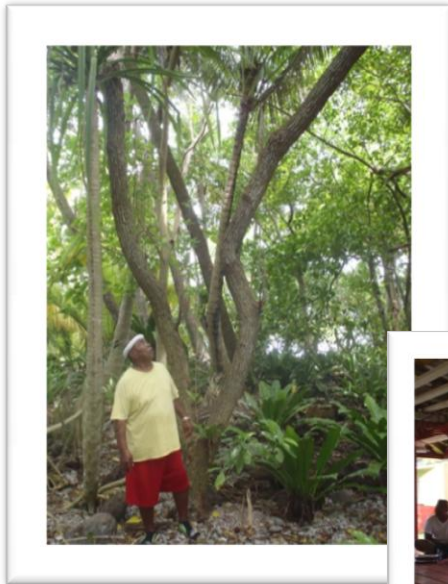


ADELBAI RA SBANGIOL Salustino Albert



OBAK RA KEMESONG Ray R. Omelau

July 2012



“Tia ia belumam era Ngcheiangel, me kemam ea rechad ra Ngcheiangel. A ki medengei el kmo ngdiak ki mosisiu er Babeldaob ma Oreor. A ki kiei e ousbech a ikaikid el ngarngii er kemam. Ng medeil er kemam ma rechad ra Ngcheiangel el ngar ker ma ker el mei. Ngdi betok a mla mo ngodch...a iolt ma berius a diak leua ngara mong”

(Pers. Comm. Fam. Tour 2011)

Dedicated to the Memory of:
Keizy Jack Ermang
Member of the Ngedebuul Conservation and Resource Planning Team, July 2011 – June 2012

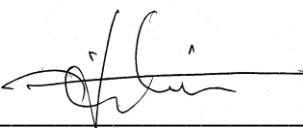
**A Message from the
Ngedebuul Conservation and Resource Planning Team**

The Ngedebuul Conservation and Resource Planning Team are proud to issue this management plan for our State as the beginning of formal management of our precious natural resources. The Plan is an active document. In years to come as implementation is in full swing, adjustments and improvements will be made to help us fulfill our vision stated in the Plan. We look forward with optimism that management of the Kayangel Protected Areas Network with support from the Palau Protected Areas Network will gain experience and contribute to the success of the Palau Protected Areas Network and Palau’s commitment to the Micronesia Challenge. We appreciate our people and our leaders for entrusting us with this task, rightfully, we will remain committed to achieving the goals and objectives set forth in the Plan not only from our public capacities but also in our individual capacity as people of Kayangel.

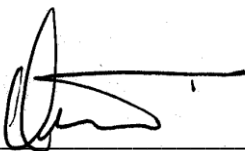


Conservation Ranger with Members of the Ngedebuul Conservation and Resource Planning Team (NCRPT) in Ngeruangel Marine Reserve, Fam Tour 2011

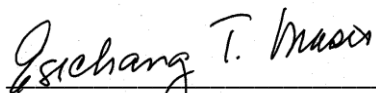
Back row (left to right): Lazarus Smand, Ranger; Steven Mokisang, member; Jeffery Titimel, chairman; Tracey Ruluked, member. Middle Row (left to right): Baidong Ruluked, member; Keizy Jack Ermang, member. Front Row (left to right): Legislator Asailee Yamada, member; Legislator Elmis Ruluked, member; Legislator Esichang T. Moses, secretary. Member not shown: Spis Owens Otei, vice chairman.



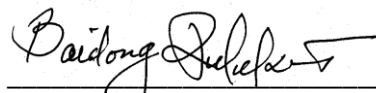
Jeffrey Titimel, Chairman




Spis Owens Otei, Vice Chairman



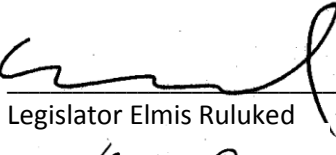
Legislator Esichang T. Moses, Secretary



Baidong Ruluked

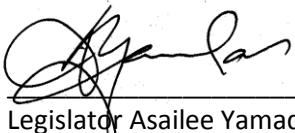


Steven Mokisang

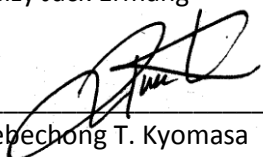


Legislator Elmis Ruluked

Keizy Jack Ermang



Legislator Asailee Yamada



Rebechong T. Kyomasa

I Introduction

Kayangel is one of the only two sandy atoll islands in Palau. It is the northern most State of the Republic, remotely located by 40 kilometers of open sea from Babeldaob, the main Palau archipelago. “Kayangel is a moderately large atoll, surrounding a lagoon with a shallow, sandy bottom. It charmingly typifies the perfect atoll. One sees green islands to the east, a white sand lagoon bottom, and dark patches of scattered coral reef. It is visually stunning and immediately appealing to tourists”. (Colin, 2009).

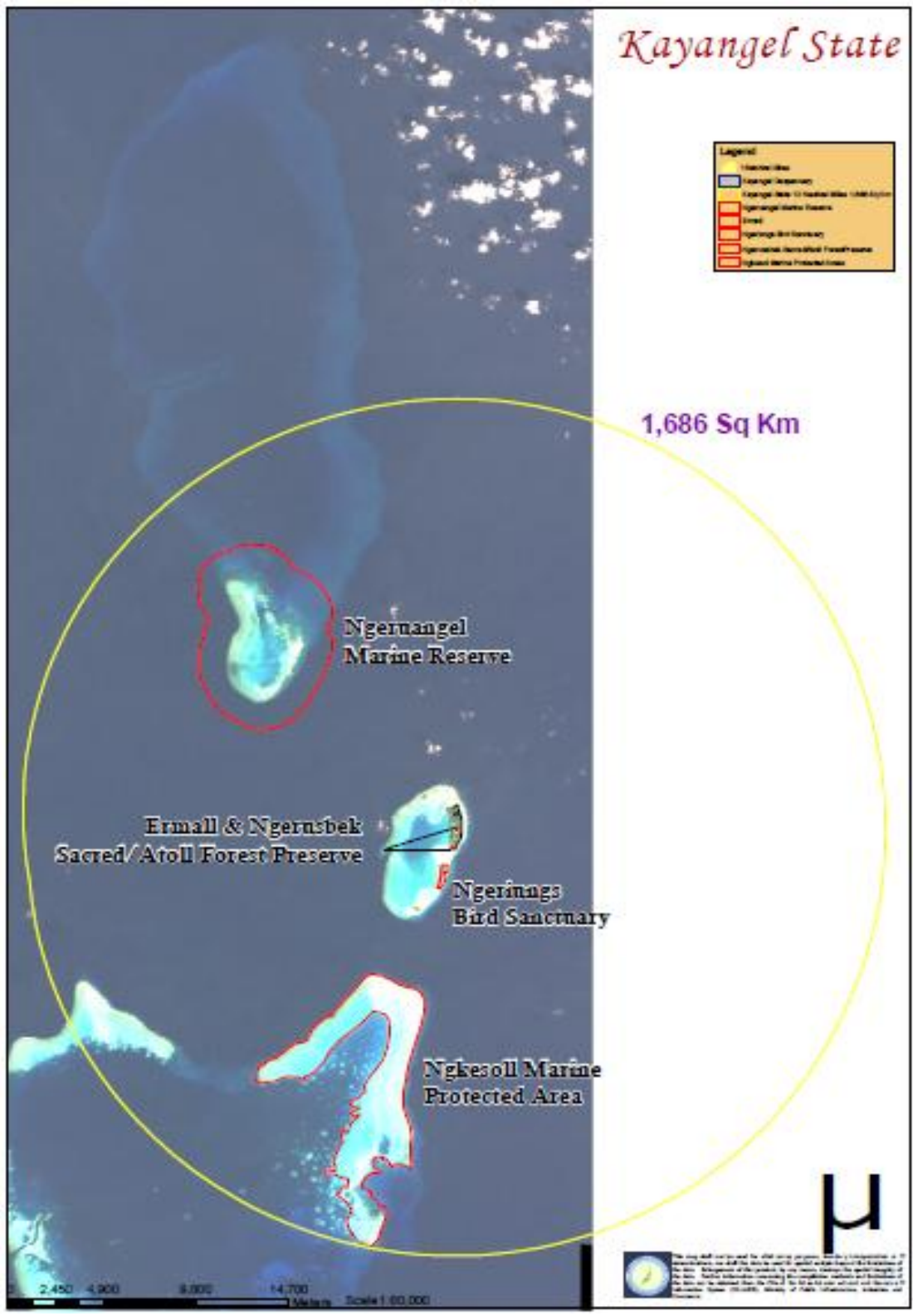
In July 2011, the Ngedebuul Conservation and Resource Planning Team (NCRPT) was created by legislative Resolution No. 14-12-5RS to work with Palau Conservation Society to ultimately identify critical areas for protection, develop a protected areas management plan, and seek sustainable financing through acquiring membership with the Palau Protected Areas Network. A network of state protected areas were identified by the Planning Team and wholly endorsed by the community and the leadership of the State. The network includes, the 12 nautical mile nearshore marine waters of Kayangel, Ngkesol Barrier Reef, Ngeruangel Marine Reserve, Ngeriungs Globally Important Bird Area, the Chermall Sacred Natural Site and Ngerusebek Sacred Natural Site, both of which that serve as atoll forest preserves. The protected areas on land are owned by private individuals and clans. The marine protected areas are owned by the state government of Kayangel.

Table 1 Kayangel Protected Areas Network

Protected Area Site	Size in square kilometers	Management Purposes (PAN-IUCN)		Established
		Use Category	Management Category	
Ngeruangel Marine Reserve	34km ²	Non-extractive Uses	IV-A	1996
Ngkesol Marine Protected Area	163km ²	Sustainable Uses	IV-C	2012
Ngeriungs Bird Sanctuary IBA	0.34km ²	Sustainable Uses	IV-C	2012
Chermall	.003186km ²	Restricted	Ib-A	2012
Ngerusebek	More or less .003404km ²	Non-extractive Uses	Ib-A	2012
Kayangel Territorial Waters	More or less 1,685km ²	Restricted	Ib-A	2012
		Non-extractive Uses	VI-C	2012
		Sustainable Uses		

Source: Area size provided by PALARIS, Bureau of Lands

Figure 1 Kayangel Protected Areas Network



Source: Office of PALARIS

The network includes important habitats of coral reef systems, barrier reef, patch reefs, seagrass, nesting beaches, unique atoll forests, and the full functionality of an atoll island ecosystem. The marine protected areas in the network offer spawning and aggregation sites for nationally protected fish species, nesting beaches for turtles, breeding areas for seabirds, and home to the IUCN Red Listed *Etelis carbunculus* or Ruby Snapper, the locally popular *Onaga* or *Etelis coruscan*, the flame snapper, and other highly valued deep water snappers. Ngeruangel Marine Reserve was established in 1996 and acquired membership status with the Palau Protected Areas Network in 2011. Ngeruangel is a turtle nesting area as well as a seabird breeding area. Ngeruangel is also culturally symbolic. According to Palau's oral history the two highest clans of Palau claim their roots from Ngeruangel. Ngeriungs Isand is one of the eight globally Important Bird Areas in Palau, and home of the biggest population within one island of the endangered Micronesian Megapode. Ngeriungs is also a nesting site for both the endangered hawksbill turtle and threatened green turtle. The natural sacred sites Chermall and Ngerusebek have been restricted areas through tradition for generations, thus entry into the areas is taboo to the locals and the rest of Palauans. The people of Kayangel hold strong conviction that certain floras in the areas keep the atoll intact, thus commanding reverence of all local people. The restrictions are intended to prevent disturbance and preserve the special trees. The only people allowed in the areas are senior women of certain clans who also own the land.

2 Management of the Kayangel Protected Areas Network

Rationale and Scope of Management

This Plan takes into consideration the State's experience over the last twelve years in trying to implement the Ngeruangel Marine Reserve Management Plan. The experience proved it hard to keep up management of a protected area without enough resources both financial and human. The Plan proposes that these first five years, focus on building sufficient institutional and regulatory support, improving law enforcement and

surveillance, and capacity building are imperative to setting up successful implementation of this Plan now and into the future. The State's remoteness also poses extra challenge for managing the network. One particularly important challenge is attracting people to live and work in Kayangel. Another challenge is prevalent poaching that puts enforcement ranger's lives at great risk. Risks also include extreme weather conditions. This Plan brings into consideration all unique challenges that other protected area managing authorities may not necessarily face in Palau. The Plan is limited in focus and emphasis confined to setting up an institutional environment supported by both sufficient regulatory framework and basic conservation techniques and skills, and management of conservation targets set forth in the Plan.

The management of the Kayangel Protected Areas Network is guided by a far-reaching vision and goals outlined by the Ngedebuul Conservation and Resource Planning Team (NCRPT).

Our Vision

"Kemam a rechad ra Kayangel a mo melemolm el mengeluolou e melisiich, a okereuil ma mekellel a beluu ma daob el kirir a rechad ra beluu ma telcheroll el merael mei. A rechad ra Kayangel a ousbech er ngii el kirel a kerruul ma bek el telengtengil a klengar e mengeriomel er ngii loltirakl a siukang ma llach ra beluu. Maleuaisei, ea chelsel a teruich el rak er medad eng soad el mo mesang a klungiolel a klengar ma ungil kerruul ra beluu ra Kayangel".

"We the people of Kayangel will continue to foster and strengthen the management and exclusive use of our land and sea for our people and generations to come. We will use our resources for trade and industry and all other aspects of life at the same time conserve through tradition and laws of the land. Now therefore, ten years from now we so desire to see benefits ensue in livelihoods and with positive economic developments in Kayangel".

2.1 Management Goals

- 1) To improve conservation knowledge and enforcement skills of personnel, and to build sufficient and practical regulatory environment and institutional capacity for efficient and sustainable management of protected areas.
- 2) All native and endemic plant and animal species and their critical habitat are protected and not further threatened to ensure healthy population and existence.

- 3) Known traditional sacred natural sites are formally protected to re-enforce and preserve its traditional stature and that it may also continue to contribute to the ecological richness of biodiversity of the State.
- 4) The Kayangel Protected Areas Network is effectively managed and providing a learning platform and enjoyment by the people, visitors, researchers, and academic community and further offer new sustainable livelihood opportunities for the local community.
- 5) Means for adequate sustainable financing are established to ensure perpetual protection and management of the Kayangel Protected Areas Network.

Goal 1 submits to the development of personnel with institutional support that will be critical in successfully implementing the management plan and ensuring sustainability of protecting the State's conservation areas.

Goal 2 seeks to ensure conservation management efforts provide meaning to various stakeholders of Kayangel's resources that species of importance are not further threatened or become extinct and their habitats are protected.

Goal 3 unlike the rest of communities within Palau, Kayangel maintains strong traditional beliefs and practices from the past. The atoll island hosts two important natural sites regarded as taboo. Access to the sites is forbidden for anyone other than families who have been caretakers and owners of the land where the sites are located for generations. This goal aims to preserve the cultural meaning and natural integrity of the sites into perpetuity by putting into force through legal designation its taboo stature and limited access.

Goal 4 this goal aims to guarantee that the Kayangel Protected Areas Network offers an active learning ground for the curious and those aspiring to learn, as well as an attractive recreational area for locals and visitors.

Goal 5 seeks to guarantee long term source of income to support the protection and management of the protected areas through acquiring membership with the Palau Protected Areas Network becoming eligible for funding from the PAN Fund, in addition, seeking to establish systems for independent fund development from user fees and grant aid from local, regional, and international donors.

2.2 Strategic Objectives

GOAL 1: To improve conservation knowledge and enforcement skills of personnel, and to build sufficient and practical regulatory environment and institutional capacity for efficient and sustainable management of protected areas.

Objectives

- 1-1 By October 2012, a Department Head for DNRCS and three Conservation Officers are hired to increase and improve conservation enforcement.
- 1-2 By April 2013, Conservation Officers are fully equipped with all required equipments and with consistent yearly operation funds.
- 1-3 By October 2013, all Conservation Officers have achieved proper training (i.e. police academy).
- 1-4 By January 2013, rules and regulations for the Kayangel Protected Areas Network have been promulgated and the Department of Natural Resources and Enforcement Services is fully implementing and enforcing the regulations.

GOAL 2: All native and endemic plants and animal species and their critical habitat are protected and not further threatened to ensure healthy population and existence.

Objectives

- 2-1 By March 2013, the State or DNRCS has developed or caused to create management measures for Ngkesol including increase of fish population and fish monitoring is in place.
- 2-2 By December 2014, the State or DNRCS has developed or caused to create a management plan or a set of regulations for all types of sebus (deepwater snappers) in State waters is in place to ensure sustainable stock through harvest control and other management measures.
- 2-3 By January 2014, the State or DNRCS has developed or caused to create a management plan or a set of regulations to protect the Micronesian Megapode and its habitat with serious consideration to the needs of landowners is in place.
- 2-4 By January 2014, the State or DNRCS has developed or caused to create regulations to control size and call for seasonal harvest of *ketat* (coconut crab) for subsistence and commercial consumption.
- 2-5 By October 2014, the State or DNRCS has developed control regulations for tree logging and is in place to maintain necessary number of trees for protection of the islands from strong winds and other climatic events; and to ensure sustainable logging stock to support local industries.
- 2-6 By October 2014, the State or DNRCS in partnership with the *mechas* has caused or commissioned a study to address protection of *mesei* (taro patches) in Kayangel to defend itself from sea level rise, saltwater intrusion, and identify ways to revive dying *mesei* (taro patches) in Kayangel is completed.
- 2-7 By October 2012, Kayangel is free of invasive rats and feral cats and dogs and has an effectively implemented biosecurity plan in place.

2-8 By October 2014, DNRCS has developed a program that guides long-term protection measures for vulnerable species.

GOAL 3: All known traditional sacred natural sites are formally protected to re-enforce and preserve its traditional stature and that it may also continue to contribute to the ecological richness of biodiversity of the State.

Objectives

3-1 By January 2012, the State or DNRCS obtains written agreement from Chermall and Ngerusebek landowners to agree to be trained to conduct baseline biological assessment on the two sites.

GOAL 4: The Kayangel Protected Areas Network is effectively managed and providing a learning and enjoyment platform for the people, visitors, researchers, and academic community and further offer new sustainable livelihood opportunities for the local community.

Objectives

4-1 By September 2016, the Kayangel Protected Areas Network management is fully functional and has successfully achieved at least 50% of the objectives stated under this first 5 year management plan.

4-2 By May 2013, a feasibility study for a bird-watching industry is commissioned and next steps are determined.

4-3 By May 2013, a community coconut mill is fully operational with a business plan and at least one contracted buyer.

4-3 By May 2013, a Communications and Outreach Plan for Kayangel and the protected areas is developed and produced for public dissemination.

4-4 By September 2013, education and awareness print materials about Kayangel and the protected areas are produced for public dissemination.

Goal 5: Ensure means for adequate sustainable financing that the Kayangel Protected Areas Network is sustainably financed.

Objectives

5-1 By January 2014, the State or DNRCS with assistance of PCS has developed a multi-year fundraising plan for the Kayangel Protected Areas Network.

5-2 By October 2014, the State or DNRCS has entered into a formal agreement with Kayangel State Youth Association to act as non-profit partner in seeking grant aid to support management of Kayangel Protected Areas Network.

2.3 Management Actions

The management actions laid out reflect a sense of urgency from the part of the Ngedebuul Conservation and Resource Planning Team at the outset of this management planning process to quickly establish basic administration and enforcement as priority strategies in this Plan. Practicality and familiarity of the community to such actions was emphasized by the NCRPT each time an action was being discussed and identified.

A table on the following pages provides a 5 year work plan outlook. The outlook makes certain an assumption that objectives laid out in year 1 are implemented therefore objectives in subsequent years are building off of year 1.

Kayangel Protected Areas Network – 5 Year Work Plan Outlook

Key: = To Be Implemented By [Year 1, October 1st 2012 to September 30, 2013)

REF No.		Year 1				Year 2				Year 3				Year 4				Year 5				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
1-1	By January 2013, the Governor has hired a Department Head for DNRCS and at least 3 conservation officers	√																				
1-1a	Ensure adequate funds to hire a minimum of three conservation officers and the DNRCS Department Head																					
1-1b	Publicize vacancy announcement and hire conservation officers and DNRCS Department Head																					
1-1c	DNRCS Department Head is trained on PAN reporting requirements																					
1-2	By April 2013, Conservation Officers are fully equipped with all required resources and with consistent annual operational funds	√																				
1-2a	Inventory all equipment on hand and identify needed resources that need to be sought																					
1-2b	Develop a budget that will be enough to make necessary purchases for surveillance and enforcement																					
1-2c	Ensure K-PAN obtain PAN membership to secure sustainable financing																					
1-3	By October 2013, all Conservation Officers have achieved proper basic training such as successful completion of the National Police Academy		√																			
1-3a	Develop ongoing capacity building plan focusing on law enforcement and accessing trainings locally, regional, and international and ensure conservation officers complete full trainings and apply newly acquired skills																					
1-3b	All conservation officers hired within year 1 are deputized																					
1-4	By January 2013, rules and regulations for the Kayangel Protected Areas Network have been promulgated and the DNRCS begins full implementation and enforcement	√																				

REF No.		Year 1				Year 2				Year 3				Year 4				Year 5							
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
1-4a	The state government seeks technical assistance to promulgate rules and regulations to include fee schedule, permitting process, and citations process																								
1-4b	DNCRS personnel and other relevant support state personnel are trained on KPAN rules and regulations																								
1-4c	Education and awareness materials are developed and disseminated to make the public aware of new rules and regulations																								
1-4d	DNCRS seek technical assistance to develop a Research and Monitoring Plan for the KPAN and acquire full training to be able to carry out marine and terrestrial survey and monitoring requirements under such Plan									← recurrent activities →															
1-4e	Enforcement's Standard Operational Procedures are in place to enable officers to carry out their duties fully																								
1-5	By December 2013, official boundaries have been established for the K-PAN sites and demarcated					√																			
1-5a	A request to the Bureau of Lands and Survey and PALARIS is initiated and official boundaries for protected area sites are established																								
1-5b	All protected area site boundaries are demarcated with markers that are clearly visible to the naked eye																								
1-6	By October 2013, the State has built a Law Enforcement and Surveillance Station at the Kayangel Port.					√																			
1-6a	Hire an architect to design the Enforcement and Surveillance Station																								
1-6b	Hire a contractor to build the Enforcement and Surveillance Station																								
2-1	By March 2013, the State or DNCRS has developed or caused to create management measures for Ngkesol including increase of fish population and fish monitoring is in place		√																						
2-1a	A baseline study and biological survey / assessment is conducted for Ngkesol Barrier Reef																								
2-1b	Fact sheets are made for Ngkesol Barrier Reef including information on new prohibitions and allowed activities					x				← recurrent activities →															

REF No.		Year 1				Year 2				Year 3				Year 4				Year 5			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
2-2	By December 2014, the State or DNRCS has developed or caused to create a management plan or a set of regulations for all types of <i>sebus</i> (deep water snappers) in state waters is in place to ensure sustainable stock through harvest control and other management measures					√															
2-2a	Conduct fact-finding and research to decide on species of deepwater fish that will be recommended for management measures																				
2-2b	Determine appropriate and practical management actions that will work to ensure sustainability of stock and fair benefit distribution between state and industry																				
2-2c	Revisit Kayangel Commercial Fishing Law and make recommendations for areas of improvement																				
2-3	By January 2014, the State or DNRCS has developed or caused to create a management plan or a set of regulations to protect the <i>bekai</i> Micronesian Megapode and its habitat with serious consideration to the needs of landowners in place or addressed						√														
2-3a	The State will conduct consultation with landowners to address the importance of <i>Bekai</i> Micronesian Megapode and its habitat																				
2-4	By January 2014, the State or DNRCS has developed or caused to create regulations to control size and call for seasonal harvest of <i>ketat</i> coconut crab for subsistence and commercial consumption					√															
2-4a	DNCRS coordinate and conduct a meeting to review published document on <i>ketat</i> and determine appropriate management measures to ensure sustainability of stock																				
2-4b	DNCRS develop recommended management actions to state leadership for legal protection and regulations of <i>ketat</i>																				
2-5	By October 2014, the State or DNRCS has developed or caused to create control regulations for tree logging to maintain necessary number of trees for protection of the islands from strong winds and other climatic events; and to ensure sustainable logging stock to support local industries									√											

REF No.		Year 1				Year 2				Year 3				Year 4				Year 5			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
2.5a	DNRCs research and issue recommendation to determine a proper distance from high-tide watermark to inland to declare as "managed zone" for logging.																				
2.5b	Identify all trees / vegetation that should be off-limits from logging or clearing.																				
2.5c	Identify appropriate areas for tree-planting deposits for strong wind defence and designate local industry logging stock																				
2.6	By October 2014, the State or DNRCs has developed or caused to create a study to adress protection of mesei in Kayangel to defend itself from sea level rise, saltwater intrusion, and identify ways to revive dying mesei in Kayangel is completed.									v											
2.6a	Seek proper technical assistance to help carry out a study of Kayangel <i>mesei</i> taro patch																				
2.6b	NCRPT bring together Kayangel women to collect traditional managemnt of mesei crops and other information that the state may use to help better defend <i>mesei</i> from saltwater intrusion, diseases and sustain taro patches.																				
2.6c	After study and consulation w/ women, NCRPT will develop recommended actions to leadership for formal management and begin implementation of such Plan.																				
2.7	By October 2012, Kayangel is free of invasive rats and feral cats and dogs and has an effectively implemented biosecurity plan in place.	v																			
2.7a	By January 2013, rats, feral cats and dogs have been successfully eradicated																				
2-7b	By January 2013, a biosecurity plan is in place and is successfully implemented.																				

REF No.		Year 1				Year 2				Year 3				Year 4				Year 5			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
2-7c	By July 2013, an invasive species survey and assessment has been conducted in Kayangel to identify non-native and invasive plants and animals that should be eradicated																				
2-8	By October 2014, DNRCS seeks assistance to develop a Vulnerable Species Protection Program and begin implementation of such program									√											
2-8a	A state index for vulnerable species is developed																				
2-8b	Develop and implement a public outreach activity to promote protection of vulnerable species																				
3-1	By October 2012, all sites traditionally known as sacred have been identified and formally designated for complete closure.	√																			
3-1a	DNRCS seek technical assistance demarcate boundaries are to aid effective enforcement																				
3-1b	DNRCS seek technical assistance to train individuals allowed access to the site to conduct a baseline biological survey for Chermall and Ngerusebek																				
3-1c	DNRCS assist individuals with access conduct a baseline biological survey of the sites																				
4-1	By September 2016, the Kayangel Protected Areas Network management (DNRCS) is fully functional and has successfully achieved at least 50% of the objectives stated under this first 5 year management plan.																√				
4-1a	A management review and evaluation is conducted and results is reported and submitted to state leadership and DNRCS																				
4-1b	DNRCS and Governor seek technical assistance to review and update KPAN Management Plan																				
4-1c	A revised and updated KPAN Management Plan is endorsed by the community and formally adopted by state leaders																				
4-2	By May 2013 a feasibility study for a bird-watching industry is commissioned and next steps are determined.		√																		

REF No.		Year 1				Year 2				Year 3				Year 4				Year 5			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
4-2a	Seek technical assistance to a feasibility study for bird-watching in Kayangel																				
4-2b	Seek assistance to formulate a produce a bird-watching development plan																				
4-3	By May 2013, a community coconut mill is fully operational with a business plan and at least one contracted buyer.		v																		
4-3a	Coconut mill is purchased																				
4-3b	Coconut mill factory is built																				
4-3c	Coconut mill owners and operators trained																				
4-3d	Technical assistance is sought to develop business plan for coconut mill																				
4-4	By September 2013, education and awareness print materials about Kayangel and the protected areas are produced for public dissemination.			x		← recurrent activities →															
4-4a	A main signboard is designed and erected at the Kayangel Port area showing protected areas																				
4.4b	Public awareness outreach television and radio is broadcasted informing the public of the KPAN and its prohibitions and allowable activities																				
4.4c	Develop a full public outreach and awareness plan on KPAN and begin implementation			x		← recurrent activities →															
5-1	By October 2014, the State or DNRCS has entered into a formal agreement with the Kayangel State Youth Association to act as a non-profit partner in seeking grant aid to support management of Kayangel Protected Areas Network									v											
5-1a	Consult with KSYA and draft an agreement for non-profit partnership with the State																				
5-2	By January 2014, the State or DNRCS seek technical assistance to develop a multi-year fundraising plan for the K-PAN						x														

2.4 Five Year Plan and Palau Protected Areas Network Criteria

The management actions decided upon in this initial plan by the Ngedebuul Conservation and Resource Planning Team (NCRPT) are aimed at achieving the objectives also determined by the NCRPT. In the previous section, the actions are organized into a time frame determined practical to complete the action. In this section, the actions are organized under the five main categories of the plan, in line with the Palau PAN management evaluation criteria: 1) *Administration and Regulatory Requirements*, 2) *Education and Awareness*, 3) *Monitoring and Evaluation*, 4) *Enforcement and Surveillance*, 5) *Maintenance and On-the-Ground*.

Criteria 1: Administrative and Regulatory Requirements Strategies

Administrative strategies include those activities necessary to authorize and support management actions taken by the State Government in order to successfully achieve management goals and sustain long term management. Actions include immediate investment conservation personnel, major asset and equipment purchases, capacity building and filling in policy or regulatory gaps. The Plan’s proposed actions on administration and enforcement weigh heavy in the short term. Thus, additional planning is needed to articulate long term development and cultivation toward a robust management institution with the aim to achieve effective management of the Kayangel Protected Areas Network.

Administrative and Regulatory Requirements
<i>Short Term Activities (Year 1 to Year 2); or recurrent</i>
1-1a Ensure adequate funds to hire a minimum of three conservation officers and the DNRCS Department Head.
1-1b Publicize vacancy announcement and hire 3 conservation officers, coordinator and department head.
1-1c Department Head is trained on PAN reporting requirements.
1-2a Inventory all equipment on hand and identify resources that need to be sought immediately.
1-2b Develop a budget that will be enough to make necessary purchases for surveillance and enforcement.
1-2c Ensure KPAN obtains PAN Membership to secure sustainable financing.
1-4a The state government seeks technical assistance to promulgate rules and regulations to include fee schedule, permitting process, and citations process.
1-4b DNRCS personnel and other relevant support state personnel are trained on KPAN Rules and Regulations.
2-2b Determine appropriate and practical management action of deepwater fish in Kayangel that will work to ensure sustainability of stock and fair benefit distribution between State and industry.
2-2c Revisit Kayangel Commercial Fishing Law and make recommendations for areas of improvement.
2-7b A Biosecurity Plan is in place and is successfully being implemented.
2-8a A state index for vulnerable species is developed.
4-2a Seek technical assistance to conduct a feasibility study of bird-watching tourism in Kayangel.

- 4-2b Seek assistance to formulate and produce a bird-watching development plan.
- 4-3a A coconut mill is purchase.
- 4-3b Technical assistance is sought to develop business and operational plan for the mill operation.

Medium Term Activities (Year 2 to Year 4)

- 2-3a The state will conduct consultation with landowners to address the importance of *Bekai* Micronesian Megapode and its habitat.
- 2-4a DNRCS coordinate and conduct a meeting to review published document on *ketat* coconut crab and determine appropriate management measures to ensure sustainability of stock.
- 2-4b DNRCS develop recommended management actions to state leadership for legal protection and regulations of *ketat*.
- 2-6a Seek proper technical assistance to help carry out a study of Kayangel *mesei* taro patch.
- 2-6b DNRCS bring together Kayangel women to collect traditional management of *mesei* crops and other information that can be used to help better defend mesei from saltwater intrusion, diseases, and sustain taro patches.
- 4-1a A review and evaluation of KPAN management is conducted and results is reported and submitted to state leadership and DNRCS
- 4-1b DNRCS and Governor seek technical assistance to review and update KPAN Management Plan for the next set of another 5-year management plan.
- 4-1c A revised and updated KPAN Management Plan is endorsed by the community and formally adopted by state leaders.
- 5-1a Consult with Kayangel State Youth Association (KSYA) and draft an agreement for non-profit partnership with the state government in order to enable DNRCS to apply for other source of grant aid through KSYA.
- 5-2a DNRCS seek technical assistance to develop a multi-year fundraising plan for the Kayangel Protected Areas Network.

Long Term Activities(Year 3 to Year 5)

- 2-5a DNRCS research and issue recommendation to determine proper distance from the high-tide watermark to inland to declare as “managed zone’ for logging.
- 2-5b Identify all trees / vegetation that should be off-limits from logging or clearing.
- 2-5c Identify appropriate areas for tree-planting deposits for strong wind defense and designate local logging industry stock.

Criteria 2: Education, Awareness, and Outreach Strategies

The Education, Awareness, and Outreach Strategies under this Plan aim to first design and produce immediate messages alerting the public of the newly created Kayangel Protected Areas Network and its management measures. The Plan also aims to complete a full public outreach and awareness plan under Year 1 that will call for programmatic activities expected to be recurrent thereafter.

Education, Awareness, and Outreach Requirement

**Objectives and activities under criteria are recurrent by nature; the time frame indicates completion of initial development of materials and plans.*

<i>Short Term Activities (Year 1 to Year 2); or recurrent</i>
<p>1-4c Education and Awareness materials are developed and disseminated to make the public aware of new rules and regulations.</p> <p>2-1b Fact sheets are made for Ngkesol Barrier Reef MPA including information on the nature of management for the site, new prohibitions and allowed activities.</p> <p>4-4b Public awareness outreach television and radio is broadcasted informing the public of the KPAN and its prohibitions and allowable activities.</p> <p>4-4c Develop a full public outreach and awareness plan on KPAN and begin implementation.</p>
<i>Medium Term Activities (Year 2 to Year 4)</i>
<p>2-8b Develop and implement a public outreach activity to promote protection of vulnerable species.</p> <p>*Programmatic Education, Awareness, and Outreach activities, recurrent.</p>
<i>Long Term Activities (Year 3 to Year 5)</i>
<p>*Programmatic Education, Awareness, and Outreach activities, recurrent.</p>

Criteria 3: Research and Monitoring Strategies

Research and Monitoring Strategies under this Plan includes the development of a Research and Monitoring Plan for the Kayangel Protected Areas Network and training of personnel to be able to independently carry out surveys and monitoring. It involves biophysical monitoring, socioeconomic monitoring, and targeted research. The KPAN Management as it begins to establish itself will rely on technical assistance from local agencies to help develop the initial Research and Monitoring Plan, establish baseline data on priority sites, and train DNRCS staff. It is expected that data collection, analysis, and reporting will be a recurring activities under the Plan from thereon. Other immediate research strategies are already called for in the Plan due to the community’s urgency on that specific conservation target or issue, such as the immediate call for a baseline study and assessment of Ngkesol MPA and concern for the increasing harvest of deepwater snappers.

Research and Monitoring Requirement
<i>Short Term Activities (Year 1 to Year 2); or recurrent</i>
<p>1-4d DNRCS seek technical assistance to develop a Research and Monitoring Plan for the KPAN and acquire full training to be able to carry out marine and terrestrial survey and monitoring requirements under such Plan.</p> <p>2-1a A baseline study and biological assessment survey is conducted for Ngkesol Barrier Reef MPA.</p> <p>2-2a Conduct fact-finding and research to decide on species of deepwater fish that will be recommended for management measures.</p> <p>2-7c An Invasive Alien Species (IAS) survey and assessment has been conducted in Kayangel to identify non-native and invasive plants and animal species that that should be eradicated.</p>
<i>Medium Term Activities (Year 2 to Year 4)</i>
<p>3-1b DNRCS seek technical assistance to train individuals allowed access to the site to conduct a baseline</p>

biological survey for Chermall and Ngerusebek
 Programmatic Research and Monitoring activities, recurrent.
 3-1c DNRCS assist individuals with access conduct a baseline biological survey of the sites

Long Term Activities (Year 3 to Year 5)

Programmatic Research and Monitoring activities, recurrent.

Criteria 4: Enforcement and Surveillance Strategies

Enforcement and Surveillance Strategies includes the establishment of Standard Operational Procedures that will provide protocols, guidelines, and standards of enforcing Rules and Regulations for the KPAN. As management of the Kayangel Protected Areas Network is still initiating its creation the sensible strategy from development of this management plan is to formulate enforcement and surveillance guidelines that newly hired conservation officers can operate within. The strategy will significantly strengthen and improve the State’s ability to guard its protected areas from violators, poachers, and non-compliant visitors or users. Note, that other short term activities under this Plan that cuts across from Criteria 1: Administrative and Regulatory Requirement to this Criteria. Such actions include the hiring of conservation officers and development of the KPAN Rules and Regulations. Similar to other Criteria, once action 1-4e is completed, the activities to follow are expected recurrent enforcement and surveillance activities. Other cross-cutting actions are 1-6a & b which primarily fall under Criteria 5, but the outcomes of the actions serve to advance Enforcement and Surveillance.

Enforcement and Surveillance Requirement

Short Term Activities (Year 1 to Year 2); or recurrent

1-4e Enforcement’s Standard Operational Procedures are in place to enable officers to carry out their duties fully.

*Medium Term Activities
 Year 2 to Year 4; or recurrent*

1-3a Develop ongoing capacity building plan focusing on law enforcement and accessing trainings locally, regional and international and ensure conservation officers complete full trainings and apply newly acquired skills.

1-3b All conservation officers hired are deputized within one year of their date of hire.

Criteria 5: Maintenance and On-the-Ground Strategies

Maintenance and On-the-Ground Strategies include activities that require physical labor such as erection or installation of signage or billboards, demarcating boundaries, etc. The results of such strategies are typically tangible.

Maintenance and On-the-Ground Activities Requirement
<i>Short Term Activities</i> <i>Year 1 to Year 2; or recurrent</i>
1-5a A request to the Bureau of Lands and Survey and PALARIS is initiated and official boundaries for protected area sites are established. 1-5b All protected area site boundaries are demarcated with markers that are clearly visible to the naked eye. 2-7a Known rodents (rats and feral cats) have been successfully eradicated from Kayangel. 3-1a Traditional sacred natural sites have been delineated and boundaries are clearly marked to aid effective enforcement. 4-3b The coconut mill factory warehouse is built by KSYA and Ngaramelemiakl 4-3c The KSYA (coconut mill owners) and volunteer operators (Ngaramelemiakl) are trained to operate the mill. 4-4a A main signboard is designed and erected at the Kayangel Port area showing the Kayangel Protected Areas Network. 1-6a Hire an architect to design the Enforcement and Surveillance Station 1-6b Hire a contractor to build the Enforcement and Surveillance Station
<i>Medium Term Activities</i> <i>Year 2 to Year 4; or recurrent</i>
<i>Long Term Activities</i> <i>Year 3 to Year 5; or recurrent</i>

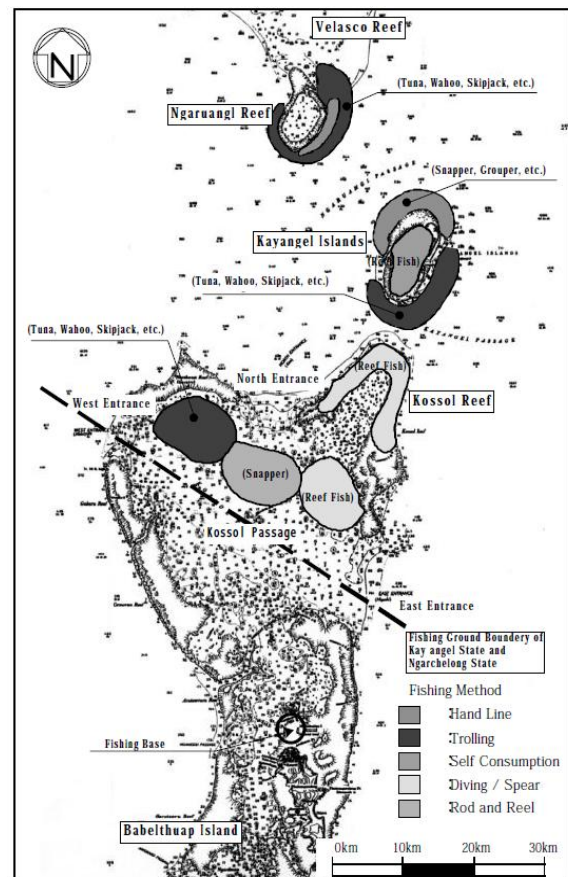
3. Site Description, Activities, and Restrictions

The Kayangel Protected Areas Network is formed by five protected areas connected by the managed territorial waters of Kayangel. The Network seizes a complete functionality of a fairly pristine atoll ecosystem. The Network is also home to endangered and endemic species. It offers educational opportunities highlighting ecological values and also holds significant historical and cultural values. Because there is a strong ecological connection between the protected areas, the system is named the **Kayangel Protected Areas Network**.

3.1 Territorial Waters of Kayangel, Managed Area

Kayangel marine water supports diversity of fish and invertebrates which contributes significantly to marine biodiversity of Palau and its fishing industry. Limited surveys have recorded 126 species of stony corals (Maragos et al. 1994) and 51 species of algae and 5 species of seagrass (Tsuda 1981). The seagrass, *Thalassodendron ciliatum*, has been recorded in both Kayangel and Velasco, two of the only few sites that this species is found in Palau or Micronesia (Collin 2009). There is also some possibility that Velasco Reef has petroleum deposits and it has been proposed as an area for oil exploration (Colin, Marine Environments of Palau, 2009).

Figure 2 Kayangel Fishing Grounds Map



Source: Basic Design Study Report on the Project for Fishery Improvement of Fishery Infrastructure In Kayangel State, JICA

While Kayangel is quite remote and with limited human population, the fish and selected invertebrates (giant clams and trochus) are still vulnerable to harvest. With modern boat, navigation and fishing technology, modern Palauan fishermen are now able to access sites far away in order to increase their catch to earn more

money. Conservation of Kayangel marine resources will require awareness and modern enforcement capability in order to increase compliance of conservation measures that the State needs to put in place to ensure sustainable use of its marine resources for people from Kayangel and Palau (TNC, 2009). As recent as April 2012, Live Reef Fish Trade Vessels were driven out of Ngeruangel Marine Reserve after having taken over 150 live clams from the Reserve (PCS, Ngeruangel Damage Assessment Report, 2012).

Figure 3 Kayangel Marine Area



The goal for designating all of Kayangel’s Territorial Waters as a Managed Area is to ensure sustainable use of all resources within the area, that it may continue to contribute positively to the overall well being of the people of Kayangel and Palau, today and into perpetuity.

To achieve the stated goal the management objectives for this Managed Area are:

- To regulate deepwater and coastal fishery within Kayangel waters.
- To identify allowable and prohibited activities.
- To identify allowable and prohibited uses.

Except those activities not indicated to require a permit, all activities require a permit or license from the State Government:

REF NO.	ACTIVITY	CONTROL MEASURE	PERMIT	FEE
A1	Diving	Allowed at designated dive sites	√	√
A2	Fishing, Commercial	Kayangel State Commercial Fishing License Required	√	√
A3	Fishing, Subsistence	Allowed		
A4	Fishing, Catch and Release Sportsfishing	Allowed at designated sportsfishing sites	√	√
A5	Snorkeling	Allowed at designated recreational and snorkeling sites	√	√
A6	Turtle harvest	National harvest season for Green turtle only.		
A7	Trochus harvest	Specific site only and limited to during state declared "trochus harvest season"	√	√
A8	Monitoring	Allowed	√	
A9	Research	Allowed	√	
A10	Enforcement and Emergencies	Allowable at any time		
A11	Safe harbor	Allowable at any time		
Vulnerable Species Requiring Special Management:				
A17	Hawksbill Turtle	Vulnerable Species will require special management, monitoring and enforcement, due to their threatened, endangered or vulnerable status.		
A18	Green Turtle			
A19				

3.2 Ngeruangel Marine Reserve

Ngeruangel Reserve was originally created in 1996 when Kayangel’s rubaks instituted a *bul* (traditional closure). The state recognized the *bul* by passing the Ngeruangel Reserve Act of 1996. The Reserve consists of Palau’s northernmost atoll reef and a small islet. The reserve is 4.1 miles². Ngeruangel Reserve comprises all the land and marine areas within one-half nautical mile of the seaward edge of the reef surrounding Ngeruangel.

Figure 4 Ngeruangel Marine Reserve



Source: Palau International Coral Reef Center

The islet on Ngaruangel made up of mostly coral rubble and sand is a breeding area for the Great Nested Tern and a nesting site for mainly the Green Turtle and the Hawksbill Turtle. Ngaruangel also hold special cultural significance to the people of Kayangel and the rest of Palau. Through oral history, many clans in Palau trace their migration back to Ngaruangel when they first set foot in Palau. “Ngaruangel appears to be an atoll, but it really is a pseudo-atoll; it is the southern end of what seems to be a much larger sunken atoll called Velasco Reef”. (Colin, 2009).

The goal for Ngeruangel Reserve is to allow for the restoration, conservation, and wise use of the natural and cultural resources of Ngeruangel for the continued benefit of the present and future generations of Kayangel and Palau.

To achieve the stated goal the management and control measures for Ngaruangel are as follows:

- To control the access and usage of Ngeruangel, taking into consideration uses for specified and limited community purposes.
- To conserve the fish populations of Ngeruangel.
- To conserve the biological resources of Ngeruangel, especially the seabird and turtle populations.
- To allow the sustainable harvest of trochus.
- To identify and support environmentally compatible, non-extractive activities to benefit Kayangel people.
- To establish effective surveillance, enforcement and biological monitoring programs for Ngeruangel.

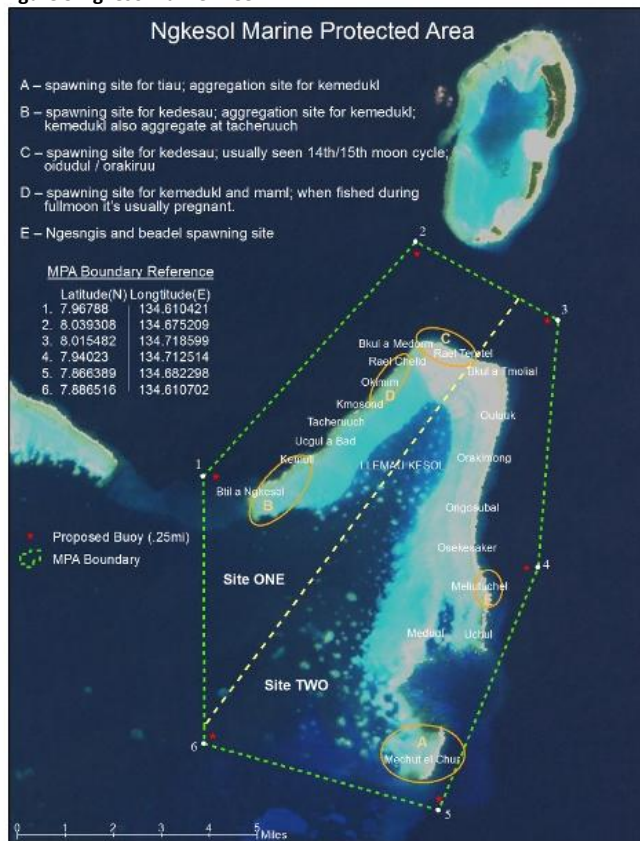
All activities within the Reserve boundary require a permit to be issued by the Governor. The following activities are allowable within the stated limitations:

REF NO.	ACTIVITY	CONTROL MEASURE	PERMIT	FEE
B1	Visitation (special	Traditional, cultural, and educational such as those based on creation myths, migration and oral traditions, and for religious or sacred purposes	√	

	purposes)	such as grave visitation.		
B2	Fishing	Limited only to harvest of fish for specified state functions which require fish in excess of that which is available to the community from unrestricted fishing sites.	√	
B3	Catch and Release Sportsfishing	Catch-and-release sportsfishing only under the supervision of Sportfishing Guidelines licensed by the State, to provide some economic benefit from the Reserve, with minimal impact on the Reserve and its resources.	√	√
B4	Diving	Limited diving and snorkeling, under the supervision of Dive Guides approved / licensed by the State, to provide some economic benefit from the Reserve, with minimal impact on the Reserve and its resources.	√	√
B5	Turtle harvest	Harvest of a limited number of melob green turtles (<i>Chelonia mydas</i>) for the specific state functions, only if they are not available from other sites. No ngasech hawksbill turtles (<i>Eretmochelys imbricate</i>) are to be taken from the Reserve at any time for any prupose	√	
B6	Trochus harvest	Commercial harvest during State declared "Open Season" only. All trochus harvesters must obtain a permit and pa a permit fee – user pays principle.	√	√
B7	Monitoring	For purpose of Ngeruangel Reserve only under the auspices of the Governor. To assess and evaluate the status of the Reserve in relation to the goal of the Reserve and the stated objectives of the management Plan.	√	
B8	Research	To provide information concerning Ngeruangel that increases the understanding of the Reserve and the Reserve's resources.	√	
B9	Enforcement and Emergencies	Entry into the Reserve for enforcement activities is allowed at any time, provided it is done so by an authorized enforcement officer. Also included under this provision is entry for special circumstances, specified by the Governor, such as: search and rescue, removal and salvage of wrecks deposited after the establishment of the Reserve, and pollution control including oil spill control and beach clean-ups.		
Specific Prohibitions: With the exception of the specific activities noted above, all other activities within Ngeruangel Reserve are prohibited. Prohibited activities include, but are not limited to:				
B10	Commercial, artisanal, and subsistence fishing (with exceptions noted above for trochus harvests, catch-and-release, sportsfishing, and fishing for the specific state functions).			
B11	The take of turtles and/or turtle eggs from Ngaruangel islet.			
B12	Oil exploration or drilling within the Reserve.			
B13	Any other extractive uses such as sand mining, coral mining, dredging, etc... .			
B14	Any introductions of new species.			
B15	The building of fires on the islet, except in an emergency situation.			
B16	Building or infrastructure development			
Vulnerable Species Requiring Special Management:				
B17	Hawksbill Turtle	Vulnerable Species will require special management, monitoring and enforcement, due to their endangered or vulnerable status, or due to their significance to Ngeruangel Reserve.		
B18	Green Turtle			
B19	Trochus			
	Seabirds			

3.3 Ngkesol Barrier Reef MPA

Figure 5 Ngkesol Barrier Reef MPA



Source: the Nature Conservancy Palau Field Office

Ngkesol Barrier Reef is part of Palau’s extensive barrier reef system totaling about 260km in length. On the west side a nearly continuous (with only a few relatively small openings) barrier runs from Peleliu in the south to Ngkesol Reef in the north, a distance of about 170km (Colin, Marine Environments of Palau, 2009). Barrier reef passes, many of their channels and points were recognized in the Marine and Coastal Areas Survey of the Main Palau Islands: Part 2 Rapid Ecological Assessment Synthesis Report, and shortlisted as of special ecological areas in Palau warranting special protection. The recommended type of protection is fishery conservation areas including

species and ecosystems. The areas were found to be important spawning grounds, aggregation sites for fish of commercial and subsistence importance, high coral areas, and habitat for giant clams (J.E. Maragos, 1994). In a later Rapid Ecological Assessment of Palau’s Northern Coral Reefs conducted, the report states that creating four large preserves associated with Ngkesol, Ngerael, Ngebard, and Ngarchelong encompassing the reefs discussed above that currently hold relatively high ecological integrity, represents a means towards initiating a scientifically-sound management structure (Houk, 2009). The Ngarchelong Marine Managed Area encompass Ngerael, Ngebard, and Ngarchelong, thus the newly designated Ngkesol Barrier Reef MPA completes representation of “one means of completing of protecting desirable ecological assemblage so they remain

resilient to future natural disturbances that are expected in a future, changing climate” (Houk, 2009). Palau Conservation Society conducted a Biological and Social Assessment of the Northern Reefs in 2006. The survey of residents of Kayangel and Ngarchelong was conducted to find out about past and present uses of the Northern Reefs and Lagoon; to find out how much people are dependent upon these ecosystems as a means of livelihood; to identify special sites or areas that people would like to protect; and to gather information about people’s overall perceptions of how best to manage the local resources of these reefs for the future. A total of 193 men and women were interviewed, 78 from Kayangel and 115 from Ngarchelong. Respondents also included people from both communities who resided in Koror full time. A couple of results from this interview most relevant to the designation of Ngkesol as a Marine Protected Area and for the people of Kayangel were:

- The areas that the people who were interviewed said were used in the past by the people from Kayangel were Kayangel lagoon and reefs, and Ngkesol. The areas that the people who were interviewed said were used in the past by the people of Ngarchelong were the reefs closest to the east and west coast of Babeldaob island.
- The areas that are currently used that were mentioned the most often by the people who were interviewed are:
 - the people interviewed from Kayangel say they use Kayangel lagoon and reefs and Ngkesol
 - the people interviewed from Ngarchelong use the reefs just north of Babeldaob island (up to Ngos)
 - the people interviewed from both states say they use Ngerael.

Overall, the results of the study concluded that many people from both Kayangel and Ngarchelong thought that the reefs and resources of Ngerael and Ngkesol were particularly special to them (PCS, 2008).

Ngkesol was established in March 2012 as a marine protected area within the Kayangel Protected Areas Network. The goal for imposing management measures for Ngkesol is to ease human pressure and disturbances to the coral reef ecosystem and to relieve the area from fishing pressure to allow for a sustained healthy fish population. To achieve the stated goal, the management objectives for Ngkesol Barrier Reef Marine Protected Area are as follows:

- To control the access and usage of Ngkesol.
- To conserve the fish populations of Ngkesol.
- To conserve the biological resources of Ngkesol, especially nationally protected species of fish and

giant clams.

- To allow the sustainable harvest of trochus.
- To identify and support environmentally compatible, non-extractive activities to benefit Kayangel people.
- To establish effective surveillance, enforcement and biological monitoring programs for Ngkesol.

Ngkesol is protected with a 3 year “open-close” rotational system. There are established two sites for the MPA that will alternate for entry and use. When a site is closed, all entry and use is prohibited except for research and monitoring, enforcement and emergencies and safe harbor during extreme weather. When a site is open, entry and the following uses and activities are allowed:

REF NO.	ACTIVITY	CONTROL MEASURE	PERMIT	FEE
C1	Diving	Open site only	√	√
C2	Fishing, Commercial	Kayangel State Commercial Fishing License Required	√	√
C3	Fishing, Subsistence	Open site only		
C4	Fishing, Catch and Release Sportsfishing	Open site only	√	√
C5	Snorkeling	Open site only	√	√
C6	Turtle harvest	National harvest season for Green turtle only.		
C7	Trochus harvest	Open site only and limited to during state declared “trochus harvest season”	√	√
C8	Monitoring	Site 1 and Site 2. For the purpose of Ngkesol MPA	√	
C9	Research	Site 1 and Site 2. For the purpose of Ngkesol MPA	√	
C10	Enforcement and Emergencies	Allowable at any time		
C11	Safe harbor	Allowable at any time		
Specific Prohibitions: With the exception of the specific activities noted above, all other activities within Ngkesol MPA are prohibited. Prohibited activities include, but are not limited to:				
C12	Fishing is not allowed within areas circled on the map commonly known as spawning aggregation sites 4 days prior and 4 days after the 14 th and 15 th moon cycle of each month.			
C13	Oil exploration or drilling within the Ngkesol MPA			
C14	Any other extractive uses such as sand mining, coral mining, dredging, etc... .			
C15	Any introductions of new species.			
C16	Building or infrastructure development			
Vulnerable Species Requiring Special Management:				
C17	Hawksbill Turtle	Vulnerable Species will require special management, monitoring and enforcement, due to their endangered or vulnerable status, or due to their significance to Ngeruangel Reserve.		
C18	Green Turtle			
B19				

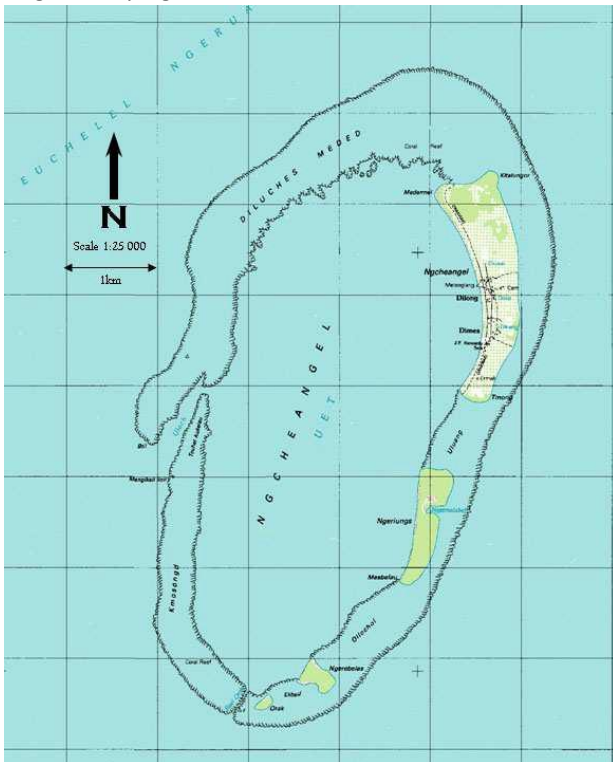
3.4 Ngeriungs Bird Sanctuary, a Globally Important Bird Area

Ngeriungs is one of the four islands that make up the state jurisdiction of Kayangel. It is uninhabited, although local residents frequent the island to collect coconut crabs, gather pandanus, or for recreational activities.

Foreign visitors guided by local tour operators also visit the area. Land on Ngeriungs are all privately owned by people of Kayangel and few other Palauans not necessarily from Kayangel.

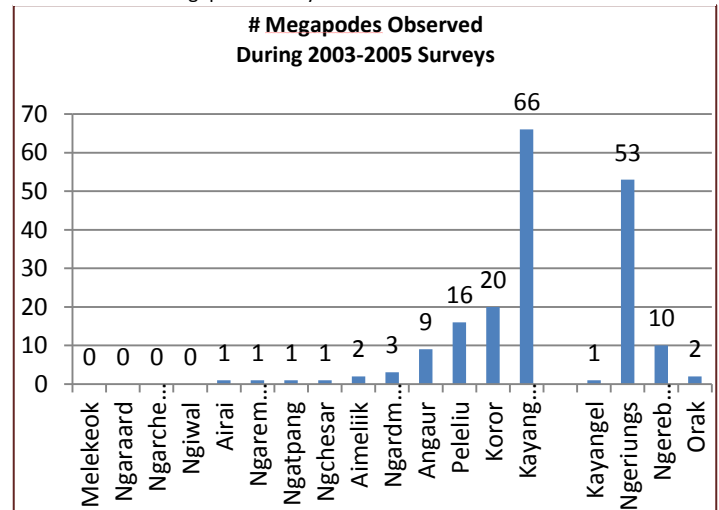
Ngeriungs in 2006 earned its status as a globally Important Bird Area with Birdlife International’s IBA program. Ngeriungs was selected among the four islands of Kayangel as an IBA mainly because it has the highest recorded number of Micronesian Megapodes and nests on one single island within Palau. In addition to Ngeriungs serving as important habitat for megapodes, the beaches are also critical nesting sites for endangered sea turtles. The island is also home to a large population of coconut crab harvested for subsistence consumption as well as small scale commercial sales (PCS, Important Bird Areas in Palau, 2008).

Figure 6 Kayangel Atoll



Source: Office of the PALARIS

Table 2 National Megapode Survey



Source: Palau Conservation Society

During the 2004 national bird surveys, rats were observed harassing juvenile ground birds – Micronesia Megapode and the Palau ground dove. Residents reported observations on the noticeable significant negative impact rats have had on bird diversity and population density, as well as drinking water quality, local agriculture and tourism. It was for these reasons that rats, mice, and cats were identified as initial targets for eradication

(T. Holm, 2008). PCS concluded a successful Invasive Rodent Eradication Project in September 2011. As of now, we expect that rats and feral cats no longer disturb vulnerable animal species on the islands.

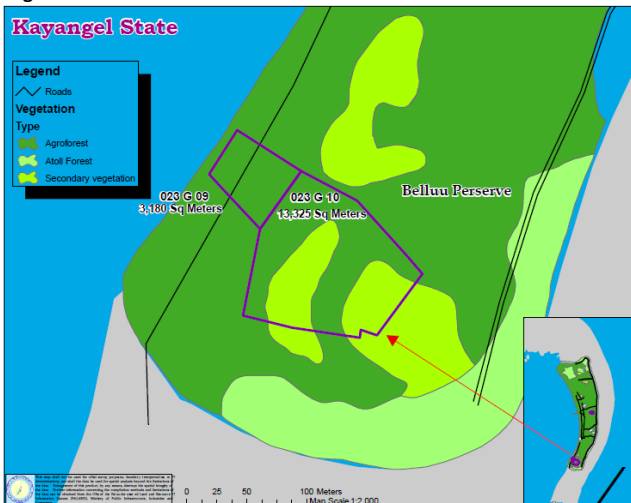
Passage of the Kayangel Conservation Act of 2012 formally designated Ngeriungs a bird sanctuary. The goal for Ngeriungs is to ensure vulnerable species such as the Micronesian Megapode, the green and hawksbill turtles, and their habitat is protected. To achieve this goal, the management objectives for Ngeriungs Bird Sanctuary are as follows:

- Land development policy
- Building and zoning policy
- Eco-tourism development policy
- Biosecurity Policy

3.5 Chermall at Belluu and Ngerusebek Natural Sacred Site Preserves

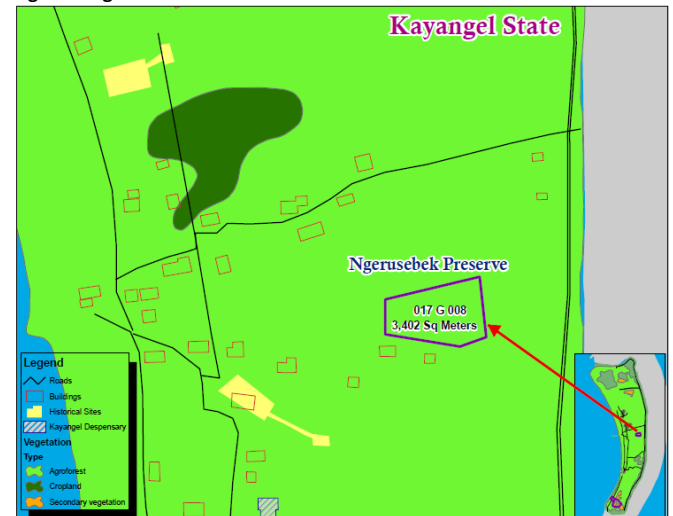
The Chermall at Belluu and Ngerusebek Natural Sacred Sites are of taboo stature in the community of Kayangel and known to all Palauans who visit Kayangel. They are both located on the main island of Kayangel. Traditionally, the sites have been restricted to entry by anyone except for senior female members of clans who own the lots to which the sites are located. As such, biological research has not been conducted of the two areas. The significance of the areas to the people of Kayangel merit protection and preservation of certain flora in the sites, although such flora is not uncommon in the rest of the forests throughout Kayangel.

Figure 7 Chermall at Belluu



Source: Office of PALARIS

Figure 8 Ngerusebek



Source: Office of PALARIS

During the Invasive Rodent Eradication Project conducted by Palau Conservation Society in 2011, female members of the clan who can access the sites were trained to apply rodent baits in the sacred sites as well as to monitor the sites post eradication. Today the women continue to monitor the sites for rats and feral cats.

In Kayangel all of the islands contain atoll forest, characterized mostly of strand species. Such forests make up only 1% of Palau's forest cover and therefore are unique habitats (PCS, Important Bird Areas in Palau, 2008). The designation of Chermall at Belluu and Ngerusebek as preserves is another major milestone for the Kayangel community and Palau. This management plan recommends that the women with access be trained on conducting a biological survey and implement a survey within year two of the plan.

The goal of protecting Chermall and Ngerusebek is to preserve its traditional meaning to the people of Kayangel and to protect unique forests of Kayangel. To achieve such goal, management objectives for Chermall at Belluu and Ngerusebek, the following measures are implemented:

- Traditional enforcement and restrictions are formally supported through legal protection.

Entry into the sites is prohibited with exception of individuals, usually senior females, of the clans that own the lots where the sites are located.

3.6 Allowable, Restricted, and Prohibited Activities

The following pages provide tables 3 and 4 that will further summarize allowable, restricted and prohibited activities for each of the sites in the Kayangel Protected Areas Network.

Table 3. Restrictions by activity - Terrestrial Protected Areas

Restricted Non-extractive	Sustainable Uses		
Activity		Chermall at Belluu and Ngerusebek	Ngeriungs Bird Sanctuary
	Entry	Public is prohibited	Allowable with permit / permission
	Alcohol (consumption and possession)	Prohibited	Allowable No Permit/Permission Required
	Camping (including fires, possession of fires, etc.)	Prohibited	Allowable with permit/permission
	Commercial photography	Prohibited	Allowable with permit/permission
	Cutting trees	Prohibited	Allowable with permit / permission
	Ecotourism – development	Prohibited	Allowable with permit/permission
	Ecotourism – visitation	Prohibited	Allowable with permit/permission
	Educational activities	Prohibited	Allowable with permit/permission
	Enforcement	Limited / Restricted	Allowable - No permit required
	Excavating, earthmoving, or digging	Prohibited	Prohibited
	Hunting of invasive animal species	Prohibited	Allowable with permit/permission
	Hunting of native animal species	Prohibited	Prohibited
	Leasing for agriculture or non-ecotour related development	Prohibited	Prohibited
	Littering / Dumping of trash	Prohibited	Prohibited
	Planting of native species	Prohibited	Allowable with permit/permission
	Possession of airguns and/or chainsaws	Prohibited	Allowable with permit/permission
	Regular Monitoring	Limited / Restricted	Allowable - No permit required
	Removal of invasive plants	Prohibited	Allowable with permit/permission
	Research	Limited / Restricted	Allowable with permit/permission
	Residence on a permanent or long-term basis	Prohibited	Allowable with permit/permission
	Smoking	Prohibited	Allowable - No permit required
	Spilling and/or dumping of pollutants	Prohibited	Prohibited
	Lime processing	Prohibited	Prohibited
	Coconut Crab / Land Crab	Prohibited	Allowable with permit / permission

Table 4. Restrictions by activity. Marine Conservation Areas

Restricted Non-Extractive	Sustainable Use	Ngeruangel Marine Reserve	Ngkesol Marine Protected Area *Rotational Management	Kayangel Territorial Waters
Activity				
Aquaculture		Prohibited	Prohibited	Prohibited
Catch and Release Sports Fishing		Allowable with permit/permission	Allowable with permit/permission	Allowable with permit/permission
Commercial photography		Allowable with permit/permission	Allowable with permit/permission	Allowable with permit/permission
Commercial Fishing		Prohibited	Allowable with Business License	Allowable with Business License
Educational activities		Allowable with permit/permission	Allowable with permit/permission	Allowable with permit/permission
Enforcement		Allowable - No permit/permission necessary	Allowable - No permit/permission necessary	Allowable - No permit/permission necessary
Emergency Safe harbour		Allowable - No permit/permission necessary	Allowable - No permit/permission necessary	Allowable - No permit/permission necessary
Emergency Passage in Extreme Weather		Allowable - No permit/permission necessary	Allowable - No permit/permission necessary	Allowable - No permit/permission necessary
Mineral Extraction (dredging / mining)		Prohibited	Prohibited	Subjected State Projects / Permit / Permission
Netfishing (subsistence)		Prohibited	Prohibited	Allowable
School Tours		Allowable with permit / permission	Allowable with permit / permission	Allowable with permit/permission
Scuba Diving		Allowable with permit / permission	Allowable with permit / permission	Allowable with permit/permission
Snorkeling		Allowable with permit / permission	Allowable with permit / permission	Allowable with Business License
Subsistence Fishing		Prohibited	Allowable	Allowable
Trochus Harvest		Allowable with permit / permission	Allowable with permit / permission	Allowable with permit / permission
Possession of gillnets		Prohibited	Prohibited	Prohibited
Regular Monitoring		Allowable - No permit/permission necessary	Allowable - No permit/permission necessary	Allowable - No permit/permission necessary
Research		Allowable with permit/permission	Allowable with permit/permission	Allowable with permit/permission
Spilling/dumping of pollutants and trash		Prohibited	Prohibited	Prohibited
Taking Green Turtles		State Functions Only	During Open Season	During Open Season
Vessel Grounding		Prohibited	Prohibited	Prohibited

4. Parties Responsible for Implementing the Management Plan

Implementation of the Management Plan is led and coordinated by the management authority but will involve cooperation and collaboration between the different divisions or departments of the State Government, the State Legislature, the Traditional Leaders, and the *eldebechel* (community-based organizations). Other areas of implementation in the Plan will also require close collaboration with national government agencies such as the Division of Fish & Wildlife, Bureaus of Agriculture and Marine Resources.

4.1 Management Authority

The ultimate executive authority of this Plan is the Governor. The success or failure to achieving the goals of the Plan relies heavily on the commitment and willingness of the top executive and his creativity to exploit the potential of this Plan to bring the State to its' desired vision.

Because effective implementation and enforcement of the Plan entail considerable commitment, time, and resources, including certain skills and knowledge, this Plan proposes the creation of a department within the executive branch of the State Government that is to be run by a department head. It shall be called the **Department of Natural Resource Conservation and Enforcement Services**. The department shall be primarily responsible for the daily administration, enforcement, planning, resourcing, budgeting, and reporting on behalf of the Governor including but not limited to the following duties:

- Develop the Departments annual work plan and budget
- Coordinate law enforcement incidents with the Ministry of Justice.
- Produce and ensure adequacy of incident reports.
- Seek to process and file citations in Court.
- Report to the Governor every end of budget year of its expenditures, investments, and progress in advancing the objectives of this Management Plan.
- Seek and exploit new source of funding from activities within the protected areas, the Palau PAN Fund, or other external donor agencies.
- Lead and coordinate the review and update of the Management Plan every Year 4 of the Plan.
- Develop and produce reports as required by the Governor and external donors.
- Pursue ongoing capacity building and training programs for department personnel and other assisting state personnel.

This Plan also proposes for the establishment of a voluntary Advisory Council for the Governor and the Department with at least nine members to advise implementation particularly in areas where there are impediments to progress, undertake guidance in planning and the development of new goals or strategic objectives, and assist in reviewing draft regulations relating to the protected areas, species management, enforcement procedures. The Advisory Council shall include at least one representative from:

- Office of the Governor
- Traditional Leaders
- State Legislature
- Kayangel Youth Association (Men)
- Kayangel Youth Association (Women)

With advisors from the following technical agencies:

- Palau International Coral Reef Center, Research Department
- Belau National Museum, Natural History Department
- Division of Fish and Wildlife
- Bureau of Agriculture

The role of the Protected Areas Advisory Council shall be to:

- Render advise on implementation particularly in areas where there are impediments to progress;
- Undertake guidance in planning when annual work plans are being developed and where new goals or strategic objectives are being considered;
- Review related draft regulations or procedures including proposed changes to relevant legislation and provide collective comments.
- Participate in the Management Plan's review process every Year 4 of the Plan.

The Advisory Council may hold two meetings each year at the call of the designated Chairperson of the Council with the Governor and the Department Head.

4.2 Management Personnel

This Plan proposes at a minimum the Department of Natural Resource Management and Enforcement Services shall house a department head, four Marine Rangers and two Conservation Officers. A Peace Corps or JICA Volunteer may also be recruited to assist with specific aspects of the Plan (such as creation of educational materials).

1. Department Head (Director)
2. Conservation Coordinator (1)
3. Conservation Officer (1)
4. Marine Rangers (3 immediate hires)
5. Peace Corps or JICA Volunteer

This plan also intends to utilize the services of existing State personnel, including:

1. State Finance and Administrative Staff
2. State Maintenance and Public Works Staff
3. State Transportation Staff

Other professional services will be needed with certain aspects of the Plan such as:

1. Legal services (i.e. promulgation of regulations)
2. Technical services (i.e. research and monitoring)
3. Consultancy (i.e. bird-watching tourism industry, sports fishing industry, etc...)

The Plan also proposes to seek engagement from the *eldebechel* (community-based organizations) from time to time during outreach programs.

Duties of Management Personnel and Divisions

(see Appendices 3 - 6)

4.3 Palau Conservation Consortium: Experts, Cooperation, and Partnerships

A number of government, semi-government, and non-government agencies make available to the State technical support in planning, management, monitoring and other related expertise to the State’s management authority to help improve their management skills. Most of the agencies voluntarily form and participate in the Palau Conservation Consortium. The Consortium holds meetings from time to time and welcomes participation and attendance of newly organized conservation management authorities.

Palau Conservation Consortium, Participating Agencies:

Belau National Museum, Natural History Department	Palau Automated Land and Resource Information Services (PALARIS)
Bureau of Agriculture	Palau Conservation Society
Bureau of Marine Resource	Sustainable Land Management Project (SLM)
Environmental Quality Protection Board (EQPB)	The Nature Conservancy
Helen Reef Project	US Natural Resource Conservation Services
Koror Department of Conservation and Law Enforcement	
National Weather Services	

5. Budget and Sustainable Financing Mechanism

5.1 First Year Budget

The first year work plan is attached as Appendix 1. The projected cost for Year 1 is \$325,315.20. Because it is the first year of the Plan, a significant portion of the budget is allocated for start-up costs that include investment in major assets and equipments needed to begin full operations to implement this Plan.

Recurring Costs	\$138,275.20
Major Assets and Equipments	\$187,040.00
TOTAL	\$325,315.20

5.2 Five Year Budget Outlook

Summary

	Year 1	Year 2	Year 3	Year 4	Year 5
TOTAL, ALL COSTS	325315.2	193188.8	181484.8	183164.8	184417
Recurring Costs TOTAL	138275.2	159028.8	174764.8	174764.8	179377
Capital Asset Costs TOTAL	187040	34160	6720	8400	5040

Budget Detail

	Year 1	Year 2	Year 3	Year 4	Year 5
RECURRING COSTS					
Personnel					
Department Head	21000	21000	22050	22050	23123
Conservation Coordinator	17000	17000	17850	17850	18742
Senior PA Ranger	12000	12000	12600	12600	13230
Protected Area Rangers (3x)	27000	27000	36450	36450	38373
Peace Corps Volunteer/JICA Volunteer		2400	2400	2400	2400
Governor (30%)	7500	7500	7500	7500	7500
State Finance Officer (20%)	3000	3000	3000	3000	3000
Total KPAN Staff	6	7	7	7	7
Subtotal	87500	89900	101850	101850	106368
Supplies					
Paper supplies	800	1000	1000	1000	800
Office supplies	800	1000	1000	1000	800

Consumable Field Supplies (slates, ropes, etc)	1000	1000	1000	1000	1000
Uniforms	500	500	500	500	500
<i>Subtotal</i>	<i>3100</i>	<i>3500</i>	<i>3500</i>	<i>3500</i>	<i>3100</i>
<i>Petroleum Oil Lubricants</i>	16060	24090	24090	24090	24090
<i>Maintenance & Repair</i>		1200	3000	3000	3000
<i>Communications (telecomm, postage, shipping)</i>	2100	2100	2100	2100	2100
<i>Publication (design, print, broadcast)</i>	3000	5000	5000	5000	5000
<i>Capacity Building & Training</i>	1200	1200	3500	3500	3500
<i>Subtotal</i>	<i>22360</i>	<i>33590</i>	<i>37690</i>	<i>37690</i>	<i>37690</i>
<i>Meetings</i>					
Community meetings	500	500	500	500	500
<i>Subtotal</i>	<i>500</i>	<i>500</i>	<i>500</i>	<i>500</i>	<i>500</i>
<i>Contractual</i>					
State Attorney	8000	5000	5000	5000	5000
Technical Experts (mapping, communications, assessments, feasibility,etc)	2000	1500	1500	1500	1500
Annual Reports, Workplans, and Budgets		5000	3000	3000	3000
Monitoring and Evaluation		3000	3000	3000	3000
<i>Subtotal</i>	<i>10000</i>	<i>14500</i>	<i>12500</i>	<i>12500</i>	<i>12500</i>
<i>Subtotal (All categories)</i>	<i>123460</i>	<i>141990</i>	<i>156040</i>	<i>156040</i>	<i>160158</i>
Administration (12%)	14815.2	17038.8	18724.8	18724.8	19218.96
Recurring Costs TOTAL	138275.2	159028.8	174764.8	174764.8	179377
CAPITAL ASSETS AND EQUIPMENT					
Enforcement & Surveillance Station	95000				
Patrol Boat	45000				
Boat Service & Repair(Ngeruangel Patrol Boat)	8000				
Boat engine replacement(Ngeruangel Patrol Boat)		15000			
Utility Truck		7000			
Field equipment (GPS, cameras, binoculars, radios, SCUBA gear, safety equipment)	7500	1000	0	3000	0
Mooring buoys	3000	5000	2000	2000	2000
Demarcation buoys	5000	2500	2500	2500	2500
Desktop computer	1200				
Laptop computer	1800				
Projector			1500		
Printer	500				
PA System			700		
<i>Subtotal (All categories)</i>	<i>167000</i>	<i>30500</i>	<i>6000</i>	<i>7500</i>	<i>4500</i>
Administration (12%)	20040	3660	720	900	540
Capital Asset Costs TOTAL	187040	34160	6720	8400	5040
TOTAL, ALL COSTS	325315.2	193188.8	181484.8	183164.8	184417

6. Sustainable Financing

This Plan proposes the community and state government to acquire membership for the Kayangel Protected Areas Network with the Palau PAN. The membership with PAN will help secure means for sustainable financing of the KPAN management. In addition, the Plan identifies other strategic objectives that will help expand opportunity to sustainably finance KPAN. One avenue is forging partnership with the Kayangel State Youth Association (Seinendang), as an NGO (CBO) group who can apply for other grant opportunities to help financially sustain management of the Kayangel Protected Areas Network. Another medium term strategy in the Plan is to seek technical assistance to develop a fundraising plan for KPAN.

7. Capacity Building Plan

7.1 Knowledge and Skill-building

The development of basic understanding of conservation and management skills is one of the key fundamentals of sustaining effective conservation measures. Capacity building required for Kayangel can be approached both from top down and from the bottom up. This management plan brings together three different areas of discipline merged into one vision with a series of common goals and objectives. The three different areas are *protecting biodiversity, sustainable exploitation of resources, and alternative livelihoods*. Thus successful implementation would require cultivating a professionally ran department committed to building capacity for its personnel and other support staff. The Plan offers new employment opportunities for the State therefore management approach must take into account the following areas of capacity building:

Basic Technical Skills	Administrative and Reporting Skills	General Knowledge and Understanding
Basic Law Enforcement Academy	Integrated Strategic and Financial Work Plan	Understanding Biodiversity
Basic CPR Certification	Quarterly and Annual Reports	Understanding Ecosystems and Ecosystems Services
Open Water SCUBA Certification	Basic Facilitation Skills	Understanding Climate Change
Writing Incident Reports in English and Palauan	Organization and Time Management Skills	Species Management: Fish, Birds, Coconut Crabs, Trochus, Clams
Basic Biosecurity and Quarantine	Monitoring Management Effectiveness	Cost of Protecting Biodiversity and

Training		Sustainable Financing
Basic CPR Certification	Knowledge of Palau Environment Legal Framework National & State	
Fish Monitoring and Survey		
Coral Reef Monitoring and Survey		
Bird Monitoring and Survey		
Search and Rescue: Wildlife Rescue		
Oil/Chemical Spill Response EQPB Certification		
Alii Host Tour Guide Training		

7.2 Access to Training

At this time access to training can be mostly opportunistic. However, it is critical to begin training as soon as possible. Opportunities for trainings can also be pursued by contacting any of the resource agencies in the Palau Conservation Consortium. Trainings can come in the form of actual voluntary fieldwork to help out an agency or another state, or in the form of a workshop, or through fee for services. From time to time, regional trainings are offered and will cost the State. For this reason, the Plan’s budget line items include Capacity Building & Training, Travel, and Per diem / Subsistence.

7.3 Timing and Application of New Skills and Knowledge

Each time employees undergo training it increases likelihood for successful management. It is understandable that organized protected area management is a new experience for the State Government. In this instance, the earlier new skills are gained the more room there is for practice and refinement of skills through experience.

The Office of the Governor and the newly created department must be conscious of encouraging personnel to share and apply newly acquired skills whenever and wherever possible. The best training grounds for such is at home state, where they are comfortable to make mistakes and not be shy or discouraged.

8. Review and Approval Process

There are several planning activities in the next five years, such as the creation of Enforcement, Visitor, and Outreach plans. Additionally, PAN regulations require a written Annual Work Plan with corresponding budgetary requirements. Annual reviews of this Management Plan are also necessary, as is a thorough review and revision at the five-year mark. Thus, this Plan includes the establishment of a permanent Advisory Council.

The Department Director shall be responsible for generating annual reports that convey the progress of objectives in this Plan and which include a financial report. The Director shall incorporate all relevant monitoring and evaluation data and information into these reports.

Based on these reports, the Director shall draft annual work plans and a budget request and forward these to the Advisory Council for review. The Director shall also forward any recommendations for changes to this Management Plan to the Advisory Council.

The Advisory Council shall review, change, and approve the Work Plans and any changes to the Management Plan. Once the Advisory Council has approved the annual work plans and any changes to the Management Plan, they shall be forwarded to the Governor in the form of a proposal for review and approval. Once the Governor has approved the annual work plans and changes to the Management Plan, the Governor's signature and date is affixed on the revised Plan with the Annual Work Plan and Budget.

The Advisory Council with the Department Head shall review and develop a revised and updated Management Plan and then seek approval from the Governor, State Legislature, and Traditional Leaders. The Governor or the Legislature or both shall hold a public hearing on the proposed revised Plan.

9. Conflict Resolution

In the case of conflicts between any parties in this Plan, the Governor shall ask the Traditional Leaders for their advice. If necessary, any party may initiate facilitated meetings (with advice and facilitation provided by technical partners such as TNC or PCS) to assist with conflict resolution. The State Attorney shall be consulted on any conflicting legal matters.

10. Legal Authority

The Constitution of the Republic of Palau delegates specific powers to state governments, and reserves all other powers to the national government. The states have been specifically granted “ownership” of its water resources within the water area surrounding its land (to 12 nautical miles). The Constitution specifically and significantly expands the scope of this ownership right by allowing the states to collect revenues with regard to the state’s water territory.

This Plan is given authority by laws of the State and the Kayangel State Constitution. The plan is also supported by the Palau Protected Areas Network Act and various other National laws.

10.1 State Authority

The Kayangel Conservation Act of 2012 (KYPL 14 – 9) establishes the Kayangel Protected Areas Network. The law further established the Department of Natural Resources and Enforcement Services, and provides a process for adoption of this Management Plan and its Rules and Regulations into full force and effect.

10.2 National Authority

The Constitution of the Republic of Palau delegates specific powers to state governments, and reserves all other powers to the national government. The states have been specifically granted “ownership” of its water

resources within the water area surrounding its land (to 12 nautical miles). The Constitution specifically and significantly expands the scope of this ownership right by allowing the states to collect revenues with regard to the state's water territory.

This Plan is in line with National Laws. The following is a list of national laws that impact the scope of the management plan:

The Marine Protection Act of 2007 (27 P.N.C. § 1201-1211)	Limits domestic fishing <ul style="list-style-type: none"> • limit the take, sale, purchase, and export of many species • closed seasons for grouper and rabbit fish, • minimum sizes for parrotfish, wrasse, crabs, and lobster • gear restrictions (prohibition on fishing with SCUBA gear and minimum and prohibitions on certain types and sizes of nets) • restricts the taking of aquarium fish • requires labeling of exports • authorizes additional regulations to protect certain species
27 PNCA §§ 101-207	Limits foreign fishing within the 200 mile EEZ. Prohibits foreign fishing within Palau's territorial sea and internal waters (generally 3 miles from a land baseline)
Endangered Species Act (24 P.N.C. § 1001-1012)	Prohibits any person from taking, engaging in commercial activity with, possessing, or exporting any endangered or threatened species of plant or animal.
Protected Sea Life-Turtles (24 P.N.C. § 1201)	Limits seasons and size for sea turtle harvesting. Prohibits taking of eggs or harassment of females during egg-laying.
Hawksbill Sea Turtle Law	Places a 5-year moratorium on all harvest of Hawksbill Sea Turtles (2011-2015)
27 PNCA §§ 101-207	Limits foreign fishing within Palau's 200 mile extended fishery zone. Foreign fishing is generally prohibited in Palau's territorial sea or internal waters (waters up to three miles from the baseline).
Control of sponge harvesting (24 P.N.C. § 1211)	Limits harvest of sea sponges.
Mother-of-Pearl (24 P.N.C. § 1221)	Prohibits harvest of mother of pearl.
Dugong (24 P.N.C. § 1231)	Prohibits harvest or harassment of dugongs.
Trochus (24 P.N.C. § 1241-1246)	Controls trochus harvest.
Protected Land Life Act (24 PNCA § 1401)	Prohibits harvest or harassment of all but four bird species.
Title 24 Palau National Code Annotated (24 PNCA) (The Environmental Quality Protection Act)	Establishes general standards for environmental review and regulates earthmoving, water quality, air pollution, and environmental impact.
Historical and Cultural Preservation Act (Title 19) Palau Lagoon Monument (Chapter 3)	Protects culturally, historically, or archaeologically significant are eligible for protection. Chapter 3 protects underwater archaeological and historical tangible remains.

11. Background Information

11.1 Kayangel Community

The Kayangel Community enjoys all basic amenities including 24 hour electricity, water, and sewer system. Modern concrete and semi concrete homes now dominate residential buildings as well as public buildings. Children attend the John F. Kennedy Elementary School. Residents either work for the local school, or employed at the local public sector such as the Palau Public Utilities Corporation, Palau National Communication Corporation, Ministry of Education and Ministry of Health. Those not employed fulltime are retirees / pensioners who receive their retirement or participating in informal small scale commercial enterprises. Typical products exported to Koror for the market include *kebui* pepper leaf, *aus* lime powder, and coconut oil.

Figure 9 Kayangel Demographic Information

KAYANGEL DEMOGRAPHIC INFORMATION	
Number of Household	32
Average Household Size	3.0
Average Household Income	USD6,198.97
EMPLOYMENT	
Public Sector	28
Private Sector	5
INCOME SOURCE	
Social Security Benefits	12
Civil Service Pension Funds	5
Private Business	2
Other Source	3
Household Without Income	0
INFORMAL ACTIVITIES AS INCOME SOURCE	
Fishing	1
Farming	10
Wood Carving	0
Food Preparation (Makit)	0
Weaving	2
Jewelry Making	0
Other Informal Activities	1
Not Reported	0
FARM TYPE	
Dry Land	8
Wet Land	0

Source: Palau 2009 Household and Income Survey

11.2 Description of the Management Planning Process

Kayangel waters and unique atoll forests have previously been identified as important areas for conservation in ecological assessments conducted at the national level. In 1996 the Ngeruangel Marine Reserve remained the only protected area in the State. The development of this management planning process commenced on August 25, 2011 after the State created the Ngedebuul Conservation and Resource Planning Team (NCRPT) through Legislative Resolution No. 14 – 12 – 5RS. Members of the NCRPT included the following people:

1. Jeffrey Titiml, Chairman
2. Spis Owens Otei, Vice Chairman
3. Legislator Esichang T. Moses, Secretary
4. Keizy Jack Ermang, Member
5. Steven Mokisang, Member
6. Baidong Ruloked, Member
7. Legislator Asailee Yamada, Member
8. Legislator Elmis Ruloked, Member
9. Rebechong T. Kyomasa

The Team was tasked to conduct an overall exercise in identifying other areas in Kayangel that needed formal protection status. As such, the process in the development of this plan included planning for new protected area sites. The exercise resulted in identification of the 12 nautical mile nearshore waters of Kayangel, Ngkesol Barrier Reef, Ngeriungs IBA, Chermall at Belluu, and Ngerusebek as important areas for formal protection. The areas were formally designated on March 30, 2012 as protected areas and with Ngeruangel Marine Reserve form the Kayangel Protected Areas Network by enactment of the Kayangel Conservation Act of 2012.

Palau Conservation Society facilitated the process based on strong operational principles that encouraged one hundred percent community input into the making of the Plan. The process included planning meetings, familiarization tour of sites, meetings with technical advisors, and community consultation meetings. Meetings were mostly held in Kayangel at the Kayangel State Office. The NCRPT were receiving positive comments from local residents for establishing their presence in the community during this whole process which allowed many opportunities for private conversations and thought sharing about Kayangel's resources from local individual.

11.3 Conservation Targets

In 2009, the Nature Conservancy conducted a Conservation Action Planning (CAP) exercise with the community in Kayangel. A number of conservation targets were identified and ranked according to its viability (see Table 5). Results of the CAP Report were used to inform the management planning process and also provided basis for some of the strategies of this Plan. There were other targets identified by the NCRPT that may not be addressed now but will be addressed in the work plans for later years. Targets identified in TNC's CAP Report include:

1. **Coral Reef System.** Kayangel State has a large coral reef system that includes the atoll reef system around the Kayangel islands, the Ngkesoll barrier reef that is part of the northern reef system, south of Kayangel islands, the Ngerunagel Marine Preserve and the Velasco, a submerged reef system, northwest of Kayangel islands. The reef system supports a diversity and abundance of fish, invertebrates, algae and other marine life. The Velasco reef system is still relatively un-touched due to its remoteness from the center of population in Palau, however, there is a potential for

oil exploration in this reef system. The Ngeruangel Marine Preserve has been closed since 1997. Fish abundance has increased, however, the 1998 bleaching event did affect the corals and coral recovery has been slow. The Kayangel atoll reef system and the Ngeksoll reef system, due to their proximity to population centers has been affected by overharvesting, however, the reefs are still relatively healthy and active management will help maintain the reef's health.

2. **Lagoon.** The Kayangel Lagoon is roughly 12.1 km² (Maragos et al. 1994). The lagoon is mainly sand with few patches of corals. Coral diversity in the lagoon is relatively low. Maragos et al (1994) reported that the lagoon is shallow and turbid with an average depth of 6 m and a maximum depth of 9.5 m. The Ulach Channel, which connects the the lagoon with the ocean on the west side of the Kayangel barrier reef was recently dredged to allow for larger boats to enter the lagoon in order to reach the newly constructed Kayangel dock. The lagoon is one of the few areas in Palau where the seagrass *Thalassodendron ciliatum* can be found. While the lagoon is of low coral abundance and diversity, it is still one of the fishing ground for people who reside in Kayangel.ⁱ
3. **Bekai (Micronesian Megapode).** The Micronesian Megapode (*Megapodius laperouse laperouse*) is found in Kayangel in abundant numbers now. However, this species is being threatened in many parts of Palau where it is found due to invasive species that prey on them and their eggs. The people of Kayangel want to protect this species because of potential impact of invasive species on them. Their abundant number in Kayangel makes Kayangel a unique place because of this species.
4. **Ketat (Coconut crab).** Coconut crab, *Birgus latro*, is the largest arthropod. This species inhabit the atoll forest within Kayangel Island. This is a conservation target of concern because there has been a dramatic decline in numbers due to harvesting both for subsistence and commercial purpose.
5. **Large Atoll Forest Trees.** Protection of Kayangel island from strong wind and erosion of coastline is dependent on large coastal vegetation that holds the coastline and buffer the islands from wind. The vegetation buffer includes the following plants: Dokou (*Hernandia nymphaeifolia*), btaches (*Calophyllum inophyllum*), uaoch (*Ochrosia oppositifolia*).
is being targeted by fisherman because of their commercial value. While very few people from Kayangel actually fish for this species, many commercial and recreational fisherman from Koror target this species around Kayangel.
7. **Mesei (Taro patch).** Kayangel unlike many States in Palau, have a very limited capacity for taro patch. There is a single area in Kayangel that is subdivided among individuals to be used as taro patch. The giant taro (prak) from Kayangel is regarded as one of the best in all of Palau. Recent impact of climate change resulting in rise in sea level has affected the taro plots in Kayangel. There are plots within the taro patch in Kayangel were the giant taro cannot grow. This raises much concern because if this effects continues to spread than the whole taro patch will be affected.

Table 5 CAP Target Viability Ranking Results

Conservation Target	Indicator	Indicator Rating	Viability Rank for Target
Coral Reef System	Number of Fish	Fair	Fair
Lagoon	Aerial Extent of Algae	Fair	Fair
<i>Bekai</i> Micronesian megapode	Number of Micronesian megapode	Very Good	Very Good
<i>Ketat</i> Coconut Crab	0-1 Per Hour	Poor	Poor
Large Atoll Forest Trees	Number of Large Trees	Fair	Fair
<i>Mesei</i> Taro Patch	Number of Brak	Fair	Fair
<i>Sebus</i> Deep Water Red Snapper			Good
Project Biodiversity Health Rank – Overall			Fair

Other important conservation targets that were identified by the NCRPT included giant clams, trochus, and green turtles but not specifically addressed in the Plan at this time, however, they are identified for future planning.

11.4 Threats To Targets

From the 2009 TNC CAP Report threats to conservation targets were also identified due to its impact the viability ranking of a target. The extent to which a threat is impacting the target and the likelihood of the target to recover or rebound from that threat, contribution and irreversibility are used to measure the degree of the threat. The overall ranking of the threat is determined by the level of stress over a target, scope and severity.

Critical Threats:

1. Climate Change. The threat of sea level rise and unpredicted weather conditions that cause high wave actions that result from the overall effects of climate change is the highest concern for the people of Kayangel. Kayangel is a low lying island and is very susceptible to increase in sea level. There are already visible impact of rising sea level that have affected the island and the people who reside in Kayangel. Salt water intrusion into taro patch and shoreline erosion are examples of impacts of climate change that are being felt now.

2. **Overharvesting.** This threat is identified as mainly affecting the fish, giant clams, and coconut crabs. The threat of overharvesting is a result of both subsistence harvesting and commercial harvesting. The community members also attribute overharvesting to lack of respect for traditional practices and eroding of the Palauan values of conservation resulting in what is known as tragedy of commons (acting for one's self interest resulting in depletion of common shared resource)ⁱⁱ.

3. **Dredging.** The dredging that took place to deepen the Ulach Channel during the construction of the Kayangel dock is believed to have caused algal bloom in the Kayangel lagoon. The algal bloom has degraded the lagoon habitat for fishⁱⁱⁱ.

Additional Threats:

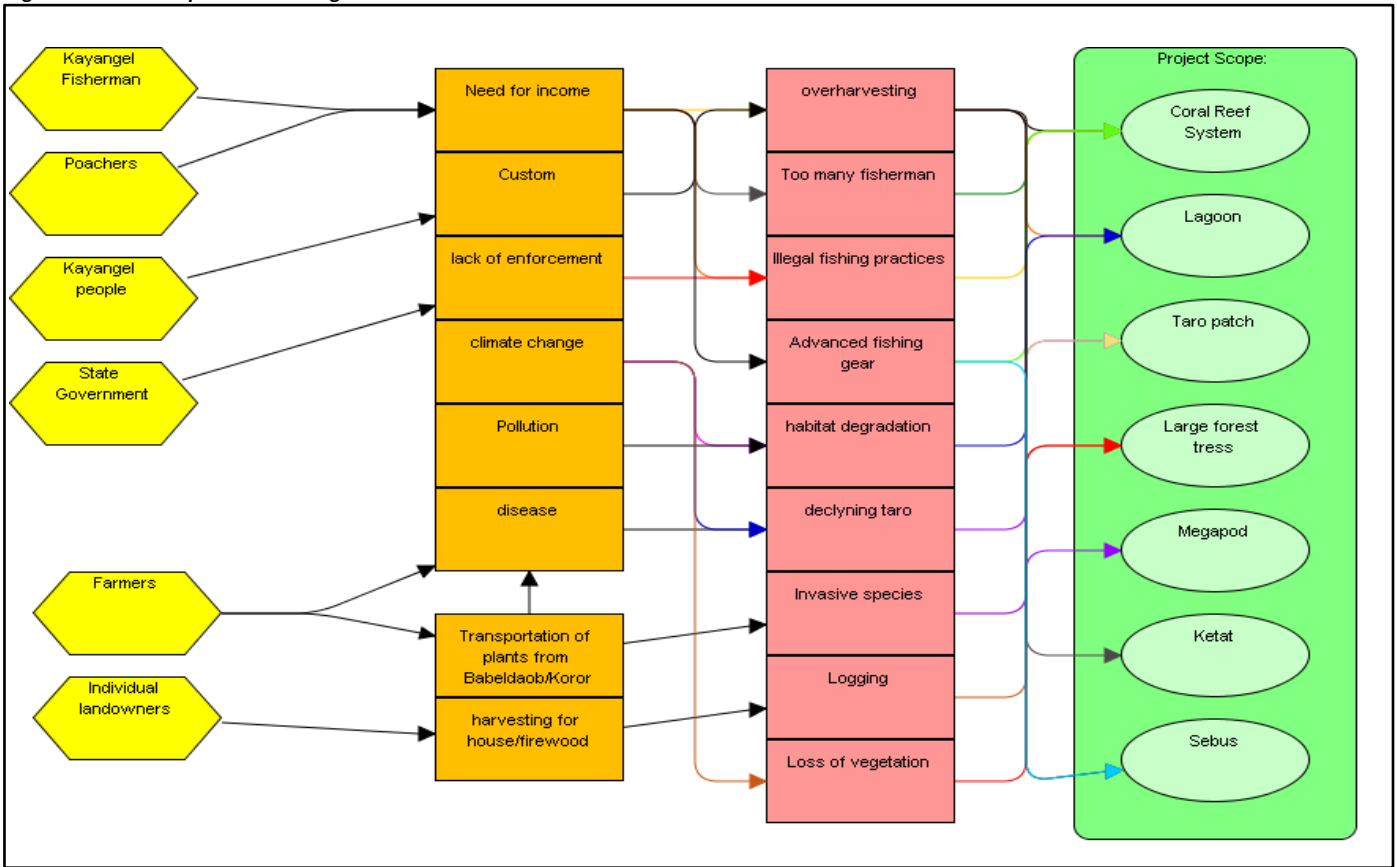
During the management planning process, additional threats were identified by community members during consultations, also by the NCRPT. These threats are current and rampant, consequently, the Plan includes strategies intended to counter the threats.

1. Illegal Fishing / Poaching from unlicensed local commercial fishing.
2. Overfishing from unpermitted fishing for *elsang* customs.
3. Invasive Alien Species from unquarantined cargo and smuggling of non-native plants and animals.

11.5 Analysis of Conservation Targets and Threats

The CAP process uses a conceptual model (see Figure 9) to draw connections from identified stakeholders to driving factors that lead to occurring threats.

Figure 10 CAP Conceptual Model Diagram



12. Alternative Livelihood Opportunities

The primary objective in creating alternative livelihood opportunities is to sustain conservation outcomes by striving to balance protected area development with local livelihoods. This Plan proposes to implement appropriate sustainable livelihood/income generating activities such as new agriculture techniques for traditional crops, coconut-based product development, ecotourism etc.

12.1 Kayangel Coconut Mill Livelihood Project

The Kayangel Coconut Mill Livelihood Project is a venture to enhance existing coconut oil micro industry in Kayangel. The project is led by the community, main proprietor of the project is the *Seinendang* Kayangel State

Youth Association with support from the Ngaramelemiakl. Both of these groups are community-based organizations. A proposes operation of a single Direct Micro Expelling SAM Mark 8 Press Kit to assist the community in increasing local coconut oil and other products manufacture. To demonstrate community commitment, the CBO's are providing construction labor for building a factory housing. The Ngaramelemiakl are volunteering their time for the first year, which is regarded as trial period of operations. The KSYA as owners of the mill are in charge of administration, accounting, and paying utility bills. The members of KSYA are also the customers of the mill and pay for the services from the mill.

13. Conclusion

The strength of this Plan is the community of Kayangel and its leaders who have given their full support of the making of the protected areas management plan and have been engaged in the process. This plan brings to the forefront the desires and wishes of the people of Kayangel for their natural resources. But the wishes and desires of the people reflected in the goals and stated in the Plan to a great extent, rely on the Palau Protected Areas Network for assistance in law enforcement and sustainable financing. The state government and community are committed to the implementation of this Plan and look forward with vigor to continue support for full implementation of the Kayangel Protected Areas Network Management Plan.

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Endnotes

ⁱ Management over the lagoon almost entirely prescribe traditional practices and enforcement, thus no specific strategy in the Plan over the lagoon area.

ⁱⁱ Overharvesting is mainly from local commercial fishermen who do not reside in Kayangel and poachers. As recent as April 2012 a transnational / transboundary poaching incident took place in Ngeruangel, over 155 live giant clams were taken from the Reserve. See PCS Emergency Damage Assessment of Ngeruangel Marine Reserve Report 2012.

ⁱⁱⁱ Dredging Ulach Access Channel 2002 – 2003 The Project For Improvement Of Fishery Infrastructure In Kayangel State, Republic of Palau, JICA

APPENDICES

Appendix 1	Year One (2013) – Work Plan
Appendix 2	Work Plan – Strategy Table
Appendix 3 – 6	Position Descriptions, Department of Natural Resource Conservation and Enforcement Services
Appendix 7-8	Resolution and Kayangel Conservation Act of 2012

**Kayangel Protected Areas Network
Five Year Strategic Plan Table (2013 - 2018)**

REF NO.	OBJECTIVE / ACTIVITY	GENERAL STRATEGY	LEAD	RESOURCES REQUIRED	Short Term	Med-Term	Long-Term	INDICATOR OF SUCCESS	HOW MEASURED	NOTES
1-1	By January 2013, the Governor has hired a Department Head and at least 3 conservation officers / rangers	Administrative & Regulatory			X					
1-1a	Ensure adequate funds to hire department head and three conservation officers	Administrative & Regulatory	Governor	time, supplies & materials	X			KPAN obtains PAN membership and management plan budget is approved	KPAN Nomination Application is processed	
1-1b	Publicize vacancy announcement and hire conservation officers and DNRCs Department Head	Administrative & Regulatory	Governor	time, supplies & materials, publicity	X			Officers are hired	Announcement is publicized; hiring process begins	
1-1c	DNRCs Department Head is trained on PAN reporting requirements	Administrative & Regulatory	Governor	time, supplies & materials	X			Department Head acquires reporting skills	Department Head participates and completes training	
1-2	By April 2013, conservatin officers are fully equipped with all required resources and with consistent annual operational funds	Administrative & Regulatory	Governor		X					
1-2a	Inventory all equipment on hand and identify needed resources that need to be sought	Administrative & Regulatory	Governor	time, supplies & materials	X			Equipments identified	Inventory is conducted and a list of needs is produced	
1-2b	Develop a budget that will be enough to make necessary pruchases for surveillance and enforcement	Administrative & Regulatory	Governor, Technial Assistant	time, supplies & materials	X			KPAN Management Plan and Budget is approved by PAN Office and and funds rewarded from PAN Fund	5 Year Management Plan budget is submitted to PAN Office and PAN Fund	
1-2c	Ensure KPAN obtain PAN membership to secure sustainable financing	Administrative & Regulatory	Governor, Technial Assistant	time, supplies & materials	X			PAN membership acquired	PAN Nomination Application is processed	
1-3	By October 2013, all conservation officers have achieved proper basic training such as successful completion of the National Police Academy	Administrative & Regulatory	Governor, officers/rangers			X				
1-3a	Develop ongoing capacity building plan focusing on law enforcement and accessing trainings locally, regional, international and ensure officers complet full trainings and apply skills	Administrative & Regulatory	Governor, Department Head, Coordinator	time, supplies & materials	X			Capacity Building Plan is in place and implemented	Officers enrolled and complete trainings	
1-3b	All conservation officers / rangers hired within 1 year are deputized	Administrative & Regulatory	Governor, Department Head, Coordinator	time, supplies & materials, daily subsistence allowance (dsa), lodging		X		Officers / rangers are deputized by the Ministry of Justice	Officers enrolled and complete Police Academy	2 rangers at a time; budget includes dsa for 30days, lodging, salary

REF NO.	OBJECTIVE / ACTIVITY	GENERAL STRATEGY	LEAD	RESOURCES REQUIRED	Short Term	Med-Term	Long-Term	INDICATOR OF SUCCESS	HOW MEASURED	NOTES
1-4	By October 2012, Governor and DNRCs ensure Rules & Regulations for KPAN are promulgated and DNRCs is fully implementing	Administrative & Regulatory	Governor, Department Head		X					
1-4a	Seek and hire legal & technical assistance to promulgate rules & regulations to include fee schedule, permitting process, and citations process	Administrative & Regulatory	Governor, Department Head	time, legal / technical expertise (contractors)	X			KPAN Rules and Regulations are produced and implemented by DNRCs	legal / technical experts are sought and retained to develop rules & regulations	
1-4b	DNRCs personnel and other relevant support state personnel are trained on KPAN rules & regulations	Administrative & Regulatory	Governor, Department Head	time, service	X			DNRCs personnel, Governor, and other relevant state personnel complete training	Rules & regulations training is conducted	
1-4c	Education and awareness materials are developed and disseminated to make the public aware of new rules & regulations	Administrative & Regulatory	Governor, Department Head	time, technical expert service	X			Public becomes aware of new rules & regs from E&A messages	E&A messages developed and publicized nationwide	
1-4d	DNRCs seek technical assistance to develop research and monitoring plan for KPAN and acquire full training to be able to carryout marine and terrestrial survey and monitoring requirements	Research & Monitoring	Department Head, Coordinator	time, logistical, transportation, lodging & dsa	X			R&M Plan is developed and DNRCs personnel are able to independently implement	R&M Plan is developed; personnel are trained	RECURRING
1-4e	Enforcement Standard Operational Procedures are in place to enable officers/rangers to carry out duties fully	Enforcement & Surveillance	Governor, Department Head, Coordinator	time, supplies & materials	X			SOP is produced and DNRCs personnel are implementing new procedures	SOP is developed; DNRCs personnel are oriented to new procedures	
1-5	By December 2013, official boundaries have been established for the KPAN sites and demarcated	Maintenance and On-the-Ground	Governor, Department Head, Coordinator, Rangers		X					
1-5a	A request to the Bureau of Lands & Survey and PALARIS is initiated and official boundaries for protected area sites are established	Maintenance and On-the-Ground	Governor, Department Head, Coordinator, Rangers	time, supplies & materials, logistics, transportation, lodgin, dsa	X			Official boundaries established	Request submitted to BLS; delineation exercise takes place	
1-5b	All protected area site boundaries are demarcated with markers that are clearly visible to the naked eye	Maintenance and On-the-Ground	Department Head, Coordinator, PA Rangers	time, supplies & materials, transportation, logistics, lodging, dsa	X			Markers installed	Official boundaries identified; markers installed	
1-6	By October 2013, the State has built a Law Enforcement and Surveillance Station at the Kayangel Port	Maintenance and On-the-Ground	Governor, Department Head, Coordinator		X					
1-6a	Hire an architect to design the Enforcement and Surveillance Station	Administrative & Regulatory	Governor, Department Head, Coordinator	time, design contract	X			Design of the ESS is completed	Design contractor sought & retained	

REF NO.	OBJECTIVE / ACTIVITY	GENERAL STRATEGY	LEAD	RESOURCES REQUIRED	Short Term	Med-Term	Long-Term	INDICATOR OF SUCCESS	HOW MEASURED	NOTES
1-6b	Hire a contractor to build the ESS	Maintenance and On-the-Ground	Governor, Department Head	time, building contractor	X			ESS is completed	Building contractor is sought and construction begins and completes for the ESS building	
2-1	By March 2013, the State or DNRCS has developed or caused to create management measures for Ngkesol including increase of fish population and fish monitoring	Administrative & Regulatory	Department Head, Coordinator	time, supplies & materials	X			Management control measures for Ngkesol are established	Appropriate measures identified and adopted into formal management actions reflected on MP	
2-1a	A baseline study and biological survey / assessment is conducted for Ngkesol Reef	Research & Monitoring	Coordinator, Conservation Officer, PA Ranger	time, supplies & materials, POL	X			Baseline survey conducted and reported	A survey request is submitted to PICRC; survey is scheduled	
2-1b	Fact sheets are made for Ngkesol Barrier Reef MPA including information on new prohibitions and allowable activities	Education & Outreach	Coordinator	time, supplies & materials, POL logistics		X		Fact sheets produced and distributed; people are aware	Design is produced, printing ordered, and distribution outlets identified	
2-2	By December 2014, the State or DNRCS has developed or caused to create a management plan or a set of regulations for all types of sebus (deepwater snappers) in state waters is in place to ensure sustainable stock through harvest control and other management measures	Administrative & Regulatory	Department Head, Coordinator	time, supplies & materials, online research		X		Deepwater fish regulations are in place and implemented	research is conducted and development of regulations begins	might need technical assistance
2-2a	Conduct fact-finding and research to decide on species of deepwater fish that will be recommended for management measures	Administrative & Regulatory	Coordinator	time, supplies & materials, online research	X			research results obtained and recommendations identified	access to research available (i.e. internet)	
2-2b	Determine appropriate and practical management actions that will work to ensure sustainability of stock and fair distribution between state and industry	Administrative & Regulatory	department head, coordinator	time, supplies & materials,	X			Proper management measures identified and submitted to Governor and adopted	consultation meeting with Governor with positive outcome takes place	
2-2c	Revisit Kayangel Commercial Fishing Law and make recommendations for areas of improvement	Administrative & Regulatory	Department Head, Coordinator	time, supplies & materials	X			Kayangel Commercial Fishing Law is updated and integrates Deepwater fishing regulations	Review and drafting of revision begins	
2-3	By January 2014, the State or DNRCS has developed or caused to create a management plan or a set of regulations to protect the bekai Micronesian Megapode and its habitat with serious consideration to the needs of land-owners in place or addressed	Administrative & Regulatory	Governor, Department Head, Coordinator	time, supplies & materials		X		Control measures to regulate development around habitat and other controls for harassment in place	Development of regulations begins	
2-3a	The state will conduct consultation with landowners to address the importance of Bekai and its habitat	Administrative & Regulatory	Governor, Department Head, Coordinator	time, supplies & materials	X			Landowners are agreeable and regulations are in place	A meeting with landowners takes place and outcome is positive	

REF NO.	OBJECTIVE / ACTIVITY	GENERAL STRATEGY	LEAD	RESOURCES REQUIRED	Short Term	Med-Term	Long-Term	INDICATOR OF SUCCESS	HOW MEASURED	NOTES
2-4	By January 2014, the State or DNRCS has developed or caused to create regulations to control size and call for seasonal harvests to ketat coconut crab for subsistence and commercial consumption	Administrative & Regulatory	Governor, Department Head, Coordinator	time, supplies & materials	X			regulations for ketat in place and implemented	Development of regulations begins	
2-4a	DNRCS coordinate and conduct a meeting to review published document on ketat and determine appropriate management measures to ensure sustainability of stock	Administrative & Regulatory	Department Head, Coordinator	time, supplies & materials	X			Meeting takes place and proper measures are identified	Meeting participants identified, meeting is scheduled and takes place	
2-4b	DNRCS develop recommended management actions to state leadership for legal protection and regulations	Administrative & Regulatory	Department Head, Coordinator	time, supplies & materials	X			Proper management measures identified	measures identified and recommendations submitted to Governor for approval	
2-5	By October 2014, the State or DNRCS has developed or caused to create control regulations for tree logging to maintain necessary number of trees for protection of the islands from strong winds and other climatic events; and to ensure sustainable logging stock to support local industries	Administrative & Regulatory	Department Head, Coordinator, Conservation Officers, Rangers	time, supplies & materials, POL			X	Logging Regulations in place and Green Belt established	Development of regulations begins	
2-5a	DNRCS research and issue recommendation to determine proper distance from high-tide watermark to inland to declare as "managed zone" for logging	Administrative & Regulatory	Department Head, Coordinator, Governor	time, supplies & materials, POL			X	Proper distance for managed zone identified and recommended	Proper distance is determined	
2-5b	Identify all trees / vegetation that should be off-limits from logging or clearing	Administrative & Regulatory	Coordinator, Conservation Officer, PA Ranger	time, supplies & materials, POL			X	Trees identified	Field assessment and survey conducted, consultation with EQPB and Forestry conducted	
2-5c	Identify appropriate areas for tree -planting deposits "green belt" and designate tree logging stock	Administrative & Regulatory	Department Head, Coordinator, Governor	time, supplies & materials, POL			X	Green belt designed and Tree logging stock identified	Field work is conducted to establish	
2-6	By October 2014, the state or DNRCS has developed or caused to create a study to address protection of Mesei in Kayangel to defend itself from sea level rise, saltwater intrusion, and identify ways to revive dying mesei in Kayangel is completed	Administrative & Regulatory	Department Head, Coordinator	times, supplies & materials			X	Mesei Defense Plan is in place and implemented by the women	Proper parties for consultation are identified, TA sought if necessary	
2-6a	Seek proper technical assistance to help carry out a study of Kayangel mesei taro patch	Administrative & Regulatory	Coordinator, Conservation Officer, PA Ranger	time, supplies & materials, TA			X	TA is sought	Issues to address are identified	
2-6b	NCRPT bring together Kayangel women to collect traditional management of mesei crops and other information that the state may use to help better defend mesei from saltwater intrusion, diseases and sustain taro patches	Administrative & Regulatory	Governor, Department Head, Coordinator	time, supplies & materials			X	Consultation meeting with women	Announcement for meeting is issued and meeting conducted	

REF NO.	OBJECTIVE / ACTIVITY	GENERAL STRATEGY	LEAD	RESOURCES REQUIRED	Short Term	Med-Term	Long-Term	INDICATOR OF SUCCESS	HOW MEASURED	NOTES
2-6c	After study and consultation with women, DNRCS develop recommended actions to leadership for formal management and begin implementation of Plan	Administrative & Regulatory	Governor, Department Head, Coordinator	time, supplies & materials			X	Recommendations to leadership submitted to Governor	Proper actions identified	
2-7	By October 2012, Kayangel is free of invasive rats and feral cats and dogs and has an effectively implemented biosecurity plan	Administrative & Regulatory	Governor, Department Head, Coordinator	time, supplies & materials	X			Kayangel is declared free of invasive rodents	Monitoring results show successful results	
2-7a	By January 2013, rats , feral cats, and dogs are successfully eradicated	Administrative & Regulatory	Coordinator	time, supplies & materials	X			Invasive rodents are no where to be seen or found in Kayangel	No reports from residents	
2-7b	A Biosecurity Plan is in place and is successfully implemented	Administrative & Regulatory	Coordinator, Conservation Officer, PA Ranger	time, supplies & materials	X			Public is adhering to new biosecurity measures	Residents are willing to check cargo at Kayangel port	
2-7c	By July 2013, an invasive species survey and assessment has been conducted in Kayangel to identify non-native and invasive plants and animals that should be eradicated	Research & Monitoring	Coordinator, Conservation Officer, PA Ranger	time, supplies & materials, TA	X			Survey is conducted	Request for TA submitted, Survey is scheduled	
2-8	By October 2014, DNRCS seeks assistance to develop a Vulnerable Species Protection Program and begin implementation	Administrative & Regulatory	Department Head, Coordinator, Conservation Officer	time, supplies & materials, TA			X	Vulnerable Species Protection Program established	Vulnerable species in Kayangel identified	
2-8a	A State index for Vulnerable Species is developed	Administrative & Regulatory	Department Head, Coordinator, Conservation Officer	time, supplies & materials			X	Index is produced	Identification process for vulnerable species takes place	
2-8b	Develop and implement a public outreach activity to promote protection of vulnerable species	Education & Outreach	Coordinator, Conservation Officer, PA Ranger	time, supplies & materials, POL			X	Education & Outreach messages and activities are implemented	E&A messages developed and publicized nationwide	
3-1	By October 2012, all sites traditionally known as sacred have been identified and formally designated for complete closure	Administrative & Regulatory	Governor	time, supplies & materials	X			Sites are legally protected	community is agreeable, land-owners support legal status	Chermall and Ngerusebek obtained legal protection on 30 March 2012
3-1a	DNRCS seek technical assistance to demarcate boundaries to aid effective enforcement	Maintenance and On-the-Ground	Governor, Department Head, Coordinator	time, supplies & materials, POL	X			Boundaries are demarcated	Signs and materials for demarcation sought	
3-1b	DNRCS seek technical assistance to train individuals allowed access to the site to conduct a baseline biological survey for Chermall and Ngerusebek	Administrative & Regulatory	Department Head, Coordinator, Conservation Officer	time, supplies & materials	X			TA is sought and baseline conducted	TA identified and request for training submitted	

REF NO.	OBJECTIVE / ACTIVITY	GENERAL STRATEGY	LEAD	RESOURCES REQUIRED	Short Term	Med-Term	Long-Term	INDICATOR OF SUCCESS	HOW MEASURED	NOTES
3-1c	DNRCS assist individuals with access to conduct a baseline biological survey of site	Research & Monitoring	Coordinator, Conservation Officer, PA Ranger	time, supplies & materials, POL	X			biological survey is conducted and results reported	Survey is scheduled and conducted	
4-1	By September 2016, the Kayangel Protected Areas Network magement (DNRCS) is fully functional and has successfully achieved at least 50% of the objectives stated under this first 5 year MP	Administrative & Regulatory	Department Head, Coordinator	time, supplies & materials			X	Over 50% of objectives successfully achieved	A management & evaluation is conducted	
4-1a	A management review and evaluation is conducted and results reported and submitted to stae leadership and DNRCS	Administrative & Regulatory	Deparatment Head, Governor, Coordinator	time, supplies & materials			X	Management & Evaluation is conducted	A request for TA to conduct M&E is submitted	
4-1b	DNRCS and Governor seek technical assistance to review and update KPAN Management Plan	Administrative & Regulatory	Governor, Department Head, Coordinator	time, supplies & materials, POL, TA			X	Review and update exercise takes place	TA idenfited and retained for services	
4-1c	A revised and updated KPAN Management Plan is endorsed by the community and formally adopted by state leaders	Administrative & Regulatory	Governor, Department Head, Coordinator	time, supplies & materials, POL			X	An updated management plan is produced	A public hearing on update and revision of MP is conducted	
4-2	By May 2013 a feasibility study for bird-watching industr is commissioned and next steps are determined	Administrative & Regulatory	Departement Head, Coordinator	time, supplies & materials, POL, TA	X			Feasibility Study is conducted	TA identified, study is scheduled	
4-2a	Seek technical assistance to conduct feasibly study for birdwatching tourism in Kayangel	Administrative & Regulatory	Department Head, Coordinator	time, supplies & materials	X			TA is identified	TA requested, study scheduled	
4-2b	seek technical assistance to formulate and produce a birdwatching development plan	Administrative & Regulatory	Department Head, Coordinator	time, supplies & materials	X			Birdwatching Development Plan produced	TA services retained, schedule for Plan identified	
4-3	By May 2013, a community coconut mill is fully operational with a business plan and at least one contracted buyer	Administrative & Regulatory	Governor, DH, Coordinator	time, supplies & materials	X			Coconut mill in full operations with an operational plan	Coconut mill is available for services to residents	
4-3a	Coconut mill is purchased	Maintenance and On-the-Ground	Governor, Department Head, Coordinator	time, supplies & materials	X			Mill is received in Kayangel	Mill is purchased	This task is nearly completed with assistance from PCS
4-3b	Coconut mill factory is built	Maintenance and On-the-Ground	Governor, Department Head, Coordinator	time, supplies & materials, construction materials	X			Mill is built and in full service	Construction materials are procured	This task is nearly completed with assistance from PCS

REF NO.	OBJECTIVE / ACTIVITY	GENERAL STRATEGY	LEAD	RESOURCES REQUIRED	Short Term	Med-Term	Long-Term	INDICATOR OF SUCCESS	HOW MEASURED	NOTES
4-3c	Coconut mill owners and operators are trained	Administrative & Regulatory	Governor, Department Head, Coordinator	time, supplies & materials, TA	X			Mill owners and operators are trained	TA to conduct training is identified and training is scheduled	
4-3d	Technical Assistance is sought to develop business plan for coconut mill operations	Administrative & Regulatory	Department Head, Coordinator	time, supplies & materials, TA	X			Business Plan is developed and implemented	TA identified and services retained	
4-4	By September 2013, Education & Awareness print materials about Kayangel and protected areas are produced for public dissemination	Education & Outreach	Coordinator	time, supplies & materials	X			E&A materials produced & disseminated	messages identified and materials are printed	
4-4a	A main signboard is designed and erected at the Kayangel Port area showing protected areas	Education & Outreach	Coordinator, Conservation Officer, PA Ranger	time, supplies & materials	X			Signboard completed and erected at Port	Signboard design completed; materials for installation are purchased	
4-4b	Public awareness outreach television and radio is broadcasted informing the public of the KPAN and its prohibitions and allowable activities	Education & Outreach	Coordinator, Department Head	time, supplies & materials, media outlet	X			Messages run on consistent schedule in broadcast media	Messages created	
4-4c	Develop a full public outreach and awareness plan on KPAN and begin implementation	Education & Outreach	Coordinator, Department Head	time, supplies & materials, printing & publication	X			Education & Outreach plan developed and implemented	Development process for E&A Plan begins	
5-1	By October 2014, the State or DNRCS has entered into formal agreement with Kayangel State Youth Association to act as a non-profit partner in seeking grant aid to support management of KPAN	Sustainable Financing	Department Head, Coordinator, Governor	time, supplies & materials		X		An agreement is entered into between State and KSYA	Meeting with KSYA is scheduled and takes place with positive outcome	
5-1a	consult with KSYA and draft an agreement for non-profit partnership with State	Sustainable Financing	Department Head, Coordinator	time, supplies & materials		X		Draft agreement is agreed to and signed	Consultation takes place	
5-2	By January 2014, the State or DNRCS seek technical assistance to develop a multi-year fundraising plan for the KPAN	Sustainable Financing	Department Head, Coordinator	time, supplies & materials		X		A Multi Year Fundraising Plan is developed	TA is sought and development of plan begins	

Kayangel State Government
Department of Natural Resource Conservation and Enforcement Services

POSITION DESCRIPTION

Title:	Department Head
Reports to:	Governor
Primary Station of Duty:	Kayangel State Office, Kayangel (75% of time)
Secondary Station of Duty:	Kayangel State Office, Koror (25% of time)
Salary:	\$21,000 to \$28,000 per annum
Classification:	Appointment and Contract
Upon Hire:	Resolution authority no. _____ ; Contract No. _____

Purpose

The Department Head is principle liaison between the community, traditional leaders, and state government whose primary role is to facilitate and obtain consensus between the various stakeholders to advance the goals of the Kayangel Protected Ares Network Management Plan.

Duties & Responsibilities

The primary duties of the Department Head position is to provide executive direction and management of the KPAN; lead institutional building effort of the Department; and serve as a primary representative of the Department in a conscientious manner and consensus with the Governor.

The role and responsibilities of the Department Head position are as follows, but not limited to:

- Provide general oversight and management of all programs through implementation and review of the management plan, annual work plans and budgets in consultation with the Governor and the Conservation Coordinator.
 - Oversee daily operations.
 - Manage organizational properties, assets and financial resources.
 - Direct complex projects from concept to fully operational status, while ensuring program accountability to the state and legal compliance.
 - Assess and build teamwork, flexibility, adaptability, coordinating skills and common values and goals of staff as team leader.
 - Supervise, direct and evaluate staff performance.
 - Develop and implement institutional building plan, sustainable financing plan, enforcement and surveillance plan, and capacity building plan.
- Promote the KPAN Management Plan and its vision.
 - Establish, build and maintain functional relationship with key stakeholders, organizations, donors, members, communities and partners at the local, regional and international level.
 - Communicate regularly with the community and partner agencies to address ongoing strategies and concerns.

- Ensures adequate reports to the Palau Protected Areas Network and the PAN Fund Board
 - Report regularly to the Governor
 - Other duties assigned by the Governor
-

Required Knowledge & Skills

- Apply decision-making and problem solving skills to lead and guide organization to achieve its goals and objectives.
 - Apply organizational skills and time management by meeting deadlines with quality product.
 - Apply team building strategies, i.e., inspire, motivate, resolve conflicts, build a shared vision, etc.
 - Apply interpersonal, communications and negotiation skills.
 - Apply fundraising strategies and methods.
 - Ability to facilitate, develop and implement strategic conservation planning and policy.
 - Apply knowledge of politics and society in the context of conservation.
 - Possess leadership and visionary qualities.
 - Possess cultural understanding and values of Kayangel and Palau.
 - Strong enforcer of law and respects the rule of law both traditional and statutory
-

Basic Qualifications

- 5 years administrative experience as a senior manager in business management or organizational administration.
 - Experience in managing and coordinating complex, multiple projects, and multi-faceted projects that include partners, community and other stakeholders.
 - Experience in implementing strategic plans
 - Strong knowledge of legal processes and law enforcement
 - Some technical background in conservation and natural resource management field.
-

Preferred Qualifications

- BA/BS degree in Business Administration, Business Management, Financial Management, Natural Resource Management, or related fields.
 - 5 years administrative experience as a senior manager in business management or organizational administration.
 - Experience in managing and coordinating complex, multiple projects, and multi-faceted projects that include partners, community and other stakeholders.
 - Strong technical background in conservation and natural resource management field.
-

Working Conditions

- Challenging Governor, leadership and staff with high expectations
 - Twenty four hours duty
 - Outdoor and field activities
 - Some travel
-

Direct Reports

- Conservation Coordinator
 - Conservation Officer
 - Protected Area Rangers
 - All other department staff
-

Approved by:	
Date approved:	
Date reviewed:	

This job description will be reviewed annually and updated as often as necessary.

Kayangel State Government
Department of Natural Resource Conservation and Enforcement Services

POSITION DESCRIPTION

Title:	Protected Areas Coordinator (conservation coordinator)
Reports to:	Department Head
Primary Station of Duty:	Kayangel State Office, Kayangel (25% of time)
Secondary Station of Duty:	Kayangel State Office, Koror (75% of time)
Salary:	\$17,000 to \$23,000 per annum
Classification:	Full time Civic Employee
Upon Hire:	Personnel Action

Purpose

The Protected Area Coordinator's primary responsibility is to implement the protected area management plan and protected area regulations fully. Coordinate cooperative work and technical assistance with partners and supervise protected area staff. The PAC will also be responsible for developing annual work-plans, budgets, initiates review and revision process when deemed necessary or as scheduled in the management plan. The PAC is also responsible for developing all required reports including financial and performance and submits such reports to the Department Head in a timely manner.

An ideal candidate would have a strong interest in environmental issues and resource management and willing to spend considerable time on the job. The position requires a strong link to the community, familiarity with traditional and state government protocols, and the capacity to participate in physically demanding fieldwork. The position reports to the Department Head.

Role: *Coordinator and Implementer role: Ensure that all regulations are enforced and all management actions occur according to schedule. Work closely with the Department Head to coordinate management activities, review the Plan, and oversee all associated staff.*

Duties & Responsibilities

- Coordinate and implement activities
- Follow up with leadership on administrative actions, including development of permit system
- Coordinate development of educational materials and programs
- Supervise and coordinate printing and distribution of educational materials, signs, etc.
- Coordinate and participate in community meetings, cleanups, restorations, etc.
- Draft additional necessary plans and forward to Board for review (e.g. Communications Plan, Invasive species plan, etc.)

- Jointly develop daily surveillance plans
- Hear daily reports from Conservation Officers on enforcement issues
- Supervise and coordinate monitoring activities and baseline studies
- Collect and analyze monitoring data and suggest changes to Management Plan as necessary
- Develop annual work plans and budgets
- Initiate expenditure requests based on activities

Minimum Required Knowledge & Skills

- AA / AS Degree 2 years college
- At least 3 - 5 years work experience in related field or administration and management
- Strong ability to work as part of a multi-sectoral team
- Fluency in English and Palauan
- Computer literate—Microsoft Word, Internet Explorer, Outlook, and Excel

Basic Qualifications

- Experience in implementing strategic work plans
- Strong knowledge of legal processes and law enforcement
- Strong technical background in conservation and natural resource management field.

Working Conditions

- Challenging Department Head, Governor and staff with high expectations
- Planning, writing, designing, meeting, coordination, correspondences, research, facilitate
- Outdoor and field activities
- Some travel

Approved by:	
Date approved:	
Date reviewed:	

This job description will be reviewed annually and updated as often as necessary.

Kayangel State Government
Department of Natural Resource Conservation and Enforcement Services

POSITION DESCRIPTION

Title:	Conservation Officer
Reports to:	Department Head
Primary Station of Duty:	Kayangel State Office, Kayangel (75%)
Secondary Station of Duty:	Kayangel State Office, Koror (25% of time)
Salary:	\$12,000 - \$18,000 per annum (+Hazardous / Night Differential)
Classification:	Full time Civic Employee
Upon Hire:	Personnel Action

Purpose

The primary purpose of the Conservation Officer is to carry out activities under Research and Monitoring and On-the-Ground Activities; secondary purpose is to serve as proxy to the Protected Area Rangers whenever there is absence.

Role: chief implementer of Research and Monitoring activities, and On-the-Ground activities. Assists PA Rangers in completing citations to meet legal requirements and proxy to surveillance and patrol when there is absence.

Duties & Responsibilities

- Carry out research and monitoring activities;
- Carr out On-the-Ground activities (buoys, mapping, boundaries, signs, etc)
- Data collection and entry;
- To enforce all Kayangel State laws and special assignments dispensed by the Department Head;
- To comply with all special assignments, protect all citizens, conduct routine monitoring, and guard Kayangel State Government properties;
- To respond to non-compliance within the Kayangel Protected Areas Network by utilizing patrol intercepts, warnings, citations, prosecutions, and community service projects;
- To work with the Conservation Officer, PA Coordinator, and Department Head to ensure KPAN Management Plan goals and objectives are met.
- To work with the National Division of Fish and Wildlife, Division of Marine Law Enforcement in enforcement response.

Minimum Required Knowledge & Skills

- AA/AS in science or related field
- Deputized Law Enforcement Officer (National Police Academy)
- At least 1 – 2 years work experience in related field
- Strong ability to work as part of a multi-sectoral team
- Fluency in English and Palauan
- Computer literate—Microsoft Word, Internet Explorer, Outlook, and Excel

Basic Qualifications

- Strong science or related field background
- Strong knowledge of legal processes and law enforcement
- Strong commitment to the rule of law both traditional and statutory
- Licensed boat and vehicle boat operator

Working Conditions

- Field / outdoor surveillance, patrol and pursuit
- All weather conditions apply
- Exposure to safety risks
- Required to undergo Marine and Terrestrial Measures Training
- Required to undergo National Police Academy, Open-water SCUBA Certification, Basic CPR
- Some travel

Approved by:	
Date approved:	
Date reviewed:	

This job description will be reviewed annually and updated as often as necessary.

Kayangel State Government
Department of Natural Resource Conservation and Enforcement Services

POSITION DESCRIPTION

Title:	Protected Area Ranger (combines terrestrial and marine)
Reports to:	Department Head
Primary Station of Duty:	Kayangel State Office, Kayangel (75%)
Secondary Station of Duty:	Kayangel State Office, Koror (25% of time)
Salary:	\$9,000 to \$16,000 per annum (+Hazardous / Night Differential)
Classification:	Full time Civic Employee
Upon Hire:	Personnel Action

Purpose

The primary purpose of the Protected Area Ranger is law enforcement, surveillance, and 24 hour patrol of the Kayangel Protected Areas Network.

Role: To act under the command of the Department Head and utilize all of the authority and responsibility of the Department Head when acting.

Duties & Responsibilities

- To enforce all Kayangel State laws and special assignments dispensed by the Department Head;
- To comply with all special assignments, protect all citizens, conduct routine monitoring, and guard Kayangel State Government properties;
- To respond to non-compliance within the Kayangel Protected Areas Network by utilizing patrol intercepts, warnings, citations, prosecutions, and community service projects;
- To work with the Conservation Officer, PA Coordinator, and Department Head to ensure KPAN Management Plan goals and objectives are met.
- To work with the National Division of Fish and Wildlife, Division of Marine Law Enforcement in enforcement response.

Minimum Required Knowledge & Skills

- High School Graduate
- Deputized Law Enforcement Officer (National Police Academy, will undergo upon hire)
- At least 1 – 2 years work experience in related field
- Strong ability to work as part of a multi-sectoral team
- Fluency in English and Palauan

Basic Qualifications

- Strong knowledge of legal processes and law enforcement
- Strong commitment to the rule of law both traditional and statutory
- Licensed boat and vehicle operator

Working Conditions

- Field / outdoor surveillance, patrol and pursuit
- All weather conditions apply
- Exposure to safety risks
- Required to undergo National Police Academy, Open-water SCUBA Certification, Basic CPR
- Some travel

Approved by:	
Date approved:	
Date reviewed:	

This job description will be reviewed annually and updated as often as necessary.
